ILLINOIS RIVER BASIN RESTORATION COMPREHENSIVE PLAN WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

US Army Corps of Engineers®
Rock Island District
St. Louis District
Chicago District
Detroit District

APPENDICES
PUBLIC REVIEW DRAFT
FEBRUARY 2006

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

ILLINOIS RIVER BASIN RESTORATION
COMPREHENSIVE PLAN
WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX A

CORRESPONDENCE

ILLINOIS RIVER BASIN RESTORATION
COMPREHENSIVE PLAN
WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX A
CORRESPONDENCE

CONTENTS

Newsletters

News Releases

Historic Properties Correspondence and Executed Programmatic Agreement

Note: Correspondence related to the National Environmental Policy Act, the U.S. Fish and Wildlife Service Coordination Act, and the Endangered Species Act is included in the Main Report, Section VII, *Summary of Coordination, Public Views, and Comments.*

SPORTSMAN'S LETTER

ED MULLADY, EDITOR
726 S. ELM KANKAKEE IL 60901
PHONE/FAX: 815 932 7285
e-mail: SPORTSMANLETTER @ aol.com
Website:http://communities.msn.com/sportsmansletter

COMMENTS ON THE ILLINOIS RIVER ECOSYSTEM RESTORATION FEASIBILITY STUDY ON DEC. 3, 2003

I would like to mention that after many years of my insisting and proposing that any clean up of river sediment of our Kankakee River needs to begin where the river begins others are finally agreeing this is necessary and should be the beginning of correcting any sedimentation program. This would mean from the tributaries, the ditches and creeks flowing into the main stem of the river.

I hear this being mentioned, but I also hear and read that two of the Kankakee River's Key Areas to be worked upon are:

1)Aquatic ecosystem restoration at the IN-IL State Line(That is approximately 80 miles from the start of the Kankakee near South Bend, IN).

2)Remove Sediment from the so-called 6 mile pool above the Kankakee Dam which is over 100 miles from the river's beginning.

Dredging and Channelization here at the IL-IN State Line and in the 6 mile pool will mean a waste of taxpayers monies as these locations will soon fill back up and the process will start over.

As dredging followed by fill up followed by dredging would take place to maintain certain depths, the present ecosystem would not survive, nor could it restore itself with the constant change of the streams biological inventory.

To remove sediment and sand first half way down the river (or further downstream in the Illinois River) before controlling the upstream source is just wasting tax money to please political groups. Along this line I understand money for next year(around 1.5 million)is earmarked for Peoria and Pekin Lake. I realize there is a sedimentation problem at these locations, but to me, removal or digging of holes to trap sand is not going to be the answer until the upstream tributaries of the Kankakee are controlled.

Also included as key areas under the IL River Ecosystem Restoration Feasibility Study(Kankakee River) are:

1)Stop stream bed and bank erosion in Indiana

ED MULLADY'S COMMENTS ON THE IL RIVER ECOSYSTEM RESTORATION FEASIBILITY STUDY........Dec. 3, 2003 Page Two

2)Restore natural conditions of the river in Indiana.

Of course , cooperation will be needed from Indiana to reduce sediment and sand from filling up the Kankakee in Indiana, Illinois and finally the Illinois River.

I know that in Indiana several proposals have been made by different groups. There is a "Yellow River" study progressing now.

The North American Waterfowl Management Plan for northwest Indiana has obtained much Kankakee River basin land and are working for more.

The "Sands" Area that Nature Consevancy is restoring should fit into the sediment stoppage program.

I request that the Corps, the IN and IL DNR work with the U.S. Fish & Wildlife Service to help establish the Grand Kankakee Marsh Fish & Wildlife Refuge. In your Study, please contact the USFW Service and go over the info they have in their Grand Kankakee Marsh Refuge Comprehensive Conservation Plan that is to be finished next year.

In over 70 years of watching and living the Kankakee River, the Grand Kankakee Marsh Refuge is the only government plan I have ever seen that would do something ***FOR*** the river, not ***TO*** the river.

Sincerely,

Ed Mullady,

Editor, Sportsman's Letter

UPPER MISSISSIPPI, ILLINOIS & MISSOURI RIVERS ASSOCIATION

December 18, 2003

Mr. Brad Thompson
District Engineer
US Army Engineer District, Rock Island
ATTN: CEMVR-PM-M (Thompson)
Clock Tower Building – PO Box 2004
Rock Island, IL 61204-2004

Dear Mr. Thompson:

Thank you for taking time to present your overview of the Illinois River Ecosystem Restoration Feasibility Study that the Corps is now undertaking in cooperation with the State of Illinois. Our members appreciated hearing directly from you about this project.

After carefully listening to your presentation, we are offering the following comments that we encourage you to consider as you move forward.

UMIMRA believes that no land should be condemned under any of the proposed restoration project alternatives. You stated in your presentation that only willing landowners would be included in the restoration and we strongly support that aspect of the plan.

We also believe it is vitally important that navigation channels be maintained. We understand from your presentation that it is the Corps' intention that this project will have no impact on the navigation system. We would encourage you to include representatives of those interests on your Regional Teams so that economic factors can be factored in as this project moves forward.

Additionally, your report outlined concerns with the variable water levels occurring in the Illinois River. We would suggest that you review the impact of water diversion practices from the Lake Michigan watershed which may or may not be of significant impact.

We would also encourage the Corps to do whatever it can to insure that this project is coordinated with other ongoing and related projects such as the Comprehensive Plan and the navigation study. You mentioned in your comments that the scope of this study is limited to an evaluation of ecosystem restoration. Of course, those issues do not exist in a vacuum and we believe that they must be evaluated in concert with flood control, agricultural and navigation issues.

Finally, we are concerned that the Corps is unaware of habitat or the environmentally friendly use of such habitat that already exists within the proposed restoration area. From UMIMRA's perspective, it is important to keep in mind that farmland is also habitat and should be considered as such in your plan.

We appreciate this opportunity to provide input and look forward to working with you as the Ecosystem Restoration project moves forward. Again, thank you for taking the time to meet with us.

Sincerely,

Dave McMurray (KA)

David McMurray
Chairman

Protecting Our Water Environment

Metropolitan Water Reclamation District of Greater Chicago
100 EAST ERIE STREET CHICAGO, ILLINOIS 60611-3154 312·751·5600

John C. Farnan, P.E.
General Superintendent

312·751·7900 FAX 312·751·5681

January 21, 2004

Mr. Bradley Thompson, District Engineer
U.S. Army Engineer District, Rock Island
ATTN: CEMVR-PM-M (Thompson)
Clock Tower Building – P.O. Box 2004
Rock Island, IL 61204-2004

Dear Mr. Thompson:

Subject: Illinois River Ecosystem Restoration Feasibility Study

This is in response to the subject project newsletter dated November 2003 and to the public meeting held on December 4, 2003 in Lisle, Illinois. We wish to congratulate the U.S. Army Corps of Engineers (Corps) in undertaking this project approach to address problems with the Illinois River ecosystem.

We agree that sediment delivery is a serious problem and should primarily be addressed by tributary channel stabilization and upland land management practices. To a limited extent, improved management of backwater lakes and restored riverine wetlands along the main stem of the Illinois River may assist in the removal of suspended sediment.

The degraded condition of backwater lakes connected to the main stem of the Illinois River should be addressed by isolating these lakes from the influence of the river. The relatively constant level of the navigation pools deprives these lakes with the needed pulse of high and low water levels in a natural river. Converting each of these lakes into a carefully managed lake/wetland ecosystem that is disconnected from the river will serve multiple benefits and restore the ecological health of these lakes.

Fish passage connectivity, although laudable, does have a downside. An example is the currant concern for upstream migration of the Asian carp. Two species of Asian carp. Bighead and Silver, have demonstrated the ability to migrate upstream into the Dresden Island pool without connectivity being available. However, it is believed that the higher head dams and locks at Brandon Road and Lockport will serve to retard, if not completely stop, the upstream migration of these two species to Lake Michigan. If they invade the Great Lakes, it is believed that considerable harm will result. Therefore, it is recommended that connectivity projects be planned and designed to minimize the passage of invasive animal and plant species.

We do not believe that efforts to include more of a natural water level pulse through manipulation of the navigation pools will be sufficient in magnitude to demonstrate much ecosystem benefit. We would rather see this management technique applied via the restoration of riverine wetlands where the water levels can be better managed to follow a natural pulse absent the demands of navigation for adequate navigable depths throughout the year.

Water quality in the Illinois River has seen significant improvement in the past three decades, primarily through improved wastewater treatment brought about through the NPDES permit system and the federal construction grants program and the state revolving loan program. Tributary sediment control and the restoration of wetlands on the tributaries and main stem will contribute further improvement in the long term.

Perhaps the opportunities are limited for significant ecosystem restoration in the urban area of northeast Illinois. However, we invite the Corps to pay special attention to the potential for small-scale projects in this area. The exposure of these projects to the large urban population will have significant public education and public support benefits to the work in other parts of the Illinois River Basin.

Please direct all concerns to Mr. Richard Lanyon, Director of Research and Development at (312)751-5190.

Very truly yours,

John C. Farnan
General Superintendent

RL:dl

OFFICE OF THE GOVERNOR
207 STATE CAPITOL, SPRINGFIELD, ILLINOIS 62706

ROD BLAGOJEVICH
GOVERNOR

June 30, 2004

Colonel Duane G. Gapinski
U.S. Army Engineer District, Rock Island
Clock Tower Building
P.O. Box 2004
Rock Island, Illinois 61204-2004

Re: LETTER OF INTENT - Illinois River Basin Restoration Feasibility and Comprehensive Plan & Critical Restoration Projects

The State of Illinois has long been involved with the US Army Corps of Engineers (USACE) as the non-federal sponsor of the Illinois River Basin Restoration Feasibility Study and the Illinois River Ecosystem Restoration Study. We are pleased to extend full support for Alternative 6 and recommendations set forth in the Executive Summary of the Feasibility Report and Comprehensive Plan. The State understands that the restoration efforts will be accomplished through critical projects developed by Regional Teams made up of a wide range of stakeholders. These projects are funds-matched; 65% Federal, 35% non-Federal dollars. As with the Federal contributions, the State of Illinois' commitment to funding each year of the planned project costs will be dependent upon annual appropriations from the Illinois General Assembly.

This letter also confirms that the State of Illinois has the legal authority to enter into Project Cooperation Agreements (PCAs) for the implementation of critical restoration projects and to fulfill all financial obligations for completion of those projects. Currently there are three critical restoration projects that are ready to have PCAs developed and signed: Peoria Islands, Pekin Lake North, and Pekin Lake South. The State wishes to sign PCAs for these projects this fall and has appropriated the dollars, committing resources to begin implementation of these projects this calendar year.

The Illinois River Basin Restoration is important to the vitality of the Illinois environment and economy. This effort is a priority for the State of Illinois, and we look forward to cooperating with USACE in this successful State-Federal partnership.

Sincerely,

Julie A. Curry
Deputy Chief of Staff
Labor and Economy

Kankakee River Basin Commission
KRBC
6100 Southport Road Portage, Indiana 46368
(219) 763-0696
Fax (219) 762-1653

September 10, 2004

Col. Duane P. Gapinski, District Engineer
U.S. Army Corps of Engineers, Rock Island District
Clock Tower Building
P.O. Box 2004
Rock Island, Illinois 61204-2004

Dear Colonel Gapinski:

The Kankakee River Basin Commission (KRBC) was created by the Indiana General Assembly in 1977 to coordinate water resource management in the Kankakee Basin in Indiana. The Commission is a 24 member board consisting of an appointed representative of the County Commissioners, a supervisor of the County Soil and Water Conservation District Board, and the County Surveyor or his employed designee from each of the eight main counties in the basin (Jasper, Lake, LaPorte, Marshall, Newton, Porter, St. Joseph and Starke Counties).

We have received information and a briefing about the Illinois River Basin Restoration project and want to express our interest in potential partnerships along the Kankakee and Yellow Rivers in Indiana with the U.S. Army Corps of Engineers in planning, designing, and constructing restoration projects under Section 519 of the Water Resources Development Act of 2000.

Our immediate priority is the Yellow River in Indiana where there is a tremendous sand sediment problem. In fact, much of the sand found in the Kankakee River comes from the Yellow River. The sand sediment in the Yellow River is now about 7 to 9 feet deep and is continuing to accumulate. Large cottonwoods and other trees grow on islands within the river channel. Logjams and large sand islands impede the normal flow of water. The elevation of the Yellow River bottom is above most of the surrounding 10,000 acres of private farm land and above the elevation of the 1500 acre wetlands located between the Yellow River and the Kankakee River. The possibility of flooding in the English Lake Basin increases each year as more sediment is deposited in the Yellow River bottom. The levees that were constructed to control the flood waters are slowly losing their effectiveness because of the increased sediment load of the river. The sand in the Yellow River pours into the famed 1500 acre Kankakee Fish and Wildlife Area wetland during flood periods and during fall flooding for the waterfowl season. Each year the Indiana Department of Natural Resources, Division of Fish and Wildlife spends about $25,000 to clean the accumulating sand from the Yellow River water intake culvert prior to flooding for the waterfowl season. The need for some immediate action to remove some sediment and the need for a long term plan that provides some permanent solution to the sedimentation problem is crucial.

We understand that, if a feasible project were identified and constructed, the non-federal sponsor's responsibility would be to provide 35 percent of the total restoration costs including feasibility study, all lands needed, and future operation and maintenance.

We look forward to a working relationship through the Illinois River Basin restoration initiative. If you have additional question, please contact Mr. Jody Melton, Director.

Sincerely,

Jody Melton

for Brad Lawrence
Chairman

cc: John Goss, Director, Indiana DNR

Joseph E. Kernan, Governor
John R. Goss, Director

DNR Indiana Department of Natural Resources

402 W. Washington W256
Indianapolis, IN 46204

September 16, 2004

Col. Duane P. Gapinski, District Engineer
U.S. Army Corps of Engineers, Rock Island District
Clock Tower Building
P.O. Box 2004
Rock Island, Illinois 61204-2004

Dear Col. Gapinski,

The Indiana Department of Natural Resources (IDNR) was asked to express our interest in participating in the Illinois River Basin Restoration Plan, a proposed effort by the Illinois Department of Natural Resources and the Corps of Engineers. As you know the Restoration Plan would be a final response to a Comprehensive Plan prepared under the authority of the Water Resources Development Act 2000, and to the Illinois River Ecosystem Restoration Feasibility Study. This proposed plan encompasses the entire Illinois River Basin, its backwaters, side channels, and all tributaries including their watersheds. In Indiana, approximately 3,200 square miles of the Kankakee and Iroquois Rivers watersheds would be included. It is our understanding that Indiana can be involved in restoration activities under this Congressional Authority with a 65/35 cost share.

The Indiana Department of Natural Resources (IDNR) has participated as a non-federal sponsor with the U.S. Army Corps of Engineers on various projects throughout the state. The IDNR supports and encourages projects, which restore the ecological function and diversity of habitats to our rivers. The IDNR would like to offer our staff and resources to participate as a full partner by initiating projects within our portion of the Illinois River Basin. Indiana, like many states, is experiencing a very tight budget. Therefore, funding for these projects may take a little time and creativity. The fact that the value of the land can be credited to the federal matching dollars and there is no major land acquisition necessary makes this restoration plan very attractive.

Your staff along with the Illinois Department of Natural Resources and Illinois State Water Survey should be commended for their work on the informative presentation given on August 25, 2004, regarding the Illinois River Basin Restoration. We will be contacting our congressional representatives to gain further support for an increase in funding.

Sincerely,

John R. Goss

John Goss
Director
Indiana Department of Natural Resources

cc: Illinois DNR
Kankakee River Basin Commission

US Army Corps of Engineers
Rock Island District

ILLINOIS RIVER ECOSYSTEM RESTORATION FEASIBILITY STUDY NEWSLETTER

Notice of Study Initiation and Public Open Houses

November 2000

CORPS OF ENGINEERS & DEPARTMENT OF NATURAL RESOURCES COST-SHARING SIGNING CEREMONY PLANNED

The U.S. Army Corps of Engineers, Rock Island District, and the Illinois Department of Natural Resources entered into a feasibility study cost-sharing agreement in August 2000 and became "partners" in a combined effort to identify opportunities to implement ecosystem restoration and to evaluate recommendations made in the State of Illinois' *Integrated Management Plan for the Illinois River Watershed* and determine if there is a Federal interest (environmental benefits exceeding costs) in their implementation.

The public is invited to attend a 9 a.m. ceremony on November 29, 2000, as Colonel William J. Bayles, Rock Island District Commander, and Mr. Brent Manning, Illinois Department of Natural Resources Director, formally initiate the study and their agencies' partnership throughout the feasibility study. The ceremony is sponsored by Congressman Ray LaHood, who has provided Congressional support for the study and has a strong interest in Illinois River Basin restoration. The ceremony will be held at the Gateway Center, 200 North East Water Street, Peoria, Illinois. The study is scheduled for completion in 2004.

OPEN HOUSE TO FOLLOW

Seven public open houses will be held throughout the study area. The purpose of the open houses is to provide the public the opportunity to learn about the Illinois River Ecosystem Restoration Study by visiting numerous study displays and to exchange information with study team members.

The first open house will be held at the Gateway Center after the Federal and State signing ceremony. Representatives from the Corps of Engineers and the Department of Natural Resources, as well as other participating Federal and State agencies, will be available *at any time* from 9:30 a.m. to noon and 4 p.m. to 7 p.m. to meet with the public to discuss on a one-to-one basis information on the range of alternatives for restoring the environment in the Illinois River watershed and to gather comments on the alternatives and problems in the area.

Several displays will be available to explain the Illinois River Ecosystem Restoration Study. All interested members of the public are encouraged to attend the open house, visit the displays, talk to agency representatives, and provide comments. The comments received at this open house will be considered during the study and will be part of the official NEPA scoping process.

Open houses also will be held in Bloomington, Kankakee, Yorkville, Utica, Macomb, and Grafton. Please see page 3 of this announcement for more information.

US Army Corps of Engineers
Rock Island District

ILLINOIS RIVER ECOSYSTEM RESTORATION FEASIBILITY STUDY SUPPLEMENTAL NEWSLETTER

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Remaining Three Public Open Houses Rescheduled

January 2001

Corps & DNR Formally Initiate Study

On November 29, 2000, Colonel William J. Bayles, Rock Island District, Corps of Engineers, Commander, and Mr. Brent Manning, Illinois Department of Natural Resources Director, formally initiated the Illinois River Ecosystem Restoration feasibility study in a cost-sharing signing ceremony. Congressman Ray LaHood sponsored and attended the event. This ceremony confirmed the agencies' commitment as "partners" to identify opportunities to implement ecosystem restoration and to evaluate recommendations made in the State of Illinois' *Integrated Management Plan for the Illinois River Watershed* and determine if there is a Federal interest (environmental benefits exceeding costs) in their implementation.

The first in a series of seven public open houses followed the signing ceremony. Six additional open houses were planned to be held throughout the study area during the month of December. Open houses were held in Bloomington, IL, on December 4, Kankakee, IL, on December 5, and Yorkville, IL, on December 6. The last three open houses were cancelled due to inclement weather.

** Open Houses Rescheduled **

The cancelled open houses have now been rescheduled. The public is invited to attend an open house *at any time* between the hours of 3:30 p.m. and 7:30 p.m. at one of the following locations:

Tuesday, February 20
Pere Marquette State Park
Grand Ballroom
Route 100, Great River Road
Grafton, IL

Monday, February 26
Starved Rock Lodge & Conference Center
Starved Rock State Park
Route 178 & Route 71
Utica, IL

Tuesday, February 27
Western Illinois University
Lamoine Room in University Union
Murray Street
Macomb, IL

(NOTE: Because of construction, the University recommends that visitors enter the campus by taking University Drive to Western Avenue. Lot 17 (south of the library) is recommended for parking.)

The purpose of the open houses is to provide the public with the opportunity to learn about the Illinois River Ecosystem Restoration Study. Study team members will be available to meet with the public to discuss on a one-to-one basis information on the range of alternatives for restoring the environment in the Illinois River watershed and to gather comments on the alternatives and problems in the area.

Several displays will be set up to explain the Illinois River Ecosystem Restoration Study. All interested members of the public are encouraged to attend an open house, visit the displays, talk to agency representatives, and provide comments. The comments received at this open house will be considered during the study and will be part of the official NEPA scoping process.

If you know of someone who may have an interest in this study and who did not receive this announcement, please encourage him/her to attend an open house. (Also, please see the "Study's Mailing List Continues to Grow" paragraph on the reverse side of this sheet.)

US Army Corps of Engineers
Rock Island District

ILLINOIS RIVER ECOSYSTEM RESTORATION FEASIBILITY STUDY NEWSLETTER

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

November 2003

Corps of Engineers & Department of Natural Resources Schedule Public Meetings

The public is invited to attend one of a series of public meetings in December to learn about the goals and alternatives being considered to restore the ecosystem in the Illinois River Basin. See page 6 for public meeting details.

This newsletter is the second newsletter for the Illinois River Ecosystem Restoration Feasibility Study. The purpose of this newsletter is to report on the efforts and findings of the study team during the last three years and to invite the public to attend a December public meeting.

Study Background

The U.S. Army Corps of Engineers, Rock Island District, and the Illinois Department of Natural Resources entered into a feasibility study cost-sharing agreement in August 2000 and became "partners" in a combined effort to identify opportunities to implement ecosystem restoration and to evaluate recommendations made in the State of Illinois' *Integrated Management Plan for the Illinois River Watershed* and determine if there is a Federal interest (environmental benefits exceeding costs) in their implementation. This effort has since been expanded as specified in the Illinois River Basin Restoration authority provided in Section 519 of the Water Resources Development Act (WRDA) 2000.

Additional information on the Illinois River efforts can be found on the Rock Island District webpage at: http://www.mvr.usace.army.mil/ILRiverEco/default.htm

Study Team Develops Vision and Milestones for Restoration

The Illinois River Basin has experienced the loss of ecological integrity due to sedimentation of backwaters and side channels, degradation of tributary streams, increased water level fluctuations, reduction of floodplain and tributary connectivity, and other adverse impacts caused by human activities. A restoration vision was developed for the Illinois River in 1997 as part of the development of the State of Illinois' *Integrated Management Plan for the Illinois River Watershed*. The vision is for:

> *A naturally diverse and productive Illinois River Basin that is sustainable by natural ecological processes and managed to provide for compatible social and economic activities.*

This vision for the Illinois River Basin has been accepted by the Federal, State, and local stakeholders involved in the development of the Illinois River Ecosystem Restoration and Illinois River Basin Restoration programs. With the *Integrated Management Plan* providing context, the following list of Illinois River Basin system-wide ecosystem restoration goals were developed during the Illinois River Ecosystem Restoration Study (not listed in priority order, except for the first goal):

1. Maintain and restore biodiversity and sustainable populations of native species;
2. Reduce sediment delivery to the Illinois River from upland areas and tributary channels with the aim of eliminating excessive sediment load;
3. Restore aquatic habitat diversity of side channels and backwaters, including Peoria Lakes, to provide adequate volume and depth for sustaining native fish and wildlife communities;
4. Improve floodplain, riparian, and aquatic habitats and functions;
5. Restore and maintain longitudinal connectivity (fish passage at dams) on the Illinois River and its tributaries, where appropriate, to restore or maintain healthy populations of native species;
6. Naturalize Illinois River and tributary hydrologic regimes to reduce the incidence of water level conditions that degrade aquatic and riparian habitat; and
7. Improve water and sediment quality in the Illinois River and its watershed.

Study Team Looks at Various Alternatives

The study team has developed various draft alternatives which will address the loss of fish and wildlife habitat.

Developing system alternatives started by considering the measures available (e.g., bed and bank stabilization, backwater dredging, wetland creation, etc.) to address the problems and objectives developed under each goal category. For each of the measures, the relative cost and system benefits were identified.

News Release

US ARMY CORPS OF ENGINEERS Rock Island District	00-11-45 **Release No.** Immediate **For Release**	**Public Affairs Office** **Justine Dodge** **(309) 794-5204**

ILLINOIS CONGRESSMAN RAY LAHOOD HOSTS ILLINOIS RIVER ECOSYSTEM RESTORATION SIGNING

ROCK ISLAND, ILL. -

Congressman Ray LaHood, Peoria, Ill., kicks off the development of an environmental blueprint for the Illinois River when he hosts a signing ceremony, which officially joins the forces of the U.S. Army Corps of Engineers and the Illinois Department of Natural Resources to create the action plan needed to battle environmental degradation of the Illinois River.

The ceremony is being held at the Gateway Building, Peoria, Ill., at 9 a.m., Nov. 29. The signing will officially begin the cost-shared feasibility study phase of the Illinois River Ecosystem Restoration Feasibility Study.

"Initiatives such as this one could very well be more important to future generations than to even our own. A healthy, sustainable Illinois River ecosystem is a legacy we owe our children and our children's children," said Congressman LaHood.

The $5.2 million effort will create a blueprint for the restoration efforts. It is a joint project, cost-shared 50/50 between the Rock Island District U.S. Army Corps of Engineers and the Illinois Department of Natural Resources, which will address four broad categories:

(1) Watershed/Tributary Restoration - evaluate options to address tributary degradation and instability looking at stream restoration, wetlands creation/restoration, water retention, conservation easements, and riparian buffers.

(2) Side Channel and Backwater Restoration - consider opportunities to restore aquatic habitats in these areas including off-channel deep-water habitat, backwater lakes, side channels, islands, etc.

(3) Water Level Management - evaluate options to reduce rapid fluctuations and naturalize flows.

(4) Floodplain Restoration and Protection - evaluate floodplain use, potential restoration of floodplain function, and value and potential for acquisition of conservation easements.

For years, the Illinois River has been a vital part of the regions' economy and is depended upon for navigation, recreation, water supply, irrigation, fish and wildlife habitat, and many other uses. The action plan will explore opportunities to address sediment deposition and restore environmental conditions on this vital river and its tributaries.

The signing ceremony is open to the public and will be followed by an open house about the project.

For more information contact project manager Brad Thompson, at (309) 794-5256.

Rock Island District Internet

News Release

US ARMY CORPS OF ENGINEERS Rock Island District	00-11-46 **Release No.** Immediate **For Release**	**Public Affairs Office Justine Dodge (309) 794-5204**

DO YOUR PART TO RESTORE THE ILLINOIS RIVER AND THE PEORIA RIVERFRONT

ROCK ISLAND, ILL. -

The Corps of Engineers and Department of Natural Resources are asking the public to join them at an Open House to discuss alternatives and problems associated with restoring the environment of the Illinois River and to update the public on the status of the ongoing Peoria Riverfront action plan.

The Open House is being held at the Gateway Building, Peoria, Ill., on Nov. 29, from 9:30 a.m. to noon and from 4 to 7 p.m. Participants will meet with representatives from both agencies to learn about, provide comments, and discuss the recently initiated Illinois River Ecosystem Restoration Study and the ongoing Peoria Riverfront Development (Environmental Restoration) Study.

The initiatives officially join the forces of the U.S. Army Corps of Engineers and the Illinois Department of Natural Resources. These projects will create the action plans needed to battle environmental degradation on the Illinois River and at the Peoria riverfront.

"Initiatives such as this one could very well be more important to future generations than to even our own. A healthy, sustainable Illinois River ecosystem is a legacy we owe our children and our children's children," said Congressman Ray LaHood, Peoria, Ill., who will officially kick off the Illinois River Ecosystem Restoration Study at a signing ceremony being held that morning.

The Illinois River Ecosystem Restoration Study is a $5.2 million effort to create a blueprint for restoration efforts. It is a joint project, cost-shared 50/50 between the Rock Island District U.S. Army Corps of Engineers and the Illinois Department of Natural Resources, which will address four broad categories:

(1) Watershed/Tributary Restoration - evaluate options to address tributary degradation and instability looking at stream restoration, wetlands creation/restoration, water retention, conservation easements, and riparian buffers.

(2) Side Channel and Backwater Restoration - consider opportunities to restore aquatic habitats in these areas including off-channel deep-water habitat, backwater lakes, side channels, islands, etc.

(3) Water Level Management - evaluate options to reduce rapid fluctuations and naturalize flows.

(4) Floodplain Restoration and Protection - evaluate floodplain use, potential restoration of floodplain function, and value and potential for acquisition of conservation easements.

The Peoria Riverfront Study is a $1.9 million effort to initiate a plan for restoration efforts. It is also a joint project that is cost-shared 50/50. The study is addressing two broad categories:

(1) River restoration measures to address sediments deposited in the lakes and create deep-water aquatic habitats. These options fall into two general categories:

(a) Dredging to create islands and side channels/backwaters. The most promising locations to date have been in the upstream end of Lower Peoria Lake. Concepts are being explored to create deep-water (>6-foot) backwater and flowing side channel habitats for fisheries benefits.

(b) Dredging with placement of sediment removed outside of the lakes. In combination with islands, additional dredging with placement in uplands areas is being evaluated. Potential placement areas include the Tenmile Creek delta, brownfields or mine lands in the Peoria area, or loading material on barges for placement on brownfields in the Chicago area.

(2) Watershed restoration measures to address current and future sediment delivery to the lakes. Farm Creek was selected as the tributary focus area based on the study authority and local interest. The study team is looking at watershed stabilization options, including buffers, water and sediment control basins, riparian habitat restoration, and stream bed and bank stabilization.

For years, the Illinois River has been a vital part of the region?s economy and is depended upon for navigation, recreation, water supply, irrigation, fish and wildlife habitat, and many other uses. These action plans will explore opportunities to address sediment deposition and restore environmental conditions.

The public is also invited to attend the signing ceremony being held at the Gateway Center at 9 a.m., Nov. 29.

For more information contact project manager Brad Thompson, at (309) 794-5256.

News Release

US ARMY CORPS OF ENGINEERS Rock Island District	00-12-48 **Release No.** Immediate **For Release**	**Public Affairs Office Justine Barati (309) 794-5204**

DO YOUR PART TO RESTORE THE ILLINOIS RIVER

ROCK ISLAND, ILL -

The Corps of Engineers and Department of Natural Resources are asking the public to join them at a series of Open Houses to discuss alternatives and problems associated with restoring the environment of the Illinois River.

The Open Houses are being held on the following dates at the following locations. Dec. 12 at the Starved Rock Lodge and Conference Center in the Starved Rock State Park, Route 178 & Route 71, Utica, Ill. Dec. 13 at Western Illinois University in the University Union Grand Ballroom, 1 University Cr., Macomb, Ill. (Because of the construction, the University recommends that visitors enter the campus by taking University Drive to Western Avenue.) Dec. 14 at the Pere Marquette State Park in the Grand Ballroom, Route 100, Great River Rd., Grafton, Ill.

Participants at the open houses will meet with representatives from both agencies to learn about, provide comments, and discuss the recently initiated Illinois River Ecosystem Restoration Study.

The Illinois River Ecosystem Restoration Study is a $5.2 million effort to create a blueprint for restoration efforts. It is a joint project, cost-shared 50/50 between the Rock Island District U.S. Army Corps of Engineers and the Illinois Department of Natural Resources, which will address four broad categories:

(1) Watershed/Tributary Restoration - evaluate options to address tributary degradation and instability looking at stream restoration, wetlands creation/restoration, water retention, conservation easements, and riparian buffers.

(2) Side Channel and Backwater Restoration - consider opportunities to restore aquatic habitats in these areas including off-channel deep-water habitat, backwater lakes, side channels, islands, etc.

(3) Water Level Management - evaluate options to reduce rapid fluctuations and naturalize flows.

(4) Floodplain Restoration and Protection - evaluate floodplain use, potential restoration of floodplain function, and value and potential for acquisition of conservation easements.

For years, the Illinois River has been a vital part of the region?s economy and is depended upon for navigation, recreation, water supply, irrigation, fish and wildlife habitat, and many other uses. This study will explore opportunities to address sediment deposition and restore environmental conditions.

For more information contact project manager Brad Thompson, at (309) 794-5256.

Rock Island District Internet

News Release

01-01-09

US ARMY CORPS OF ENGINEERS Rock Island District

Release No. Immediate **For Release**

Public Affairs Office
Justine Barati
(309) 794-5204

ILLINOIS RIVER OPEN HOUSES RESCHEDULED DO YOUR PART TO RESTORE THE ILLINOIS RIVER

ROCK ISLAND, ILL. -

The Corps of Engineers and Department of Natural Resources are asking the public to join them at a series of Open Houses to discuss alternatives and problems associated with restoring the environment of the Illinois River.

The Open Houses are being held on the following dates at the following locations. Feb. 20 at Pere Marquette State Park in the Grand Ballroom at Route 100, Great River Road in Grafton, Ill.; Feb. 26 at Starved Rock Lodge and Conference Center in Starved Rock State Park at Route 178 and Route 71 in Utica, Ill.; Feb. 27 at Western Illinois University in the Lamoine Room in University Union on Murray Street in Macomb, Ill. The public is invited to attend any time between the hours of 3:30 p.m. and 7:30 p.m.

Because of the construction at Western Illinois University, the University recommends that visitors enter the campus by taking University Drive to Western Avenue. Lot 17 (south of the library) is recommended for parking.

Participants at the open houses will meet with representatives from both agencies to learn about, provide comments, and discuss the recently initiated Illinois River Ecosystem Restoration Study.

The Illinois River Ecosystem Restoration Study is a $5.2 million effort to create a blueprint for restoration efforts. It is a joint project, cost-shared 50/50 between the Rock Island District U.S. Army Corps of Engineers and the Illinois Department of Natural Resources, which will address four broad categories:
(1) Watershed/Tributary Restoration - evaluate options to address tributary degradation and instability looking at stream restoration, wetlands creation/restoration, water retention, conservation easements, and riparian buffers.
(2) Side Channel and Backwater Restoration - consider opportunities to restore aquatic habitats in these areas including off-channel deep-water habitat, backwater lakes, side channels, islands, etc.
(3) Water Level Management - evaluate options to reduce rapid fluctuations and naturalize flows.
(4) Floodplain Restoration and Protection - evaluate floodplain use, potential restoration of floodplain function, and value and potential for acquisition of conservation easements.

For years, the Illinois River has been a vital part of the region?s economy and is depended upon for navigation, recreation, water supply, irrigation, fish and wildlife habitat, and many other uses. This study will explore opportunities to address sediment deposition and restore environmental conditions.

For more information about the project contact project manager Brad Thompson at bradley.e.thompson@usace.army.mil or call him at (309) 794-5256. For logistical information about the open houses contact Sue Simmons at suzanne.r.simmons@usace.army.mil or call her at (309) 794-5573.

News Release

04-11-02

US ARMY CORPS	**Release No.**	**Public Affairs Office**
OF ENGINEERS	Immediate	**Justine Barati**
Rock Island District	**For Release**	**309-794-5204**

PUBLIC INPUT SOUGHT ON RIVER IMPROVEMENT PLANS

ROCK ISLAND, ILL. -

Future plans for the restoration of the Illinois River Basin are the spotlight of discussion during a series of four public meetings as the U.S. Army Corps of Engineers and the Illinois Department of Natural Resources seek public input on the Illinois River Ecosystem and Basin Restoration Study.

The U.S. Army Corps of Engineers and the Illinois Department of Natural Resources are seeking input at a critical decision point in this complex study that seeks to define the future environmental needs of the Illinois River Basin.

The public has an opportunity to see, learn about, and comment on the study goals and preliminary alternative plans designed to restore the environment of the Illinois River Basin including its backwaters, floodplain, and tributaries.

The study team will consider these comments, along with the input of other stakeholders in the river watershed, to narrow the list of options to a single recommended plan. Details of that plan will be documented in the Illinois River Ecosystem and Basin Restoration Feasibility Report scheduled for release in the spring.

The meetings continue the study's collaboration with the public.

Meeting Locations, Dates and Times

All Meetings:

2:00 – 4:00 p.m. – Open House
4:00 – 6:00 p.m. – Dinner Break for Public Meeting Staff
6:00 – 8:00 p.m. – Corps Presentation, Questions & Answers, & Statements

Dec. 1 – Mt. Sterling, Ill. (Lower Illinois River Area)
Knights of Columbus Hall
Route 24 West
Mt. Sterling, Ill.
Phone: (217) 773-4100

Dec. 2 – Hanna City, Ill. (Peoria Area)
Wildlife Prairie Park
3826 N. Taylor Rd.

Hanna City, Ill.
Phone: (309) 676-0998

Dec. 3 – Bradley, Ill.
Quality Inn & Suites
800 N. Kinzie Ave.
Bradley, Ill.
Phone: (815) 939-3501

Dec. 4 – Lisle, Ill. (Greater Chicago Area)
Hilton Lisle/Naperville
3003 Corporate W. Dr.
Lisle, Ill.
Phone: (630) 245-7644

The meeting structure allows for informal discussion with study team members in the afternoon. A formal presentation will begin at 6 p.m., followed by a question-and-answer session, and the opportunity to make a brief statement. All comments will be compiled and considered during the process of finalizing the range of alternatives and selecting a recommended plan for environmental improvements in the Illinois River Basin.

Additional information on the Illinois River efforts can be found on the Rock Island District's web page at:

Illinois River Ecosystem Restoration

For more information about the Illinois River Ecosystem and Basin Restoration Feasibility Study, contact the Project Manager, Brad Thompson, at (309) 794-5256; or the Rock Island District Public Affairs Office at (309) 794-5204.

For more information on the meeting formats or location, contact Sue Simmons at (309) 794-5573.

# # #

DEPARTMENT OF THE ARMY
ROCK ISLAND DISTRICT. CORPS OF ENGINEERS
CLOCK TOWER BUILDING - P.O. BOX 2004
ROCK ISLAND, ILLINOIS 61204-2004

REPLY TO
ATTENTION OF

October 5, 2001

Planning, Programs, and
Project Management Division

SEE DISTRIBUTION LISTS

The Chicago, Rock Island, and St. Louis Districts of the U.S. Army Corps of Engineers (Corps) and the State of Illinois Department of Natural Resources (DNR) have entered into a partnership for the purposes of implementing the Illinois River Ecosystem Restoration (IRER) project, authorized by Section 216 of the 1970 Flood Control Act and Section 519 (Illinois River Basin Restoration) of Water Resources Development Act of 2000.

The Corps and the DNR have determined that the implementation of the IRER may have an effect upon properties listed on, or eligible for listing on, the National Register of Historic Places (NRHP), and will consult with the Advisory Council on Historic Preservation (Council) and the Illinois State Historic Preservation Officer (SHPO) pursuant to Section 800.14(b) of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470[f]) (NHPA), and Section 110(f) of the same Act (16 U.S.C. 470h-2[f]). The Corps and the DNR invite you, your agency, the SHPO, Council, Tribal Historic Preservation Officers, and any other interested parties to participate in the consultation process and in the development of a Programmatic Agreement (PA) for the IRER (see enclosed draft PA, Enclosure 1).

The IRER encompasses the reach of the Illinois River watershed located in the State of Illinois (54 counties) (see enclosed map, Enclosure 2) with two types of efforts: (1) system evaluations focused on assessing the overall watershed needs and general locations for restoration and (2) site-specific evaluations focused on developing detailed restoration options for possible implementation at specific sites by project planning, engineering, construction, and monitoring, with interdisciplinary and collaborative planning for habitat restoration, preservation, and enhancement. The Corps and the DNR will manage the IRER throughout all stages of individual habitat project development, restoration, construction, and management. Several other Federal agencies, as well as non-government entities and individual citizens, also will regularly participate in the development of projects within the IRER.

The Corps and the DNR propose to execute the PA, as stipulated by 36 CFR Part 800.14(b)(ii) of the NHPA to afford protection to known and unknown historic properties accorded by the NHPA. The appropriate and/or pertinent comments of all parties will be addressed, then one final PA will be provided for execution by the signatories to this PA. The executed PA will be in every National Environmental Policy Act (NEPA) document resulting from the IRER, as evidence of Corps and DNR compliance promulgated by the NHPA and the consulting process.

Pursuant to Section 800.3 of the Council's regulations and to meet the responsibilities under the NEPA of 1969, the Corps and the DNR have developed a preliminary **Consulting Parties List**. Only those consulting parties that respond to this correspondence will remain on the final Consulting Parties List. The request to remain on the final Consulting Parties List allows for agencies, tribes, individuals, organizations, and other interested parties an opportunity to provide views on any effects of this undertaking on historic properties resulting from the IRER and to participate in the review of the PA. Response will allow the Corps and the DNR to formulate a final Consulting Parties List for all, or any portion, of the Illinois Watershed that lies in the State of Illinois.

Those on the final Consulting Parties List will be provided with study newsletters, public meeting announcements, special releases, and notifications of the availability of report(s), including all draft agreement documentation, as stipulated by 36 CFR Part 800.14(b)(ii) of the NHPA. Comments received by the Corps and the DNR will be taken into account when finalizing plans for the IRER, as promulgated by the NHPA. Consulting parties may request correspondence on future topics relevant to compliance concerning the IRER. Although the IRER presently lies entirely within the State of Illinois, consulting parties from elsewhere in the United States are given equal and due consideration. Since the Corps remains unaware of any lands held in Federal trust or of any Federal trust responsibilities for Native American Indians within the Illinois River watershed, the Corps requests any information concerning our Federal trust responsibilities.

The NHPA recognizes that properties of traditional religious and cultural importance to a tribe may be determined eligible for inclusion on the NRHP. In order to preserve, conserve, and encourage the continuation of the diverse traditional prehistoric, historic, ethnic, and folk cultural traditions within the Illinois watershed, the IRER will be implemented in compliance with Executive Order No. 13007, specifically:

> **Section 1.** *Accommodation of Sacred Sites.* (a) In managing Federal lands, each executive branch agency with statutory or administrative responsibility for the management of Federal lands shall, to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions, (1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and (2) avoid adversely affecting the physical integrity of such sacred sites. Where appropriate, agencies shall maintain the confidentiality of sacred sites.

The Secretary of the Interior's **Standards and Guidelines for Federal Agency Historic Preservation Programs** pursuant to the NHPA states that a:

> Traditional Cultural Property is defined as a property that is associated with cultural practices or beliefs of a living community that (1) are rooted in that community's history, and (2) are important in maintaining the continuing cultural identity of the community.

Allowing for tribal review and comment contributes to fulfilling our obligations as set forth in the NHPA (Public Law [PL] 89-665), as amended; the NEPA of 1969 (PL 91-190); Executive Order (EO) 11593 for the "Protection and Enhancement of the Cultural Environment" (Federal Register, May 13, 1971); the Archaeological and Historical Preservation Act of 1974 (PL 93-291); the Advisory Council on Historic Preservation "Regulations for the Protection of Historic and Cultural Properties" (36 CFR, Part 800); and the applicable National Park Service and Corps regulations and guidance.

The Corps is concerned about impacts to those traditional cultural properties and sacred sites recognized by Native Americans, tribes, ethnic and religious organizations, communities, and other groups as potentially affected by the IRER. Presently, the Corps is unaware of any traditional cultural properties or sacred sites within the Illinois River watershed. If there are concerns or potential effects known or identified, please complete the enclosed "**Traditional Cultural Property and Sacred Site Form"** (Enclosure 3). To facilitate tribal coordination, the Corps asks those on the Consulting Parties Lists to refer to the National Park Service, NRHP Bulletin 38, Guidelines for Evaluating and Documenting Traditional Cultural Properties, available for internet viewing at (http://www.cr.nps.gov/nr/publications/bulletins.htm). Locations of traditional cultural properties or sacred sites, consisting of architecture, landscapes, objects, or surface or buried archaeological sites, identified in this coordination effort can be considered to be sensitive information, pursuant to Section 304 of the NHPA. Upon request from any consulting parties not to disclose locations, the Corps and the DNR will secure this information from the general public.

Please provide any information, requests, views, or comments within 30 days, or the Corps and the DNR will remove your address from the final Consulting Parties List. If no response is provided to the Corps and the DNR, we will assume that you agree with our proposal of drafting and executing the PA and we will proceed with further coordination with the SHPO, the Council, and those interested parties that did respond to this correspondence.

If you have questions concerning the IRER, the PA, the preliminary and final Consulting Parties List, the **Traditional Cultural Property and Sacred Site Form,** or the Corps and the DNR coordination procedures and efforts promulgated by the NHPA, please call Mr. Ron Deiss of our Economic and Environmental Analysis Branch, telephone 309/794-5185, or write to our address above, ATTN: Planning, Programs, and Project Management Division (Ron Deiss).

Sincerely,

Kenneth A Barr

Kenneth A. Barr
Chief, Economic and Environmental
Analysis Branch

Enclosures

Copies Furnished:

Dr. Harold Hansen
Illinois Department of Natural Resources
Lincoln Tower Plaza, Room 310
524 South Second Street
Springfield, Illinois 62701-1787 (w/enclosures)

Ms. Anne Haaker
Deputy State Historic Preservation Officer
Illinois Historic Preservation Agency
Old State Capitol
Springfield, Illinois 62701 (w/enclosures)

Copies Furnished (Continued):

ATTN: Mr. Thomas McCullouch
c/o Mr. Don L. Klima
Director
Eastern Office of Project Review
The Old Post Office Building
1100 Pennsylvania Avenue, NW Suite 809
Washington, DC 20004 (w/enclosures)

ATTN: CEMVD-PM-R (Ms. Carroll Kleinhans)
U.S. Army Engineer Division, Mississippi Valley
1400 Walnut Street
P.O. Box 80
Vicksburg, Mississippi 39180-0080 (w/enclosures)

ATTN: CEMVS-PD-A (Mr. Terry Norris)
Commander
U.S. Army Engineer District, St. Louis
1222 Spruce Street
St. Louis, Missouri 63101-2833 (w/enclosures)

ATTN: CELRC-PD-S (Mr. Keith G. Ryder)
Commander
U.S. Army Engineer District, Chicago
111 North Canal Street
Chicago, Illinois 60606 (w/enclosures)

IL VETERANS HOME
ALL WARS MUSEUM
1701 N 12TH ST
QUINCY IL 62301
COUNTY: ADAMS

VILLA KATHRINE
FRIENDS OF THE CASTLE
PO BOX 732
QUINCY IL 62306
COUNTY: ADAMS

FRIENDS OF THE DR RICHARD EELLS HOUSE
PO BOX 628
QUINCY IL 62306
COUNTY: ADAMS

GARDNER MUSEUM OF ARCHITECTURE & DESIG
332 MAINE ST
QUINCY IL 62306
COUNTY: ADAMS

GOLDEN HISTORICAL SOCIETY
PO BOX 148
QUINCY IL 62306
COUNTY: ADAMS

QUINCY PUBLIC LIBRARY
GREAT RIVER GENEALOGICAL SOCIETY
526 JERSEY
QUINCY IL 62306
COUNTY: ADAMS

HISTORICAL SOCIETY OF QUINCY&ADAMS CNTY
425 S 12TH ST
QUINCY IL 62301
COUNTY: ADAMS

LINCOLN DOUGLAS VALENTINE MUSEUM
101 N 4TH ST
QUINCY IL 62306
COUNTY: ADAMS

PALATINES TO AMERICA CHAPTER
PO BOX 3884
QUINCY IL 62306
COUNTY: ADAMS

QUINCY ART CTR
1515 JERSEY ST
QUINCY IL 62306
COUNTY: ADAMS

QUINCY MUSEUM
1601 MAINE ST
QUINCY IL 62301
COUNTY: ADAMS

QUINCY SOCIETY OF FINE ARTS
300 CIVIC CTR PL STE 244
QUINCY IL 62306
COUNTY: ADAMS

QUINCY UNIVERSITY-BRENNER LIBRARY
1800 COLLEGE AVE
QUINCY IL 62306
COUNTY: ADAMS

RAIL ROAD MUSEUM
103-105 QUINCY ST
GOLDEN IL 62339
COUNTY: ADAMS

TRI STATE LIVING HISTORY ASSOCIATION
RR 3 BOX 79
QUINCY IL 62301
COUNTY: ADAMS

WINDMILL MUSEUM
902 PRAIRIE MILLS RD
GOLDEN IL 62339
COUNTY: ADAMS

VERSAILLES AREA GEN & HIST SOCIETY
113 W FIRST ST PO BOX 92
VERSAILLES IL 62378
COUNTY: BROWN

BUREAU CNTY HISTORICAL SOCIETY
109 PARK AVE W
PRINCETON IL 61356
COUNTY: BUREAU

CAMPBELL CTR FOR HISTORIC PRES STUDIES
PO BOX 66
MT CARROLL IL 61053
COUNTY: BUREAU

OWEN LOVEJOY HOMESTEAD
PO BOX 220
PRINCETON IL 61356
COUNTY: BUREAU

SHEFFIELD HISTORICAL SOCIETY
WASHINGTON & COOK STS
SHEFFIELD IL 61361
COUNTY: BUREAU

SPRING VALLEY COAL MINE #1 PROJ
E ST PAUL ST PO BOX 170
SPRING VALLEY IL 61362
COUNTY: BUREAU

WYANET HISTORICAL SOCIETY
109 E MAIN
WYANET IL 61379
COUNTY: BUREAU

CALHOUN COUNTY HISTORICAL SOCIETY
PO BOX 46
HARDIN IL 62047
COUNTY: CALHOUN

CTR FOR AMERICAN ARCHEOLOGY
PO BOX 366
KAMPSVILLE IL 62053
COUNTY: CALHOUN

CASS CNTY HISTORICAL SOCIETY
PO BOX 11
VIRGINIA IL 62691
COUNTY: CASS

LINCOLN COURTROOM
CITY OF BEARDSTOWN
101 W 3RD ST
BEARDSTOWN IL 62618
COUNTY: CASS

ANCIENT TECH & ARCH MATERIALS
901 S MATHEWS AVE
URBANA IL 61801
COUNTY: CHAMPAIGN

ANITA PURVES NATURE CENTER
1505 N BROADWAY
URBANA IL 61801
COUNTY: CHAMPAIGN

BELLFLOWER GENEALOGICAL & HISTORICAL SC
RR1 BOX 17
BELLFLOWER IL 61724
COUNTY: CHAMPAIGN

HOMER HISTORICAL SOCIETY
605 S MAIN ST
HOMER IL 61849
COUNTY: CHAMPAIGN

IL HERITAGE ASSOC
602 1/2 E GREEN ST
CHAMPAIGN IL 61820
COUNTY: CHAMPAIGN

IL HISTORICAL SURVEY
1408 W GREGORY DR
URBANA IL 61801
COUNTY: CHAMPAIGN

PRESERVATION & CONSERVATION ASSOCIATIO
PO BOX 2555 STATION A
CHAMPAIGN IL 61825
COUNTY: CHAMPAIGN

SIDNEY HISTORICAL SOCIETY
PO BOX 87
SIDNEY IL 61877
COUNTY: CHAMPAIGN

UNIV OF IL MUSEUM OF NAT HIST
1301 GREEN ST
URBANA IL 61801
COUNTY: CHAMPAIGN

WORLD HERITAGE MUSEUM
702 S WRIGHT ST
URBANA IL 61801
COUNTY: CHAMPAIGN

DIRECTOR
CHRISTIAN CNTY HIST MUSEUM
C/O TAYLORVILLE PUBLIC LIBRARY
PO BOX 28
TAYLORVILLE 62568
COUNTY: CHRISTIAN

DIRECTOR
MORRISONVILLE HISTORICAL SOCIETY
606 CARLIN ST PO BOX 227
MORRISONVILLE 62546
COUNTY: CHRISTIAN

ARLINGTON HEIGHTS HISTORICAL SOCIETY
110 W FREMONT ST
ARLINGTON HEIGHTS IL 6004
COUNTY: COOK

BARLETT HISTORICAL SOCIETY
228 S MAIN ST PO BOX 8257
BARLETT IL 60103
COUNTY: COOK

BERWYN HISTORICAL SOCIETY
PO BOX 479
BERWYN IL 60402
COUNTY: COOK

CALUMET CITY HIST SOCIETY
760 WENTWORTH AVE PO BOX 1917
CALUMET CITY IL 60409
COUNTY: COOK

CHICAGO & NW HISTORICAL SOCIETY
8703 N OLCOTT AVE
NILES IL 60648
COUNTY: COOK

CHICAGO ACADEMY OF SCIENCES
2060 N CLARK ST
CHICAGO IL 60614
COUNTY: COOK

CHICAGO HISTORICAL SOCIETY
1601 N CLARK ST
CHICAGO IL 60614
COUNTY: COOK

FOREST PRESERVE DIST OF COOK CNTY
CHICAGO PORTAGE NATIONAL HISTORIC SITE
536 N HARLEM
RIVER FOREST IL 60305
COUNTY: COOK

FOREST RESERVE DISTRICT OF COOK CNTY
CRABTREE NATURE CENTER
RTE 3 STOVER RD
BARRINGTON IL 60010
COUNTY: COOK

DES PLAINES HISTORICAL SOCIETY
789 PEARSON
DES PLAINES IL 60016-4506
COUNTY: COOK

EAST SIDE HISTORICAL SOCIETY
3658 E 106TH ST
CHICAGO IL 60617
COUNTY: COOK

EDGEBROOK HISTORICAL SOCIETY
6173 N MC CLELLAN
CHICAGO IL 60646
COUNTY: COOK

ELGIN PUBLIC MUSEUM
225 GRAND BLVD
ELGIN IL 60120
COUNTY: COOK

EVANSTON HISTORICAL SOCIETY
225 GREENWOOD ST
EVANSTON IL 60201
COUNTY: COOK

FIELD MUSEUM OF NATURAL HISTORY
1200 S LAKE SHORE DR
CHICAGO IL 60605-2496
COUNTY: COOK

FLAGG CREEK HISTORICAL SOCIETY
7965 BIELBY
LAGRANGE IL 60521
COUNTY: COOK

GLENCOE HISTORICAL SOCIETY
999 GREEN BAY RD
GLENCO IL 60022
COUNTY: COOK

GLENVIEW AREA HISTORICAL SOCIETY
1121 WAUKEGAN RD
GLENVIEW IL 60025
COUNTY: COOK

GROVE HERITAGE ASSOC
PO BOX 484
GLENVIEW IL 60025
COUNTY: COOK

HISTORIC PRESERVATION COMMISSION OF OAK
1 VILLAGE HALL PL
OAK PARK IL 60302
COUNTY: COOK

HISTORIC PRESERVATION REVIEW COMMISSION
14700 RAVINIA AVE
ORLAND PARK IL 60462
COUNTY: COOK

HISTORICAL SOC OF OAK PARK & RIV FOREST
217 HOME PO BOX 771
OAK PARK IL 60303
COUNTY: COOK

HISTORICAL SOCIETY OF CICERO
2423 S AUSTIN BLVD
CICERO IL 60650
COUNTY: COOK

HISTORICAL SOCIETY OF ELMWOOD PARK
2823 N 77TH AVE
ELMWOOD PARK IL 60635-1408
COUNTY: COOK

HISTORICAL SOCIETY OF FOREST PARK
519 JACKSON BLVD
FOREST PARK IL 60130
COUNTY: COOK

HOMEWOOD HISTORICAL SOCIETY
PO BOX 1144
HOMEWOOD IL 60430
COUNTY: COOK

HOOSIER GROVE MUSEUM STREAMWOOD PARK
700 W IRVING PARK RD
STREAMWOOD IL 60107
COUNTY: COOK

HYDE PARK HISTORICAL SOCIETY
5529 S LAKE PARK AVE
CHICAGO IL 60637
COUNTY: COOK

IRVING PARK HISTORICAL SOCIETY
PO BOX 34749
CHICAGO IL 60634
COUNTY: COOK

KENILWORTH HISTORICAL SOCIETY
PO BOX 181
KENILWORTH IL 60043
COUNTY: COOK

KOHL CHILDRENS MUSEUM
165 GREEN BAY RD
WILMETTE IL 60091
COUNTY: COOK

LAGRANGE AREA HISTORICAL SOCIETY
444 S LAGRANGE RD
LAGRANGE IL 60525
COUNTY: COOK

LANDMARKS PRESERVATION COUNCIL OF IL
53 W JACKSON BLVD STE 752
CHICAGO IL 60604
COUNTY: COOK

LANSING HISTORICAL MUSEUM
PO BOX 1776
LANSING IL 60438
COUNTY: COOK

LEMONT AREA HISTORICAL SOCIETY
306 LEMONT ST PO BOX 126
LEMONT IL 60439
COUNTY: COOK

LITTLE RED SCHOOLHOUSE NAT CTR
9800 S 104TH AVE
WILLOW SPRINGS IL 60480
COUNTY: COOK

LYONS HISTORICAL COMMISSION
3910 BARRY POINT RD PO BOX 392
LYONS IL 60534
COUNTY: COOK

MATTESON HISTORICAL MUSEUM
813 SCHOOL AVE
MATTESON IL 60443
COUNTY: COOK

MAYWOOD HISTORICAL SOCIETY
202 S 2ND AVE
MAYWOOD IL 60153
COUNTY: COOK

MIDLOTHIAN HISTORICAL SOCIETY
14801 PULASKI
MIDLOTHIAN IL 60445
COUNTY: COOK

MORTON GROVE HISTORICAL MUSEUM
PO BOX 542
MORTON GROVE IL 60053
COUNTY: COOK

MT GREENWOOD HIST SOCIETY
11010 S KEDZIE AVE
CHICAGO IL 60655
COUNTY: COOK

MT PROSPECT HISTORICAL SOCIETY
101 S MAPLE ST
MT PROSPECT IL 60056
COUNTY: COOK

MUSEUM OF SCIENCE AND INDUSTRY
57TH ST & LAKE SHORE DR
CHICAGO IL 60637
COUNTY: COOK

NATURAL TRUST FOR HISTORIC PRESERVATION
53 W JACKSON BLVD STE 1135
CHICAGO IL 60604
COUNTY: COOK

NATURE OF IL FOUNDATION
208 S LADALLE ST STE 1666
CHICAGO IL 60604-1003
COUNTY: COOK

NILES HISTORICAL SOCIETY
8970 MILWAUKEE AVE
NILES IL 60714
COUNTY: COOK

NORTH EASTERN IL HISTORICAL COUNCIL
1720 B WILDBERRY DR
GLENVIEW IL 60025
COUNTY: COOK

NORTHBROOK HISTORICAL SOCIETY
1776 WALTERS AVE PO BOX 2021
NORTHBROOK IL 60065
COUNTY: COOK

NORWOOD PARK HISTORICAL SOCIETY
5624 N NEWARK AVE
CHICAGO IL 60631
COUNTY: COOK

OAK PARK CONSERVATORY
617 GARFIELD
OAK PARK IL 60304
COUNTY: COOK

ORLAND HISTORICAL SOCIETY
PO BOX 324
ORLAND PARK IL 60462
COUNTY: COOK

PALATINE HISTORICAL SOCIETY
224 E PALATINE RD PO BOX 134
PALATINE IL 60078
COUNTY: COOK

PALOS HISTORICAL SOCIETY
12332 SA FOREST GLEN BLVD
PALOS PARK IL 60464
COUNTY: COOK

PARK FOREST HISTORICAL SOCIETY
400 LAKEWOOD BLVD
PARK FOREST IL 60466
COUNTY: COOK

PARK RIDGE HISTORICAL SOCIETY
41 W PRAIRIE AVE
PARK RIDGE IL 60068
COUNTY: COOK

RAVENSWOOD-LAKE VIEW HISTORICAL ASSOC
4455 N LINCOLN AVE
CHICAGO IL 60625
COUNTY: COOK

RIDGE HISTORICAL SOCIETY
10621 S SEELEY AVE
CHICAGO IL 60643
COUNTY: COOK

RIVER TRAIL NATURE CTR
3120 N MILWAUKEE AVE
NORTHBROOK IL 60062
COUNTY: COOK

RIVERDALE HISTORICAL SOCIETY
208 W 144TH ST
RIVERDALE IL 60827
COUNTY: COOK

ROBBINS HISTORICAL SOCIETY
13820 S CENTRAL PARK AVE PO BOX 1561
ROBBINS IL 60472-1561
COUNTY: COOK

SAND RIDGE NATURE CTR
15890 PAXTON AVE'
S HOLLAND IL 60473
COUNTY: COOK

SCHILLER PARK HISTORICAL SOCIETY
9526 W IRVING PARK RD
SCHILLER PARK IL 60176
COUNTY: COOK

SPRING VALLEY NATURE CTR
235 E BEECH DR
SCHAUMBURG IL 60193
COUNTY: COOK

THORNTON TOWNSHIP HISTORICAL SOCIETY
66 WATER ST
PARK FOREST IL 60466
COUNTY: COOK

TINLEY PARK HISTORICAL SOCIETY
PO BOX 325
TINLEY PARK IL 60477
COUNTY: COOK

UPTOWN HISTORICAL SOCIETY
4531 N DOVER ST
CHICAGO IL 60640
COUNTY: COOK

WEST RIDGE HISTORICAL SOCIETY
6424 NORTHWESTERN
CHICAGO IL 60645
COUNTY: COOK

WESTCHESTER HISTORICAL SOCIETY
10332 BOND ST
WESTCHESTER IL 60154
COUNTY: COOK

WESTERN SPRINGS HISTORICAL SOCIETY
PO BOX 139
WESTERN SPRINGS IL 60558
COUNTY: COOK

WHEELING HISTORICAL SOCIETY
PO BOX 3
WHEELING IL 60090
COUNTY: COOK

WINNETKA HISTORICAL SOCIETY
1140 ELM ST
WINNETKA IL 60093
COUNTY: COOK

BLACKWELL HISTORY OF ED MUSEUM
GABEL HALL 08 NORTHERN IL UNIVERSITY
DEKALB IL 60115
COUNTY: DEKALB

REG HISTORY CENTER
NIU -SWEN PARSON HALL 155
DEKALB IL 60115
COUNTY: DEKALB

LAFAYETTE & RAILROAD STS
SANDWICH HISTORICAL SOCIETY
PO BOX 82
SANDWICH IL 60548
COUNTY: DEKALB

DEWITT CNTY MUSEUM ASSOC
219 E WOODLAWN
CLINTON IL 61727
COUNTY: DEWITT

FARMER CITY GENEALOGICAL & HIST SOCIETY
224 S MAIN PO BOX 173
FARMER CITY IL 61842
COUNTY: DEWITT

CABIN NATURE PROGRAM CTR
111 S WOOD DALE RD
WOOD DALE IL 60191
COUNTY: DUPAGE

DARIEN HISTORICAL SOCIETY
7422 S CASS AVE PO BOX 2178
DARIEN IL 60561
COUNTY: DUPAGE

DOWNERS GROVE HISTORICAL SOCIETY
831 MAPLE AVE
DOWNERS GROVE IL 60515-4904
COUNTY: DUPAGE

DOWNERS GROVE MUSEUM
831 MAPLE AVE
DOWNERS GROVE IL 60515-4904
COUNTY: DUPAGE

DUPAGE CNTY HISTORICAL SOCIETY
102 E WESLEY ST
WHEATON IL 60187
COUNTY: DUPAGE

GLEN ELLYN HISTORICAL SOCIETY
557 GENEVA RD PO BOX 283
GLEN ELLYN IL 60137
COUNTY: DUPAGE

HINSDALE HISTORICAL SOCIETY
15 S CLAY ST PO BOX 336
HINSDALE IL 60522
COUNTY: DUPAGE

ITASCA HISTORICAL SOCIETY
101 N CATALPA AVE
ITASCA IL 60143
COUNTY: DUPAGE

JURICA NATURE MUSEUM BENEDICTINE UNIV
5700 COLLEGE RD
LISLE IL 60532
COUNTY: DUPAGE

LISLE HERITAGE SOCIETY
919 BURLINGTON
LISLE IL 60532
COUNTY: DUPAGE

OAK BROOK HISTORICAL SOCIETY
PO BOX 3821
OAK BROOK IL 60522
COUNTY: DUPAGE

WEST CHICAGO HISTORICAL SOCIETY
PO BOX 246
WEST CHICAGO IL 60185
COUNTY: DUPAGE

WESTMONT HISTORICAL SOCIETY
75 E RICHMOND ST
WESTMONT IL 60559
COUNTY: DUPAGE

WHEATON HISTORY CTR
PO BOX 373
WHEATON IL 60189
COUNTY: DUPAGE

WILLOWBROOK WILDLIFE HAVEN
525 S PARK BLVD
GLEN ELLYN IL 60137
COUNTY: DUPAGE

WOODRIDGE AREA HISTORICAL SOCIETY
2628 MITCHELL DR
WOODRIDGE IL 60517
COUNTY: DUPAGE

FORD CNTY HISTORICAL SOCIETY
10 MERIDIAN TERRACE
PAXTON IL 60957
COUNTY: FORD

PIPER CITY COMMUNITY HISTORICAL SOCIETY
39 W MAIN
PIPER CITY IL 60959
COUNTY: FORD

AVON HISTORICAL SOCIETY
PO BOX 483
AVON IL 61415
COUNTY: FULTON

DICKSON MOUNDS STATE MUSEUM
10956 N DICKSON MOUNDS RD
LEWISTOWN IL 61542
COUNTY: FULTON

FULTON COUNTY HISTORICAL & GEN SOCIETY
45 ASPEN DR
CANTON IL 61520
COUNTY: FULTON

DUANE ESAREY
DICKSON MOUNDS MUSEUM
RR 1 BOX 185
LEWISTON IL 61542
COUNTY: FULTON

ALAN HARN
DEPT OF ANTHROPOLOGY
DICKSON MOUNDS MUSEUM
10956 N DICKSON MOUNDS RD
LEWISTON IL 61542
COUNTY: FULTON

GREENE CNTY HIST & GENEALOGICAL SOCIETY
PO BOX 137 532 N MAIN ST
CARROLLTON IL 62016
COUNTY: GREENE

GOOSE LAKE PRAIRIE STAT NATURAL AREA
5010 N JUGTOWN RD
MORRIS IL 60450
COUNTY: GRUNDY

GRUNDY COUNTY HISTORICAL SOCIETY
PO BOX 224
MORRIS IL 60450
COUNTY: GRUNDY

HANCOCK CNTY HISTORICAL SOCIETY
PO BOX 68
CARTHAGE IL 62321
COUNTY: HANCOCK

LAHARPE HISTORICAL & GENEAL SOC
111 E MAIN PO BOX 289
LAHARPE IL 61450
COUNTY: HANCOCK

NAUVOO CHAMBER OF COMMERCE
PO BOX 41
NAUVOO IL 62354
COUNTY: HANCOCK

NAUVOO HISTORICAL SOCIETY MUSEUM
PO BOX 69
NAUVOO IL 62354
COUNTY: HANCOCK

WARSAW HISTORICAL SOCIETY AND MUSEUM
401 MAIN ST
WARSAW IL 62379
COUNTY: HANCOCK

JOHN H ALLAMAN
HENDERSON COUNTY HISTORICAL SOCIETY
RTE 1
BIGGSVILLE IL 61418
COUNTY: HENDERSON

BISHOP HILL STATE HISTORIC SITE
PO BOX 104
BISHOP HILL IL 61419
COUNTY: HENRY

CAMBRIDGE HISTORICAL SOCIETY
RR 2 BOX 96
CAMBRIDGE IL 61238
COUNTY: HENRY

GALVA HISTORICAL SOCIETY
2141 COUNTY HWY 5
GALVA IL 61434
COUNTY: HENRY

HENRY COUNTY HISTORICAL SOCIETY
PO BOX 48
BISHOP HILL IL 61419
COUNTY: HENRY

KEWANEE HISTORICAL SOCIETY
211 N CHESTNUT ST
KEWANEE IL 61443
COUNTY: HENRY

EAST CAMPUS
LEARNING RESOURCES CTR BLACK HAWK COLL
1501 IL HWY 78
KEWANEE IL 61443
COUNTY: HENRY

IROQUOIS CNTY HISTORICAL SOCIETY
103 W CHERRY ST OLD COURHOUSE MUSEUM
WATSEKA IL 60970
COUNTY: IROQUOIS

JERSEY CNTY HIST SOCIETY
PO BOX 12
JERSEYVILLE IL 62052
COUNTY: JERSEY

JERSEY COUNTY HISTORICAL SOCIETY
PO BOX 12
JERSEYVILLE IL 62052
COUNTY: JERSEY

AURORA HISTORICAL SOCIETY
317 CEDAR ST
AURORA IL 60506
COUNTY: KANE

AURORA PRESERVATION COMMISSION
44 E DOWNER PL
AURORA IL 60507
COUNTY: KANE

BATAVIA HISTORICAL SOCIETY
PO BOX 14
BATAVIA IL 60510
COUNTY: KANE

BIG ROCK HISTORICAL SOCIETY
PO BOX 206
BIG ROCK IL 60511
COUNTY: KANE

CHICAGO AREA CONSERVATION GROUP
2600 KESLINGER RD
GENEVA IL 60134
COUNTY: KANE

DUNDEE TOWNSHIP HISTORICAL SOCIETY
426 HIGHLAND AVE
DUNDEE IL 60118
COUNTY: KANE

ELBURN & COUNTY HISTORICAL SOCIETY
525 N MAIN PO BOX 115
ELBURN IL 60119
COUNTY: KANE

ELGIN AREA HISTORICAL SOCIETY & MUSEUM
360 PARK ST
ELGIN IL 60120
COUNTY: KANE

GENEVA HISTORICAL SOCIETY
PO BOX 345
GENEVA IL 60134
COUNTY: KANE

KANE CNTY FOREST PRESERVE DIST
1511 S BATAVIA AVE
GENEVA IL 60134
COUNTY: KANE

PRESERVATION PARTNERS OF FOX VALLEY
8 INDIANA PO BOX 903
ST CHARLES IL 60174
COUNTY: KANE

RED OAK NATURE CENTER
2343 S RIVER ST
BATAVIA IL 60510
COUNTY: KANE

ST CHARLES HERITAGE CENTER
2 E MAIN ST
ST CHARLES IL 60174
COUNTY: KANE

SUGAR GROVE HISTORICAL SOCIETY
259 MAIN ST PO BOX 102
SUGAR GROVE IL 60554
COUNTY: KANE

BOURBONNAIS GROVE HIST SOCIETY
PO BOX 311
BOURBONNAIS IL 60914
COUNTY: KANKAKEE

KANKAKEE CNTY HISTORICAL SOCIETY
801 S 8TH ST
KANKAKEE IL 60901
COUNTY: KANKAKEE

MANTENO HISTORICAL SOCIETY
192 W 3RD
MANTENO IL 60950
COUNTY: KANKAKEE

RIVERVIEW HISTORIC DIST
PO BOX 1787
KANKAKEE IL 60901
COUNTY: KANKAKEE

FERN DELL HISTORIC ASSOC
PO BOX 254
NEWARK IL 60541
COUNTY: KENDALL

KENDALL CNTY HISTORICAL SOCIETY
PO BOX 123
YORKVILLE IL 60560
COUNTY: KENDALL

OSWEGOLAND HERITAGE ASSOC
PO BOX 23
OSWEGO IL 60543
COUNTY: KENDALL

CARL SANDBURG STATE HISTORIC SITE
313 E 3RD ST
GALESBURG IL 61401
COUNTY: KNOX

GALESBURG HISTORICAL SOCIETY
1166 N PRAIRIE
GALESBURG IL 61401
COUNTY: KNOX

KNOX COUNTY HISTORICAL SITES INC
PUBLIC SQUARE
KNOXVILLE IL 61448
COUNTY: KNOX

MAQUON HISTORICAL ASSOCIATION
PO BOX 171
MAQUON IL 61458
COUNTY: KNOX

MUSEUM CENTER
BARRINGTON AREA HISTORICAL SOCIETY
212-218 W MAIN ST
BARRINGTON IL L0010
COUNTY: LAKE

DEERFIELD AREA HISTORICAL SOCIETY
450 KIPLING PL PO BOX 520
DEERFIELD IL 60015
COUNTY: LAKE

HIGHLAND PARK CONSERVATION SOCIETY
1729 BERKELEY RD
HIGHLAND PARK IL 60035
COUNTY: LAKE

HISTORICAL SOCIETY OF FORT HIL CNTY
PO BOX 582
MUNDELEIN IL 60060
COUNTY: LAKE

LAKE COUNTY MUSEUM ASSOC
27277 N FOREST PRESERVE DR
WAUCONDA IL 60084
COUNTY: LAKE

LIBERTYVILLE-MUNDELEIN HIST SOCIETY
413 N MILWAUKEE AVE
LIBERTYVILLE IL 60048
COUNTY: LAKE

LONG GROVE HISTORICAL SOCIETY
3110 RFD
LONG GROVE IL 60047
COUNTY: LAKE

PRAIRIE GRASS NATURE MUSEUM
860 HART RD
ROUND LAKE IL 60073
COUNTY: LAKE

RAUPP MEM MUSEUM/BUFFALO GROVE PARK DIST
530 BERNARD DR
BUFFALO GROVE IL 60089
COUNTY: LAKE

WAUCONDA TOWNSHIP HISTORICAL SOCIETY
PO BOX 256
WAUCONDA IL 60084
COUNTY: LAKE

EARLVILLE COMM HISTORICAL SOCIETY
205 WINTHROP ST PO BOX 420
EARLVILLE IL 60518
COUNTY: LASALLE

LASALLE CNTY HISTORICAL SOCIETY
PO BOX 278
UTICA IL 61373
COUNTY: LASALLE

MENDOTA HISTORICAL SOCIETY
PO BOX 433
MENDOTA IL 61342
COUNTY: LASALLE

STARVED ROCK HIST & ED FOUNDATION
PO BOX 116
UTICA IL 61373
COUNTY: LASALLE

STARVED ROCK STATE PARK
PO BOX 509
UTICA IL 61373
COUNTY: LASALLE

STREATORLAND HISTORICAL SOCIETY
306 S VERMILLION
STREATER IL 61364
COUNTY: LASALLE

SAUK VALLEY COMMUNITY COLLEGE
LEARNING RESOURCE CTR (SVCC)
173 IL RTE 2
DIXON IL 61021
COUNTY: LEE

LEE COUNTY HISTORICAL SOCIETY
113 MADISON AVE PO BOX 58
DIXON IL 61021
COUNTY: LEE

CHATSWORTH HISTORICAL SOCIETY
424 E LOCUST ST PO BOX 755
CHATSWORTH IL 60921
COUNTY: LIVINGSTON

DWIGHT HISTORICAL SOCIETY
119 W MAIN ST
DWIGHT IL 60420
COUNTY: LIVINGSTON

LIVINGSTON CNTY HISTORICAL SOCIETY
PO BOX 680
PONTIAC IL 61764
COUNTY: LIVINGSTON

ELKHART HISTORICAL SOCIETY
116 N LATHAM PO BOX 225
ELKHART IL 62634
COUNTY: LOGAN

LOGAN CNTY GENEALOGY & HIST SOCIETY
11 ARCADE BLDG PO BOX 283
LINCOLN IL 62656
COUNTY: LOGAN

MT PULASKI TOWNSHIP HISTORICAL SOCIETY
108 S WASHINGTON ST
MT PULASKI IL 62548
COUNTY: LOGAN

MACON COUNTY CONSERVATION DIST
1495 BROZIO LN
DECATUR IL 62521
COUNTY: MACON

MACON COUNTY HIST SOCIETY
5580 N FORK RD
DECATUR IL 62521
COUNTY: MACON

ROCK SPRINGS CTR FOR ENVIRON DISCOVERY
1495 BROZIO LN
DECATUR IL 62521
COUNTY: MACON

MACOUPIN COUNTY HISTORICAL SOCIETY
PO BOX 432
CARLINVILLE IL 62626
COUNTY: MACOUPIN

HENRY COMMUNITY HIST & GENE SOCIETY
610 NORTH ST
HENRY IL 61537
COUNTY: MARSHALL

MARSHAL COUNTY HISTORICAL SOCIETY
PO BOX 123
LACON IL 61540
COUNTY: MARSHALL

MANITO HISTORICAL SOCIETY
PO BOX 304
MANITO IL 61546
COUNTY: MASON

IL GREAT RIVERS CONFERENCE HIST SOCIETY
1211 N PARK ST PO BOX 515
BLOOMINGTON IL 61702
COUNTY: MC LEAN

MC LEAN COUNTY HIST SOCIETY
200 N MAIN
BLOOMINGTON IL 61701
COUNTY: MC LEAN

BUSHNELL REC & CULTURAL CTR
BUSHNELL HIST SOCIETY MUSEUM
300 MILLER ST
DUSHNELL IL 61422
COUNTY: MCDONOUGH

MCDONOUGH CNTY HISTORICAL SOCIETY
1200 E GRANT ST
MACOMB IL 61455
COUNTY: MCDONOUGH

GREATER HARVARD AREA HISTORICAL SOCIETY
308 N HART BLVD PO BOX 505
HARVARD IL 60033
COUNTY: MCHENRY

MCHENRY PRESERVATION
306 N RIVER RD
MCHENRY IL 60050
COUNTY: MCHENRY

DANVERS HISTORICAL SOCIETY
102 S W ST PO BOX 613
DANVERS IL 61732
COUNTY: MCLEAN

MENARD COUNTY HISTORICAL SOCIETY
125 S 7TH ST
PETERSBURG IL 62675
COUNTY: MENARD

HISTORICAL SOCIETY OF MONTGOMERY CNTY
904 S MAIN ST
HILLSBORO IL 62049
COUNTY: MONTGOMERY

ART ASSOC OF JACKSONVILLE
331 W COLLEGE AVE PO BOX 213
JACKSONVILLE IL 62651
COUNTY: MORGAN

GOVERNOR DUNCAN MANSION
4 DUNCAN PL
JACKSONVILLE IL 62650
COUNTY: MORGAN

JACKSON AREA GENEALOGICAL & HIST SOCIETY
416 S MAIN ST
JACKSONVILLE IL 62650
COUNTY: MORGAN

JACKSONVILLE HERITAGE CULTURAL CENTER
200 W DOUGLAS
JACKSONVILLE IL 62650
COUNTY: MORGAN

MOULTRIE CNTY HIST & GEN SOCIETY
117 E HARRISON PO BOX 588
SULLIVAN IL 61951
COUNTY: MOULTRIE

CENTRAL IL LANDMARKS FOUNDATION
PO BOX 495
PEORIA IL 61651
COUNTY: PEORIA

CHILLICOTHE HISTORICAL SOCIETY
PO BOX 181
CHILLICOTHE IL 61523
COUNTY: PEORIA

LAKEVIEW MUSEUM
GREENWAYS BOARD
1125 W LAKE AVE
PEORIA IL 61614
COUNTY: PEORIA

HISTORICAL ASSOC OF PRINCEVILLE
130 N WALNUT PO BOX 608
PRINCEVILLE IL 61559
COUNTY: PEORIA

IL HISTORICAL WATER MUSEUM
123 S W WASHINGTON
PEORIA IL 61602
COUNTY: PEORIA

PEORIA HISTORICAL SOCIETY
942 NE GLENOAK AVE
PEORIA IL 61603
COUNTY: PEORIA

WILDLIFE PRAIRIE PARK
3826 N TAYLOR RD RR2 BOX 50
PEORIA IL 61615
COUNTY: PEORIA

PERRY COUNTY HISTORICAL SOCIETY
108 W JACKSON ST
PINKNEYVILLE IL 62274
COUNTY: PERRY

PIATT COUNTY HISTORICAL & GENEAL SOCIETY
PO BOX 111
MONTICELLO IL 61856
COUNTY: PIATT

PIKE COUNTY HISTORICAL SOCIETY MUSEUM
400 BLOCK E JEFFERSON PO BOX 44
PITTSFIELD IL 62363
COUNTY: PIKE

PUTNAM COUNTY HISTORICAL SOCIETY
PO BOX 74
HENNEPIN IL 61327
COUNTY: PUTNAM

HISTORIC PRESERVATION ASSOC
PO BOX 1632
SPRINGFIELD IL 62705
COUNTY: SANGAMON

IL ASSOC OF MUSEUMS
1 OLD STATE CAPITOL PLAZA
SPRINGFIELD IL 62701
COUNTY: SANGAMON

IL HISTORIC PRESERVATION AGENCY
1 OLD STATE CAPITOL
SPRINGFIELD IL 62701
COUNTY: SANGAMON

IL STATE HISTORICAL SOCIETY
1 OLD STATE CAPITOL
SPRINGFIELD IL 62701
COUNTY: SANGAMON

IL STATE MUSEUM
SPRING AND EDWARDS STS
SPRINGFIELD IL 62701
COUNTY: SANGAMON

ROCHESTER HISTORICAL PRESERV SOCIETY
PO BOX 13
ROCHESTER IL 62563-0013
COUNTY: SANGAMON

C/O ROBINSON'S ADVERTISING
SANGAMON CNTY HISTORICAL SOCIETY
308 E ADAMS ST
SPRINGFIELD IL 62701
COUNTY: SANGAMON

SPRINGFIELD HISTORICAL SITES COMMISSION
1331 S DIAL CT
SPRINGFIELD IL 62704
COUNTY: SANGAMON

SCHUYLER JAIL MUSEUM
200 S CONGRESS ST
RUSHVILLE IL 62681
COUNTY: SCHUYLER

SCOTT COUNTY HIST SOCIETY
PO BOX 85
WINCHESTER IL 62694
COUNTY: SCOTT

MOWEAQUA AREA HISTORICAL SOCIETY
103 BIRCH ST
MOWEAQUA IL 62550
COUNTY: SHELBY

SHELBY CNTY HISTORICAL SOCIETY
151 S WASHINGTON PO BOX 286
SHELBYVILLE IL 62565
COUNTY: SHELBY

STARK CNTY HISTORICAL SOCIETY
PO BOX 524
TOULON IL 61483
COUNTY: STARK

DELAVAN COMMUNITY HIST SOCIETY
LOCUST ST
DELAVAN IL 61734
COUNTY: TAZEWELL

TAZEWELL CNTY GENEAL & HIST SOCIETY
PO BOX 312
PEKIN IL 61555
COUNTY: TAZEWELL

TREMONT MUSEUM & HISTORICAL SOCIETY
PO BOX 5
TREMONT IL 61568
COUNTY: TAZEWELL

WASHINGTON HISTORICAL SOCIETY
PO BOX 54
WASHINGTON IL 61571
COUNTY: TAZEWELL

HOOPESTON HISTORICAL SOCIETY
617 E WASHINGTON
HOOPESTON IL 60942
COUNTY: VERMILION

SIDELL COMMUNITY HISTORICAL SOCIETY
PO BOX 74
SIDELL IL 61876
COUNTY: VERMILION

TILTON HISTORICAL SOCIETY
201 W 5TH ST
TILTON IL 61833
COUNTY: VERMILION

VERMILION CNTY CONSERVATION DIST MUSEUM
22296-A HENNING RD
DANVILLE IL 61834
COUNTY: VERMILION

FAIRMOUNT-JAMAICA HISTORICAL SOCIETY
116 S MAIN ST
FAIRMOUNT IL 61841
COUNTY: VERMILLION

ROSSVILLE HISTORICAL SOCIETY
108 W ATTICA ST PO BOX 263
ROSSVILLE IL 60963
COUNTY: VERMILLION

WARREN CNTY HISTORICAL MUSEUM
200 E PENN AVE PO BOX 325
ROSEVILLE IL 61473
COUNTY: WARREN

BEECHER COMMUNITY HISTORICAL SOCIETY
673 PENFIELD ST PO BOX 1469
BEECHER IL 60401
COUNTY: WILL

BOLINGBROOK HISTORICAL SOCIETY
162 N CANYON DR
BOLINGBROOK IL 60440
COUNTY: WILL

FRANKFORT AREA HIST SOCIETY OF WILL CNTY
132 KANSAS ST PO BOX 546
FRANKFORT IL 60423
COUNTY: WILL

I&M CANAL MUSEUM
803 S STATE ST
LOCKPORT IL 60441
COUNTY: WILL

I&M CANAL NATIONAL HERITAGE CORRIDOR
15701 S INDEPENDENCE BLVD
LOCKPORT IL 60441
COUNTY: WILL

IL CANAL SOCIETY
1109 GARFIELD
LOCKPORT IL 60441
COUNTY: WILL

JOLIET AREA HISTORICAL SOCIETY
17 E VAN BUREN ST PO BOX 477
JOLIET IL 60434
COUNTY: WILL

MANHATTAN TOWNSHIP HISTORICAL SOCIETY
PO BOX 53
MANHATTAN IL 60442
COUNTY: WILL

PILCHER PARK NATURE CENTER
227 N COUGAR RD
JOLIET IL 60432
COUNTY: WILL

PLAINSFIELD HISTORICAL SOCIETY MUSEUM
217 E MAIN ST
PLAINSFIELD IL 60544
COUNTY: WILL

WILL CNTY HISTORICAL SOCIETY
803 S STATE ST
LOCKPORT IL 60441
COUNTY: WILL

WILMINGTON AREA HISTORICAL SOCIETY
PO BOX 1
WILMINGTON IL 60481
COUNTY: WILL

ROBERT HOLMES
SLOVENIAN HERITAGE MUSEUM
431 N CHICAGO ST
JOLIET IL 60432
COUNTY: WILL

ROBERT PADDOCK
LOCKPORT TOWNSHIP PARK DIST
GLADYS FOX MUSEUM
1911 S LAWRENCE
LOCKPORT IL 60441
COUNTY: WILL

JIM ZIMMER
IL STATE MUSEUM LOCKPORT GALLERY
200 W 8TH ST 3RD FLOOR
LOCKPORT IL 60441
COUNTY: WILL

IL MINNONITE HERITAGE CTR
PO BOX 1007
MINIER IL 61759
COUNTY: WOODFORD

TRIBAL CHAIRPERSON
OKLAHOMA BUSINESS COMMITTEE
CITIZEN BAND POTAWATOMI INDIAN TRIBE
1901 S GORDON COOPER DR
SHAWNEE OK 74801

TRIBAL CHAIRMAN
OF OKLAHOMA BUSINESS COMMITTEE
CITIZEN BAND POTAWATOMI INDIAN TRIBE
1601 S GORDON COOPER DR
SHAWNEE OK 74801

JOHN A BARRETT
CHAIRMAN
OKLAHOMA BUSINESS COMMITTEE
CITIZEN BAND POTAWATOMI INDIAN TRIBE
1901 S GORDON COOPER DR
SHAWNEE OK 74801

LISA KRAFT
CULTURAL RESOURCES MANAGEMENT CONSUL
OF OKLAHOMA BUSINESS COMMITTEE
CITIZEN BAND POTAWATOMI INDIAN TRIBE
1901 S GORDON COOPER DR
SHAWNEE OK 74801

HARTFORD SHEGONEE
CHAIRMAN
FOREST CNTY POTAWATOMI EXECUTIVE COUNCIL
PO BOX 346
CRANDON WI 54520

AL MILHAM
CHAIRMAN
FOREST COUNTY POTAWATOMI EXE COUNCIL
PO BOX 340
CRANDON WI 54520

TERRY CHIVIS
CHAIRMAN
HURON POTAWATOMI NATION
2221 1 1/2 MILE RD
FULTON MI 49052

TRIBAL CHAIRPERSON
KICKAPOO OF KANSAS TRIBAL COUNCIL
ROUTE 1 BOX 157
HORTON KS 66349

CAROL ANSKE
CHAIRPERSON
KICKAPOO OF KANSAS TRIBAL COUNCIL
PO BOX 271
HORTON KS 66349

NANCY BEAR
CHAIR
KICKAPOO OF KANSAS TRIBAL COUNCIL
RTE 1 BOX 157
HORTON KS 66439

TRIBAL CHAIRPERSON
KICKAPOO OF OKLAHOMA BUS COUNCIL
BOX 70
MC CLOUD OK 74851

RICHARD SALAZAR
CHAIRMAN
KICKAPOO OF OKLAHOMA BUSINESS COUNCIL
PO BOX 70
MC CLOUD OK 74851

TRIBAL CHAIRPERSON
KICKAPOO TRADITIONAL TRIBE OF TEXAS
HC 1 PO BOX 9700
EAGLE PASS TX 78853

RAUL GARZA
CHAIRPERSON
KICKAPOO TRADITIONAL TRIBE OF TEXAS
HC 1 BOX 9700
EAGLE PASS TX 78853

TRIBAL CHAIRPERSON
KICKAPOO TRIBE OF INDIANS OF THE KICKAPO
PO BOX 270
HORTON KS 66439

CURTIS SIMON
KICKAPOO RESERVATION IN KANSAS
KICKAPOO TRIBE OF INDIANS OF THE KICKAPO
PO BOX 270
HORTON KS 66439

EMERY NEGONSOTT
CHAIRMAN
KICKAPOO TRIBE OF KANSAS
PO BOX 271
HORTON KS 66439

KATHY SCHUETZ
DELEGATE
KICKAPOO TRIBE OF KANSAS
RR 1 BOX 225
HORTON KS 66439

FRED THOMAS
KICKAPOO TRIBE OF KANSAS
RR 1 BOX 157A
HORTON KS 66439

TRIBAL CHAIRPERSON
PEORIA INDIAN TRIBE OF OKLAHOMA
PO BOX 1527
MIAMI OK 74355

CHARLA K REEVES
NAGPRA REPRESENTATIVE
PEORIA INDIAN TRIBE OF OKLAHOMA
PO BOX 1527
MIAMI OK 74355

JOHN MILLER
CHAIRMAN
POKAGON BAND OF POTAWATOMI INDIANS
PO BOX 180
DOWAGIAC MI 49047

JOSEPH B WINCHESTER
CHAIRMAN
POKAGON BAND OF POTAWATOMI INDIANS
53237 TOWN HALL RD
DOWAGIAC MI 49047

TRIBAL CHAIRPERSON
PRAIRIE BAND OF POTAWATOMI
BOX 97
MAYETTA KS 66509

LUTHER WAHWASUCK
DELEGATE
PRAIRIE BAND OF POTAWATOMI
14880 K RD
MAYETTA KS 66509

GEORGE WCHQUAHBOSHKUK
PRAIRIE BAND POTAWATOMI
PO BOX 97
MAYETTA KS 66509

MAMIE RUPNICKI
CHAIRMAN
PRAIRIE BAND POTAWATOMI TRIBAL COUNCIL
PO BOX 97
MAYETTA KS 66509

SANDRA MASSEY
NAGPRA COORDINATOR
SAC & FOX NATION
RT 2 BOX 246
STROUD OK 74079

DEANNE BAHR
NAGPRA COORDINATOR
SAC & FOX NATION OF MO IN KS & NB
RR 1 BOX 60
RESERVE KS 66434-9723

EXECUTIVE DIRECTOR
SAC & FOX NATION OF THE MISSI IN IOWA
349 MESKWAKI RD
TAMA IA 52339-9629

JOHNATHAN BUFFALO
HISTORIC PRESERVATION COORDINATOR
SAC & FOX NATION OF THE MISSI IN IOWA
349 MESKWAKI RD
TAMA IA 52339-9629

CURTIS GILFILLAN
SAC & FOX OF MISSOURI
RR1 BOX 60
RESERVE KS 66434

SANDRA KEO
DELEGATE
SAC & FOX OF MISSOURI
RR 1 BOX 60
RESERVE KS 66434

JOAN REBAR
TRIBAL CHAIRPERSON
SAC & FOX OF MISSOURI
RR1 BOX 60
RESERVE KS 66434

YVONNE SCHEKAHOSE
SAC & FOX OF MISSOURI
PO BOX 38
RESERVE KS 66434

ELMER MANATOWA JR
PRINCIPAL CHIEF
SAC & FOX OF OK BUSINESS COUNCIL
RTE 2 BOX 246
STROUD OK 74079

TRIBAL CHAIRPERSON
SAC & FOX OF OKLAHOMA BUSINESS COUNCIL
ROUTE 2 BOX 246
STROUD OK 74079

TALBERT DAVENPORT
SAC & FOX TRIBE OF THE MISSISSIPPI IN IA
349 MESKWAKI RD
TAMA IA 52339-9629

GAILEY WANATEE
ACTING CHIEF
SAC AND FOX TRIBAL COUNCIL
3137 F AVE
TAMA IA 52339

CHAR THOMPSON
SAC AND FOX TRIBE FOR THE MISS RIV IN IA
349 MESKWAKI RD
TAMA IA 52339-9629

RONALD FROMAN
CHIEF
THE PEORIA TRIBE OF OKLAHOMA
PO BOX 1527
MIAMI OK 74355

JOANN JONES
CHAIRPERSON
WI WINNEBAGO BUSINESS COMMITTEE
PO BOX 667
TOMAH WI 54660

TRIBAL CHAIRPERSON
WINNEBAGO TRIBAL COUNCIL
PO BOX 687
WINNEBAGO NE 68701

JOHN BLACKHAWK
CHAIRMAN
WINNEBAGO TRIBAL COUNCIL
WINNEBAGO NE 68071

TRIBAL CHAIRPERSON
WINNEBAGO TRIBE
PO BOX 687
WINNEBAGO NE 68071

DAVID LEE SMITH
CULTURAL PRESERVATION OFFICER
WINNEBAGO TRIBE OF NB TRIBAL COUNCIL
PO BOX 687
WINNEBAGO NE 68071

MONA ELK SHOULDER
DELEGATE
WINNEBAGO TRIBE OF NEBRASKA
PO BOX AE
SLOAN IA 51055

DRAFT

PROGRAMMATIC AGREEMENT

Among the
Chicago, Rock Island, and St. Louis Districts of the U.S. Army Corps of Engineers,
the State of Illinois Department of Natural Resources,
the Illinois State Historic Preservation Officer,
and the Advisory Council on Historic Preservation,
Regarding Implementation of the
Illinois River Ecosystem Restoration

WHEREAS, the Chicago, Rock Island, and St. Louis Districts of the U.S. Army Corps of Engineers (hereafter, Corps) and the State of Illinois Department of Natural Resources (hereafter DNR) determined that the Illinois River watershed exhibits loss of aquatic habitat and have entered into a partnership for the purpose of implementing the Illinois River Ecosystem Restoration (IRER) authorized by Section 216 of the 1970 Flood Control Act and Section 519 (Illinois River Basin Restoration) of the Water Resources Development Act of 2000; and

WHEREAS, the Corps and the DNR have determined that the implementation of the IRER may have an effect upon properties listed on, or eligible for listing on, the National Register of Historic Places (National Register), and has consulted with the Advisory Council on Historic Preservation (Council) and the Illinois State Historic Preservation Officer (SHPO) pursuant to Section 800.14(b) of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470[f]), and Section 110(f) of the same Act (16 U.S.C. 470h-2[f]); and

WHEREAS, the IRER study area encompasses the entire Illinois River watershed located in Illinois (54 counties) with two types of efforts (1) system evaluations focused on assessing the overall watershed needs and general locations for restoration and (2) site-specific evaluations focused on developing detailed restoration options for possible implementation at specific sites by project planning, engineering, construction, and monitoring with interdisciplinary and collaborative planning for habitat restoration, protection, preservation, and enhancement. The Corps and the DNR will manage the IRER throughout all stages of individual habitat project development, restoration, and management. Several other Federal agencies, as well as non-government entities and individual citizens, also will regularly participate in the development of projects within the IRER; and

WHEREAS, the study area includes four IRER areas identified as (1) watershed stabilization, (2) side channel and backwater modification, (3) water level management, and (4) floodplain restoration and protection. The focus areas will be implemented by habitat creation (islands, ponds, wetlands, potholes, channels, backwaters, etc), flow control structures (grade controls,

ENCLOSURE 1

dams, dikes, detention basins, weirs, riffles, fish passage, levees, etc,), habitat enhancements (anchor trees stumps, plantings, management of timber and forest stands, regulation of water levels, etc.), and structure removals/modifications (snagging, clearing, dikes, borrowing, trenching, dredging, etc); and

WHEREAS, pursuant to Section 800.3 of the Council's regulations, and to meet the Corps' and DNR's responsibilities under the National Environmental Policy Act of 1969, the Corps has developed a **Consulting Party List** which was developed in consultation with the SHPO/Tribal Historic Preservation Officers (THPOs), Tribes, and other parties that may have an interest in the effects of this undertaking on historic properties. Those on the **Consulting Party List** will be provided with study newsletters, public meeting announcements, special releases, and notify-cations of the availability of report(s), including all draft agreement documentation, as stipulated by 36 CFR Part 800.14(b)(ii) of the National Historic Preservation Act. Comments received by the Corps will be distributed to the consulting parties to this Agreement and taken into account in finalizing plans for the undertaking; and

WHEREAS, the Corps has provided scholarly evidence of stewardship in the recordation, protection, and management of historic properties along the Illinois Waterway System through systemic research and studies which have been finalized and approved, then placed in the perma-nent files of the Corps and SHPO as evidence of compliance promulgated under Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations, 36 CFR Part 800: "Protection of Historic Properties." [These studies included: (1) archeological studies (management of documented and undocumented historic properties), (2) architectural and engineering studies (buildings, structures, and objects associated with Multiple Property National Register Districts), (3) erosion studies, (4) land form sediment assemblage studies (geomorphology) and (5) submerged historic property study (historic shipwrecks and other underwater or previously inundated historic properties)]; and

NOW, THEREFORE, the Corps, the DNR, the SHPO, and the Council agree that the undertakings shall be implemented in accordance with the following stipulations to satisfy the Corps' and the DNR's Section 106 responsibilities for all individual actions of this undertaking:

I. IDENTIFICATION AND EVALUATION OF HISTORIC PROPERTIES

The Corps and the DNR will ensure that the following measures are implemented:

A. The Corps and the DNR will take all measures necessary to discover, preserve, and avoid significant historic properties listed on, or eligible for listing on, the National Register, burials, cemeteries, or sites likely to contain human skeletal remains/artifacts and objects associated with interments or religious activities, and provide this information, studies, and/or reports to the SHPO/THPO. Under consultation with the SHPO/THPO(s), the Corps and the

DNR will describe and define the Area of Potential Effect (hereafter referred to as the APE) in accordance with the definition contained in 36 CFR Part 800.16(d). The APE may be modified upon consultation with the appropriate SHPO(s)/THPO(s) through avoidance documented through the implementation of historic property surveys and testing, documentary research, recordation, and other investigation data.

B. Unless recent and modern ground surface disturbances and/or historic use can be documented and a determination made by the Corps and the DNR, in consultation with the SHPO/ THPO(s), that there is little likelihood that historic properties will be adversely affected, the Corps and the DNR will then conduct a historic property (reconnaissance) survey in (1) areas with the potential for containing submerged or deeply buried historic properties and (2) areas indirectly and directly affected by construction, use, maintenance, and operation during the implementation of the IRER program.

C. The Corps and the DNR will ensure that all reconnaissance surveys and subsurface testing are conducted in a manner consistent with the Secretary of the Interior's Standards and Guidelines for Identification and Evaluation (48 FR 44720-23) and take into account the National Park Service publication The Archaeological Survey: Methods and Uses (1978) and any extant or most recent version of appropriate SHPO(s)/THPO(s) guidelines for historic properties reconnaissance surveys/reports, related guidance, etc. The reconnaissance surveys and subsurface testing will be implemented by the Corps and the DNR and monitored by the SHPO/THPO(s).

D. In consultation with the SHPO, and appropriate THPO(s), the Corps and the DNR will evaluate for eligibility all significant historic properties by applying the National Register criteria (36 CFR Part 60.4). The Corps will use its archival documentation as a context in which to make National Register evaluations of historic properties.

1. For those properties that the Corps, the DNR, and the SHPO/THPO(s) agree are not eligible for inclusion in the National Register, no further historic properties investigations will be required, and the project may proceed in those areas.

2. If the survey results in the identification of properties that the Corps, the DNR, and the SHPO/THPO(s) agree are eligible for inclusion on the National Register, the Corps and the DNR shall treat such properties in accordance with Part II below.

3. If the Corps, DNR, and SHPO/THPO(s) do not agree on National Register eligibility, or if the Council or the National Park Service so request, the Corps and DNR will request a formal determination of eligibility from the Keeper of the National Register, National Park Service, whose determination shall be final.

4. Relative to the treatment of historic properties and the identification of traditional cultural properties, the Corps and the DNR will continue to provide the appropriate Tribe(s) and the THPO(s) information related to treatment measures proposed by the Corps and DNR.

Consideration of comments received by the Corps and the DNR can be considered by the signatories to be measures to assist the Corps and the DNR in meeting its responsibilities under the National Historic Preservation Act of 1966, as amended (Public Law 89-665), and the regulations of the Advisory Council on Historic Preservation, "Regulations for the Protection of Historic and Cultural Properties" (36 CFR, Part 800).

II. TREATMENT OF HISTORIC PROPERTIES

Those individual historic properties and multiple property districts that the Corps, DNR, and SHPO/THPO(s) agree are eligible for nomination to, or that the Keeper has determined eligible for inclusion on, the National Register, will be treated by the Corps and the DNR in the following manner:

A. Archival Documentation of the Construction and Operation of the Historic Locks and Dams and Management of Historic Properties: The Corps has provided scholarly evidence of stewardship in the recordation, protection, and management of historic properties along the Illinois Waterway System through systemic research and studies which have been finalized and approved, then placed in the permanent files of the Corps and SHPO. These studies included: (1) archeological studies (management of documented and undocumented historic properties), (2) architectural and engineering studies (buildings, structures, and objects associated with Multiple Property National Register-eligible **Chicago to Grafton, Illinois, Navigable Water Link, 1839-1945 and the Upper Mississippi River 9-Foot Navigation Project 1931-1948**, (3) land form sediment assemblage studies (geomorphology), and (4) submerged historic property study (historic shipwrecks and other underwater or previously inundated historic properties).

B. Treatment of Archaeological Historic Properties:

1. If the Corps and the DNR determine, in consultation with the SHPO/THPO(s), that no other actions are feasible to avoid and minimize effects to archaeological historic properties, then the Corps and the DNR will develop a treatment plan, which may include various levels of data recovery, recordation, documentation, and active protection measures. The Corps and the DNR will implement the treatment plan in consultation with the SHPO/THPO(s).

2. If data recovery is the agreed upon treatment, the data recovery plan will address substantive research questions developed in consultation with the SHPO/ THPO(s). The treatment plan shall be consistent with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation (48 FR 44734-37) and take into account the Council's publication, Treatment of Archaeological Properties (Advisory Council on Historic Preservation, 1980) and SHPO/THPO(s) guidance. It will specify, at a minimum, the following:

a. The property, properties, or portions of properties where the treatment plan is to be carried out;

b. The research questions to be addressed, with an explanation of research relevance and importance;

c. The methods to be used, with an explanation of methodological relevance to the research questions;

d. Proposed methods of disseminating results of the work to the interested public; and,

e. A proposed schedule for the submission of progress reports to the SHPO/THPO(s).

3. The Corps and the DNR will submit the treatment plan to the SHPO/THPO(s) for 30 days' review and comment. The Corps and the DNR will take into account SHPO/THPO(s) comment(s), and will ensure that the data recovery plan is implemented. The SHPO/THPO(s) may monitor this implementation.

4. The Corps and the DNR will ensure that the treatment plan is carried out by or under the direct supervision of an archaeologist(s), architectural historian(s) and/or other appropriate cultural resource specialist that meets, at minimum, the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-9).

5. The Corps and the DNR will ensure that adequate provisions, including personnel, time, and laboratory space are available for the analysis and curation of recovered materials from historic properties.

6. The Corps and the DNR will develop and implement an adequate program in consultation with the SHPO/THPO(s) to secure archaeological historic properties from vandalism during data recovery.

III. TREATMENT OF HUMAN REMAINS, FUNERARY OBJECTS, SACRED OBJECTS, OR OBJECTS OF CULTURAL PATRIMONY, AND CURATED ITEMS

A. When human remains, funerary objects, sacred objects, or objects of cultural patri-mony are encountered or collected, the Corps and the DNR will comply with all provisions outlined in the appropriate state acts, statutes, guidance, provisions, etc., and any decisions regarding the treatment of human remains will be made recognizing the rights of lineal descendants, Tribes, and other Native American Indians and under consultation with the SHPO/THPO(s), designated Tribal Coordinator, and/or other appropriate legal authority for future and expedient disposition or curation. When finds of human remains, funerary objects, sacred objects, or objects of cultural patrimony are encountered or collected from Federal lands or federally recognized tribal lands, the Corps and the DNR will coordinate with the appropriate federally recognized Native Americans, as promulgated by the Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. § 3001 *et seq.*).

B. Collected artifacts, samples, and other physical objects will be returned to the landowner as real estate, unless owners donate their rights to the Corps or the DNR. In consultation with the SHPO/THPO(s), the Corps and DNR will ensure that all donated artifacts, samples, and other physical objects with related and associated research materials and records resulting from the historic properties studies are curated at a repositories within States of Illinois in accordance with 36 CFR Part 79.

IV. REPORTS

The Corps and the DNR will ensure that all final historic property reports resulting from the actions pursuant to this Agreement will be provided in a format acceptable to the appropriate SHPO(s)/THPO(s). The Corps and DNR will ensure that all such reports are responsive to contemporary standards, and to the Department of the Interior's Format Standards for Final Reports of Data Recovery (42 FR 5377-79). Precise locations of significant historic properties may be provided only in a separate appendix if it appears that the release of this data could jeopardize historic properties. Locations of traditional cultural properties or sacred sites, consisting of architectural, landscapes, objects, or surface or buried archaeological sites, identified in coordination with Tribes and THPO(s), will be considered to be sensitive information and, pursuant to Section 304 of the National Historic Preservation Act, the Corps and the DNR will not make this information available for public disclosure. The Corps and DNR will make available for publication and public dissemination the reports and associated data, minus precise aforementioned locations and sensitive information.

V. PROVISION FOR POST-REVIEW DISCOVERIES

In accordance with 36 CFR Section 800.13, if previously undetected or undocumented historic properties are discovered during project activities, the Corps and the DNR will cease, or cause to stop, any activity having an effect and consult with the SHPO/THPO(s) to determine if additional investigation is required. If further archaeological investigations are warranted or required, the Corps will perform any treatment plan in accordance with Part II - TREATMENT OF HISTORIC PROPERTIES, Part III - TREATMENT OF HUMAN REMAINS, FUNERARY OBJECTS, SACRED OBJECTS, OR OBJECTS OF CULTURAL PATRIMONY, AND CURATED ITEMS, Part IV - REPORTS, and Part V - PROVISION FOR POST-REVIEW DISCOVERIES, all of this Agreement. If the Corps, the DNR, and the SHPO/THPO(s) determine that further investigation is not necessary or warranted, activities may resume with no further action required. Any disagreement between the Corps, the DNR, and the SHPO/THPO(s) concerning the need for further investigations will be handled pursuant to Part VI - DISPUTE RESOLUTION of this Agreement.

VI. DISPUTE RESOLUTION

Should the SHPO/THPO(s) or the Council object within 30 days to any plans or actions provided for review pursuant to this Agreement, the Corps and the DNR will consult with the objecting party to resolve the objection. If the Corps and the DNR determine that the disagreement cannot be resolved, the Corps will request further comment from the Council in accordance with the applicable provisions of 36 CFR Part 800.7. The Corps and the DNR, in accordance with 36 CFR Part 800.7(c)(4), will take any Council comment provided in response into account, with reference only to the subject of the dispute. The Corps' and the DNR's responsibility to carry out all actions under this Agreement that are not the subjects of the dispute will remain unchanged.

VII. TERMINATION

Any of the signatories to this Agreement may request a reconsideration of its terms or revoke the relevant portions of this Agreement upon written notification to the other signatories, by providing 30 days' notice to the other signatories, provided that these signatories will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the advent of termination, the Corps and the DNR will comply with 36 CFR Parts 800.3 through 800.7 with regard to individual undertakings covered by this Agreement.

VIII. AMENDMENTS

Any signatories to this Agreement may request that it be amended, whereupon the other signatories parties will consult in accordance with 36 CFR Part 800.13 to consider such amendment.

IX. REPORTING AND PERIODIC REVIEW

The Corps and the DNR will provide the SHPO/THPO(s) with evidence of compliance with this Agreement by letter on January 30, 2002, and once every 2 years thereafter said date. This documentation shall contain the name of the project, title of the documents that contained the Agreement, historic properties identified, determinations of effect, avoidance procedures, level of investigation(s) and/or mitigation(s) conducted with titles of all project reports related to such investigation(s) and/or mitigation(s) which have been completed. Every 5 years starting from the date of January 30, 2002, the Corps and the DNR will provide the SHPO/THPO(s) a review report of the overall IRER to determine this Agreement's effectiveness, accuracy, and economy. Based upon this review, the Corps, the DNR, the SHPO/ THPO(s), and the Council will determine whether the Agreement shall continue in force, be amended, or be terminated.

X. EXECUTION AND IMPLEMENTATION

A. Nothing in this Agreement is intended to prevent the Corps and the DNR from consulting more frequently with the SHPO/THPO(s) or the Council concerning any questions that may arise or on the progress of any actions falling under or executed by this Agreement. Any resulting modifications to this Agreement will be coordinated in accordance with Section 800.5(e)(5).

B. The undersigned concur that the Corps and the DNR have satisfied their Section 106 responsibilities for all individual undertakings through this Agreement regarding the implementation of IRER.

This Agreement allows the executing parties, agents, and contractors ingress/egress to all the Corps or the DNR lands and/or properties for all IRER related investigations, as promulgated by the NHPA.

XI. SIGNATORIES TO THIS AGREEMENT

A. **CHICAGO DISTRICT, U.S. ARMY CORPS OF ENGINEERS:**

BY: ______________________________ Date: ____________________

Colonel Mark A. Roncoli
District Engineer
U. S. Army Corps of Engineers
Rock Island District

B. **ROCK ISLAND DISTRICT, U.S. ARMY CORPS OF ENGINEERS:**

BY: ______________________________ Date: ____________________

Colonel William J. Bayles
District Engineer
U. S. Army Corps of Engineers
Rock Island District

DRAFT

XI. SIGNATORIES TO THIS AGREEMENT (Continued)

C. **ST. LOUIS DISTRICT, U.S. ARMY CORPS OF ENGINEERS:**

BY: ______________________________ Date: ____________________

Colonel Michael R. Morrow
District Engineer
U. S. Army Corps of Engineers
St. Louis District

D. **ILLINOIS DEPARTMENF OF NATURAL RESOURCES:**

BY: ______________________________ Date: ____________________

Brent Manning
Director
Illinois Department of Natural Resources

E. **ILLINOIS STATE HISTORIC PRESERVATION OFFICER:**

BY: ______________________________ Date: ____________________

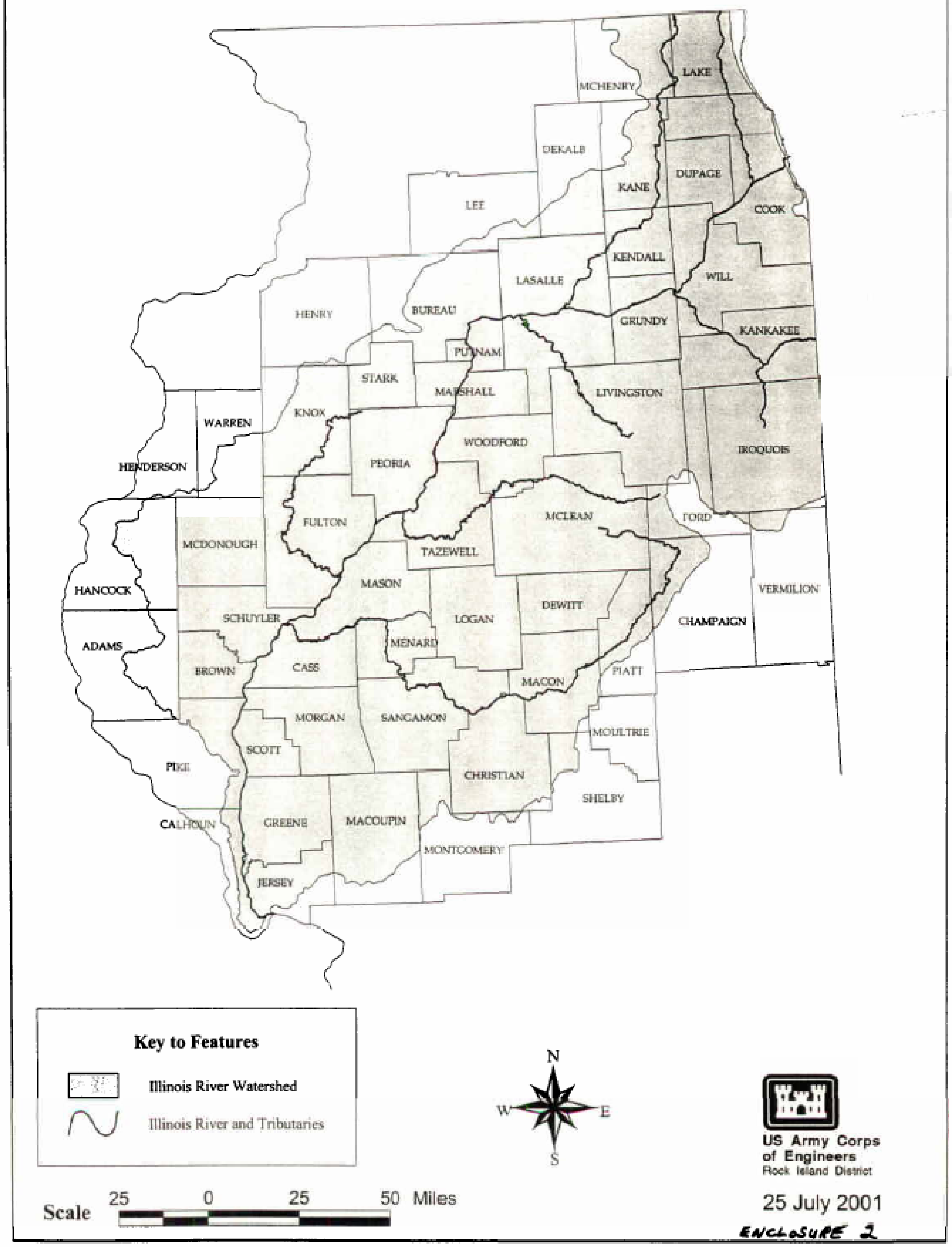
Anne E. Haaker
Illinois Deputy State Historic Preservation Officer
Illinois Historic Preservation Agency

F. **ADVISORY COUNCIL ON HISTORIC PRESERVATION:**

BY: ______________________________ Date: ____________________

John M. Fowler
Executive Director
Advisory Council on Historic Preservation

Illinois River Ecosystem Restoration



TRADITIONAL CULTURAL PROPERTY AND SACRED SITE FORM*

The purpose of this form is to document a traditional cultural property and/or sacred site, which may be affected by a project currently proposed. Provided below is information on our proposed project.

1. PROJECT DESCRIPTION: The Chicago, Rock Island, and St. Louis Districts of the U.S. Army Corps of Engineers (Corps) and the Illinois Department of Natural Resources (DNR) have entered into a partnership for the purposes of implementing the Illinois River Ecosystem Restoration (IRER), authorized by Section 216 of the 1970 Flood Control Act and Section 519 (Illinois River Basin Restoration) of Water Resources Development Act of 2000. The Corps and the DNR have determined that the implementation of the IRER may have an effect upon properties listed on, or eligible for inclusion in, the National Register of Historic Places (National Register), and will consult with the Advisory Council on Historic Preservation (Council) and the Illinois State Historic Preservation Officer (SHPO) pursuant to Section 800.14(b) of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470[f]), and Section 110(f) of the same Act (16 U.S.C. 470h-2[f]).

2. GENERAL INFORMATION:

2.1. Site or Property Name (if applicable): ______________________

2.2. Address: ______________________

2.3. County: ____________ City: ____________ Zip: ____________

2.4. Federal Agency(s) Responsible: United States Army Corps of Engineers.

2.5. Contact Person on Project: Mr. Ron Deiss, CEMVR-PM-AR, telephone: 1-309-794-5185.

2.6. Return Address: Clock Tower Building, PO Box 2004, Rock Island, Illinois, 61204-2004.

3. TRADITIONAL CULTURAL PROPERTY OR SACRED SITE:

3.1. Check box(es) as appropriate:

☐ **ARCHITECTURE,** ☐ **LANDSCAPE,** ☐ **OBJECT, and/or** ☐ **SURFACE OR ARCHEOLOGY SITE**

3.2 ☐ Yes, ☐ No The project will directly or visually affect an area, building, structure, landscape, object, element, feature, or object 50 years of age or older.

__If Yes__, please submit this completed form on each such property/site and check below the kinds of project activities which would affect cultural property and/or sacred site :

☐ Rehabilitation ☐ New Construction (e. g., addition); ☐ Yard, sidewalks, plantings;

☐ Demolition; ☐ Vacate/Abandon/Sell;

☐ Other: ______________________

3.3. ☐ Yes ☐ No The project will be affected by excavation and/or ground disturbance.

__If yes__, please submit all of the following information with this form:

☐ Precise project location map (preferably USGS 7.5 min Quad with name, date, & location);

☐ Site plan showing property or site shape with map legend;

☐ Number of acres or dimensions ____________;

☐ Legal location: Section(s)__________, Township(s)__________ Range(s)__________

☐ Description of historical, architectural, archeological, or cultural significance ______________________

4. DISCLOSURE INFORMATION: The undersigned maintains that the completed information on this form is true and accurate and ☐ can or ☐ cannot be provided as public information; write name ______________________

date __________, affiliation______________, and address______________________

*We are seeking your comments to fulfill cultural resources obligations as set forth in the National Historic Preservation Act of 1966 (Public Law [PL]89-665) as amended: the National Environmental Policy Act of 1969 (PL 91-190); Executive Order (EO) 11593 for the "Protection and Enhancement of the Cultural Environment" (Federal Register, May 13, 1971); the Archaeological and Historical Preservation Act of 1974 (PL 93-291); the Advisory Council on Historic Preservation "Regulations for the Protection of Historic and Cultural Properties" (36 CFR, Part 800); and the applicable National Park Service and Corps of Engineers regulations. ENCLOSURE 3

Illinois River Ecosystem Restoration (IRER)

I (Ron Deiss, PM-A, ext 5185) received a telephone call from Preservation Partners, located in Kane County, Illinois. They desire to be involved in, and be included on, all correspondence regarding the implementing the Illinois River Ecosystem Restoration (IRER) project, authorized by Section 216 of the 1970 Flood Control Act and Section 519 (Illinois River Basin Restoration) of Water Resources Development Act of 2000. In the October 15, 2001 Corps letter to consulting parties, and pursuant to Section 800.3 of the Council's regulations and to meet the responsibilities under the NEPA of 1969, the Corps and the DNR developed a preliminary **Consulting Parties List**. Only those consulting parties that responded to this correspondence will remain on the final Consulting Parties List. Those on the final Consulting Parties List will be provided with study newsletters, public meeting announcements, special releases, and notifications of the availability of report(s), including all draft agreement documentation, as stipulated by 36 CFR Part 800.14(b)(ii) of the NHPA.

The address for Preservation Partners is:

c/o Ms. Liz Safanda
Preservation Partners
P.O. Box 903
St. Charles, Illinois 60174

University of Illinois
at Urbana-Champaign

UNIVERSITY LIBRARY
Illinois Historical Survey
346 Main Library
1408 West Gregory Drive
Urbana, IL 61801

217 333-1777

October 15, 2001

Mr. Ron Deiss
Planning, Programs, and Project Management Division
Rock Island District
Corps of Engineers
Department of the Army
Clock Tower Bldg., P.O. Box 2004
Rock Island, Il. 61204-2004

Dear Mr. Deiss:

Having received a letter of October 5 from Mr. Kenneth A. Barr, regarding plans for the Illinois River Ecosystem Restoration, I would like to request that the Illinois Historical Survey be placed on your mailing list.

I find the project of interest especially because I read in manuscript Professor John Thompson's fascinating study of the history of changes in the Illinois River ecosystem, a study soon to be published.

Thank you,

John Hoffmann

John Hoffmann

LEWIS UNIVERSITY

October 16,2001

Ron Deiss
Planning,Programs ,and Project Management Division
Dept. of the Army
Rock Island District Corps of Engineers
Rock Island ,Ill.61204-2004

Dear Mr. Deiss:

I recently recieved the Army Corps Distribution on the Illinois River Project called IRER.It was addressed to the Illinois Canal Society. That organization has turned its files etc. over to the Lewis University Canal & Regional History Collection. This large collection has many maps etc. relating to the Illinois River,also reports dating back to the constuction of the Illinois and Michigan Canal.From this collection I recently wrote an article on the mapping of the Illinois River 1674 to 1951 to be published in the Wetlands Initiative sometime soon.

For all these reasons we would like to be placed on your mailing list in regard to the Illinois Ecosystem Restoration in place of the Illinois Canal Society.

Yours truly,

John Lamb, Director
Canal and Regional History Collection
Ext. 2279

One University ~~Place~~ Parkway [redacted] · Romeoville, IL 60446.2298 · 815.838.0500 · FAX 815.838.9456

A Christian Brothers University

United States Department of the Interior

ILLINOIS & MICHIGAN CANAL
National Heritage Corridor Commission
201 West Tenth Street, #1-SE
Lockport, Illinois 60441
(815) 588-6040

IN REPLY REFER TO:

H24-15(ILMI)

October 18, 2001

Department of the Army
Rock Island District, Corps of Engineers
Clock Tower Building
P.O. Box 2004
Rock Island, IL 61204-2004

Attention: Planning, Programs, and Project Management Division (Ron Deiss)

Thank you for the information provided on plans to implement the Illinois River Ecosystem Restoration (IRER). The Illinois & Michigan Canal National Heritage Corridor Commission wishes to be included on the final Consulting Parties List for this undertaking, as the Illinois & Michigan Canal forms a significant part of the historical water resources of the region.

We have only one comment at the time on the draft PA, regarding Section II., Treatment of Historic Properties. If paragraph A of that section is intended to identify the major known historical properties and districts in the project area, then it should also include the Illinois & Michigan Canal, which is a National Historic Landmark, and which functioned between Chicago and LaSalle/Peru. Extensive documentation is available on this resource and its components, including documentation by the Historic American Engineering Record (HAER) and Historic American Buildings Survey (HABS).

Sincerely,

Phyllis M. Ellin
Executive Director

cc: Anne Haaker, IHPA

FORD COUNTY HISTORICAL SOCIETY

October 20, 2001

DEPARTMENT OF THE ARMY
U.S.Army Engineering District, Rock Island
Clock Tower Bldg, - P.O. Box 2004
Rock Island, IL 61204-2004

ADDRESS CORRECTION:

Thank you for your mailing of Oct. 9, 2001, DISTRIBUTION LISTS, etc.

FORD CNTY HISTORICAL SOCIETY
~~10 MERIDIAN TERRACE~~
PAXTON IL 60957

Please correct your record of our address, for the one you have was the residence of our Executive Director who is deceased, and none of our members live at that address.

Please use address:
FORD CNTY HISTORICAL SOCIETY
201 West State St.
P.O. BOX 115
Paxton, IL 60957-0115

Thank you.

James F. Anderson
James F. Anderson

RECEIVED
OCT 22 2001
CEMVR-OD-P

POST OFFICE BOX ~~213~~ 115 PAXTON, ILLINOIS 60957

TRADITIONAL CULTURAL PROPERTY AND SACRED SITE FORM*

The purpose of this form is to document a traditional cultural property and/or sacred site, which may be affected by a project currently proposed. Provided below is information on our proposed project.

1. PROJECT DESCRIPTION: The Chicago, Rock Island, and St. Louis Districts of the U.S. Army Corps of Engineers (Corps) and the Illinois Department of Natural Resources (DNR) have entered into a partnership for the purposes of implementing the Illinois River Ecosystem Restoration (IRER), authorized by Section 216 of the 1970 Flood Control Act and Section 519 (Illinois River Basin Restoration) of Water Resources Development Act of 2000. The Corps and the DNR have determined that the implementation of the IRER may have an effect upon properties listed on, or eligible for inclusion in, the National Register of Historic Places (National Register), and will consult with the Advisory Council on Historic Preservation (Council) and the Illinois State Historic Preservation Officer (SHPO) pursuant to Section 800.14(b) of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470[f]), and Section 110(f) of the same Act (16 U.S.C. 470h-2[f]).

2. GENERAL INFORMATION:

2.1. Site or Property Name (if applicable): La Salle County Historical Museum

2.2. Address: Mill + Canal st., P.O. Box 278

2.3. County: La Salle City: Utica, Il. Zip: 61373

2.4. Federal Agency(s) Responsible: United States Army Corps of Engineers.

2.5. Contact Person on Project: Mr. Ron Deiss, CEMVR-PM-AR, telephone: 1-309-794-5185.

2.6. Return Address: Clock Tower Building, PO Box 2004, Rock Island, Illinois, 61204-2004.

3. TRADITIONAL CULTURAL PROPERTY OR SACRED SITE:

3.1. Check box(es) as appropriate:

☒ **ARCHITECTURE,** ☐ **LANDSCAPE,** ☐ **OBJECT, and/or** ☐ **SURFACE OR ARCHEOLOGY SITE**

3.2 ☒ Yes, ☐ No The project will directly or visually affect an area, building, structure, landscape, object, element, feature, or object 50 years of age or older.

If Yes, please submit this completed form on each such property/site and check below the kinds of project activities which would affect cultural property and/or sacred site :

☐ Rehabilitation ☐ New Construction (e. g., addition); ☐ Yard, sidewalks, plantings;

☐ Demolition; ☐ Vacate/Abandon/Sell;

☒ Other: Historic site located on Il. + Michigan Canal, Heritage Corridor

3.3. ☐ Yes ☐ No The project will be affected by excavation and/or ground disturbance.

If yes, please submit all of the following information with this form:

☐ Precise project location map (preferably USGS 7.5 min Quad with name, date, & location);

☐ Site plan showing property or site shape with map legend;

☐ Number of acres or dimensions__________;

☐ Legal location: Section(s)______, Township(s)______ Range(s)______

☐ Description of historical, architectural, archeological, or cultural significance ______

4. DISCLOSURE INFORMATION: The undersigned maintains that the completed information on this form is true and accurate and ☐ can or ☐ cannot be provided as public information; write name Mary Tonnasoni

date 10-23-01, affiliation Director, and address______

*We are seeking your comments to fulfill cultural resources obligations as set forth in the National Historic Pres (Public Law [PL]89-665) as amended: the National Environmental Policy Act of 1969 (PL 91-190); Executive Orc "Protection and Enhancement of the Cultural Environment" (Federal Register, May 13, 1971); the Archaeolo Preservation Act of 1974 (PL 93-291); the Advisory Council on Historic Preservation "Regulations for the Protecti Cultural Properties" (36 CFR, Part 800); and the applicable National Park Service and Corps of Engineers regulations.

PALOS HISTORICAL SOCIETY
c/o PALOS PARK PUBLIC LIBRARY
12330 Forest Glen Boulevard
Palos Park, Illinois 60464

October 24, 2001

Department of the Army
Attention: Planning, Programs, and Project Management Division
Rock Island Corps of Engineers
Clock Tower Building – PO Box 2004
Rock Island, Illinois 61204-2004

Gentlemen:

With reference to your letter of October 5, 2001 concerning your project to implement the Illinois River Ecosystem Restoration Act, please place the Palos Historical Society on your final Consulting Parties List. Thank you.

Sincerely,

William Poore
Secretary

cc: Robert Hazel
President, Palos Historical Society

Illinois Historic
Preservation Agency

1 Old State Capitol Plaza • Springfield, Illinois 62701-1507 • (217) 782-4836 • TTY (217) 524-7128

Various County
Illinois
Illinois River Ecosystem Restoration
Illinois River Watershed (54 counties)
IHPA LOG #0110100006WVA

October 25, 2001

Mr. Kenneth A. Barr
U.S. Army Corps of Engineers, Rock Island District
Chief, Economic & Environmental Analysis Branch
Clock Tower Building/P.O. Box 2004
Rock Island, IL 61204-2004

Dear Sir:

We have reviewed the Draft Programmatic Agreement (P.A.) regarding the implementation of the Illinois River Ecosystem Restoration. We concur that undertakings implemented under this program in accordance with the stipulations of the P.A. will adequately take into account the Corps' and IDNR's responsibilities under Section 106 of the National Historic Preservation Act of 1966, as amended. We look forward to receiving the Final P.A. for signature and the subsequent implementation of this agreement.

Sincerely,

Anne E. Haaker

Anne E. Haaker
Deputy State Historic
Preservation Officer

AEH:CW

SAC AND FOX NAGPRA CONFEDERACY

"MESKWAKI"
Sac and Fox of the Mississippi in Iowa
349 Meskwaki Rd
Tama, IA 52339-9629
515-484-4678
Fax: 515-484-5358
Contact:
Johnathan L. Buffalo

Sac and Fox Nation of Missouri in Kansas and Nebraska
305 N Main
Reserve, KS 66434
785-742-7471
Fax: 785-742-2979
Contact: Deanne Bahr

Sac and Fox Nation of Oklahoma
Rt. 2 Box 246
Stroud, OK 74079
918-968-2353
Fax: 918-968-2353
Contact: Sandra Massey

November 26, 2001

Department of the Army
Rock Island District, Corps of Engineers
Clock Tower Building – P.O. Box 2004
Rock Island, Illinois 61204-2004
ATTN: Planning, Programs, and Project Management Division
(Ron Deiss)

Dear Mr. Diess:

Thank you for your letter, which is in compliance with Section 106 of the National Historic Preservation Act, and Section 110.

The main contact group of the Sac and Fox in issues that result in inadvertent finds of human remains or funerary objects pertaining to:

The Chicago, Rock Island, and St. Louis Districts of the U.S. Army Corps of Engineers (Corps) and the State of Illinois Department of Natural Resources (DNR) have entered into a partnership for the purposes of implementing the Illinois River Ecosystem Restoration (IRER) project,

will be Johnathan Buffalo of the Sac and Fox Tribe of Mississippi in Iowa. Mr. Buffalo's number is 515-484-4678.

Sincerely,

Deanne Bahr
Deanne Bahr
Sac and Fox Nation of Missouri
NAGPRA Contact Representative

Illinois
Department of
Natural Resources
http://dnr.state.il.us
524 South Second Street, Springfield, Illinois 62701-1787
George H. Ryan, Governor • Brent Manning, Director

December 13, 2001

Mr. Ron Diess
Economic and Environmental Analysis Branch
Department of the Army
Rock Island District, Corps of Engineers
Clock tower Building
P.O. Box 2004
Rock Island, Illinois 61204-2004

Dear Ron,

Enclosed is a modified version of the draft Programmatic Agreement for the Illinois River Ecosystem Restoration project. Essentially, the Illinois Department of Natural Resources desires to be a participant to the Programmatic Agreement but does not think it should have responsibility for the administration of Historic Properties. Consequently, I have deleted appropriate references to DNR. As we discussed, it is expected that DNR will be consulted when archaeological investigations are conducted on DNR property. It is also expected that DNR will have an opportunity to review and comment on all archaeological work conducted on DNR property.

Under separate cover I will provide you with a permit to conduct archaeological work on DNR property that will apply to the Illinois River Ecosystem Restoration project.

If I can be of further assistance, please let me know.

Sincerely,

Harold Hassen, Ph.D.
Cultural Resource Coordinator
Division of Resource Review and Coordination

PEORIA TRIBE OF INDIANS OF OKLAHOMA
118 S. Eight Tribes Trail (918) 540-2535 FAX (918) 540-2538
P.O. Box 1527
MIAMI, OKLAHOMA 74355

CHIEF
John P. Froman

SECOND CHIEF
Joe Goforth

February 19, 2002

Kenneth A. Barr
Chief, Economic & Environmental Analysis Branch
Rock Island District Corps of Engineers
Clock Tower Building PO Box 2004
Rock Island, Ill 61204-2004

RE: Illinois River Ecosystem Restoration Project

Thank you for notice of the referenced project. The Peoria Tribe of Indians of Oklahoma is currently unaware of any documentation directly linking Indian Religious Sites to the Illinois River Ecosystem Project. In the event any items falling under the Native American Graves Protection and Repatriation Act (NAGPRA) are discovered during construction, the Peoria Tribe request notification and further consultation.

The Peoria Tribe has no objection to the proposed construction. However, if any human skeletal remains and/or any objects falling under NAGPRA are uncovered during construction, the construction should stop immediately, and the appropriate persons, including state and tribal NAGPRA representatives contacted.

John P. Froman
Chief

xc: Bud Ellis, Repatriation/NAGPRA Committee Chairman

DEPARTMENT OF THE ARMY
ROCK ISLAND DISTRICT. CORPS OF ENGINEERS
CLOCK TOWER BUILDING - P.O. BOX 2004
ROCK ISLAND, ILLINOIS 61204-2004

REPLY TO
ATTENTION OF

October 16, 2002

Planning, Programs, and
Project Management Division (310-2d)

Mr. Brent Manning
Director
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, Illinois 62702-1271

Dear Mr. Manning:

The Chicago, Rock Island, and St. Louis Districts of the U.S. Army Corps of Engineers (Corps) and the State of Illinois Department of Natural Resources (DNR) have entered into a partnership for the purposes of implementing the Illinois River Ecosystem Restoration (IRER) project, authorized by Section 216 of the 1970 Flood Control Act and Section 519 (Illinois River Basin Restoration) of the Water Resources Development Act of 2000.

The Corps and the Illinois DNR have determined that the implementation of the IRER may have an effect upon properties listed on, or eligible for listing on, the National Register of Historic Places (NRHP). The Corps and the Illinois DNR have consulted with the Advisory Council on Historic Preservation (Council) and the Illinois State Historic Preservation Officer (SHPO) pursuant to Section 800.14(b) of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470[f]) (NHPA), and Section 110(f) of the same Act (16 U.S.C. 470h-2[f]) (see enclosed Fact Sheet, Enclosure 1).

Pursuant to Section 800.3 of the Council's regulations and to meet the responsibilities under the National Environmental Policy Act of 1969 (NEPA), the Corps and the Illinois DNR developed a preliminary **Consulting Parties List** comprised of 325 parties, including 47 federally recognized Native American Tribes. Only those consulting parties that responded to the initial correspondence (dated October 5, 2001) to participate in the consultation process remained on the final **Consulting Parties List** (Enclosure 2). The final **Consulting Parties List** allows for agencies, tribes, individuals, organizations, and other interested parties an opportunity to provide views on any effects of this undertaking on historic properties resulting from the IRER and implementation of the ***PROGRAMMATIC AGREEMENT*** *Among the Chicago, Rock Island, and St. Louis Districts of the U.S. Army Corps of Engineers, the State of Illinois Department of Natural Resources, the Illinois State Historic Preservation Officer, and the Advisory Council on Historic Preservation, Regarding Implementation of the Illinois River Ecosystem Restoration* (PA).

Enclosure 3 is correspondence received from the Illinois DNR, the Illinois Historic Preservation Agency (IHPA), and other consulting parties (in chronological order). All comments were taken in consideration during the development of the final draft of the PA.

Those on the enclosed final **Consulting Parties List** will be provided with study news-letters, public meeting announcements, special releases, and notifications of the availability of report(s), as stipulated by 36 CFR Part 800.14(b)(ii) of the NHPA. The Corps and the Illinois DNR will execute the PA, as stipulated by 36 CFR Part 800.14(b)(ii) of the NHPA, to afford protection to known and unknown historic properties accorded by the NHPA. The executed PA will be in every NEPA document resulting from the IRER, as evidence of the Corps and the Illinois DNR's compliance promulgated by the NHPA and the consulting process.

The enclosed PA (Enclosure 4) has been signed by the Commanders of the Corps' Chicago, Rock Island, and St. Louis Districts participating with the Illinois DNR in the IRER program. The Corps requests Mr. Brent Manning, Director of the Illinois DNR, to sign the PA in support of the IRER program in partnership with the Corps. Following signature, the Corps requests that the Illinois DNR forward the PA to the IHPA (in the envelope provided). The Corps appreciates the efforts of the Illinois DNR and the IHPA in executing this PA and in fulfilling our require-ments promulgated under the NHPA and NEPA.

By copy of this letter forwarding the original executed PA to the Illinois DNR, the Corps requests that the IHPA refer to past compliance correspondence on this subject (IHPA LOG #0110100006WVA) and that Deputy SHPO Ms. Anne Haaker please sign the PA when it is forwarded from the Illinois DNR. The Corps and the Illinois DNR appreciate the contributions of the IHPA and Ms. Haaker. Upon signature of the original PA by the Deputy SHPO, the Corps directs the IHPA to return the original signed PA to Mr. Ron Deiss at the Corps' Rock Island District (in the envelope provided) for final execution by the Council.

If you have questions concerning the IRER and the execution of the PA, or the Corps and the Illinois DNR's coordination procedures and efforts promulgated by the NHPA, please call Mr. Ron Deiss of our Economic and Environmental Analysis Branch, telephone 309/794-5185, or write to our address above, ATTN: Planning, Programs, and Project Management Division (Ron Deiss).

Sincerely,

ORIGINAL SIGNED BY

John P. Carr
Acting Chief, Economic and
Environmental Analysis Branch

Enclosures

Copies Furnished:

Ms. Anne Haaker
Deputy State Historic Preservation Officer
Illinois Historic Preservation Agency
1 Old State Capitol Plaza
Springfield, Illinois 62701 (with/enclosures 1-3)

Dr. Harold Hassen
Illinois Department of Natural Resources
One Natural Resource Way
Springfield, Illinois 62702-1271 (with enclosures 1-3)

ATTN: Mr. Thomas McCullouch
C/o Mr. Don L. Klima, Director
Eastern Office of Project Review
The Old Post Office Building
1100 Pennsylvania Avenue, NW., Suite 809
Washington, D.C. 20004 (with enclosures 1-3)

ATTN: CEMVD-MD-PR (Ms. Carroll Johnson)
Commander
U.S. Army Engineer Division, Mississippi Valley
1400 Walnut Street
P.O. Box 80
Vicksburg, Mississippi 39181-0080 (with enclosures 1-3)

ATTN: CEMVS-PM-EA (Mr. Terry Norris)
Commander
U.S. Army Engineer District, St. Louis
1222 Spruce Street
St. Louis, Missouri 63101-2833 (with enclosures 1-3)

ATTN: CELRC-PM-PS (Mr. Keith G. Ryder)
Commander
U.S. Army Engineer District, Chicago
111 North Canal Street
Chicago, Illinois 60606 (with enclosures 1-3)

FACT SHEET
Illinois River Ecosystem Restoration (IRER) Project

The Chicago, Rock Island, and St. Louis Districts of the U.S. Army Corps of Engineers (Corps) and the State of Illinois Department of Natural Resources (DNR) have prepared for execution the final *Programmatic Agreement Among the Chicago, Rock Island, and St. Louis Districts of the U.S. Army Corps of Engineers, the State of Illinois Department of Natural Resources, the Illinois State Historic Preservation Officer, and the Advisory Council on Historic Preservation, Regarding Implementation of the Illinois River Ecosystem Restoration.* The execution of this Programmatic Agreement by the signatories forms a partnership for the purposes of implementing the Illinois River Ecosystem Restoration (IRER) project, authorized by Section 216 of the 1970 Flood Control Act and Section 519 (Illinois River Basin Restoration) of the Water Resources Development Act of 2000.

The Corps and the Illinois DNR have determined that the implementation of the IRER may have an effect upon properties listed on, or eligible for listing on, the National Register of Historic Places (NRHP), and will consult with the Advisory Council on Historic Preservation (Council), the Illinois State Historic Preservation Officer (SHPO), and other consulting parties pursuant to Section 800.14(b) of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C. 470[f]), and Section 110(f) of the same Act (16 U.S.C. 470h-2[f]). The Corps and the Illinois DNR have previously invited the SHPO, Council, Tribal Historic Preservation Officers, and any other interested parties to participate in the consultation process and in the development of the final Programmatic Agreement for the IRER.

The IRER encompasses the reach of the Illinois River watershed located in the State of Illinois (54 counties) (see enclosed map) with two types of efforts: (1) system evaluations focused on assessing the overall watershed needs and general locations for restoration and (2) site-specific evaluations focused on developing detailed restoration options for possible implementation at specific sites by project planning, engineering, construction, and monitoring, with interdisciplinary and collaborative planning for habitat restoration, preservation, and enhancement. The Corps and the Illinois DNR will manage the IRER throughout all stages of individual habitat project development, restoration, construction, and management. Several other Federal agencies, as well as non-government entities and individual citizens, also will regularly participate in the development of projects within the IRER.

Pursuant to Section 800.3 of the Council's regulations and to meet the responsibilities under the National Environmental Policy Act of 1969 (NEPA), the Corps and the Illinois DNR developed a preliminary Consulting Parties List. The preliminary Consulting Parties List, comprised of 325 parties, included 47 federally recognized tribes. Although the IRER presently lies entirely within the State of Illinois, consulting parties from elsewhere in the United States are given equal and due consideration. Since the Corps remains unaware of any lands held in Federal trust or of any Federal trust responsibilities for Native American Indians within the Illinois River watershed, the Corps requested any information concerning our Federal trust responsibilities.

Enclosure 1

Those on the list were asked to comment on earlier drafts of the Programmatic Agreement and submit a request to be placed on the final Consulting Parties List. Those on the final Consulting Parties List will be provided with study newsletters, public meeting announcements, special releases, and notifications of the availability of report(s), including all draft agreement documentation, as stipulated by 36 CFR Part 800.14(b)(ii) of the NHPA. Consulting parties may request correspondence on future topics relevant to compliance concerning IRER and to provide comments. Comments on the IRER program or projects received by the Corps and the Illinois DNR will be taken into account when finalizing plans for the IRER, as promulgated by the NHPA.

The Corps is concerned about impacts to those traditional cultural properties and sacred sites recognized by Native Americans, tribes, ethnic and religious organizations, communities, and other groups as potentially affected by the IRER. Presently, the Corps is unaware of any traditional cultural properties or sacred sites within the Illinois River watershed. Those on the preliminary Consulting Parties List were asked to notify the Corps about traditional cultural properties or potential effects known or identified. To facilitate tribal coordination, the Corps asked those on the preliminary Consulting Parties List to refer to the National Park Service, NRHP Bulletin 38, Guidelines for Evaluating and Documenting Traditional Cultural Properties and were provided with a Traditional Cultural Property and Sacred Site Form developed by the Corps for the IRER. Traditional Cultural Property location and ancillary information may not be disclosed to the public pursuant to Section 304 of the NHPA.

The Corps and the Illinois DNR propose to execute the Programmatic Agreement, as stipulated by 36 CFR Part 800.14(b)(ii) of the NHPA to afford protection to known and unknown historic properties accorded by the NHPA. As regulated by 36 CFR Part 800.8(c)(1), the executed Programmatic Agreement will be used within reports promulgated under NEPA.

Questions concerning the IRER Programmatic Agreement, the final Consulting Parties List, or the Corps and the Illinois DNR coordination procedures and efforts promulgated by the NHPA, can be addressed to Mr. Ron Deiss of the Rock Island District's Economic and Environmental Analysis Branch, by telephoning 309/794-5185, or by writing to the following address: ATTN: Planning, Programs, and Project Management Division (Ron Deiss), U.S. Army Engineer District, Rock Island, Clock Tower Building, P.O. Box 2004, Rock Island, Illinois 61204-2004.

END

Consulting Parties List

Illinois River Ecosystem Restoration (IRER)

Mr. John Hoffman
University of Illinois at Urbana-Champaign
University Library
Illinois Historical Survey
346 Main Library
1408 West Gregory Drive
Urbana, Illinois 61801

Mr. John Lamb
Director
Canal and Regional History Collection
Lewis University
One University Parkway
Romeoville, Illinois 60446-2298

Ms. Phyllis M. Ellin
Executive Director
United States Department of the Interior
Illinois & Michigan Canal
National Heritage Corridor Commission
201 West Tenth Street, #1-SE
Lockport, Illinois 60441

Mr. James F. Anderson
Ford County Historical Society
201 West State Street
P.O. Box 115
Paxton, Illinois 60957-0115

Director
La Salle County Historical Museum
Mill & Canal Street
P.O. Box 278
Utica, Illinois 61373

Mr. William Poore
Secretary
Palos Historical Society
c/o Palos Public Library
12330 Forest Glen Boulevard
Palos Park, Illinois 60464

Mr. Johnathan Buffalo
Sac and Fox Tribe of the Mississippi in Iowa
349 Meskwaki Road
Tama, Iowa 52339-9629

Mr. John P. Froman
Chief
Peoria Tribe of Indians of Oklahoma
118 S. Eight Tribes Trail
P.O. Box 1527
Miami, Oklahoma 74355

Ms. Liz Safanda
Preservation Partners
P.O. Box 903
St. Charles, Illinois 60174

Enclosure 2

PROGRAMMATIC AGREEMENT

Among the
Chicago, Rock Island, and St. Louis Districts of the U.S. Army Corps of Engineers,
the State of Illinois Department of Natural Resources,
the Illinois State Historic Preservation Officer,
and the Advisory Council on Historic Preservation,
Regarding Implementation of the
Illinois River Ecosystem Restoration

WHEREAS, the Chicago, Rock Island, and St. Louis Districts of the U.S. Army Corps of Engineers (hereafter, Corps) and the State of Illinois Department of Natural Resources (hereafter DNR) determined that the Illinois River watershed exhibits loss of aquatic habitat and have entered into a partnership for the purpose of implementing the Illinois River Ecosystem Restoration (IRER) authorized by Section 216 of the 1970 Flood Control Act and Section 519 (Illinois River Basin Restoration) of the Water Resources Development Act of 2000; and

WHEREAS, the Corps and the DNR have determined that the implementation of the IRER may have an effect upon properties listed on, or eligible for listing on, the National Register of Historic Places (National Register), and have consulted with the Advisory Council on Historic Preservation (Council) and the Illinois State Historic Preservation Officer (SHPO) pursuant to Section 800.14(b) of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470[f]), and Section 110(f) of the same Act (16 U.S.C. 470h-2[f]); and

WHEREAS, the IRER study area encompasses the entire Illinois River watershed located in Illinois (54 counties) with two types of efforts: (1) system evaluations focused on assessing the overall watershed needs and general locations for restoration and (2) site-specific evaluations focused on developing detailed restoration options for possible implementation at specific sites by project planning, engineering, construction, and monitoring with interdisciplinary and collaborative planning for habitat restoration, protection, preservation, and enhancement. The Corps and the DNR will manage the IRER throughout all stages of individual habitat project development, restoration, and management. Several other Federal agencies, as well as non-government entities and individual citizens, also will regularly participate in the development of projects within the IRER; and

WHEREAS, the study area includes four IRER areas identified as (1) watershed stabilization, (2) side channel and backwater modification, (3) water level management, and (4) floodplain restoration and protection. The focus areas will be implemented by habitat creation (islands, ponds, wetlands, potholes, channels, backwaters, etc.), flow control structures (grade

Enclosure 4

controls, dams, dikes, detention basins, weirs, riffles, fish passage, levees, etc.), habitat enhancements (anchor trees, stumps, plantings, management of timber and forest stands, regulation of water levels, etc.), and structure removals/modifications (snagging, clearing, dikes, borrowing, trenching, dredging, etc.); and

WHEREAS, pursuant to Section 800.3 of the Council's regulations, and to meet the Corps' and DNR's responsibilities under the National Environmental Policy Act of 1969, the Corps has developed a **Consulting Parties List** which was developed in consultation with the SHPO/Tribal Historic Preservation Officers (THPOs), Tribes, and other parties that may have an interest in the effects of this undertaking on historic properties. Those on the **Consulting Parties List,** comprised of 325 parties, including 47 federally recognized Tribes, were asked to comment on earlier drafts of this Programmatic Agreement or be provided with study newsletters, public meeting announcements, special releases, and notifications of the availability of report(s), including all draft agreement documentation, as stipulated by 36 CFR Part 800.14(b)(ii) of the National Historic Preservation Act. Comments received by the Corps were taken under consideration in developing this Programmatic Agreement; and

WHEREAS, the Corps has provided scholarly evidence of stewardship in the recordation, protection, and management of historic properties along the Illinois Waterway System through systemic research and studies which have been finalized and approved, then placed in the permanent files of the Corps and SHPO as evidence of compliance promulgated under Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations, 36 CFR Part 800: "Protection of Historic Properties." [These studies included: (1) archeological studies (management of documented and undocumented historic properties), (2) architectural and engineering studies (buildings, structures, and objects associated with Multiple Property National Register Districts), (3) erosion studies, (4) land form sediment assemblage studies (geomorphology) and (5) submerged historic property study (historic shipwrecks and other underwater or previously inundated historic properties)]; and

NOW, THEREFORE, the Corps, the DNR, the SHPO, and the Council agree that the undertakings authorized under Section 216 of the 1970 Flood Control Act and Section 519 (Illinois River Basin Restoration) of the Water Resources Development Act of 2000 shall be implemented in accordance with the following stipulations:

I. IDENTIFICATION AND EVALUATION OF HISTORIC PROPERTIES

The Corps will ensure that the following measures are implemented:

A. The Corps will take all measures necessary to discover, preserve, and avoid significant historic properties listed on, or eligible for listing on, the National Register, burials, cemeteries, or sites likely to contain human skeletal remains/artifacts and objects associated with interments or religious activities, and provide this information, studies, and/or reports to the SHPO/THPO.

Under consultation with the SHPO/THPO(s) and the other consulting parties, the Corps will describe and define the Area of Potential Effect (hereafter referred to as the APE) in accordance with the definition contained in 36 CFR Part 800.16(d). The APE may be modified upon consultation with the appropriate SHPO(s)/THPO(s) through avoidance documented through the implementation of historic property surveys and testing, documentary research, recordation, and other investigation data.

B. Unless recent and modern ground surface disturbances and/or historic use can be documented and a determination made by the Corps, in consultation with the SHPO/THPO(s) and the other consulting parties, that there is little likelihood that historic properties will be adversely affected, the Corps will then conduct a historic property (reconnaissance) survey in (1) areas with the potential for containing submerged or deeply buried historic properties and (2) areas indirectly and directly affected by construction, use, maintenance, and operation during the implementation of the IRER program.

C. The Corps will ensure that all reconnaissance surveys and subsurface testing are conducted in a manner consistent with the Secretary of the Interior's Standards and Guidelines for Identification and Evaluation (48 FR 44720-23) and take into account the National Park Service publication The Archaeological Survey: Methods and Uses (1978) and any extant or most recent version of appropriate SHPO(s)/THPO(s) guidelines for historic properties reconnaissance surveys/reports, related guidance, etc. The reconnaissance surveys and subsurface testing will be implemented by the Corps and monitored by the SHPO/THPO(s).

D. In consultation with the SHPO, the appropriate THPO(s), and the other consulting parties, the Corps will evaluate for eligibility all significant historic properties by applying the National Register criteria (36 CFR Part 60.4). The Corps will use its archival documentation as a context in which to make National Register evaluations of historic properties.

1. For those properties that the Corps, the SHPO/THPO(s), and the other consulting parties agree are not eligible for inclusion on the National Register, no further historic properties investigations will be required, and the project may proceed in those areas.

2. If the survey results in the identification of properties that the Corps, the SHPO/THPO(s), and the other consulting parties agree are eligible for inclusion on the National Register, the Corps shall treat such properties in accordance with Part II below.

3. If the Corps, the SHPO/THPO(s), and the other consulting parties do not agree on National Register eligibility, or if the Council or the National Park Service so request, the Corps will request a formal determination of eligibility from the Keeper of the National Register, National Park Service, whose determination shall be final.

4. Relative to the treatment of historic properties and the identification of traditional cultural properties, the Corps will continue to provide the appropriate Tribe(s), the THPO(s), and the other consulting parties information related to treatment measures proposed by the Corps. Consideration of comments received by the Corps can be considered by the signatories to be measures to assist the Corps in meeting its responsibilities under the National Historic Preservation Act of 1966, as amended (Public Law 89-665), and the regulations of the Advisory Council on Historic Preservation, "Regulations for the Protection of Historic and Cultural Properties" (36 CFR, Part 800).

II. TREATMENT OF HISTORIC PROPERTIES

Those individual historic properties and multiple property districts that the Corps, the SHPO/ THPO(s), and the other consulting parties agree are eligible for nomination to, or that the Keeper has determined eligible for inclusion on, the National Register, will be treated by the Corps in the following manner:

A. Archival Documentation of the Construction and Operation of the Historic Locks and Dams and Management of Historic Properties: The Corps has provided scholarly evidence of stewardship in the recordation, protection, and management of historic properties along the Illinois Waterway System through systemic research and studies which have been finalized and approved, then placed in the permanent files of the Corps and SHPO. These studies included: (1) archeological studies (management of documented and undocumented historic properties), (2) architectural and engineering studies (buildings, structures, and objects associated with Multiple Property National Register-eligible **Illinois Waterway Navigation System Facilities**, (3) land form sediment assemblage studies (geomorphology), and (4) submerged historic property study (historic shipwrecks and other underwater or previously inundated historic properties).

B. Treatment of Archaeological Historic Properties:

1. If the Corps determines, in consultation with the SHPO/THPO(s) and the other consulting parties, that no other actions are feasible to avoid and minimize effects to archaeological historic properties, then the Corps will develop a treatment plan, which may include various levels of data recovery, recordation, documentation, and active protection measures. The Corps will implement the treatment plan in consultation with the SHPO/THPO(s) and the other consulting parties.

2. If data recovery is the agreed upon treatment, the data recovery plan will address substantive research questions developed in consultation with the SHPO/ THPO(s) and the other consulting parties. The treatment plan shall be consistent with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation (48 FR 44734-37) and take into

account the Council's publication, Treatment of Archaeological Properties (Advisory Council on Historic Preservation, 1980) and SHPO/THPO(s) guidance. It will specify, at a minimum, the following:

a. The property, properties, or portions of properties where the treatment plan is to be carried out;

b. The research questions to be addressed, with an explanation of research relevance and importance;

c. The methods to be used, with an explanation of methodological relevance to the research questions;

d. Proposed methods of disseminating results of the work to the interested public; and,

e. A proposed schedule for the submission of progress reports to the SHPO/THPO(s).

3. The Corps will submit the treatment plan to the SHPO/THPO(s) and the other consulting parties for 30 days' review and comment. The Corps will take into account SHPO/THPO(s) and the other consulting parties' comment(s), and will ensure that the data recovery plan is implemented. The SHPO/THPO(s) and the other consulting parties may monitor this implementation.

4. The Corps will ensure that the treatment plan is carried out by or under the direct supervision of an archaeologist(s), architectural historian(s) and/or other appropriate cultural resource specialist that meets, at minimum, the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-9).

5. The Corps will ensure that adequate provisions, including personnel, time, and laboratory space are available for the analysis and curation of recovered materials from historic properties.

6. The Corps will develop and implement an adequate program in consultation with the SHPO/THPO(s) and the other consulting parties to secure archaeological historic properties from vandalism during data recovery.

III. TREATMENT OF HUMAN REMAINS, FUNERARY OBJECTS, SACRED OBJECTS, OR OBJECTS OF CULTURAL PATRIMONY, AND CURATED ITEMS

A. When human remains, funerary objects, sacred objects, or objects of cultural patrimony are encountered or collected, the Corps will comply with all provisions outlined in the appropriate state acts, statutes, guidance, provisions, etc., and any decisions regarding the treatment of human remains will be made recognizing the rights of lineal descendants, Tribes, and other Native American Indians and under consultation with the SHPO/THPO(s) and the other consulting parties, designated Tribal Coordinator, and/or other appropriate legal authority for future and expedient disposition or curation. When finds of human remains, funerary objects, sacred objects, or objects of cultural patrimony are encountered or collected from Federal lands or federally recognized tribal lands, the Corps will coordinate with the appropriate federally recognized Native American Tribes, pursuant to the Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. § 3001 *et seq.*) and its implementing regulations (43 CFR Part 10).

B. Cemeteries.

1. Any project activities that affect burials shall comply with state and local burial and cemetery laws. The county coroner shall be notified of the discovery of any human remains within 48 hours (5ILCS 5/2 and 20 ILCS 3440). The City shall notify the SHPO in order to obtain the proper permit prior to removal of remains. Burials, grave markers, and burial artifacts will not be disturbed or removed without this authorization.

2. Burials in cemeteries registered with the State Comptroller's Office are subject to the Cemetery Care Act (760 ILCS 100). A number of state laws may apply to burials that are less than 100 years old but that are not in registered cemeteries. These laws include, but are not limited to, the Cemetery Protection Act (765 ILCS 835), the Public Graveyards Act (50 ILCS 610), and several laws applying to municipalities (see 65 ILCS 5/11-49 through 65 ILCS 5/11-52.2). Authorization for removal of burials shall be as required under the applicable statute.

3. Burials over 100 years old that are not in registered cemeteries are subject to the Human Skeletal Remains Protection Act (HSRPA) (20 ILCS 3440 and its rule 17 Ill.Adm.Code 4170). This agreement constitutes authorization under Section 16 of HSRPA for removal of any burials that will be affected by the project at locations the SHPO agrees cannot be easily avoided. However, review and approval of specific data recovery plans are still required under 17 Ill.Adm.Code 4170.300(d)(3).

4. Disposition of any discovered human skeletal remains, burial markers, burial artifacts, and documentation of the removal project shall be completed as required by the applicable statute and shall be fully coordinated with the SHPO pursuant to 17 IAC 4147.

C. Collected artifacts, samples, and other physical objects shall be returned to the land-owner as real estate upon request. Owners can donate or transfer their ownership rights to the Corps. In consultation with the SHPO/THPO(s), the Corps will ensure that all donated artifacts, samples, and other physical objects with related and associated research materials and records resulting from the historic properties studies are curated at repositories within the State of Illinois in accordance with 36 CFR Part 79.

IV. REPORTS

The Corps will ensure that all final historic property reports resulting from the actions pursuant to this Agreement will be provided in a format acceptable to the appropriate SHPO(s)/THPO(s). The Corps will ensure that all such reports are responsive to contemporary standards, and to the Department of the Interior's Format Standards for Final Reports of Data Recovery (42 FR 5377-79). Precise locations of significant historic properties may be provided only in a separate appendix if it appears that the release of this data could jeopardize historic properties. Locations of traditional cultural properties or sacred sites, consisting of architectural, landscapes, objects, or surface or buried archaeological sites, identified in coordination with Tribes and THPO(s), will be considered to be sensitive information and, pursuant to Section 304 of the National Historic Preservation Act, the Corps will not make this information available for public disclosure. The Corps will make available for publication and public dissemination the reports and associated data, minus precise aforementioned locations and sensitive information.

V. PROVISION FOR POST-REVIEW DISCOVERIES

In accordance with 36 CFR Section 800.13, if previously undetected or undocumented historic properties are discovered during project activities, the Corps will cease, or cause to stop, any activity having an effect and consult with the SHPO/THPO(s) to determine if additional investigation is required. If further archaeological investigations are warranted or required, the Corps will perform any treatment plan in accordance with Part II - TREATMENT OF HISTORIC PROPERTIES, Part III - TREATMENT OF HUMAN REMAINS, FUNERARY OBJECTS, SACRED OBJECTS, OR OBJECTS OF CULTURAL PATRIMONY, AND CURATED ITEMS, Part IV - REPORTS, and Part V - PROVISION FOR POST-REVIEW DISCOVERIES, all of this Agreement. If the Corps and the SHPO/THPO(s) determine that further investigation is not necessary or warranted, activities may resume with no further action required. Any disagreement between the Corps and the SHPO/THPO(s) concerning the need for further investigations will be handled pursuant to Part VI - DISPUTE RESOLUTION of this Agreement.

VI. DISPUTE RESOLUTION

Should the SHPO/THPO(s) or the Council object within 30 days to any plans or actions provided for review pursuant to this Agreement, the Corps will consult with the objecting party to resolve the objection. If the Corps determines that the disagreement cannot be resolved, the Corps will request further comment from the Council in accordance with the applicable provisions of 36 CFR Part 800.7. The Corps, in accordance with 36 CFR Part 800.7(c)(4), will take any Council comment provided in response into account, with reference only to the subject of the dispute. The Corps' responsibility to carry out all actions under this Agreement that are not the subjects of the dispute will remain unchanged.

VII. TERMINATION

Any of the signatories to this Agreement may request a reconsideration of its terms or revoke the relevant portions of this Agreement upon written notification to the other signatories, by providing 30 days' notice to the other signatories, provided that these signatories will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the advent of termination, the Corps will comply with 36 CFR Parts 800.3 through 800.7 with regard to individual undertakings covered by this Agreement.

VIII. AMENDMENTS

Any signatories to this Agreement may request that it be amended, whereupon the other signatories will consult in accordance with 36 CFR, Parts 800.6(c)(7) and 800.14(b)(3), to consider such amendment.

IX. REPORTING AND PERIODIC REVIEW

The Corps will provide the SHPO/THPO(s) with evidence of compliance with this Agreement by letter on January 30, 2003, and once every 2 years thereafter said date. This documentation shall contain the name of the project, title of the documents that contained the Agreement, historic properties identified, determinations of effect, avoidance procedures, level of investigation(s) and/or mitigation(s) conducted with titles of all project reports related to such investigation(s) and/or mitigation(s) which have been completed. Every 5 years starting from the date of January 30, 2003, the Corps will provide the SHPO/THPO(s) a review report of the overall IRER to determine this Agreement's effectiveness, accuracy, and economy. Based upon this review, the Corps, the SHPO/THPO(s), and the Council will determine whether the Agreement shall continue in force, be amended, or be terminated.

X. EXECUTION AND IMPLEMENTATION

A. Nothing in this Agreement is intended to prevent the Corps from consulting more frequently with the SHPO/THPO(s) or the Council concerning any questions that may arise or on the progress of any actions falling under or executed by this Agreement.

B. The undersigned concur that the Corps has satisfied its Section 106 responsibilities for all individual undertakings through this Agreement regarding the implementation of IRER.

C. The stipulations of this Agreement are limited solely to undertakings authorized under Section 216 of the 1970 Flood Control Act and Section 519 (Illinois River Basin Restoration) of the Water Resources Development Act of 2000.

XI. SIGNATORIES TO THIS AGREEMENT

A. **CHICAGO DISTRICT, U.S. ARMY CORPS OF ENGINEERS:**

BY: [signature] Date: 4 SEP 02

Colonel Mark A. Roncoli
District Engineer
U. S. Army Corps of Engineers
Chicago District

B. **ROCK ISLAND DISTRICT, U.S. ARMY CORPS OF ENGINEERS:**

BY: [signature] Date: 30 Aug 2002

Colonel William J. Bayles
District Engineer
U. S. Army Corps of Engineers
Rock Island District

C. **ST. LOUIS DISTRICT, U.S. ARMY CORPS OF ENGINEERS:**

BY: [signature] Date: 2 OCT 02

Colonel C. Kevin Williams
District Engineer
U. S. Army Corps of Engineers
St. Louis District

XI. SIGNATORIES TO THIS AGREEMENT (Continued)

D. ILLINOIS DEPARTMENT OF NATURAL RESOURCES:

BY: ______________________________ Date: ____________________

Brent Manning
Director
Illinois Department of Natural Resources

E. ILLINOIS STATE HISTORIC PRESERVATION OFFICER:

BY: ______________________________ Date: ____________________

Anne E. Haaker
Illinois Deputy State Historic Preservation Officer
Illinois Historic Preservation Agency

F. ADVISORY COUNCIL ON HISTORIC PRESERVATION:

BY: ______________________________ Date: ____________________

John M. Fowler
Executive Director
Advisory Council on Historic Preservation

DEPARTMENT OF THE ARMY
ROCK ISLAND DISTRICT. CORPS OF ENGINEERS
CLOCK TOWER BUILDING - P.O. BOX 2004
ROCK ISLAND, ILLINOIS 61204-2004

REPLY TO
ATTENTION OF

December 4, 2002

Planning, Programs, and
Project Management Division (310-2d)

Mr. Thomas McCullouch
c/o Mr. Don L. Klima, Director
Eastern Office of Project Review
The Old Post Office Building
1100 Pennsylvania Avenue, NW., Suite 809
Washington, DC 20004

Dear Mr. McCullouch:

The Chicago, Rock Island, and St. Louis Districts of the U.S. Army Corps of Engineers (Corps), the State of Illinois Department of Natural Resources (DNR), and the Illinois State Historic Preservation Officer (SHPO) have entered into a partnership for the purposes of implementing the Illinois River Ecosystem Restoration (IRER) project, authorized by Section 216 of the 1970 Flood Control Act and Section 519 (Illinois River Basin Restoration) of the Water Resources Development Act of 2000. This protection requires the execution of a ***PROGRAMMATIC AGREEMENT*** *Among the Chicago, Rock Island, and St. Louis Districts of the U.S. Army Corps of Engineers, the State of Illinois Department of Natural Resources, the Illinois State Historic Preservation Officer, and the Advisory Council on Historic Preservation, Regarding Implementation of the Illinois River Ecosystem Restoration* (PA) to afford protection to historic properties during the implementation of the IRER.

The Corps and the Illinois DNR have determined that the implementation of the IRER may have an effect upon properties listed on, or eligible for listing on, the National Register of Historic Places (NRHP), and has consulted with the Advisory Council on Historic Preservation (Council) and the Illinois State Historic Preservation Officer (SHPO) pursuant to Section 800.14(b) of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C. 470[f]), and Section 110(f) of the same Act (16 U.S.C. 470h-2[f]) (see enclosed Fact Sheet, Enclosure 1).

Pursuant to Section 800.3 of the Council's regulations and to meet the responsibilities under the National Environmental Policy Act of 1969 (NEPA), the Corps and the Illinois DNR developed a preliminary Consulting Parties List comprised of 325 parties, including 47 federally recognized Native American Tribes. Only those consulting parties that responded to the initial correspondence to participate in the consultation process, dated October 5, 2002, remained on the final Consulting Parties List (Enclosure 2). The final Consulting Parties List allows for agencies, tribes, individuals, organizations, and other interested parties an opportunity to provide views on any effects of this undertaking on historic properties resulting from the IRER and implementation of the PA.

The enclosed comments (see Correspondence, Enclosure 3) were received from the Illinois DNR, the Illinois Historic Preservation Agency, and nine other consulting parties comprising the final Consulting Parties List. All comments were taken into consideration during the development of the final draft of the PA. Those on the enclosed final Consulting Parties List will be provided with study newsletters, public meeting announcements, special releases, and notifications of the availability of report(s), as stipulated by 36 CFR Part 800.14(b)(ii) of the NHPA. The Corps and the Illinois DNR will execute the PA, as stipulated by 36 CFR Part 800.14(b)(ii) of the NHPA to afford protection to known and unknown historic properties accorded by the NHPA. The executed PA will be in every NEPA document resulting from the IRER, as evidence of the Corps and the Illinois DNR compliance promulgated by the NHPA and the consulting process.

The enclosed PA (Enclosure 4) has been signed by the Corps Commanders (Chicago, Rock Island, and St. Louis Districts); Mr. Brent Manning, Director of the Illinois DNR; and Ms. Anne Haaker, Illinois Deputy SHPO. By execution, the signatories agree that the PA is an appropriate document to afford protection to significant historic properties during implementation of the IRER. The Corps and the Illinois DNR request that the Director of the Council sign the PA for full execution of the IRER PA. The Corps and the Illinois DNR appreciate your contributions and that of the Council in commenting on drafts of the PA, providing consultation, and in meeting our request to sign the PA. After the Council Director signs the PA, we ask that you please forward a copy of the fully executed PA to all signatories.

If you have questions concerning the IRER and the execution of the PA, or the Corps and the Illinois DNR coordination procedures and efforts promulgated by the NHPA, please call Mr. Ron Deiss of our Economic and Environmental Analysis Branch, telephone 309/794-5185, or write to our address above, ATTN: Planning, Programs, and Project Management Division (Ron Deiss).

Sincerely, ORIGINAL SIGNED BY

RICHARD FRISTIK

for Dorene A. Bollman
Acting Chief, Economic and
Environmental Analysis Branch

Enclosures

Copies Furnished:

Dr. Harold Hassen
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, Illinois 62702-1271 (with enclosures 1-3)

Ms. Anne Haaker
Deputy State Historic Preservation Officer
Illinois Historic Preservation Agency
Old State Capitol
Springfield, Illinois 62701 (with enclosures 1-3)

ATTN: CEMVD-PM-R (Ms. Carroll Kleinhans)
U.S. Army Engineer Division, Mississippi Valley
1400 Walnut Street
P.O. Box 80
Vicksburg, Mississippi 39180-0080 (with enclosures 1-3)

ATTN: CEMVS-PD-A (Mr. Terry Norris)
Commander
U.S. Army Engineer District, St. Louis
1222 Spruce Street
St. Louis, Missouri 63101-2833 (with enclosures 1-3)

ATTN: CELRC-PD-S (Mr. Keith G. Ryder)
Commander
U.S. Army Engineer District, Chicago
111 North Canal Street
Chicago, Illinois 60606 (with enclosures 1-3)

FACT SHEET

Illinois River Ecosystem Restoration
and
Illinois River Basin Restoration

The Chicago, Rock Island, and St. Louis Districts of the U.S. Army Corps of Engineers (Corps) and the State of Illinois Department of Natural Resources (DNR) desire to execute the final *Programmatic Agreement Among the Chicago, Rock Island, and St. Louis Districts of the U.S. Army Corps of Engineers, the State of Illinois Department of Natural Resources, the Illinois State Historic Preservation Officer, and the Advisory Council on Historic Preservation, Regarding Implementation of the Illinois River Ecosystem Restoration.* The execution of this Programmatic Agreement (PA) by the signatories forms a partnership for the purposes of implementing the Illinois River Ecosystem Restoration (IRER), authorized by Section 216 of the 1970 Flood Control Act and Section 519 (Illinois River Basin Restoration) of the Water Resources Development Act of 2000.

The Corps and the Illinois DNR have determined that implementation of the IRER may have an effect upon properties listed on, or eligible for listing on, the National Register of Historic Places (NRHP), and will consult with the Advisory Council on Historic Preservation (Council), the Illinois State Historic Preservation Officer (SHPO), and other consulting parties pursuant to Section 800.14(b) of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C. 470[f]), and Section 110(f) of the same Act (16 U.S.C. 470h-2[f]). The Corps and the Illinois DNR have previously invited the SHPO, Council, Tribal Historic Preservation Officers, and any other interested parties to participate in the consultation process and in the development of a final PA for the IRER.

The IRER encompasses the reach of the Illinois River watershed located in the State of Illinois (54 counties) (see attached map) with two types of efforts: (1) system evaluations focused on assessing the overall watershed needs and general locations for restoration and (2) site-specific evaluations focused on developing detailed restoration options for possible implementation at specific sites by project planning, engineering, construction, and monitoring, with interdisciplinary and collaborative planning for habitat restoration, preservation, and enhancement. The Corps and the Illinois DNR will manage the IRER throughout all stages of individual habitat project development, restoration, construction, and management. Several other Federal agencies, as well as non-government entities and individual citizens, also will regularly participate in the development of projects within the IRER.

Pursuant to Section 800.3 of the Council's regulations and to meet the responsibilities under the National Environmental Policy Act (NEPA) of 1969, the Corps and the Illinois DNR developed a preliminary Consulting Parties List. Those on the preliminary Consulting Parties List, comprised of 325 parties, including 47 federally recognized Tribes, were provided an opportunity to comment on a draft of the PA. Although the IRER presently lies entirely within the State of Illinois, consulting parties from elsewhere in the United States are given equal and due consideration. Since the Corps remains unaware of any lands held in Federal trust or of any Federal trust responsibilities for Native American Indians within the Illinois River watershed, the Corps requested any information concerning our Federal trust responsibilities.

The NHPA recognizes that properties of traditional religious and cultural importance to a tribe may be determined eligible for inclusion on the NRHP. In order to preserve, conserve, and encourage the continuation of the diverse traditional prehistoric, historic, ethnic, and folk cultural traditions within the Illinois watershed, the IRER will be implemented in compliance with Executive Order No. 13007, specifically:

> **Section 1.** *Accommodation of Sacred Sites.* (a) In managing Federal lands, each executive branch agency with statutory or administrative responsibility for the management of Federal lands shall, to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions, (1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and (2) avoid adversely affecting the physical integrity of such sacred sites. Where appropriate, agencies shall maintain the confidentiality of sacred sites.

The Secretary of the Interior's **Standards and Guidelines for Federal Agency Historic Preservation Programs** pursuant to the NHPA states that a:

> Traditional Cultural Property is defined as a property that is associated with cultural practices or beliefs of a living community that (1) are rooted in that community's history, and (2) are important in maintaining the continuing cultural identity of the community.

Allowing for tribal review and comment contributes to fulfilling our obligations as set forth in the NHPA (Public Law [PL] 89-665), as amended; the NEPA of 1969 (PL 91-190); Executive Order (EO) 11593 for the "Protection and Enhancement of the Cultural Environment" (Federal Register, May 13, 1971); the Archaeological and Historical Preservation Act of 1974 (PL 93-291); the Advisory Council on Historic Preservation "Regulations for the Protection of Historic and Cultural Properties" (36 CFR, Part 800); and the applicable National Park Service and Corps regulations and guidance.

The Corps is concerned about impacts to those traditional cultural properties and sacred sites recognized by Native Americans, tribes, ethnic and religious organizations, communities, and other groups as potentially affected by the IRER. Presently, the Corps is unaware of any traditional cultural properties or sacred sites within the Illinois River watershed. If there are concerns or potential effects known or identified, please complete a "**Traditional Cultural Property and Sacred Site Form.**" To facilitate tribal coordination, the Corps asks those on the Consulting Parties List to refer to the National Park Service, NRHP Bulletin 38, Guidelines for Evaluating and Documenting Traditional Cultural Properties, available for internet viewing at (http://www.cr.nps.gov/nr/publications/bulletins.htm). Locations of traditional cultural properties or sacred sites, consisting of architecture, landscapes, objects, or surface or buried archaeological sites, identified in this coordination effort, can be considered to be sensitive information, pursuant to Section 304 of the NHPA. Upon request from any consulting parties not to disclose locations, the Corps and the Illinois DNR will secure this information from the general public.

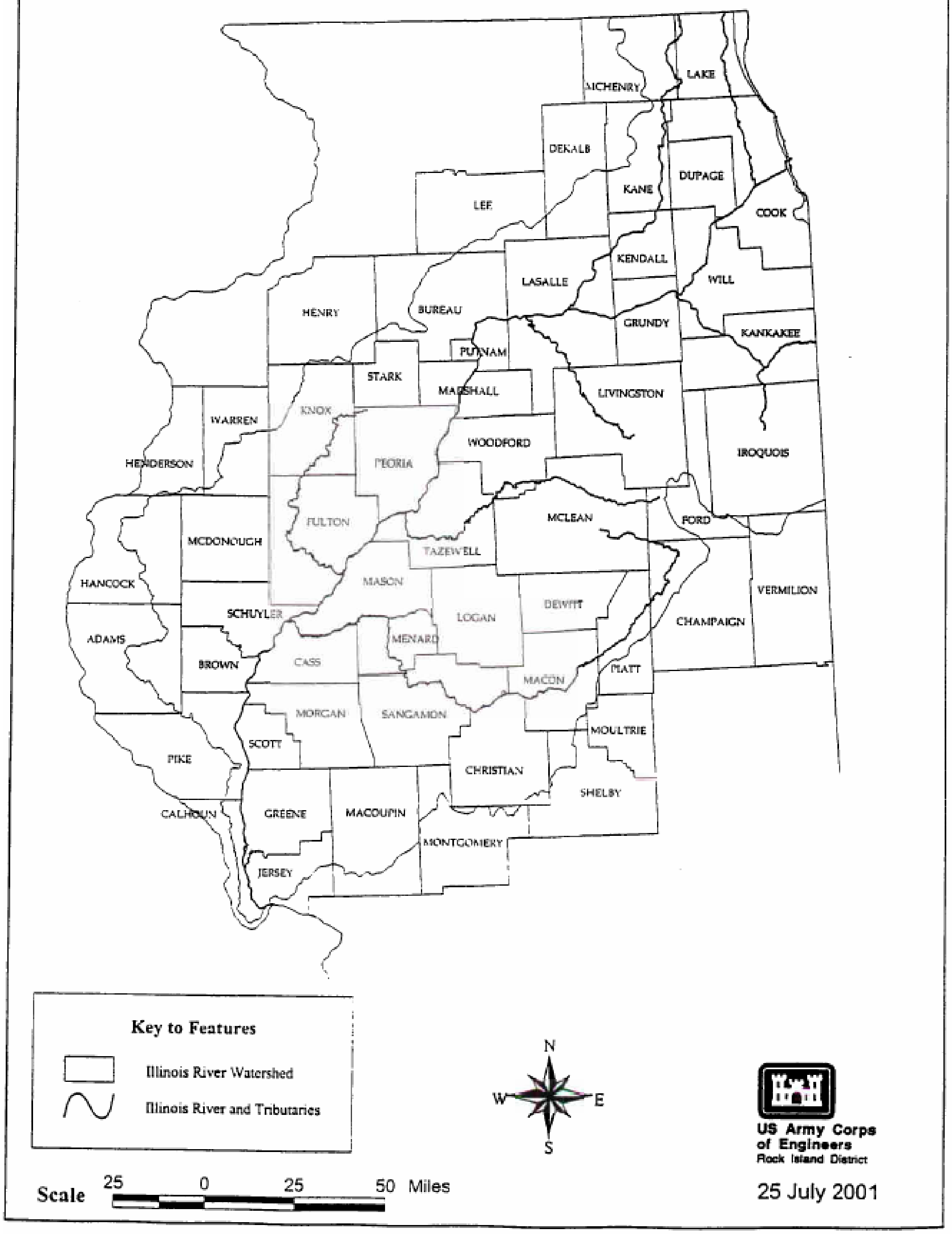
Those on the list were asked to comment on earlier drafts of this PA and submit a request to be placed on the final Consulting Parties List. Those on the final Consulting Parties List will be provided with study newsletters, public meeting announcements, special releases, and notifications of the availability of report(s), including all draft agreement documentation, as stipulated by 36 CFR Part 800.14(b)(ii) of the NHPA. Consulting parties may request correspondence on future topics relevant to compliance concerning IRER and to provide comments. Comments on the IRER program or projects received by the Corps and the Illinois DNR will be taken into account when finalizing plans for the IRER, as promulgated by the NHPA.

The Corps and the Illinois DNR propose to execute the PA, as stipulated by 36 CFR Part 800.14(b)(ii) of the NHPA to afford protection to known and unknown historic properties accorded by the NHPA. As regulated by in 36 CFR Part 800.8(c)(1), the executed PA will be used within reports promulgated under the National Environmental Policy Act (NEPA).

Questions concerning the IRER PA, the final Consulting Parties List, or the Corps and the Illinois DNR coordination procedures and efforts promulgated by the NHPA, can be addressed to Mr. Ron Deiss of the Rock Island District, Economic and Environmental Analysis Branch, by telephoning 309/794-5185, or by writing to the following address, ATTN: Planning, Programs, and Project Management Division (Ron Deiss), U.S. Army Engineer District, Rock Island, Clock Tower Building, P.O. Box 2004, Rock Island, Illinois 612604-2004.

END

Illinois River Ecosystem Restoration



Consulting Parties List

Illinois River Ecosystem Restoration
and
Illinois River Basin Restoration

Mr. William Poore
Secretary
Palos Historical Society
c/o Palos Public Library
12330 Forest Glen Boulevard
Palos Park, Illinois 60464

Ms. Phyllis M. Ellin
Executive Director
United States Department of the Interior
Illinois & Michigan Canal
National Heritage Corridor Commission
201 West Tenth Street, #1-SE
Lockport, Illinois 60441

Mr. Johnathan Buffalo
Sac and Fox Tribe of the Mississippi
in Iowa
349 Meskwaki Road
Tama, Iowa 52339-9629

Mr. John Lamb
Director
Canal and Regional History Collection
Lewis University
One University Parkway
Romeoville, Illinois 60446-2298

Ms. Liz Safanda
Preservation Partners
P.O. Box 903
St. Charles, Illinois 60174

Mr. John F. Anderson
Ford Country Historical Society
201 West State Street
P.O. Box 115
Paxton, Illinois 60957-0115

Mr. John Hoffman
University of Illinois at Urbana-Champaign
University Library
Illinois Historical Survey
346 Main Library
1408 West Gregory Drive
Urbana, Illinois 61801

Mr. Charles Clark
Director of NAGPRA
Citizen Potawatomi Nation
1601 Gordon Cooper Drive
Shawnee, Oklahoma 74801

DEPARTMENT OF THE ARMY
ROCK ISLAND DISTRICT CORPS OF ENGINEERS
CLOCK TOWER BUILDING - P.O. BOX 2004
ROCK ISLAND, ILLINOIS 61204-2004

REPLY TO
ATTENTION OF

February 7, 2003

Planning, Programs, and
Project Management Division (310-2d)

Ms. Anne Haaker
Deputy State Historic Preservation Officer
Illinois Historic Preservation Agency
1 Old State Capitol
Springfield, Illinois 62701

Dear Ms. Haaker:

The Chicago, Rock Island, and St. Louis Districts of the U.S. Army Corps of Engineers (Corps), the State of Illinois Department of Natural Resources (DNR), and the Illinois State Historic Preservation Officer (SHPO) have entered into a partnership for the purposes of implementing the Illinois River Ecosystem Restoration (IRER) project, authorized by Section 216 of the 1970 Flood Control Act and Section 519 (Illinois River Basin Restoration) of the Water Resources Development Act of 2000.

The Corps and the Illinois DNR have determined that the implementation of the IRER may have an effect upon properties listed on, or eligible for listing on, the National Register of Historic Places (NRHP), and have consulted with the Advisory Council on Historic Preservation (Council) and the Illinois SHPO pursuant to Section 800.14(b) of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C. 470[f]), and Section 110(f) of the same Act (16 U.S.C. 470h-2[f]). This protection requires the executed ***PROGRAMMATIC AGREEMENT*** *Among the Chicago, Rock Island, and St. Louis Districts of the U.S. Army Corps of Engineers, the State of Illinois Department of Natural Resources, the Illinois State Historic Preservation Officer, and the Advisory Council on Historic Preservation, Regarding Implementation of the Illinois River Ecosystem Restoration* (PA) to afford protection to historic properties during the implementation of the IRER.

The PA (copy enclosed) has been signed by the Corps Commanders (Chicago, Rock Island, and St. Louis Districts); Mr. Brent Manning, Director of the Illinois DNR; Ms. Anne Haaker, Illinois Deputy SHPO; and Mr. John Fowler, Executive Director of the Council. The Corps and the Illinois DNR appreciate your contributions and that of the Council in commenting on drafts of the PA, providing consultation, and in meeting our request to execute the PA. Please place this final copy of the PA in your permanent files as evidence of our partial fulfillment of the NHPA.

By copy of this letter, those on the **Consulting Parties List** are copied the executed PA and will be provided with study newsletters, public meeting announcements, special releases, and notifications of the availability of report(s), as stipulated by 36 CFR Part 800.14(b)(ii) of the NHPA. The Corps and the Illinois DNR will execute the PA, as stipulated by 36 CFR Part 800.14(b)(ii) of the NHPA, to afford protection to known and unknown historic properties accorded by the NHPA. When necessary, the executed PA will be in every National Environmental Policy Act (NEPA) document resulting from the IRER, as evidence of the Corps and the Illinois DNR's compliance promulgated by the NHPA and the consulting process.

If you have questions concerning the IRER and the executed PA, please call Mr. Ron Deiss of our Economic and Environmental Analysis Branch, telephone 309/794-5185, or write to our address above, ATTN: Planning, Programs, and Project Management Division (Ron Deiss).

Sincerely,

ORIGINAL SIGNED BY

Dorene A. Bollman
Acting Chief, Economic and
Environmental Analysis Branch

Enclosure

Copies Furnished:

Dr. Harold Hassen
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, Illinois 62702-1271 (with enclosure)

ATTN: CEMVD-MD-PR (Ms. Carroll Johnson)
U.S. Army Engineer Division, Mississippi Valley
1400 Walnut Street
P.O. Box 80
Vicksburg, Mississippi 39181-0080 (with enclosure)

ATTN: CEMVS-PD-A (Mr. Terry Norris)
Commander
U.S. Army Engineer District, St. Louis
1222 Spruce Street
St. Louis, Missouri 63101-2833 (with enclosure)

Copies Furnished (Continued):

ATTN: CELRC-PD-S (Mr. Keith G. Ryder)
Commander
U.S. Army Engineer District, Chicago
111 North Canal Street
Chicago, Illinois 60606 (with enclosure)

Consulting Parties (See List) (with enclosure)

Consulting Parties List

Illinois River Ecosystem Restoration
and
Illinois River Basin Restoration

Mr. William Poore
Secretary
Palos Historical Society
c/o Palos Public Library
12330 Forest Glen Boulevard
Palos Park, Illinois 60464

Ms. Phyllis M. Ellin
Executive Director
United States Department of the Interior
Illinois & Michigan Canal
National Heritage Corridor Commission
201 West Tenth Street, #1-SE
Lockport, Illinois 60441

Mr. Johnathan Buffalo
Sac and Fox Tribe of the Mississippi
in Iowa
349 Meskwaki Road
Tama, Iowa 52339-9629

Mr. John Lamb
Director
Canal and Regional History Collection
Lewis University
One University Parkway
Romeoville, Illinois 60446-2298

Ms. Liz Safanda
Preservation Partners
P.O. Box 903
St. Charles, Illinois 60174

Mr. John F. Anderson
Ford Country Historical Society
201 West State Street
P.O. Box 115
Paxton, Illinois 60957-0115

Mr. John Hoffman
University of Illinois at Urbana-Champaign
University Library
Illinois Historical Survey
346 Main Library
1408 West Gregory Drive
Urbana, Illinois 61801

Mr. Charles Clark
Director of NAGPRA
Citizen Potawatomi Nation
1601 Gordon Cooper Drive
Shawnee, Oklahoma 74801

PROGRAMMATIC AGREEMENT

Among the
Chicago, Rock Island, and St. Louis Districts of the U.S. Army Corps of Engineers,
the State of Illinois Department of Natural Resources,
the Illinois State Historic Preservation Officer,
and the Advisory Council on Historic Preservation,
Regarding Implementation of the
Illinois River Ecosystem Restoration

WHEREAS, the Chicago, Rock Island, and St. Louis Districts of the U.S. Army Corps of Engineers (hereafter, Corps) and the State of Illinois Department of Natural Resources (hereafter DNR) determined that the Illinois River watershed exhibits loss of aquatic habitat and have entered into a partnership for the purpose of implementing the Illinois River Ecosystem Restoration (IRER) authorized by Section 216 of the 1970 Flood Control Act and Section 519 (Illinois River Basin Restoration) of the Water Resources Development Act of 2000; and

WHEREAS, the Corps and the DNR have determined that the implementation of the IRER may have an effect upon properties listed on, or eligible for listing on, the National Register of Historic Places (National Register), and have consulted with the Advisory Council on Historic Preservation (Council) and the Illinois State Historic Preservation Officer (SHPO) pursuant to Section 800.14(b) of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470[f]), and Section 110(f) of the same Act (16 U.S.C. 470h-2[f]); and

WHEREAS, the IRER study area encompasses the entire Illinois River watershed located in Illinois (54 counties) with two types of efforts: (1) system evaluations focused on assessing the overall watershed needs and general locations for restoration and (2) site-specific evaluations focused on developing detailed restoration options for possible implementation at specific sites by project planning, engineering, construction, and monitoring with interdisciplinary and collaborative planning for habitat restoration, protection, preservation, and enhancement. The Corps and the DNR will manage the IRER throughout all stages of individual habitat project development, restoration, and management. Several other Federal agencies, as well as non-government entities and individual citizens, also will regularly participate in the development of projects within the IRER; and

WHEREAS, the study area includes four IRER areas identified as (1) watershed stabilization, (2) side channel and backwater modification, (3) water level management, and (4) floodplain restoration and protection. The focus areas will be implemented by habitat creation (islands, ponds, wetlands, potholes, channels, backwaters, etc.), flow control structures (grade controls, dams, dikes, detention basins, weirs, riffles, fish passage, levees, etc.), habitat enhancements (anchor trees, stumps, plantings, management of timber and forest stands, regulation of water levels, etc.), and structure removals/modifications (snagging, clearing, dikes, borrowing, trenching, dredging, etc.); and

WHEREAS, pursuant to Section 800.3 of the Council's regulations, and to meet the Corps' and DNR's responsibilities under the National Environmental Policy Act of 1969, the Corps has developed a **Consulting Parties List** which was developed in consultation with the SHPO/Tribal Historic Preservation Officers (THPOs), Tribes, and other parties that may have an interest in the effects of this undertaking on historic properties. Those on the **Consulting Parties List**, comprised of 325 parties, including 47 federally recognized Tribes, were asked to comment on earlier drafts of this Programmatic Agreement or be provided with study newsletters, public meeting announcements, special releases, and notifications of the availability of report(s), including all draft agreement documentation, as stipulated by 36 CFR Part 800.14(b)(ii) of the National Historic Preservation Act. Comments received by the Corps were taken under consideration in developing this Programmatic Agreement; and

WHEREAS, the Corps has provided scholarly evidence of stewardship in the recordation, protection, and management of historic properties along the Illinois Waterway System through systemic research and studies which have been finalized and approved, then placed in the permanent files of the Corps and SHPO as evidence of compliance promulgated under Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations, 36 CFR Part 800: "Protection of Historic Properties." [These studies included: (1) archeological studies (management of documented and undocumented historic properties), (2) architectural and engineering studies (buildings, structures, and objects associated with Multiple Property National Register Districts), (3) erosion studies, (4) land form sediment assemblage studies (geomorphology) and (5) submerged historic property study (historic shipwrecks and other underwater or previously inundated historic properties)]; and

NOW, THEREFORE, the Corps, the DNR, the SHPO, and the Council agree that the undertakings authorized under Section 216 of the 1970 Flood Control Act and Section 519 (Illinois River Basin Restoration) of the Water Resources Development Act of 2000 shall be implemented in accordance with the following stipulations:

I. IDENTIFICATION AND EVALUATION OF HISTORIC PROPERTIES

The Corps will ensure that the following measures are implemented:

A. The Corps will take all measures necessary to discover, preserve, and avoid significant historic properties listed on, or eligible for listing on, the National Register, burials, cemeteries, or sites likely to contain human skeletal remains/artifacts and objects associated with interments or religious activities, and provide this information, studies, and/or reports to the SHPO/THPO.

Under consultation with the SHPO/THPO(s) and the other consulting parties, the Corps will describe and define the Area of Potential Effect (hereafter referred to as the APE) in accordance with the definition contained in 36 CFR Part 800.16(d). The APE may be modified upon consultation with the appropriate SHPO(s)/THPO(s) through avoidance documented through the implementation of historic property surveys and testing, documentary research, recordation, and other investigation data.

B. Unless recent and modern ground surface disturbances and/or historic use can be documented and a determination made by the Corps, in consultation with the SHPO/THPO(s) and the other consulting parties, that there is little likelihood that historic properties will be adversely affected, the Corps will then conduct a historic property (reconnaissance) survey in (1) areas with the potential for containing submerged or deeply buried historic properties and (2) areas indirectly and directly affected by construction, use, maintenance, and operation during the implementation of the IRER program.

C. The Corps will ensure that all reconnaissance surveys and subsurface testing are conducted in a manner consistent with the Secretary of the Interior's Standards and Guidelines for Identification and Evaluation (48 FR 44720-23) and take into account the National Park Service publication The Archaeological Survey: Methods and Uses (1978) and any extant or most recent version of appropriate SHPO(s)/THPO(s) guidelines for historic properties reconnaissance surveys/reports, related guidance, etc. The reconnaissance surveys and subsurface testing will be implemented by the Corps and monitored by the SHPO/THPO(s).

D. In consultation with the SHPO, the appropriate THPO(s), and the other consulting parties, the Corps will evaluate for eligibility all significant historic properties by applying the National Register criteria (36 CFR Part 60.4). The Corps will use its archival documentation as a context in which to make National Register evaluations of historic properties.

1. For those properties that the Corps, the SHPO/THPO(s), and the other consulting parties agree are not eligible for inclusion on the National Register, no further historic properties investigations will be required, and the project may proceed in those areas.

2. If the survey results in the identification of properties that the Corps, the SHPO/THPO(s), and the other consulting parties agree are eligible for inclusion on the National Register, the Corps shall treat such properties in accordance with Part II below.

3. If the Corps, the SHPO/THPO(s), and the other consulting parties do not agree on National Register eligibility, or if the Council or the National Park Service so request, the Corps will request a formal determination of eligibility from the Keeper of the National Register, National Park Service, whose determination shall be final.

4. Relative to the treatment of historic properties and the identification of traditional cultural properties, the Corps will continue to provide the appropriate Tribe(s), the THPO(s), and the other consulting parties information related to treatment measures proposed by the Corps. Consideration of comments received by the Corps can be considered by the signatories to be measures to assist the Corps in meeting its responsibilities under the National Historic Preservation Act of 1966, as amended (Public Law 89-665), and the regulations of the Advisory Council on Historic Preservation, "Regulations for the Protection of Historic and Cultural Properties" (36 CFR, Part 800).

II. TREATMENT OF HISTORIC PROPERTIES

Those individual historic properties and multiple property districts that the Corps, the SHPO/ THPO(s), and the other consulting parties agree are eligible for nomination to, or that the Keeper has determined eligible for inclusion on, the National Register, will be treated by the Corps in the following manner:

A. Archival Documentation of the Construction and Operation of the Historic Locks and Dams and Management of Historic Properties: The Corps has provided scholarly evidence of stewardship in the recordation, protection, and management of historic properties along the Illinois Waterway System through systemic research and studies which have been finalized and approved, then placed in the permanent files of the Corps and SHPO. These studies included: (1) archeological studies (management of documented and undocumented historic properties), (2) architectural and engineering studies (buildings, structures, and objects associated with Multiple Property National Register-eligible **Illinois Waterway Navigation System Facilities**, (3) land form sediment assemblage studies (geomorphology), and (4) submerged historic property study (historic shipwrecks and other underwater or previously inundated historic properties).

B. Treatment of Archaeological Historic Properties:

1. If the Corps determines, in consultation with the SHPO/THPO(s) and the other consulting parties, that no other actions are feasible to avoid and minimize effects to archaeological historic properties, then the Corps will develop a treatment plan, which may include various levels of data recovery, recordation, documentation, and active protection measures. The Corps will implement the treatment plan in consultation with the SHPO/THPO(s) and the other consulting parties.

2. If data recovery is the agreed upon treatment, the data recovery plan will address substantive research questions developed in consultation with the SHPO/ THPO(s) and the other consulting parties. The treatment plan shall be consistent with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation (48 FR 44734-37) and take into

account the Council's publication, Treatment of Archaeological Properties (Advisory Council on Historic Preservation, 1980) and SHPO/THPO(s) guidance. It will specify, at a minimum, the following:

a. The property, properties, or portions of properties where the treatment plan is to be carried out;

b. The research questions to be addressed, with an explanation of research relevance and importance;

c. The methods to be used, with an explanation of methodological relevance to the research questions;

d. Proposed methods of disseminating results of the work to the interested public; and,

e. A proposed schedule for the submission of progress reports to the SHPO/THPO(s).

3. The Corps will submit the treatment plan to the SHPO/THPO(s) and the other consulting parties for 30 days' review and comment. The Corps will take into account SHPO/THPO(s) and the other consulting parties' comment(s), and will ensure that the data recovery plan is implemented. The SHPO/THPO(s) and the other consulting parties may monitor this implementation.

4. The Corps will ensure that the treatment plan is carried out by or under the direct supervision of an archaeologist(s), architectural historian(s) and/or other appropriate cultural resource specialist that meets, at minimum, the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-9).

5. The Corps will ensure that adequate provisions, including personnel, time, and laboratory space are available for the analysis and curation of recovered materials from historic properties.

6. The Corps will develop and implement an adequate program in consultation with the SHPO/THPO(s) and the other consulting parties to secure archaeological historic properties from vandalism during data recovery.

III. TREATMENT OF HUMAN REMAINS, FUNERARY OBJECTS, SACRED OBJECTS, OR OBJECTS OF CULTURAL PATRIMONY, AND CURATED ITEMS

A. When human remains, funerary objects, sacred objects, or objects of cultural patrimony are encountered or collected, the Corps will comply with all provisions outlined in the appropriate state acts, statutes, guidance, provisions, etc., and any decisions regarding the treatment of human remains will be made recognizing the rights of lineal descendants, Tribes, and other Native American Indians and under consultation with the SHPO/THPO(s) and the other consulting parties, designated Tribal Coordinator, and/or other appropriate legal authority for future and expedient disposition or curation. When finds of human remains, funerary objects, sacred objects, or objects of cultural patrimony are encountered or collected from Federal lands or federally recognized tribal lands, the Corps will coordinate with the appropriate federally recognized Native American Tribes, pursuant to the Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. § 3001 *et seq.*) and its implementing regulations (43 CFR Part 10).

B. Cemeteries.

1. Any project activities that affect burials shall comply with state and local burial and cemetery laws. The county coroner shall be notified of the discovery of any human remains within 48 hours (5ILCS 5/2 and 20 ILCS 3440). The City shall notify the SHPO in order to obtain the proper permit prior to removal of remains. Burials, grave markers, and burial artifacts will not be disturbed or removed without this authorization.

2. Burials in cemeteries registered with the State Comptroller's Office are subject to the Cemetery Care Act (760 ILCS 100). A number of state laws may apply to burials that are less than 100 years old but that are not in registered cemeteries. These laws include, but are not limited to, the Cemetery Protection Act (765 ILCS 835), the Public Graveyards Act (50 ILCS 610), and several laws applying to municipalities (see 65 ILCS 5/11-49 through 65 ILCS 5/11-52.2). Authorization for removal of burials shall be as required under the applicable statute.

3. Burials over 100 years old that are not in registered cemeteries are subject to the Human Skeletal Remains Protection Act (HSRPA) (20 ILCS 3440 and its rule 17 Ill.Adm.Code 4170). This agreement constitutes authorization under Section 16 of HSRPA for removal of any burials that will be affected by the project at locations the SHPO agrees cannot be easily avoided. However, review and approval of specific data recovery plans are still required under 17 Ill.Adm.Code 4170.300(d)(3).

4. Disposition of any discovered human skeletal remains, burial markers, burial artifacts, and documentation of the removal project shall be completed as required by the applicable statute and shall be fully coordinated with the SHPO pursuant to 17 IAC 4147.

C. Collected artifacts, samples, and other physical objects shall be returned to the land-owner as real estate upon request. Owners can donate or transfer their ownership rights to the Corps. In consultation with the SHPO/THPO(s), the Corps will ensure that all donated artifacts, samples, and other physical objects with related and associated research materials and records resulting from the historic properties studies are curated at repositories within the State of Illinois in accordance with 36 CFR Part 79.

IV. REPORTS

The Corps will ensure that all final historic property reports resulting from the actions pursuant to this Agreement will be provided in a format acceptable to the appropriate SHPO(s)/THPO(s). The Corps will ensure that all such reports are responsive to contemporary standards, and to the Department of the Interior's Format Standards for Final Reports of Data Recovery (42 FR 5377-79). Precise locations of significant historic properties may be provided only in a separate appendix if it appears that the release of this data could jeopardize historic properties. Locations of traditional cultural properties or sacred sites, consisting of architectural, landscapes, objects, or surface or buried archaeological sites, identified in coordination with Tribes and THPO(s), will be considered to be sensitive information and, pursuant to Section 304 of the National Historic Preservation Act, the Corps will not make this information available for public disclosure. The Corps will make available for publication and public dissemination the reports and associated data, minus precise aforementioned locations and sensitive information.

V. PROVISION FOR POST-REVIEW DISCOVERIES

In accordance with 36 CFR Section 800.13, if previously undetected or undocumented historic properties are discovered during project activities, the Corps will cease, or cause to stop, any activity having an effect and consult with the SHPO/THPO(s) to determine if additional investigation is required. If further archaeological investigations are warranted or required, the Corps will perform any treatment plan in accordance with Part II - TREATMENT OF HISTORIC PROPERTIES, Part III - TREATMENT OF HUMAN REMAINS, FUNERARY OBJECTS, SACRED OBJECTS, OR OBJECTS OF CULTURAL PATRIMONY, AND CURATED ITEMS, Part IV - REPORTS, and Part V - PROVISION FOR POST-REVIEW DISCOVERIES, all of this Agreement. If the Corps and the SHPO/THPO(s) determine that further investigation is not necessary or warranted, activities may resume with no further action required. Any disagreement between the Corps and the SHPO/THPO(s) concerning the need for further investigations will be handled pursuant to Part VI - DISPUTE RESOLUTION of this Agreement.

VI. DISPUTE RESOLUTION

Should the SHPO/THPO(s) or the Council object within 30 days to any plans or actions provided for review pursuant to this Agreement, the Corps will consult with the objecting party to resolve the objection. If the Corps determines that the disagreement cannot be resolved, the Corps will request further comment from the Council in accordance with the applicable provisions of 36 CFR Part 800.7. The Corps, in accordance with 36 CFR Part 800.7(c)(4), will take any Council comment provided in response into account, with reference only to the subject of the dispute. The Corps' responsibility to carry out all actions under this Agreement that are not the subjects of the dispute will remain unchanged.

VII. TERMINATION

Any of the signatories to this Agreement may request a reconsideration of its terms or revoke the relevant portions of this Agreement upon written notification to the other signatories, by providing 30 days' notice to the other signatories, provided that these signatories will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the advent of termination, the Corps will comply with 36 CFR Parts 800.3 through 800.7 with regard to individual undertakings covered by this Agreement.

VIII. AMENDMENTS

Any signatories to this Agreement may request that it be amended, whereupon the other signatories will consult in accordance with 36 CFR, Parts 800.6(c)(7) and 800.14(b)(3), to consider such amendment.

IX. REPORTING AND PERIODIC REVIEW

The Corps will provide the SHPO/THPO(s) with evidence of compliance with this Agreement by letter on January 30, 2003, and once every 2 years thereafter said date. This documentation shall contain the name of the project, title of the documents that contained the Agreement, historic properties identified, determinations of effect, avoidance procedures, level of investigation(s) and/or mitigation(s) conducted with titles of all project reports related to such investigation(s) and/or mitigation(s) which have been completed. Every 5 years starting from the date of January 30, 2003, the Corps will provide the SHPO/THPO(s) a review report of the overall IRER to determine this Agreement's effectiveness, accuracy, and economy. Based upon this review, the Corps, the SHPO/THPO(s), and the Council will determine whether the Agreement shall continue in force, be amended, or be terminated.

X. EXECUTION AND IMPLEMENTATION

A. Nothing in this Agreement is intended to prevent the Corps from consulting more frequently with the SHPO/THPO(s) or the Council concerning any questions that may arise or on the progress of any actions falling under or executed by this Agreement.

B. The undersigned concur that the Corps has satisfied its Section 106 responsibilities for all individual undertakings through this Agreement regarding the implementation of IRER.

C. The stipulations of this Agreement are limited solely to undertakings authorized under Section 216 of the 1970 Flood Control Act and Section 519 (Illinois River Basin Restoration) of the Water Resources Development Act of 2000.

XI. SIGNATORIES TO THIS AGREEMENT

A. CHICAGO DISTRICT, U.S. ARMY CORPS OF ENGINEERS:

BY: Mark A Roncoli Date: 4 SEP 02

Colonel Mark A. Roncoli
District Engineer
U. S. Army Corps of Engineers
Chicago District

B. ROCK ISLAND DISTRICT, U.S. ARMY CORPS OF ENGINEERS:

BY: WJBayles Date: 30 Aug 2002

Colonel William J. Bayles
District Engineer
U. S. Army Corps of Engineers
Rock Island District

C. ST. LOUIS DISTRICT, U.S. ARMY CORPS OF ENGINEERS:

BY: C. Kevin Williams Date: 2 OCT 02

Colonel C. Kevin Williams
District Engineer
U. S. Army Corps of Engineers
St. Louis District

XI. SIGNATORIES TO THIS AGREEMENT (Continued)

D. ILLINOIS DEPARTMENT OF NATURAL RESOURCES:

BY: ______________________ Date: 11.12.02

Brent Manning
Director
Illinois Department of Natural Resources

E. ILLINOIS STATE HISTORIC PRESERVATION OFFICER:

BY: ______________________ Date: 11-14-02

Anne E. Haaker
Illinois Deputy State Historic Preservation Officer
Illinois Historic Preservation Agency

F. ADVISORY COUNCIL ON HISTORIC PRESERVATION:

BY: ______________________ Date: 1/21/03

John M. Fowler
Executive Director
Advisory Council on Historic Preservation

Final Consulting Parties List

Illinois River Ecosystem Restoration and Illinois River Basin Restoration

Mr. William Poore
Secretary
Palos Historical Society
c/o Palos Public Library
12330 Forest Glen Boulevard
Palos Park, Illinois 60464

Ms. Phyllis M. Ellin
Executive Director
United States Department of the Interior
Illinois & Michigan Canal
National Heritage Corridor Commission
201 West Tenth Street, #1-SE
Lockport, Illinois 60441

Mr. Johnathan Buffalo
Sac and Fox Tribe of the Mississippi
in Iowa
349 Meskwaki Road
Tama, Iowa 52339-9629

Mr. John Lamb
Director
Canal and Regional History Collection
Lewis University
One University Parkway
Romeoville, Illinois 60446-2298

Ms. Liz Safanda
Preservation Partners
P.O. Box 903
St. Charles, Illinois 60174

Mr. John F. Anderson
Ford Country Historical Society
201 West State Street
P.O. Box 115
Paxton, Illinois 60957-0115

Mr. John Hoffman
University of Illinois at Urbana-Champaign
University Library
Illinois Historical Survey
346 Main Library
1408 West Gregory Drive
Urbana, Illinois 61801

Mr. Charles Clark
Director of NAGPRA
Citizen Potawatomi Nation
1601 Gordon Cooper Drive
Shawnee, Oklahoma 74801

Peoria Tribe of Indians of Oklahoma
c/o Bud Ellis, Repatriation/NAGPRA
118 S. Eight Tribes Trail
P.O. Box 1527
Miami, OK 74355

Dr. Harold Hassen
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, Illinois 62702-1271

ATTN: Mr. Thomas McCullouch
C/o Mr. Don L. Klima, Director
Eastern Office of Project Review
The Old Post Office Building 1100
Pennsylvania Avenue, NW Suite 809
Washington, D.C. 20004

Ms. Anne Haaker
Deputy State Historic Preservation Officer
Illinois Historic Preservation Agency
Old State Capitol
Springfield, Illinois 62701

ILLINOIS RIVER BASIN RESTORATION
COMPREHENSIVE PLAN
WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX B

SYSTEM ECOLOGY

ILLINOIS RIVER BASIN RESTORATION
COMPREHENSIVE PLAN
WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX B

SYSTEM ECOLOGY

INTRODUCTION

This appendix summarizes several investigations used in the preparation of the Comprehensive Plan for the Illinois River Basin Restoration. Some of the reports summarized below were prepared by contract. The reports are available at the Corps of Engineers, Rock Island District office in Rock Island, Illinois.

I. RESTORATION NEEDS ASSESSMENT

A major focus of the system study was to determine the problems, opportunities, and resource conditions using a Restoration Needs Assessment (RNA) approach. The RNA evaluated the needs for restoration in the entire basin, with a focus on the tributaries and sub-watersheds feeding into the main stem of the Illinois River. It provided a practical and scientific basis for assessing the large study area and identifying potential restoration project types and general locations for the Illinois River and its tributaries. The RNA also defined the critical data gaps hindering the ability to determine habitat needs and focus the study, planning, and construction efforts on the areas of critical need. The RNA provided a comprehensive, basin-wide assessment of historic ecological change, existing conditions, predicted future conditions, and desired future conditions. The information gathered for this effort has been incorporated throughout the Comprehensive Plan. The RNA aspect of the study was designed to:

- evaluate existing data availability;
- compile existing data in a Geographic Information Systems (GIS) application;
- describe physiographic characteristics of the basin;
- evaluate stream channel dynamics;
- evaluate rapid watershed assessment techniques;
- evaluate existing, predicted, and desired future conditions; and
- compile a list of information needs.

The RNA provided information that significantly contributed to the development of the Illinois River Basin Restoration Comprehensive Plan and monitoring program.

Several research investigations were initiated to compile information for preparation of the RNA. Summaries of the following products are included in this appendix:

Illinois River Restoration Needs Assessment GIS
ArcIMS Web Site for Serving Historical Aerial Photographs
Native Ecotype and Historic Change Assessment
Rapid Watershed Assessments

Additional research for the RNA is summarized in Appendix D, *Geomorphology, Sediment Delivery, Sediment Removal and Beneficial Use*, under Section 1, *Summary of Illinois River Basin Landforms and Physiographic Regions*; Section 2, *Stream Dynamics Assessment*; and Section 3, *Sediment Budget*.
The RNA and the research investigations listed above were used to prepare the Illinois River Basin Restoration Comprehensive Plan. Much of this information will continue to be used well into the next phases of the Illinois River Basin Restoration project.

II. ILLINOIS RIVER RESTORATION NEEDS ASSESSMENT GIS

Scott A. Tweddale, Corps of Engineers, Construction Engineering Research Laboratory (CERL), Champaign, IL

The Illinois River RNA-GIS application and geospatial database were developed as a tool to support the Illinois River Ecosystem Restoration Feasibility Study - RNA. Its purpose is to assist in the evaluation of historic, existing (primarily), predicted future, and desired future conditions of the Illinois River Watershed by providing an extensive geospatial database and customized GIS analytical capabilities. The study area and extent of the associated geospatial database includes the main stem Illinois River, its tributaries, and watershed in the State of Illinois.

The application is structured to provide access to GIS themes at three different scales: (1) the Illinois River Watershed, (2) the major tributary watersheds [United States Geological Survey (USGS) Hydrologic Unit Code-8 (HUC 8)], and (3) the subwatersheds [USGS Hydrologic Unit Code-12 (HUC12)]. A large number of geospatial data layers in the GIS have been summarized for each HUC-8 and HUC-12 watershed within the Illinois River Watershed. There are 19 HUC-8 and 944 HUC-12 watersheds in the basin. This method of organizing the application and geospatial database supports data browsing, data queried, and summaries at all scales in support of large-scale planning and smaller-scale, site-specific project formulation. The Illinois River RNA-GIS application was created using Environmental Systems Research Institute (ESRI) ArcGIS8.X software and Microsoft's Visual Basic for Applications (VBA), which is included in ArcGIS8.X products.

III. ArcIMS WEB SITE FOR SERVING HISTORICAL AERIAL PHOTOGRAPHS

Dr. Donald E. Luman, Office of the Chief, Illinois State Geological Survey
Champaign, Illinois

The photographic record provided by aerial photographs offers information that may be used for estimating baseline conditions and evaluating changes through time. Aerial photographs can serve as an important resource for geomorphological analyses (e.g., movement of nick points or changes in stream alignment) of physical and cultural landscapes. The first statewide collection of aerial photography of Illinois landscapes was acquired in the late 1930s and early 1940s as part of the U.S. Department of Agriculture, Agricultural Adjustment Administration (USDA-AAA) program. In the 1980s, for safety reasons, the National Archives and Records Administration destroyed the silver nitrate film negatives of this collection. The only remaining records of this photographic collection are the photographic paper prints made from the original film negatives.

Today, there exist more than 27,000 photographic paper prints of this first collection of aerial photographs of Illinois. These photographs represent the earliest and only remaining detailed, historical, aerial photographic record of Illinois' physical and cultural landscapes. The photographs are stored in several university library archives within Illinois and are in nearly pristine condition. However, because of their unique historic value, the photographs are not accessible to the public, planners, or researchers.

The Illinois State Geological Survey initiated a project to digitize these historical aerial photographs. The Survey has scanned more than 7,200 vintage photographs—dating from the 1930s and 1940s—of

Illinois, including photographs from approximately 10 counties having areas that lie within the Illinois River Basin. Photos from an additional four counties have recently been completed. Historical aerial photographs from additional counties within the Illinois River Basin need to be digitized. For each of the counties, an Excel spreadsheet was created that details the relevant information concerning the print collection, including county name, USDA-AAA county prefix code, acquisition date, total number of photographs, scale, number of flight lines, orientation of flight lines, type of county index (photo or line), date of county index, and an area for comments.

The index sheets for the 14 project counties were georeferenced to form the basis of an ArcIMS navigation map for each county. Each scanned county index sheet was geometrically corrected to a standard cartographic map projection using the USGS 1:100,000-scale Digital Raster Graphic (DRG) maps as the georeferencing base. ArcView 3.2 was used to create point data maps that indicate the approximate center point for each aerial photograph. The end product is a vector-based shape file used in ArcIMS as the navigation framework for searching and selecting images for download.

For the county-level and sub-county views, vector-based reference data layers including labeled Illinois counties, municipalities, interstate, U.S. highways, and state highways would be used in conjunction with the historical aerial photography center points. Recent Landsat Thematic Mapper ™ satellite imagery was used as the navigation raster image base, which provides a higher level of surface feature resolution. In addition, all of the vector and raster-based data used for the navigation maps were transformed to Lambert Conformal Conic projection, using the NAD27 datum.

All of the final scanned images for the 14 project counties were formally archived onto the Illinois State Geological Survey's UNIX-based system by county and flight line. This archive was added to the Survey's long-term data storage and back-up routines to ensure permanence for retrieval and access for the project web site.

Although some historical aerial photographs have been digitized and others are being digitized, the digitized images are not available for distribution. An Internet web interface was needed to make the scanned images freely and readily accessible to Federal and State planners and researchers. ESRI's Arc Interactive Map Service software was used for the development of the interactive portion of the Illinois Historical Aerial Photography (ILHAP) web site. This interactive web interface incorporates all of the above information and data layers. These digitized historic aerial photographs are now available at: http://crystal.isgs.uiuc.edu/nsdihome/webdocs/ilhap/

IV. NATIVE ECOTYPE AND HISTORIC CHANGE ASSESSMENT (DRAFT)

Dr. Michael Wiant, Illinois State Museum and Susan Post, Illinois Natural History Survey

Understanding the native ecotypes in the Illinois River Basin is important in establishing restoration endpoints. Restoration to presettlement conditions throughout the Basin is certainly not the goal of this program, but the knowledge helps define the limits, or expectations, for restoration in areas that are selected for restoration.

A. Native Ecotypes by Physiographic Regions. Upland habitats, tributary streams, and main stem floodplains and channels throughout the Illinois River watershed have been altered for a wide variety of reasons using many different methods. Knowledge of the natural potential habitats is important in order to establish a baseline for what could potentially be restored. There is not an expectation that the

Basin will be returned to a pristine condition, but native ecotypes can serve as targets for restoration activities. The first objective was to compile a short, well-illustrated summary of the potential native ecotypes found in the various physiographic regions of the Illinois River Basin, with representative photographs.

Each ecotype was identified, described, and illustrated with photographs for the major natural ecotypes present in the Illinois River Basin. The discussion included the major land cover classes—forest, prairie, marsh, and aquatic habitats—and the different types of those major classes likely to have been found in the Illinois River Basin. Topographic features were mentioned to provide an overview of the broad landscape patterns throughout the Basin. Statewide Government Land Office (GLO) survey records and GIS presettlement land cover maps were referenced for baseline natural community characteristics.

Natural Divisions of Illinois, Principal Natural Features

- I. Terrestrial Plant Communities
  - A. Forest
    1. Dry upland
    2. Mesic upland
    3. Wet upland
    4. Floodplain
    5. Bottomland
    6. Tamarack swamp
    7. Scrub oak
  - B. Prairie
    1. Prairie grove
    2. Prairie
       - a. Dry
       - b. Mesic
       - c. Wet
    3. Sand prairie
       - a. Dry
       - b. Mesic
       - c. Wet
    4. Loess hill prairie
  - C. Wetlands
    1. Fen
    2. Marsh
    3. Sedge meadow
    4. Bog
- II. Aquatic Habitats
  - A. Lakes
  - B. Creeks
  - C. Rivers
  - D. Sloughs
  - E. Backwater lakes
  - F. Oxbow lakes
  - G. Prairie potholes

B. Historic Change Assessment (Timeline). The second objective was to obtain a short summary of the anthropogenic factors that created the highly developed landscape of the modern Illinois River Basin. The pertinent literature and documents describing environmental change in the Illinois River Basin were reviewed, and a concise summary of historical change to native ecotypes and ecosystem function was provided. The analysis began with native cultures' landscape management and continued through European expansion into the Illinois Basin, conversion of upland savannas to crops, upland wetland draining, and levee construction during the 1800s. A second time step to be considered was the early 1900s waterway and urban development, sewage and other pollution discharge to rivers, and further development of the uplands to crops. A third time step began after WWII and emphasized agricultural specialization toward row crops, increased agricultural mechanization, increased use of chemicals, and continued urbanization. A final time step was the post-1970s conservation movement and the success of recent efforts to improve farming practices, control water pollution, and increase conservation practices and habitat restoration. A timeline of major events (legislation, improvements in tools or techniques, cultural factors, etc.) was developed.

V. RAPID WATERSHED ASSESSMENTS

A. Watershed Assessment Methods for Illinois Streams

Dr. Chester C. Watson, Don Roseboom, and Michael Robeson, Colorado State University

Channel modification or channelization activities are listed among the top 10 sources for non-point pollution impacts to rivers. Activities such as straightening, widening, deepening, and clearing debris from channels can be considered modification activities. These activities can severely impact major river projects such as navigation and flood control, as well as alter or reduce the diversity of instream and riparian habitats. The streams within the Illinois River Basin have experienced many of these channel modification activities. As such, a watershed assessments program was developed to mitigate these concerns. Stream restoration would reduce sediment input into the Illinois River and restore riparian and instream habitats, helping achieve ecosystem restoration goals for the Illinois River Basin.

The primary objective of the watershed assessment report is to develop and improve procedures that direct the focus for best management practice (BMP) design and implementation. This report presents the watershed systems analysis planning procedure for channel rehabilitation, using two Illinois watersheds, McKee Creek and Sugar Creek, as case studies. Both McKee and Sugar Creeks were initially proposed as potential restoration projects as part of the Illinois River Basin Restoration and Ecosystem Restoration Feasibility Study, though only McKee Creek was selected as one of the initial Critical Restoration Projects.

A key factor for a successful project is to identify the causal problems. Within the watershed system, problems generally fit into two categories—watershed and channel problems. These problems result in a set of impacts that act upon the channel and watershed, and it is these impacts that must be addressed. Watershed problems result from deforestation, intensive agriculture, urbanization, climate change, and stream base level change. Channel problems occur from channelization, dredging, meander cut-off, dams, inter-basin water transfer, navigation, levees, clearing and snagging, gravel mining, and stabilization structures.

The methodologies outlined represent a systematic and organized process for planning and designing regional sediment management projects that can be applied to lessen impacts of erosion on aquatic habitat and reduce the damage to land and infrastructure in the Basin. A comprehensive and systematic approach must be taken to solve stream and watershed problems. Strong emphasis is placed on evaluating the complete watershed and channel system. While all projects do not include the resource to construct full-system rehabilitation, it is essential to incorporate planning and analysis to identify opportunities, benefits, and potential problems related to piecemeal implementation.

Monitoring and feedback of the performance data for stream rehabilitation features are essential for establishing operations and maintenance requirements, determining performance measures, and providing feedback for future projects. In addition, when habitat restoration is a project goal, biotic sampling is the only true measure of success.

B. Watershed and Pool Assessments

William P. White and Dr. Nani Bhowmik, University of Illinois

Central to the implementation of the Illinois River Basin Restoration Comprehensive Plan is a methodology to rapidly assess individual watersheds and pools to help identify the most immediate restoration needs. This effort focuses on the watershed scale analysis of stream instability, and includes hydrologic analyses of selected watersheds.

The scope of this rapid watershed assessment project will be to perform pool and watershed assessments along the Illinois River and several watersheds of the river in the next 5 years to identify potential restoration project locations that meet the goals of the Illinois River Basin Restoration Study. The following locations have been identified as priorities within the Basin:

Peoria Pool	Tenmile Creek
Partridge Creek	Marseilles Pool
Dresden Pool	Kankakee River main stem
Upper Fox River	Iroquois River (including Sugar Creek)
McKee Creek	Vermilion River

The assessment techniques generally consist of the following:

1. Acquisition and analysis of aerial imagery from fly-overs using GPS for location information
2. In-air and office examination of imagery for channel process identification
3. “Ground-truthing” for verifying identification and general characteristics of potential target sites
4. Hydrologic analysis of selected watershed and pools
5. Sediment transport analysis of selected watersheds and pools
6. Geomorphic assessment of selected watersheds and pools
7. Biological assessment of selected watersheds and pools

After these assessments identify the most critical bed, bank, and erosion sites, more thorough field assessments will be performed. These field assessments will provide more data on site conditions and serve as baseline information to understand and document restoration efforts monitoring. The Illinois State Water Survey will collaborate with the Regional Teams within the Illinois DNR and with other Scientific Survey offices for these efforts. The Illinois Natural History Survey will coordinate the assessments and inventory of the aquatic and riparian biota. The Illinois State Geological Survey will coordinate the assessments and inventory of the basic geological and geomorphological settings.

This initial assessment phase is expected to take 5 years. During the first year, at least one report for a single pool or watershed—identifying possible restoration project locations—will be completed. The remaining reports will be prepared in subsequent years, summarizing the work completed for that specific year.

ILLINOIS RIVER BASIN RESTORATION
COMPREHENSIVE PLAN
WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX C

SUMMARY OF HYDROLOGY AND HYDRAULICS INVESTIGATIONS

ILLINOIS RIVER BASIN RESTORATION
COMPREHENSIVE PLAN
WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX C

SUMMARY OF HYDROLOGY AND HYDRAULICS INVESTIGATIONS

INTRODUCTION

This appendix summarizes the hydrologic and hydraulic investigations undertaken as a part of this Comprehensive Plan. Some of the reports and efforts summarized in this appendix were prepared by contract and are indicated as such. The reports are available at the Corps of Engineers, Rock Island District office in Rock Island, Illinois.

1. GENERAL

The Illinois River Basin enjoys a continental-type climate characterized by frequent penetrations throughout the year of different types of air masses and their associated weather disturbances (USACE 1996). The basin lies in the path of low- and high-pressure areas that pass from west to east at more or less frequent intervals of about three to five days. Great variations in temperature occur from day-to-day, month-to-month, and year-to year, and in annual precipitation from year-to-year. The seasons are conspicuously distinct. Summers are commonly warm to hot and often humid. Winters are moderately cold. July is the warmest month, with mean monthly temperatures of 72 to 78 degrees F (north to south), and January the coldest, with mean monthly temperatures of 16 to 28 degrees F (north to south). Lake Michigan moderates temperatures locally in the Chicago area and causes relatively heavy snowfall in a narrow band adjacent to the lake. The growing season varies from about 200 days near the mouth of the Illinois River to about 160 days in the Fox River Watershed west of Chicago.

Storms in the Illinois River Basin are commonly of two types: the widespread frontal type and the local thermal convection (thunderstorm) type. There are no orographic storms because of the low relief. Total annual precipitation is fairly uniform throughout the basin, averaging from 34 to 36 inches. Flood-producing storms can occur at any time, but their frequency is greatest from late winter to early fall. During the cold season, large-area storms of from two to five days' duration predominate. In the warm season, storms are shorter but more intense. The average number of thunderstorms per year varies from about 40 in the northeast to about 55 in the downstream end of the basin. June is the month of maximum thunderstorm activity. Thunderstorms account for about 40 to 45 percent of the annual precipitation.

Because of its flat gradient and copious channel and flood plain storage, floods on the Lower Illinois River rise slowly, persist for long periods and recede slowly. A simple direct relationship between stage and discharge does not pertain because of these conditions and the effects of changing discharge and variable flows from tributaries. Quite often, flood-peak discharges actually diminish as a flood proceeds down the river. Since records have been kept, the average flood year has resulted in water being out of banks about 90 days.

The two hydrologic conditions that have the greatest effect on the ecosystem integrity of the main stem Illinois River are rapid water level fluctuations and lack of pool drawdown (Section 2, Illinois River Ecosystem Restoration Study Water Level Management Analysis). High peak flows and low base flows are the primary ecosystem stressors in the tributaries to the Illinois River. A suite of models was used to analyze the current hydrologic conditions and the effects of proposed restoration alternatives on the main stem Illinois River and its tributaries.

A hydrologic model of the Illinois River Basin was developed by the Illinois State Water Survey using the USEPA's Better Assessment Science Integrating Point and Nonpoint Sources (BASINS) model (Section 3, Hydrologic Model Development for the Illinois River Basin Using Basins 3.0). This hydrologic model was utilized by the USACE to evaluate restoration alternatives proposed for the tributary watersheds to the Illinois River. The two types of restoration alternatives studied were: increasing floodplain storage volume and increasing floodplain infiltration area. Increasing floodplain storage volume was analyzed by modeling storage areas adjacent to the main channels of the tributaries. This added storage volume was to be utilized at a water elevation in the channel that is achieved three or four times per year during high runoff events. Increasing floodplain infiltration area was analyzed by converting a portion of existing agricultural land areas in each tributary basin to land areas with higher infiltration characteristics within the model. The simulations implementing each alternative independently resulted in decreased peak flows and a general attenuation of the storm volume occurring at the respective tributaries confluences with the Illinois River. The effects of the basin restoration efforts on the water level conditions in the Illinois River main stem were evaluated by using the tributary model results as input to the hydraulic model of the Illinois River and comparing the fluctuation characteristics of the various scenario combinations.

A hydraulic model of the Illinois River main stem was developed using the One-Dimensional Unsteady Flow Through a Full Network of Open Channels (UNET) model. The UNET model of the Illinois River is routinely used for management of the Illinois River and can simulate the interaction between channel and floodplain flows; channel and storage areas; levee failures; and flow-through navigation dams, gated spillways, weir overflow structures, bridges and culverts, and pumped diversions. The Hydrologic Engineering Center Data Storage System (HEC-DSS) database was used for managing input and output hydrographs with various time intervals, such as weekly, daily, hourly, 2-hour, 30-minute, etc. The hydrographs resulting from the BASINS model described above were input to the UNET model using HEC-DSS. The UNET model was used during the course of this study to evaluate the benefits from various restoration alternatives on water level conditions along the Illinois River. The output hydrographs at specified locations along the main stem were developed for each restoration alternative by the UNET model.

A FORTRAN program was developed by the Rock Island District to calculate the number of water level fluctuations at specified locations along the main stem for the observed data and the alternative restoration scenarios studied. Using HEC-DSS, the output hydrographs from the UNET analysis described above, were input to FORTRAN program. The three time windows that were analyzed with the FORTRAN program are 6 hours; 24 hours; and 120 hours (5 days). Each fluctuation was categorized by the magnitude of water level change: 0.5 to 1.0 feet, 1.0 to 2.0 feet, and greater than 2.0 feet. The fluctuation regime at each location of interest was defined by the number of water level fluctuations that occurred over the specified time windows. Nine different classes of fluctuation were determined for each location; and the characteristics are as follows:

- Time window = 6 hours
  - Water level fluctuations greater than or equal to 0.5-foot and less than or equal to 1.0-foot
  - Water level fluctuations greater than 1.0-foot and less than or equal to 2.0-feet
  - Water level fluctuations greater than 2.0-feet

- Time window = 24 hours
  - Water level fluctuations greater than or equal to 0.5-foot and less than or equal to 1.0-foot
  - Water level fluctuations greater than 1.0-foot and less than or equal to 2.0-feet
  - Water level fluctuations greater than 2.0-feet

- Time window = 120 hours (5 days)
  - Water level fluctuations greater than or equal to 0.5-foot and less than or equal to 1.0-foot
  - Water level fluctuations greater than 1.0-foot and less than or equal to 2.0-feet
  - Water level fluctuations greater than 2.0-feet

The benefit for each of the proposed restoration alternatives was quantified as the reduced incidence of fluctuation.

2. ILLINOIS RIVER ECOSYSTEM RESTORATION STUDY WATER LEVEL MANAGEMENT ANALYSIS. (U.S. Army Corps of Engineers 2004a). This analysis was conducted by the Rock Island District to investigate the potential for ecosystem benefits arising from possible changes in water level management activities on the Illinois Waterway, primarily in terms of reduced incidence of rapid water level fluctuations. Since 1900, alterations in the Illinois River Basin have resulted in an increased incidence of water level fluctuations at many points along the Illinois Waterway. Water level management was determined to contribute to some of these fluctuations due in part to the hydraulic nature of the flat pools, the methods of operation, and the highly variable inflows from the watershed. Hydraulic modeling results indicate that certain management changes have the potential to reduce water level fluctuations in the system.

Twenty water level records were analyzed to evaluate the current and historic fluctuation regimes in the Illinois River system. Data from recent records were compared with available historic records to investigate various influences on fluctuation patterns, including season and climate. Water level fluctuation regimes differ by location on the river and location relative to dams; gages a short distance downstream of dams exhibit many more fluctuations than do gages immediately upstream of dams, but the differences tend to be less pronounced at the dams farther downstream. Some of the downstream differentiation arises because from Lockport to Starved Rock the dams control the navigation pools throughout the year whereas the Peoria and La Grange Dams maintain water levels only during lower flow periods. Comparable records indicate that the river experiences more fluctuations now than it did pre-1900, but in most locations the period 1989 through 2000 contained fewer fluctuations per year than did the period 1979 through 1988.

Although a number of water level management activities are conducted in the canal system of the upper Illinois Waterway, most of the fluctuations in the upper portion of the waterway arise due to storm water flows. At times, gate changes at the run-of-river dams contribute to water level fluctuation in dam tailwaters and areas immediately downstream. Downstream, wicket dam operation also causes some water level fluctuations, but these are largely due to the hydraulic nature of changing between impounded and unimpounded conditions and are not controllable by changes in operations. In general, the run-of-river water level management increases the magnitudes of water level fluctuations immediately downstream of dams as a response to the changing flows from the basin.

Hydraulic modeling suggests that a number of management changes could reduce the fluctuations occurring along the Illinois Waterway. A management scenario simulating smaller but more frequent gate changes at the dams in response to a more complete knowledge of inflows is likely to significantly reduce total fluctuations. These benefits would occur almost solely during times of low water. Storm water detention has the potential to reduce the fluctuations due to storm events in the reaches immediately downstream of the detention facilities. In order to be fully successful, storm water control would have to be implemented throughout the basin, as improvements at one point can be masked by fluctuating inflows downstream. Improved coordination in anticipation of storm operations would likely reduce water level fluctuations associated with release of flows from Lockport. Finally, use of the limited storage in the system to reduce fluctuations by centralizing control and optimizing management might also provide benefits, but at this time the technology required for system optimization has not yet been sufficiently developed.

This report also investigated the potential to lower the water level in the Peoria and La Grange Pools in order to stabilize sediments and allow plant establishment. Without additional action, including overdredging, drawing pool water levels down would have significant effects on navigation, recreation and infrastructure, the extent of which and mitigation costs would increase with drawdown depth. Flow conditions that allow maintenance of 30-consecutive-day drawdowns are most likely to occur during the months of September or October, or if attempted over an extended period of time in the late summer, but navigational and recreational users would be greatly affected during those times. Drawdowns in December are less likely to succeed but may be desirable due to the reduced conflicts during that month. From a biological perspective, optimal drawdowns would start in late June or early July and extend for at least 60 days, but flow conditions during that period would allow a drawdown in fewer than 1 in 5 years. The area exposed by a given drawdown is directly related to the depth below flat pool that is maintained at the downstream dam.

3. HYDROLOGIC MODEL DEVELOPMENT FOR THE ILLINOIS RIVER BASIN USING BASINS 3.0 (Demissie et al. 2003)

The objective of this study was to initiate the development of a continuous hydrologic model of the entire Illinois River Basin. This model was developed by the Illinois State Water Survey (ISWS). This model may be used to assist in the development of critical restoration projects conducted as part of the Illinois River Basin Restoration Program. The model will also be useful in assessing the flow characteristics throughout the basin, the effects of changes in land use and climate, changes due to project alternatives, and potential problem areas and restoration alternatives.

The BASINS modeling system, developed by the U.S. Environmental Protection Agency, was selected for this study because it:

- is designed for multiple purposes in environmental and hydrological practices,
- is based on state-of-the-art ARCVIEW technology for easy data processing,
- incorporates the widely-accepted HSPF and SWAT models to simulate watershed hydrology and the transport of nutrients, pesticides and sediments,

- utilizes a user-friendly interface to generate hydrological parameters,
- has an existing database of DEMs, land use, streams, and soils for the Illinois River Basin.

The Hydrologic Simulation Program – FORTRAN (HSPF, version 12) was used in this study to simulate daily watershed stream flow. It was accessed through WinHSPF, a graphical user interface, which interacts with the BASINS 3.0 utilities and data sets to aid in the development of an HSPF project. The HSPF requires spatial information about watershed topography, river/stream reaches, land use, and meteorology to accurately simulate the stream flow. It uses hourly precipitation, potential evapotranspiration, temperature, wind speed, and solar radiation time series data for performing hydrologic simulations when snow is also simulated. HSPF is a comprehensive and dynamic watershed scale model that simulates nonpoint source hydrology and water quality, combines it with point source contributions, and performs flow and water quality routing in the watershed reaches. It has been widely used for watershed scale hydrologic simulations and for assessing the effects of land-use changes on watershed scale hydrology and water quality.

The study plan to develop a calibrated and verified HSPF model for the entire Illinois River Basin involved tasks that were performed in different phases. The initial phase involved preparation of data that would be used for model development throughout the study. In the second phase, the HSPF model was developed and parameters were calibrated for the Kankakee River and Spoon River watersheds. In that process, the Kankakee River watershed was subdivided into two portions, the upper-Kankakee and Iroquois River watersheds, with parameters calibrated for each. Thus, calibration was performed for three areas: the upper-Kankakee, Iroquois, and Spoon River watersheds. In the third phase of study, a model for the entire Illinois River Basin was developed, parameters from the three calibrated watersheds were tested in other tributary watersheds, appropriate parameter values were adopted, and the HSPF model was run to simulate flows for the entire Illinois River watershed. This report discusses the work performed in all three phases.

A. Preparation of Input Data. Of the USEPA-WDM stations for which meteorological data are given in the BASINS database, only 17 stations are located in the general vicinity of the Illinois River Basin. More precipitation data stations were needed in order to reduce the effect of spatial variability of rainfall over the large area of the watersheds studied. Numerous additional weather stations in the Illinois River Basin with daily precipitation data available for the period of the study were identified and daily data was extracted from the Midwestern Climate Center database for those stations. Hourly precipitation data for sixteen more stations located in the watershed was also extracted from the NOAA-NCDC database. All hourly stations were used as reference stations for disaggregating daily precipitation data available at local stations into hourly precipitation.

B. Model Calibration and Verification for Two Watersheds. In the second phase of this study, hydrologic component of HSPF was calibrated and validated separately for Kankakee and Spoon River watersheds. The entire Kankakee River watershed was modeled in three sections: the upper Kankakee River watershed upstream of Momence, Illinois; the Iroquois River watershed upstream of Chebanse, Illinois; and the remainder of the watershed. During calibration of the Kankakee and Spoon watersheds, values of several sensitive model parameters were varied within a reasonable range to obtain an optimal agreement between the observed and simulated stream flow data. Calibration and verification were based on data from the 25-year period—1970 to 1995—for which complete stream flow and meteorological data records were available. Data from the 11-year period (1985 through 1995) was used to calibrate HSPF, and the calibrated model was verified separately for the 16-year period of 1971 to1986. Agreement between observed and simulated stream flow data, on an annual, seasonal (monthly), and continuous (daily) basis was determined objectively (by plotting the time series) as well as quantitatively. This was done to determine any trends due to seasonality and to have an idea of any discrepancies in long-term data values. Quantitative comparison was based on calculation of objective functions such as Nash-Sutcliffe efficiency (NSE), and coefficient of determination (R^2), intercept and slope of linear regression fit between observed and simulated data. For monthly and annual time scales, relative percent difference between observed and simulated flows was also calculated and reported.

C. Development of a Model for the Entire Illinois River Basin. In the third phase of this study, hydrologic simulations were performed using HSPF for the entire Illinois River Basin using two different approaches: an HSPF model using a single UCI data file; and an HSPF model using modular approach. In the first approach, the entire Illinois River Basin was delineated into 60 sub-watersheds using meteorological data from 56 gaging stations. The 60 sub-watersheds represent the practical limit that can be developed and still be able to model the entire Illinois River Basin in a single HSPF project. In the second approach, individual HSPF projects were created for the watersheds of seven additional major tributaries (Des Plaines, Fox, Vermilion, Mackinaw, Sangamon, La Moine and Macoupin) and the main stem Illinois River. In the modular approach, the entire Illinois River Basin was divided into approximately 250 sub-watersheds, and data from all 95 available precipitation gages were used in the simulation.

Model calibration was not performed for the entire Illinois River Basin for either of the two approaches. Instead, calibrated parameters from the three previously calibrated watersheds—the upper-Kankakee, Iroquois, and Spoon River watersheds—were tested over the entire Illinois River Basin to determine which set of parameters worked best for various portions of the basin. Out of the three parameter sets, the best results were consistently obtained by using calibrated parameters of Spoon River watershed for all remaining portions of the Illinois River Basin.

For both approaches, much of the Des Plaines watershed was removed from the HSPF model and replaced by an inlet location, by which flows from the Des Plaines River and Chicago Sanitary and Ship Canal are represented by observed flows instead of model simulation. This was done for two reasons: (1) the Chicago area is highly urbanized and the watershed characteristics are totally different from the three calibrated watersheds; thus, it would not be appropriate to use any one of the three calibrated sets of the parameters directly for the Chicago area; and (2) the Lake Michigan flow diversion provides an additional source of flow to the Chicago Sanitary and Ship Canal. In the future, a detailed HSPF model that includes the Des Plaines River watershed and Chicago-Calumet drainage could potentially be linked with the model for the remainder of the Illinois River Basin.

The modular approach for modeling the entire Illinois River Basin is preferred for this project because it provides a broader framework for future modeling work, leading to more detailed applications in the major tributaries and sub-watersheds, such as may be needed for the evaluation of watershed management practices and other applications.

4. FLOODPLAIN ANALYSIS

One of the major restoration concepts is the reconnection of the Illinois River with its floodplain, since much of the floodplain has been disconnected from the river using levees. Reconnection involves managing available areas for purposes such as flood storage, water level management, and ecosystem restoration. Hydraulic modeling is used to better understand the influence of restoration efforts on river hydraulics. The UNET model was used to evaluate the impacts of different floodplain management alternatives on water level conditions in the Peoria and La Grange Pools along the Illinois River.

The Hennepin Drainage & Levee District (HDLD) at river mile (RM) 206 is the only significant contiguous area of disconnected floodplain within the Peoria Pool. That area is 2,900 acres protected from the river by an agricultural levee system. UNET modeling indicated that making use of the leveed area to attenuate high flows could reduce maximum water levels at Henry, approximately 7 miles downstream, by as much as 0.5 feet, although benefits depend on the design of the structure that would be used to divert flows into the district. Hydraulic modeling indicates that the area would be most effective at reducing fluctuations if its inlet weir is set just above level pool elevation (440 feet NGVD). With this design, the HDLD would reduce 5-day fluctuations downstream to the Peoria Lock and Dam (RM 158) by approximately 5 percent. Upstream reductions would be less (2 percent at Starved Rock Tail, RM 231), and downstream of the Peoria Lock and Dam, the river would display 1 percent reduction or less. These benefits would be roughly additive when combined with work to restore tributary hydrologic regimes; if storage is added in the basin at levels of 10 acre-feet per square mile or greater, additional fluctuation benefits can be expected, but combinations with infiltration alternatives or low levels of storage are unlikely to display additional benefits beyond those attributable to the HDLD alone.

Modeling of floodplain storage in the La Grange Pool indicates somewhat smaller reductions in water level fluctuations from added storage area than the modeling of the HDLD. For this report, the Illinois State Water Survey used the UNET model to simulate a number of scenarios wherein different combinations of floodplain areas in the La Grange Pool were made available to attenuate low-level fluctuations, in the same way that the HDLD was modeled in Peoria Pool. Changes in the water level fluctuation regime were quantified at Kingston Mines, Copperas Creek, Havana, and Beardstown. The results of this effort suggest that although location-specific effects are significant, the fluctuation reductions due to the storage areas are roughly additive. The effects also depend on area at each site, diminish quickly with distance, and are much greater downstream of the added storage than upstream.

5. INVESTIGATION OF FLOW HYDRAULICS AND SEDIMENT TRANSPORT PROCESSES AT THE CONFLUENCE OF THE KANKAKEE AND IROQUOIS RIVERS WITH THE EnSed2D MODEL (Duan, 2003)

This report summarizes the results of computational modeling for the confluence of the Kankakee and the Iroquois rivers. It consists of three parts: (1) post-processing of the survey data and generation of the computational mesh; (2) technical descriptions of the hydrodynamic, mass dispersion, and sediment transport model, which are included in Appendices A and B; and (3) modeling results of flow hydrodynamics and sediment transport at the confluence of the Kankakee and the Iroquois Rivers. This project aims to study the effectiveness of engineering alternatives on reducing sedimentation at the confluence. The hydraulics and sediment transport patterns of three management scenarios, which are maintain in a natural state without engineering structures, construction of three short dikes on the left banks of the Kankakee River, and construction of three longer dikes on the left banks, are studied by applying the EnSed2D model.

The sediment transported in the Kankakee and Iroquois Rivers is primarily suspended sediment. The channel bed has a thin layer of bed material, and occasionally be rocks are exposed. Therefore, this study focused on the simulation of suspended sediment transport in the system. Two methods were applied to simulating suspended sediment deposition and erosion processes. One method assumes that the bed material layer is not thick enough for entrainment so that only deposition occurs; the other method assumes there is a sufficient amount of sediment that can be entrained from the channel bed so that the change of bed elevation is the difference between the rate of deposition and entrainment.

The simulated results showed that if the bed material layer is very thin, there is no scour in front of the dikes, while if there is an entrainment, the scouring in front of the dikes is very apparent. In case of no construction, the deposition at the confluence will spread at the confluence as well as immediately downstream. The construction of three short dikes will reduce the deposition of suspended sediment at the confluence and facilitate the passage of suspended sediment from the Iroquois River to the Kankakee River. However, increasing the dike lengths will potentially block flow from the Iroquois River to the Kankakee River, and worsen deposition at the confluence. Therefore, the results of this study recommended that dikes with a reasonable length could be the most cost-effective alternative to reduce sedimentation at the confluence. However, the locations, alignments, and dimensions of these dikes should be determined through another detailed computational modeling study. To ensure the mechanical stability and minimize the negative environmental effect of these dikes, flow hydrodynamics and sediment transport at the near-dike region should be investigated by applying an advanced computational model or conducting physical laboratory experiments.

ILLINOIS RIVER BASIN RESTORATION
COMPREHENSIVE PLAN
WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX D

GEOMORPHOLOGY, SEDIMENT DELIVERY, SEDIMENT REMOVAL AND BENEFICIAL USE

ILLINOIS RIVER BASIN RESTORATION
COMPREHENSIVE PLAN
WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX D

GEOMORPHOLOGY, SEDIMENT DELIVERY, SEDIMENT REMOVAL AND BENEFICIAL USE

INTRODUCTION

This appendix summarizes several investigations undertaken as part of the Comprehensive Plan efforts related to geomorphology, sediment delivery, sediment removal, and beneficial use. The reports and efforts summarized below in sections 1 through 6 were prepared by contract. The reports are available at the Corps of Engineers, Rock Island District office in Rock Island, Illinois. Section 7 provides an overview of sediment removal and beneficial use options that have either been tested or could be tested in the basin.

1. SUMMARY OF ILLINOIS RIVER BASIN LANDFORMS AND PHYSIOGRAPHIC REGIONS

The goals of this study were to provide summaries of the geomorphology and surficial geology of the Illinois River Basin and to characterize the variability of such properties that are important for ecosystem restoration assessments. The three products developed were intended to facilitate discussions among the public, managers, and scientists.

A. ***Geological History of the Illinois River Watershed.*** This paper describes the development of landforms and surficial deposits during the Pleistocene Epoch. It focuses on glacial sedimentary processes and the complexity of glacial environments, but also discusses contemporary sediment-related problems. The paper was presented at the 2001 Governor's Conference on the Management of the Illinois River System (Phillips and Shilts 2001).

B. Revision of *Physiographic Divisions of Illinois* (Leighton et al. 1948). The product of this investigation was an updated map of the physiographic divisions of Illinois. Physiographic divisions are regions with distinctive landforms distinguished by slope and relief. The many influences on landforms/development include pre-existing variations in topography; the texture and thickness of surficial materials; relative age of the surface; and glacial, fluvial, or lacustrine molding of the surface. Recognition of the regions may be useful in identifying the expected range of geomorphological parameters for a given site. Leighton et al.'s (1948) map updated and refined Fenneman's (1928) national boundaries for Illinois and was published at a scale of 1:3,000,000. This revision is intended to create a GIS layer more useful at larger scales and to incorporate four decades of new mapping and digital elevation models to provide more accurate regional views. Models of geomorphology and landform evolution have changed considerably over the last 4 decades, so it is wise to reconsider the definition and use of the divisions. Table D-1 summarizes the updates, by division, from the 1948 map to the recent map.

Leighton et al.'s (1948) map was first digitized by Abert (1996). This digital coverage was updated to 1:500,000—the scale of most Illinois State Geological Survey (ISGS) statewide maps—by overlaying it upon a new painted relief map of Illinois (Luman et al., in press). The criteria that defined Leighton et al.'s divisions were reevaluated and manually redrawn to fit topographic features on Luman et al. (in press). These boundaries were refined where appropriate using surficial geological features (Stiff 2000) and elevation contours determined from Abert (1996). The original physiographic divisions largely hold up to new analysis, although all boundaries were moved significantly and made more complex. In addition, two new regions (the Ancient Illinois Floodplain and the Griggsville Plain) were subdivided from existing regions by virtue of several distinctive features.

C. Lexicon Map. The product of this effort was an updated map of the landforms of Illinois. Bier's (1980) interpretive landform map was successfully georeferenced to an ISGS coverage of county boundaries (http://www.isgs.uiu.c.edu/ndsihome/browse/statewide/counties.e00) and draped on Abert's (1996) shaded relief map. Although georeferencing of the Bier map was not perfect, distortions based on the county boundaries are typically less than 500 m and, more importantly, interpreted landforms generally overlie corresponding features on Abert (1996).

Table D-1. Revision of the Physiographic Classifications of Illinois

Classification by Leighton, Ekblaw, and Horberg	Classification Criteria by Leighton, Ekblaw, and Horberg	Classification Criteria by Phillips
I. GREAT LAKES SECTION	•	
I-A. Chicago Lake Plain	• Defined by highest lake level, the Glenwood Phase at ~ 640 ft • Includes headlands	• Elevation determined from DEM (Abert 1996) • Includes headlands and some Equality Formation (Stiff 2000)
I-B. Wheaton Morainal Country	• Includes northern portion of Marengo Moraine, arbitrary(?) eastward jog in Kane county to join Valparaiso Moraine, followed Rockdale-Manhattan Moraine east to Indiana (Tazewell and Carey substages) • Includes some Illinois Episode drift in McHenry and Kane counties • Highest elevation, complex topography; knob and kettle topography, small filled lake basins, eskers, and kames relatively common though not abundant	• Includes Wadsworth Formation and excludes Lemont Formation (Stiff 2000). This significantly modifies northern reach. Surface is kettled west to farthest moraine, but much less so than to east. • Portions of Rockdale Moraine dissected by sluiceways excluded; surrounded by Kankakee flood-related deposits and have smoother surface than moraine to east
II. TILL PLAINS SECTION		
II-A. Kankakee Plain	• Level to gently undulatory including low morainic islands, glacial terraces, fluviglacial bars and dunes, some lake deposits (though lakes short-lived) • Modified morainic basin • Enclosed by Iroquois, Manhattan, Minooka moraines (on E), and Marseilles and Chatsworth moraines (W & S) • Thick drift to exposed bedrock (in valleys)	• Lake Wauponsee Stage, highest level of the Kankakee Flood, at ~650 ft. Elevation from Abert (1996) • Includes fluvially modified (flat-topped to smoothed) bits of Minooka, Rockdale, Wilton Center, and Manhattan moraines • Excludes hummocky plain along Marseilles and Chatsworth moraines

Classification by Leighton, Ekblaw, and Horberg	Classification Criteria by Leighton, Ekblaw, and Horberg	Classification Criteria by Phillips
II-B. Bloomington Ridged Plain	• Wisconsin moraines of Tazewell age • Low, broad morainic ridges separated by flat to gently undulating ground moraine • Moraine slopes are gentle • Outer boundary follows Shelbyville, Bloomington moraines	• Some Henry Formation along Marseilles and Chatworth morains included because (a) relatively steep slope, (b) coarser-textured than most of Illinois Till Plain, (c) genetically linked to moraine • Near Peoria, Bloomington Moraine has straighter, less dendritic (less developed?) drainages than beyond moraine
II-C. Rock River Hill Country	• Subdued rolling hills • Bedrock controls most landforms • Thin Illinois and Wisconsin Episode drift	• Primarily defined by being *not* Green River Lowland or Wisconsin Driftless Area • Sharp ridges, relatively well-developed drainages • Topography slightly subdued relative to Wisconsin Driftless Area
II-D. Green River Lowland	• Bounded by Shelbyville Moraine, Green River Lobe, on north and south, and Bloomington Moraine on east • Merges with Cary valley-train of Rock River in west • Includes remnants of Shelbyville Moraine • Remnant of old bedrock valley forms bluff on south	• Fluvial and lacustrine landforms of the Henry and Equality Formations • Portions of sluiceways through western uplands included because they are physiographically continuous
II-E. Galesburg Plain	• Western segment of Illinoian drift sheet • Level to undulatory; few morainic ridges • Bounded by Meredosia Valley and Wisconsin drift border (NE); Illinoian drift boundary (SW) • Continues across Mississippi River into Iowa	• Southeastern boundary drawn along base of western bluff of the Illinois Valley • Distinguished from Bloomington Ridged Plain in NE by more complex drainages; boundary otherwise drawn at base of moraine ridge • Separated out Griggsville Plain in S, where uplands are less extensive, valleys are more deeply eroded, and drainages more complex

Classification by Leighton, Ekblaw, and Horberg	Classification Criteria by Leighton, Ekblaw, and Horberg	Classification Criteria by Phillips
II-F. Springfield Plain	• Western half of Illinoian till plain • Level to undulatory till plain • Shallow drainages • Southern boundary where drift thins and bedrock control becomes more predominant	• Includes smooth features with several clearly glacial landforms, i.e., moraines • Flatter uplands than the subdued ridges in Mount Vernon Hill Country • Southern drainages controlled by Kaskaskia R., Little Wabash R., or Embarras R.; MVHC drainages reach ridge crests and drain southward • In Monroe County (west), division excludes Mississippi R. drainages and boundary follows structural ridge
II-G. Mount Vernon Hill Country	• "Mature" topography of low relief • Restricted upland prairies • Broad alluviated valleys along larger streams • No glacial landforms except for portion of Jacksonville Moraine • Southern and western boundaries along outer limits of glaciation or outer margin of Carbondale Group, Pennsylvanian System	• Rounded upland ridges contrast with flatter, broader uplands of Springfield Plain • Drainages reach ridge crests and drain southward • Southern and western boundaries along outer limits of glaciation or outer margin of Carbondale Group, Pennsylvanian System
II-H. Griggsville Plain (NEW)		• More dissected than Galesburg Plain • Highly restricted uplands, though peaks more subdued than Lincoln Hills • Boundary drawn up center of McKee Creek valley, then westward following distinct linear features along ridge • Drainages less "feathery" than Galesburg Plain • Drainages more dendritic and more "feathery" than Lincoln Hills Section • May represent pre-Illinois drainages little modified by thin drift and minimal glacial erosion of Illinois Episode

Classification by Leighton, Ekblaw, and Horberg	Classification Criteria by Leighton, Ekblaw, and Horberg	Classification Criteria by Phillips
II-I Ancient Illinois Floodplain (NEW)		• Contains erosional and depositional features from Wisconsin Episode jökulhlaups (outburst floods) • Boundaries primarily follow escarpments, although southern boundary is arbitrary intersection with Lincoln Hills province • Areas with genetically-related features in southeast Mason, Loan, and Menard counties excluded because of topographic affinities with Springfield Plain
III. DISSECTED TILL PLAINS SECTION	• "Kansan" drift in area of high relief • Eastern boundary along Illinoian drift margin • Southern boundary where "Kansan" drift becomes too patchy to be significant, but arbitrary • Modified from Fenneman who drew eastern boundary at the Mississippi River	• Northern boundary distinguishes more crenulated (Griggsville Plain) from less crenulated topography
IV. WISCONSIN DRIFTLESS SECTION	• "Submaturely" dissected, low plateau bordering outwash-filled upper Mississippi Valley • Eastern boundary follows edge of Illinoian drift	• Eastern boundary follows edge of Illinoian drift
V. OZARK PLATEAUS PROVINCE		
V-A. Lincoln Hills Section	• Partially drift-covered dissected plateau above junction of Mississippi and Illinois rivers • "Maturely" dissected central ridge • Eastern boundary follows Illinoian drift border • Northern boundary arbitrary • Southern boundary along Cap au Grès flexure	• Southern part of eastern boundary drawn along limit of Illinoian drift • Includes long, oddly curved, wide-bottomed valleys with markedly steep walls and sharp ridges • Drainages less dendritic and less "feathery" than Griggsville Plain • Northern boundary arbitrary, but tangent to Pennsylvanian-Ordovician contact • Southern boundary on contact between Orodovician rocks and the Devonian Rocks of the Salem Plateau

Classification by Leighton, Ekblaw, and Horberg	Classification Criteria by Leighton, Ekblaw, and Horberg	Classification Criteria by Phillips
V-B. Salem Plateau Section	• Two segments of part of Ozark Dome • "Maturely" dissected, partially truncated cuestas dominated by single central ridge • Northern segment covered by Illinoian drift • Northern segment: arbitrary boundary with Salem Hills where coarser Pennsylvanian rocks give way to finer; east margin along overlapping edge of Pennsylvanian strata; northern boundary on Cap au Grès flexure • Southern segment: includes pre-Carboniferous rocks	• Northern segment: moved boundary eastward to include karstic regions; northern portion at Devonian-Ordovician contact • Southern segment: includes pre-Carboniferous rocks
VI. INTERIOR LOW PLATEAUS PROVINCE		
VI-A. Shawnee Hills Section	• Complex dissected upland underlain by Carboniferous rocks • Northern boundary along inner flank of lower Pennsylvanian (Caseyville LS) cuesta within Illinoian glacial drift boundary • Southern boundary along northern edge of overlapping coastal plain sediments	• Northern boundary slightly redrawn to separate more subdued topography in MVHC; actual Caseyville contact still significantly northward • Southern boundary along northern edge of overlapping coastal plain sediments
VII. COASTAL PLAIN PROVINCE	• Underlain by Cretaceous and Tertiary sediments overlapping on Paleozoic rocks to the north • Alluvial plains of Cache and Mississippi valleys • Hills between Cache Valley and Ohio River sculpted in Cretaceous rocks	• Northern boundary follows contact between coastal plain sediments and older rocks

2. STREAM DYNAMICS ASSESSMENT IN THE ILLINOIS RIVER BASIN

Andrew C. Phillips [1], Bruce L. Rhoads [2], Thomas J. McTighe, [1] and Courtney A. Klaus[1]

Dynamical behavior in planform of representative stream reaches from across the Illinois River Basin was assessed by analysis of aerial photographs in time series from 1938 to present. The analysis sought to identify mechanisms and rates of planform change, assess the variability of these behaviors across the watershed, and determine the suitability of the method for watershed-scale assessments. The analysis gives an essential historical context to modern stream conditions and provides insight into the concept of stream channel "stability" in particular. The analysis also helps to focus future field investigations by identifying important processes and targets for study.

Study reaches 1.6 km (1 mile) long were selected along 10 streams. Aerial photographs (photograph D-1) at approximately 10-year intervals were obtained for each site. Channel centerlines (threads) of each reach were digitally traced from scanned, georeferenced images in a GIS environment. Threads were buffered to the georeferencing error of their source photographs and then digitally compared with a customized tool to identify overlapping and non-overlapping polygons (figure D-1). Non-overlapping polygons were considered to represent significant change and were assigned into dynamic classes distinguishing "natural" and human-influenced change. The polygon area is the parameter for quantifying change. These changes were evaluated in context of stream power calculations from gauge data, geology and soils data, and observed changes in land use and land cover.

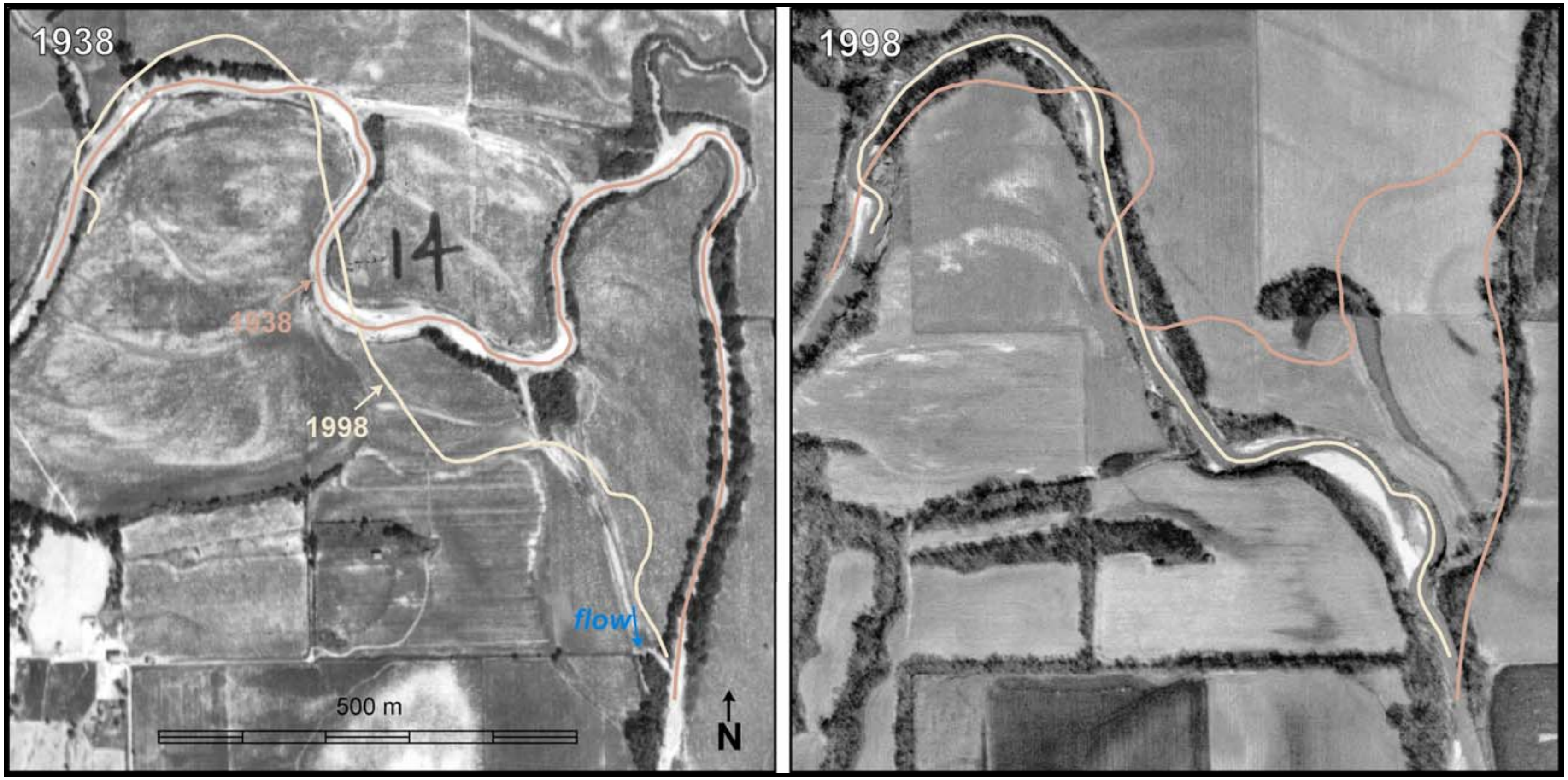
Stream planforms changed by lateral migration or downstream translation of meanders, by chute formation and avulsion, and by channelization. Most planform change was caused by channelization. Several channelized reaches were observed to redevelop meandering behavior or change shape as a consequence of the modification. The response of streams to channelization is particularly important because it provides important information on evaluating the feasibility of restoration projects focusing on dechannelization of streams.

At most reaches, the dominant evolutionary mode excluding channelization was by meander migration, with avulsion playing a significantly smaller role. Extent and rate of change varied considerably, but change occurred along every reach studied. McKee Creek in the southwestern portion of the Illinois River Basin exhibited singularly high rates of change with extensive meander migration and pervasive avulsion.

Average monthly stream power was calculated from USGS flow data and remote measurements of stream geometry. Streams exhibited either relatively low stream power with low variability, or relatively high power with high variability. Stream power increased with time by factor of approximately two on most reaches in watersheds that experienced extensive development; stream power on dominantly agricultural reaches showed no particular trend. A simple correlation between planform change and stream power was not identified. Although several reaches exhibited the progressive increases in change with stream power and time as expected for "unstable" stream channels, most did not. Correlation between stream power and planform change is not expected for either avulsion or channelization, but is expected for meander migration. The lack of correlation demonstrates that geomorphology of entire watersheds must be assessed to give spatial and temporal context to stream dynamical behavior.

---

[1] Illinois State Geological Survey, 615 E. Peabody Dr., Champaign, IL 61820, 217-333-2513
[2] Department of Geography, University of Illinois at Urbana-Champaign



Photograph D-1. Aerial photographs of the same 1-mile stream reach showing channel locations changes from 1938 to 1998.

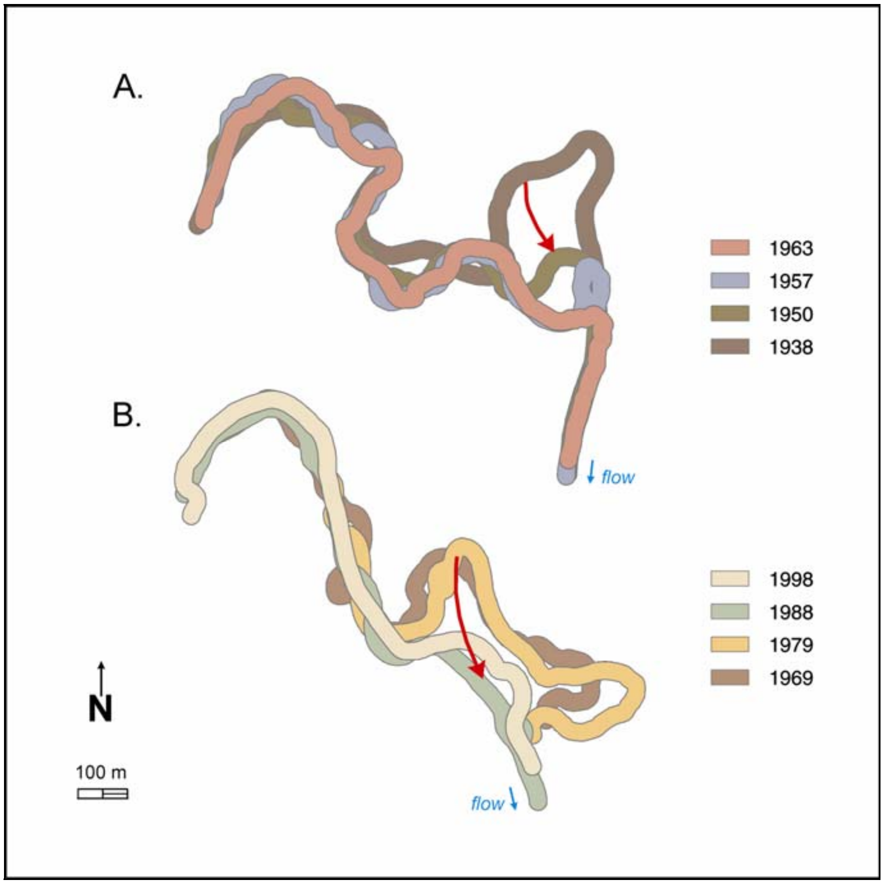


Figure D-1. Comparison of Channel Centerline Changes. Figure A: 1938 to 1963; Figure B: 1969 to 1998

3. SEDIMENT BUDGET

Sediment yield from tributary streams of the Illinois River was calculated based on suspended sediment load data collected by the USGS (Demissie et al. 2004). Sediment rating curves that relate daily sediment load and daily water discharge were developed for each of the sediment monitoring stations based on existing data. Because rating curves often underestimate sediment yield, a refined rating curve procedure was developed to minimize the underestimation. The sediment rating curves were then used to calculate annual sediment yields from all the tributary streams with available sediment load data. The annual sediment yields were then plotted against the annual water discharge to develop regional equations for annual sediment yields. The data points coalesced into four different annual sediment yield equations, which were then used to calculate annual sediment yields by tributary streams into the Illinois River Valley. A 20-year period (1981 through 2000) was used for the analysis. Tributary streams of the Spoon and LaMoine Rivers were determined to have the highest sediment yield rates. The main stems of the Spoon, LaMoine, and Vermilion Rivers had the second highest sediment yield rates, followed by the Sangamon, Iroquois, and Des Plaines Rivers.

The sediment yield calculations were used to construct a quantitative sediment budget for the Illinois River Valley. By using the four regional equations, the sediment inflow into the Illinois River Valley from tributary streams was calculated. The sediment outflow from the Illinois River Valley was determined from data collected by the USGS at the Valley City monitoring station. On the average, 12.1 million tons of sediment is delivered to the Illinois River Valley annually, and the average annual outflow of sediment from the Illinois River at Valley City is 5.4 million tons. This results in an average of 6.7 million tons of sediment delivered from tributary streams being deposited in the Illinois River Valley annually. The total amount of sediment deposited in the Illinois River Valley is probably higher than the 6.7 million tons because of the contribution of bank and bluff erosion, which is not included in these calculations.

4. DIGITIZE HISTORIC MAPS AND SEDIMENT RATE ANALYSIS

Sedimentation rates between 1903 and 2001 for four backwater rates on the Illinois River—Babb's Slough, Sawyer Slough, Meadow Lake, and Wightman Lake—ranged from 0.18 inch per year to 0.40 inch per year, and the percentage reduction in storage capacity varied from 87 percent (0.9 percent per year) to 98 percent (1.0 percent per year). In general, deeper areas have filled more quickly than shallow areas, resulting in a higher and more uniform bottom surface in 2001 as compared to 1903. The annual rates of capacity loss and sedimentation calculated between 1903 and 2001 compare closely to rates calculated in other publications between 1903 and the mid 1970s, indicating that sedimentation rates and rates of annual percent capacity loss have remained nearly constant since 1975. These recent rates are higher than expected given that the bottom surface has been progressively rising, which should result in decreased rates of sedimentation. However, water elevation duration curves from 1903 through 1975 and from 1975 through 2001 show that more recent water flow rates and corresponding water surface elevations have been higher, promoting continued high rates of sedimentation.

5. SEDIMENT CORINGS AND ANALYSIS

Determining the appropriate sediment removal technology, how that sediment is handled, and where it is placed depends on the type and quality of the sediment. As such, the Illinois State Water Survey conducted a study to characterize the sediments found in the Peoria Pool of the Illinois River. Thirty-seven deep sediment cores were collected during the course of the study. Each of the cores was split, and a lithology was developed for each. Radiographs for 25 of the cores were performed. The cores were sub-sampled in 10 cm intervals to the top of the original floodplain soil, if present. When original floodplain soils were present, larger intervals of about 25 cm were taken to the base of the core. Sub-samples were air dried and are being stored until such time as additional chemical and physical analysis can be performed.

6. SUMMARY OF INNOVATIVE TECHNOLOGIES AND TESTS FROM 2003

Three tests of innovative dredging technologies and beneficial uses were conducted in 2003. The following paragraphs briefly describe the efforts and results.

A. Sediment Handling Demonstration. Sediment excavated from an Illinois River backwater with a clamshell bucket was stockpiled on a field. The following day the sediment was loaded into concrete handling trucks. A concrete pump and placing boom had little difficulty handling the material. A telescoping conveyor also handled the material with little difficulty. The sediment stayed on the belts and negotiated the transfer point. The belt cleaners performed well. Minor problems, such as bridging in hoppers and splatter at some fittings designed for concrete, can be addressed with some operational or other changes. The pumps, booms, belts, and scrapers satisfactorily handled this material.

The sediment typical of Illinois River backwaters consists primarily of silt and clay with little sand. This material will cause little wear on belts, pumps, and pipes. As with other dredging equipment, potential objects in the sediment, such as tree branches, lumber, cables, metal parts and bricks of certain sizes, will have to be screened or avoided in order to prevent plugging or damaging the equipment. Trash racks with mechanical rakes or a grinder pump may prove useful in situations where debris is encountered.

This demonstration shows that conveyors and positive displacement pumps can move and place fine-grained sediment. The decision to use of this equipment on the Illinois River system will depend on numerous factors, including the distance material must be moved, availability of dredged material placement sites, configuration of dredge cuts, water depth, and cost. Both systems could move sediment at or near *in situ* moisture content to sites without costly containment dikes, onto islands, or into barges. The pump could also fill geotextile tubes.

B. Transport of Dredged Material Demonstration. A barge load of sediment excavated by clamshell dredge from Lower Peoria Lake was shipped to Chicago, Illinois. The barge was moved 163 miles and waited 10 days to unload. The sediment was loaded onto trucks with a large excavator and placed at a conservation area and at the Paxton I landfill reclamation site. The material handled well and maintained its consistency in the barge and after placing. It readily dumped from the trucks and formed piles about 2.5 feet high. The demonstration showed that this material can be transported and handled with conventional equipment and placed on fields without the necessity of using engineered containment structures.

A 3-cubic-yard conventional excavator bucket and semi dump trucks readily handled sediment at the destination site. The material in the trucks was cohesive, but gently rocked back and forth when the vehicles stopped and started. Although no spillage was observed from moving trucks, the potential for spillage should be considered when trucks are loaded and routed. Sediment poured from the trucks and formed thick dome-shaped piles rather than flowing across the ground and forming shallow pools.

The transport and placement of large quantities of dredged material on brownfields along waterways is technically feasible. Thick material can be unloaded from barges with an excavator or clamshell bucket into trucks, a positive displacement (concrete) pump hopper, or to a conveyor system for movement to a placement site. The material can be placed at a desired thickness and allowed to weather and gain soil structure. Alternatively, material could be placed in thin layers that would quickly dry. The dry soil could then be piled to the desired thickness by conventional earthmoving equipment.

There are other options for unloading and moving sediment to a placement site. Large off-road mining trucks could be used at sites adjacent to waterways where use of public roads is not required. It is also possible to add modest amounts of water to a barge to allow a slurry pump to move the material at a consistency similar to thick fuel oil. This would require some sort of low containment dike, as the mixture would flow. Alternatively the slurry could be sprayed in thin layers over the area and gradually built up.

C. Beneficial Use Demonstration. A proposed dredging project to improve wildlife habitat and recreation in the Peoria Lakes reach of the Illinois River will generate a large quantity of dredged sediment. The objective of this study was to investigate a possible beneficial use of the sediment as topsoil. Sediment was mixed with various amounts of biosolids, municipal compost, and horse manure. Barley and snapbeans were grown in the mixtures in the greenhouse. The plants grew well in all treatments, except snapbeans were stunted by salts in unleached biosolid mixtures. The highest overall yield for barley was obtained in the treatment composed of 50 percent sediment and 50 percent biosolid. For snapbeans, the highest yield was the treatment composed of 70 percent sediment and 30 percent biosolid. Heavy metals in plants tissue are within ranges considered normal, except for molybdenum (Mo) in snapbeans, which is at a level of concern if the plants were used exclusively as animal fodder. Addition of biosolids to sediments decreased Mo plant availability. Based on these results, this sediment has no inherent chemical or physical properties that would preclude use as topsoil substitute.

In terms of standard agronomic parameters such as plant growth, results confirm previous work that established that sediments from the Peoria Lakes reach of the Illinois River make excellent topsoil material. Both legume and grass plants grew well in all sediment mixtures and improved the plant growth potential of unleached biosolids. Addition of biosolids to sediment mitigates some of the problem with growing plants directly in sediments or biosolids. Pure sediments may have poor physical characteristics, at least initially under some field conditions. Pure biosolids have excessive salts that inhibit plant growth, particularly legumes, as evidenced by death of some snapbean plants on 100 percent biosolids. The sediments may experience improved tilth and higher plant nutrient content under field conditions when mixed with biosolids. The biosolids release less of their load of potentially toxic heavy metals, and the injurious salt content is diluted by sediment addition. Molybdenum uptake from sediments is decreased by biosolid addition.

An optimum sediment-to-biosolid ratio would range from 80:20 to 70:30 on a volume basis. This mixing ratio was also shown to reduce uptake of metals by crops, perhaps due to dilution as well as to modifications of soil properties, such as pH.

7. SEDIMENT REMOVAL AND BENEFICIAL USE

The Illinois River Basin Authority (WRDA 2000) calls for a component to address Section 519, the development and implementation of a program for sediment removal technology, sediment characterization, sediment transport, and beneficial uses of sediment. Much of the restoration effort will involve dredging outside of the navigation channel for environmental enhancement and will, therefore, differ in some respects from the more traditional navigation dredging.

The U.S. Army Corps of Engineers Dredging Operations and Environmental Research (DOER) Program conducts research that is designed to balance operational and environmental initiatives and to meet complex economic, engineering, and environmental challenges of dredging and disposal in support of the navigation mission. Research results provide dredging project managers with technology for cost-effective operation, evaluation of risks associated with management alternatives, and environmental compliance. The Corps of Engineers also operates the Regional Sediment Management (RMS) program. The RMS program is focused on managing sediment regionally in a manner that saves money, allows use of natural processes to solve engineering problems, and improves the environment. The Illinois DNR has developed dredging and beneficial use techniques suitable for Illinois River Restoration, including projects with the Corps under the Section 519 authority.

It is anticipated that Illinois DNR will continue as a partner in future efforts under this Illinois River Basin Restoration component, and that the efforts will be coordinated with the DOER and RMS program.

The scope of the work to date has been limited by fiscal constraints, particularly in relation to chemical characterization, demonstrations, and equipment testing and development. Funding and other support was provided by the State of Illinois and some local interests. Much of this work is described in Marlin 1999, 2001, 2002, 2003a, 2003b, and Darmody and Marlin 2002. Most of these documents are available at http://www.wmrc.uiuc.edu/special_projects/il_river/publications.cfm.

The following sections describe the background of this component; various technologies and beneficial use options that are available and have been tested in the basin; further technologies, testing, and applications that should be explored; and ends with recommendations regarding further work.

A. Background. Illinois River restoration efforts will require the removal and placement of several million cubic yards of sediment. There is great variation in the size and physical setting of the many backwaters (including side channels and the Peoria Lakes) within the floodplain. Additionally, the amount of material to be dredged to meet restoration objectives at specific sites will vary dramatically. These factors make it necessary to consider innovative dredging techniques, innovative methods of handling and transport, and beneficial use options and techniques in addition to conventional methods.

Manipulations in the river system have caused most backwaters to become shallow with nearly flat bottom profiles, while islands and much of the floodplain experience increased flooding and higher groundwater levels. These changes have dramatically reduced aquatic habitat values and made it difficult for floodplain trees and other plants to maintain their historic species mix. Ecological restoration in the backwaters and the floodplain includes the need for dredging shallow backwaters to various depths and elevating certain islands and floodplain areas. The current plan for backwater dredging envisions 5 percent of a typical site being at least 9 feet, 10 percent between 6 and 9 feet, 25 percent between 3 and 6 feet, with the remaining 60 percent left undredged, with existing depths ranging from 0 to 3 feet.

Conventional hydraulic dredging is an efficient and cost-effective method of removing sediment where suitable sites exist for constructing diked areas to dewater and store sediment. Sediment mixed with water can be pumped a short distance or several miles depending upon the number of pumps used and availability of placement sites. Mechanical dredging is commonly used for small jobs and projects where the dredged material can be placed within the reach of a crane or excavator arm, or where construction of a dewatering containment facility is not desired. Additional steps such as loading and unloading barges or trucks, mechanical dewatering, and transport from drying beds and mixing with other soil components all add costs to sediment management efforts.

Most Illinois River sediment washes from streambeds and banks, bluffs and farmland. Heavier sand and gravel particles that enter the floodplain tend to form deltas at stream mouths or move down the main channel. Backwater sediment is largely composed of fine-grained silt and clay particles that are carried farther and settle in slow moving backwaters. Thus, much of the sediment in the backwaters and side channels is similar in physical characteristics to native topsoil. It should, therefore, be possible to use these sediments as soil barring contamination.

Until recently, the placement of dredged material in the United States has generally been viewed as a disposal problem. Sediment from ocean ports and channels is usually sandy, salty, and often seriously contaminated. Material dredged from inland navigation channels also tends to have a high sand content. Such material is often placed in confined disposal areas. Efforts to find beneficial use for dredged material often focus on the construction of islands or wetland habitat in coastal areas. In some areas, sediment has been used as soil or a soil amendment. Large-scale restoration requires finding publicly acceptable ways of placing huge quantities of sediment in stockpiles as well as determining how to use it beneficially for economic or habitat purposes.

Many Illinois River backwaters are large or located far from areas suitable for placing dredged material. Lower Peoria Lake, for example, is surrounded by urbanized land. Other backwaters are large or in broad floodplains where only limited amounts of sediment can be placed without causing hydrologic or ecological problems. In areas where relatively small amounts of material need to be removed for fish access and over wintering, dike construction or equipment mobilization can make the cost per cubic yard removed prohibitive.

Beneficial use of sediment involves moving it from the water body, transporting it, and placing it where it will be used. Additionally it may be necessary to dewater, dry, or pulverize the sediment or blend it with other materials prior to final placement. Each step adds cost and economies of scale are often significant.

B. Summary of Available Technologies for Sediment Removal. Corps projects in Midwestern large rivers (e.g., Illinois, Mississippi) have typically utilized mechanical clamshell and hydraulic cutterhead dredges. However, an ever-increasing range of technologies is available to remove sediment. This section summarizes conventional and more recent technologies that could be utilized in future projects.

Traditional hydraulic dredging and mechanical dredging with clamshells or draglines have several limitations. These include resuspension of sediments at the point of excavation and free water entrainment in sediments, which require extensive, and potentially expensive, dewatering and return water treatment (Duke et al. 2000).

i. Mechanical Dredging. Mechanical dredges employ a bucket to excavate and lift material from the bottom. The advantages of mechanical dredging are that a minimum of additional water is added to the sediment during dredging and the dredging unit is not used to transport material, permitting uninterrupted operation. For a mechanical dredge to be efficient, the cut thickness must be sufficient to fill the bucket. In non-cohesive, fine-grained sediment, sediment will wash out of the bucket.

The clamshell dredge, using a wire rope connection, is the most common of the mechanical dredges. The mechanical dredge is able to work in confined areas and can remove many different sized materials. The clamshell is not suitable for free flowing material (like unconsolidated sediment) and may be unable to dig into extremely firm materials. Typical bucket sizes used in the Illinois River Basin would range from 1 to 4 cubic meters, though clamshells as large as 16 cubic meters are in use.

ii. Hydraulic Dredging. Hydraulic dredges remove sediment hydraulically, in the form of a slurry. Types of hydraulic dredges are straight suction and cutterhead, pipeline dredges, dustpan dredges, hopper dredges, and auger dredges.

C. Summary of Tests. A large number of placement and use options in various combinations could be used to accommodate millions of cubic yards of dredged sediment over the next 50 years. Some can be readily implemented with conventional dredging equipment, while others require innovative applications of new or existing equipment. An ideal development would be a device that could remove and transport sediment as readily as hydraulic dredges and place it with the consistency and water content of mechanical buckets. Given that areas outside the main channel are often a foot or less deep and the desired depth of much of the restoration is 3 to 6 feet, the ability to operate in shallow water is also desirable. Another factor is the fine-grained nature of most of the sediment that requires removal.

Innovative approaches to design and implementation are as necessary as innovative technology in a restoration project of this magnitude. The river system has degraded over more than a century, and several feet of sediment has accumulated in most areas.

D. Innovative Sediment Removal Technology - Hydraulic Dredging. Hydraulic dredges could be used in a number of innovative ways. It is possible to pump material for miles if suitable areas are not available near the dredging location. A pipeline over 20 miles long was used when the White Rock Reservoir was dredged in Dallas. The material went into an old mining pit. When quantities are great enough, such distances are not out of the question along the Illinois River. Corridors could follow existing highways, railways, streams, storm sewers, and the river itself. Such a system could deliver dredged material to a number of mined areas in Illinois. It may also be possible to use out-of-service gas or oil pipelines to transport slurried dredged material. For example, a 12-inch pipeline currently extends from near Chillicothe to Galesburg, which is near strip-mined land owned by the Department of Natural Resources.

Several companies, including Black and Veatch, Brennan Marine, and Phoenix Process Equipment Co. have used mechanical dewatering systems in conjunction with hydraulic dredges. The systems separate most of the water from the sediment and then run it through a belt press. It can then be placed directly into trucks or stockpiles. Brennan has also operated its system without the belt press by placing the treated material in geotextile tubes to further dewater and consolidate the dredged material. These systems could be used to dewater sediment piped from miles away for island construction, loading into barges or trucks, placing on fields or other purposes.

Polymers are used in the mechanical processes to speed thickening in the tanks. Similar polymers are in use to help settle hydraulically dredged solids in dewatering ponds. Among other things, the polymers allow the discharge to meet regulatory standards with less holding time. The polymer mixture is matched to the properties of sediment at particular sites.

E. Sediment Handling and Transport Technology

i. Conveyors. Conveyor belts have the potential to effectively extend the reach of excavator and crane mounted clamshell buckets. Backwater sediment excavated with these buckets is cohesive and contains very little free water. The sediment can be placed on islands, on shore, or in trucks that are within reach of the excavator. In order to use large buckets in backwaters, it is necessary to dig deep enough to bring in a floating crane. If material is to be moved beyond the arm's reach, it must generally be loaded onto a barge that may require additional depth. A floating conveyor could operate in shallow water and transport material considerable distances to islands, the shore or barges in the channel. Dredged material excavated by a machine on a shallow float could be placed in a hopper feeding a belt.

In order for conveyors to operate successfully in the restoration effort, they must be able to convey freshly excavated sediment over distances and up modest inclines, transfer it from belt to belt, and the belts clean themselves during operation. Belt cleaning is essential to prevent dredged material from sticking to the belt and then falling into the shallow water and miring the floats. Some trial demonstrations were conducted to evaluate this transport and handling option.

The first demonstration occurred in March of 2002 at a gravel pit and is described in Marlin (2003b). Sediment was removed from a typical location in Upper Peoria Lake with a small clamshell bucket and placed on a deck barge. The bucket was heaped so that free water drained prior to placement on the deck. During the 8-mile trip to the gravel pit, the sediment held its shape and did not liquefy despite vibrations and rough water.

A series of three 36-inch conveyors was used for a series of tests. Sediment was placed on the first belt by the clamshell bucket, run about 50 feet before it dropped 7 feet through the first transfer point, was conveyed 100 feet up a 6 percent slope, and then transferred to a 50-foot stacking conveyor with a 25 percent slope. Because the conveyors normally handled sand, there were no belt scrapers and the transfer points had no fittings to control splatter. Various options were tried, including dropping sediment on a moving belt, starting the belt both dry and wet from a stop, and adding extra water to the sediment. In another test, an endloader took sediment to another belt where it was run 600 feet and stopped on an incline. Sediment placed into the hopper of the stacker readily climbed the belt.

The sediment stayed on the belts without difficulty. It did not liquefy and maintained a reasonably solid consistency over the belt idlers and across the transfers. Minor slumping occurred on the long belt, but the sediment cross section remained constant on the belts. The sediment did not exhibit excessive stickiness or build up on the belts or chutes after eight runs. As expected, some of the wet sediment was carried back past the transfer points on the belts and fell to the ground. This confirmed the need for belt scrapers. Likewise, a conveyor system for handling sediment will need to prevent spatter at transfer points and other locations.

In a second test, a Putzmeister truck-mounted concrete conveyor handled sediment in a September 2002 demonstration. Details of this demonstration are contained in Marlin (2003a) in the appendix. The system includes a 40-foot feeder conveyor fed by a hopper that carries material to the top of the truck where it is transferred to a 105-foot telescoping conveyor. Sediment excavated with a clam shell bucket and stockpiled in a field the day before was used for the demonstration. The equipment is designed for concrete and was not modified for this demonstration. Under ideal conditions, the system can handle 300 cubic yards per hour.

Sediment was removed from the stockpile with a skidder and placed in the hopper. The thick sediment had a tendency to bridge over the hopper bottom and was occasionally pushed through with shovels. The moving belt pulled the sediment from the bottom of the hopper. Raising the hopper a few inches greatly improved the situation. The sediment readily stayed on the belt and was compressed as it passed thorough the transfer point that had a four-inch clearance. It easily rode the extended conveyor and fell vertically off the end of the belt. Scrapers cleaned the belt and prevented drag back along the underside of the belt.

In another test, sediment was fed to the conveyor by a concrete pump. This material, that lost some of its cohesiveness during pumping, had no difficulty passing through the hopper to the belt. It, too, conveyed easily and cleared the transfer point. At one point, the extended conveyor was inclined to 30 degrees and the sediment traveled the belt without difficulty. The conveyor can be precisely controlled and made 20- by 60-foot plots of wet sediment 6 and 12 inches deep. It also made a circular pile 2 feet high at the center with a radius of 9.3 feet. The edge of the pile was about a foot high.

These demonstrations show that backwater sediment can be conveyed with conventional equipment. A system dedicated to sediment should have some modifications from the concrete system. Such features as the hopper and transfer points could have more clearance and splatter could be better controlled.

Floating conveyors over 2,000 feet long are used in the sand and gravel industry and presumably could be designed for use on the Illinois River backwaters. Given the shallow nature of the backwaters, the floating conveyor would be most useful if it drew a foot or less of water.

Pipe conveyors are another option. These systems use additional rollers to fold the conveyor belt over itself so that material is contained inside. It unfolds at each end for loading and discharging. These conveyors can curve without using a transfer point.

ii. Positive Displacement Pumps. Positive displacement pumps are commonly used for handling concrete and various slurries. They have been used for to handle sediment in several situations. Their main advantage is the ability to deliver sediment without adding large volumes of water. Large pumps can handle over 500 cubic yards per hour and pumping distances in excess of 2,500 yards are attainable. The quantity pumped generally decreases with distance. Marine sediment was pumped over 200 yards at a harbor dredging project at Ishinomaki in Japan. Sediment from the Schlichem Dam in West Germany was pumped through 5,000 feet of pipe. The reservoir was drained and the wet sediment loaded into a hopper with endloaders. This displacement pump operated at an effective rate of 78 cubic yards per hour (Putzmeister, Inc. literature). Two demonstrations of these pumps were conducted with Illinois River sediment.

The first used the DryDredge ™ that incorporates a concrete pump and sealed clamshell bucket capable of handling about 70 yards per hour (Marlin 2002). This dredge was developed in conjunction with the Corps of Engineers Waterways Experiment Station. The demonstration was conducted in Upper Peoria Lake near the EMP islands in the spring of 2001. The dredge was delivered to the area on a lowboy trailer, placed in the river with a crane and pushed to the site with jon boats. Once on site, the dredge maneuvered using walking spuds and its excavator arm. Water levels at the site fluctuated and occasionally were slightly less than 2 feet.

During the demonstration, excavated soft lake sediment was pumped through 120 feet of pipe. The operator was instructed to minimize the amount of free water entering the hopper in order to stay as close as possible to *in situ* moisture content. The dredge placed material at several locations on the overburden island and in shallow water. Sixteen sediment samples were taken from the discharge pipe over a 2-hour period. Their moisture content (water weight/sample weight) averaged 41.5 percent. Four shallow cores representative of *in situ* conditions averaged 43.5 percent.

The pumped material was cohesive and readily formed cone shaped piles about 2 feet high with a slope of 9:1. When an attempt was made to fill a wooden form 18 inches high and 8 feet square, the material stacked up to the height of the pipe lip instead of flowing across the form like concrete. The pumped sediment was too stiff to be dragged across the form with a shovel. At one point, water was added to the hopper to increase the flowability of the discharged sediment.

The dredge also filled four 15-foot circumference geotextile tubes placed in a trapezoidal pattern in shallow water. Then the area inside the tubes was filled with pumped sediment to form a small island. The pipe was moved several times because the sediment was too stiff to flow to the sides of the containment. Within a week, researchers could stand on 18-inch-wide plywood on the sediment. After 3 weeks, the sediment had a crust and easily supported researchers.

The second demonstration was in September of 2002 at Lacon, Illinois (Marlin 2003a). A Putzmeister concrete pump truck with a 32-meter articulated boom and a 5-inch line was used. The excavated sediment was the same used for the conveyor demonstration described above. The pump and boom experienced no difficulty handling the sediment. It pumped easily and could be precisely placed as it exited the discharge pipe. When pumped on the field, it formed a cone that after 2 hours of settling was about 2 feet high with a radius of 10.3 feet. The pump boom also discharged sediment to the conveyor truck.

The hopper feeding the pump is designed to handle concrete and has a 2-inch grate. The stiff sediment bridged over the grate and was slowly drawn into the pump. In order to improve flow, the grate was removed. The pump operated at about 10 percent of its capacity because of the skidder's limited ability to load sediment.

For use in backwater restoration, existing concrete pumps could be placed on floats or work barges and fed with an excavator or crane. The material could then be pumped onto an island, to shore, into geotextile tubes, or into barges or trucks. A placing boom could be mounted on a barge or on shore to place the sediment in a specified pattern and depth. Equipment of this type could provide great operational flexibility, especially where shallow depths are desired and building containment berms is not an option.

iii. Barge Transport. Sediment was barged to a Chicago landfill site in the fall of 2002 in order to evaluate the feasibility of moving backwater sediment long distances using conventional equipment. The project is described in Marlin 2003b. Nine hundred tons of material dredged from Lower Peoria Lake was placed in a barge with a clamshell bucket. The bucket was heaped to minimize the amount of free water placed in the barge. The barge was towed 163 miles to a Chicago dock on the waterway and unloaded into trucks for the 1-mile trip to the landfill. The material presented no serious handling difficulty and the trucks and barge cleaned normally after the project.

When dumped from semi-trailers, most loads formed a mound about 32 inches high. The material was cohesive and kept its shape after placement. A load dumped on an 8 percent slope stayed in place.

iv. Mud to Parks. In 2004, the State of Illinois moved 68 barge loads of Peoria Lake sediments to the Chicago Lake front to restore a portion of the 100 acre former U.S. Steel site as part of the State's "Mud to Parks" demonstration. This project further demonstrated the potential feasibility of transporting river sediment relatively long distances to utilize these sediments as a resource

F. Placement Options. Dredged material from the Illinois River historically has come from the main channel, marina access channels, and small harbors. Most material from the main channel is currently placed in designated sites that are diked, especially for large projects. Small harbor and marina maintenance projects generate material that is frequently dewatered in a pit or cell and is then trucked away to a field or hauled away by contractors and homeowners. Before the importance of maintaining floodplains was recognized, a common practice was to fill floodplain and water areas with dredged material. Such placement is now regulated.

A limited amount of material can be used to develop islands and wind and wave breaks in backwaters. Such structures will restore some of the features of the original system that were lost when water levels were increased during the last century. Islands can be high enough to support native floodplain hardwood trees and provide relatively isolated areas for various birds and other animals to rest, forage, or nest. Another option is to build islands with low spots above normal pool elevation that may support aquatic vegetation. Islands can be oriented to minimize impacts on flood storage and conveyance. Smaller structures can break waves and provide some calm and sheltered areas for waterfowl resting. They will also reduce resuspension of the flocculent sediment layer by wave action, which will reduce turbidity and make conditions more favorable for aquatic plants and sight feeding fish and other predators. Breakwaters will provide some protection from wave erosion to both new and existing islands and the shoreline.

Portions of the floodplain can be elevated to allow the return of native plant species that cannot tolerate the altered water levels, caused by the current locks and dams, diversion, drainage projects, and land use changes. This can be accomplished by mounding sediment on existing islands as well as areas between the channel and bluff line that are currently mudflats or covered with willow. The mounds can be located so that they become islands during floods.

Sites capable of holding large quantities of dredged sediment either permanently or for later use exist in the basin, but not always in proximity to backwaters needing restoration. Potential placement options include gravel pits, strip mines, and fields. The material can be dewatered behind a dike or dried and piled to any desired shape. A mound could be several stories high and as long and wide as desired.

The bulk of the material in the backwaters is quite similar to topsoil. Clean sediment could be used for landscaping, landfill cover, restoration of mine land and industrial sites, amending agricultural soil, and as bagged soil. Some sediment is suitable for use as construction fill, levee repair, and other projects depending upon its physical properties. If options with commercial value are found, it may be possible to offset all or part of the cost of some restoration dredging.

i. Unprotected Island Plot Trials. In 1994, the Rock Island District built an island in upper Peoria Lake under the Environmental Management Program. The large island was constructed by a clam shell dredge that cut a channel through sediment and lake bottom as it built the island approximately a mile long and 7 feet high. The distance the crane arm could reach determined the width. The soft top layer of sediment was removed first and cast to the west of the island, creating a low berm known as the overburden or small island. It was expected to rapidly wash away. Both islands are still in place, although the overburden island has lost much of its length and height. Exposed tree roots on the top of the large island indicate that it has lost up to 2 feet of height. It also has a higher sand content than the overburden island, probably because it contains greater amounts of material from the original bottom. Observers are surprised at the longevity of the overburden island

and apparent strength of the larger one. A demonstration to determine the ability of the various sediments to serve as island building material is desired, but funding has not been available for a controlled project of reasonable size.

In the spring of 2001, a number of sediment piles were placed in shallow water and on the low EMP islands in Upper Peoria Lake. Some were built using the DryDredge™ and others were placed during high water using a clamshell bucket on a work barge. Portions of all piles that were above the flat pool elevation consolidated to the point where they supported the weight of researchers. The piles in the water and on the low end of the EMP "overburden island" washed away or were seriously eroded after one year. They were frequently subjected to waves striking at different elevations depending upon pool level. The piles on the east side of the large island lasted longer that those on the west that were subject to waves with a long fetch distance. By the fall of 2003, only a clamshelled pile about 2 feet above flat pool remained. It consisted largely of sand and had lost half its height.

These observations indicate that islands can be built with sediments in the area. However, the fluctuating water levels make it difficult for the shore to stabilize and vegetation to become established at lower elevations. Material containing sand or original hard bottom will make a better base than fine-grained sediment. A wave break can help protect an island, as could a geotextile tube, riprap or other armor.

Over 15 earth islands have been constructed in Pools 5 through 10 as part of the UMRS-EMP. These islands generally consist of a low sand base with fine sediments placed on top of the sand base. Shoreline stabilization of islands includes vegetative stabilization, riprap, and biotechnical methods such as groins, vanes, or off-shore mounds combined with a vegetative stabilization measure. Although there is significant variation from project to project, a typical distribution of shoreline stabilization methods is 20 percent riprap, 40 percent biotechnical, and 40 percent vegetative measures. More recent projects tend to have less riprap and more use of biotechnical and vegetative stabilization.

ii. Geotextile Tubes. Tubes made of geotextile fabric are in common use in coastal areas around the world for use in stabilizing beaches and constructing islands and wetlands. The tubes are filled with sand and allow berms, wave breaks, and containment areas to be quickly constructed. The tubes are also used to dewater sediment as well as sludges from wastewater and industrial facilities in situations where space for conventional dewatering is not available. Tubes filled with fine-grained sediment are in use at several projects and may prove useful for backwater restoration on the Illinois and Mississippi River systems.

The Corps' Nashville District used geotextile tubes at the Drake's Creek environmental restoration project near Hendersonville, Tennessee on Old Hickory Lake. The tubes separate a shallow area of a tributary arm from a recreational channel and open water. The tubes create a connected backwater protected from waves and suspended sediment. Fish and other organisms can freely enter and leave the area because the tubes do not extend all around the new backwater.

The Nashville District is experimenting with various options for vegetating the tubes and protecting them from ultraviolet rays that may cause them to deteriorate over time. Trees are planted in slits in some tubes and in other areas soil is placed over them. Vandals and boats have not damaged the tubes. The sediment in the tubes is consolidated and firm. The reservoir in not used for flood control and its water level is fairly stable. It is also not subject to freezing.

In Illinois, the Fox Waterway Authority in northern Illinois used geotextile tubes filled with sediment to form the perimeter of an island habitat restoration project. The tubes were filled using a hydraulic dredge in combination with a polymer that helped settle the solids. Sediment was then pumped into the ring formed by the tubes. Tubes suffered damage in a number of ways. Floating ice driven by wind and waves punctured several tubes. Snowmobiles ran over some tubes and cut the fabric, and recreational boats caused some damage. Duck blinds that escaped their moorings blew into several tubes and ripped the fabric. Waves eroded sediment from over 98 feet of one tube in 2 days. Riprap was placed over severely damaged tubes.

Four 15-foot-circumference tubes were placed in shallow water in Upper Peoria Lake in conjunction with the DryDredge ™ demonstration in May of 2001. They were filled with the DryDredge™. They formed an island about 50 feet on a side that was filled with sediment at near *in situ* moisture content. The tubes were about a foot above flat pool, and the island was frequently submerged by high water and lashed by waves.

Initially the tubes were pumped as full as possible and had no slack in the fabric. In 2001 the elevation of the ends of each tube was recorded with respect to a nearby reference point. Two years later, they were an average of 9 inches lower. The tubes were flatter and the fabric was not as tight. It is not clear whether the fine-grained sediment had consolidated, was passing through the fabric, or if the bags were sinking into the bottom sediment. These tubes suffered no ice or boat damage or vandalism during 3 years.

The tubes held the island in place while it consolidated. The sediment was initially mounded inside the island higher than the tubes. Grass seed planted on the sediment was consumed by geese and killed by flooding. Waves washed sediment from the top of the island until it was essentially level with the tubes.

Geotextile tubes will likely prove useful in Illinois River restoration projects. They can be used to hold dredged material in place while it consolidates, serve as wind and wave breaks, and as the edge of islands. In areas where ice, debris, or vandalism may be a problem, it may be necessary to use riprap or other protection in conjunction with the tubes. The tubes and their scour aprons could be used to reduce the amount of riprap required and to keep it from sinking in soft sediments. It will also be necessary to determine the best fabric for the sediment in a given area.

G. Beneficial Use

i. Dredged Sediments as Soil. Landscaping soil is a potential beneficial use of large quantities of sediment removed from water bodies, and the chemical and physical properties of the dredged material will largely determine its suitability. Sediment from the Illinois River valley has properties that indicate that it would make excellent landscaping soil. Much of the sediment found in the Illinois River valley originated from eroded fertile rural areas. Consequently, it contains less pollution in the form of heavy metals and other chemical contaminants than is typically found in sediments from urban or industrial areas. Some compounds found in sediments, such as ammonia, that are often toxic in an aquatic environment, may be beneficial to plants when placed on land. The initial problem with using dredged sediments as soil is that they are dispersed, have no soil structure, and may set up like concrete upon drying. This problem is generally overcome after weathering, i.e., wetting and drying, freezing and thawing, and exposure to microorganisms and plants. As the weathering progresses, the dredged material develops structure that enhances air, water, and root penetration. Tillage, or other means of mechanical disturbance, will accelerate the process. We have conducted a series of demonstrations and experiments that indicate that this scenario is generally true for the Peoria Lakes sediments.

Investigations to date show that fine-grained backwater sediments are similar in character to native topsoil (Darmody and Marlin 2002, Darmody et al, 2004 in press). The germination and growth of a variety of plants in sediment and central Illinois topsoil was essentially equivalent. The conclusion is that sediments can serve as well as natural, high quality topsoil as a plant growth medium in the greenhouse. Metal uptake by plants was elevated in some instances, but doe not appear to be a serious problem.

Peoria Lake sediment placed in a pit and on fields developed typical soil structure after weathering. A field at East Peoria was monitored after it was covered with sediment in 2000. When sampled in late November of 2001, the site supported a continuous stand of grass and other weedy vegetation. The sediments showed evidence of the development of soil structure. Moist consistence was firm in the sediments and very firm in the underlying fill. There was good root penetration in the sediment, and the internal soil surfaces were covered with common fine roots, which generally did not penetrate the soil's structural units themselves. Therefore, in about 15 months, the sediments developed much more favorable soil properties as they weathered. The site was revisited in December of 2003. Vegetation was still growing on the sediment. Soil structure was evident throughout the sediment, and live roots were found on the soil ped faces down to the contact with the underlying materials. Small insects and other soil-dwelling fauna were also found on the soil's structural units surfaces.

In another demonstration, fine-grained sediment from the same Peoria Lake location was placed in a gravel pit within a day after excavation in May of 2000. The wet sediment was over 8 meters deep in some locations. The site was visited in October 2002. By then there was a thick stand of vegetation on the sediments, including cottonwood trees and willow trees about 8 to 10 feet tall. This vegetation was all volunteer. A soil profile was exposed to determine the physical characteristics of the sediments. Good soil structure had developed to a depth of about 4.5 feet. Below this depth, there was little evidence of soil structure.

ii. Amendment to Sandy Agricultural Soil. Crop production on sandy soil amended with Illinois River sediment is under study by University of Illinois soil scientist Dr. Robert Darmody with funding from the state. The study plots are near Kilbourne in Mason County. Varying amounts of sediment were applied to standard plots as a top dressing or were incorporated by tilling. Otherwise, the plots were treated the same, including minimal use of irrigation. Corn and soybeans were grown on the plots. Current plans are to extend the study through the 2004 season and measure the uptake of heavy metals by the plants.

Preliminary results indicate that sediment moderates fluctuations in soil temperature and significantly improves moisture-holding capacity in sandy soil. Seed germination and plant growth were also greater on sediment plots. During the 2003 season corn yields were greater on all sediment plots. Plots with 6 to 12 inches of sediment produced over 3.5 times the yield of untreated sandy soil plots. Soybean yields were not as dramatic, although the 6-inch treatments produced statistically higher yields than the controls or other sediment plots. The 6-inch incorporated plots produced 1.6 times the yield of the controls.

Sandy soils are found in several counties bordering the Peoria and La Grange Pools. Given the nearness of some fields to the river and backwaters, it may be feasible to pump sediment directly to fields or transport it short distances by other means. This study will help determine whether sediment will improve soil conditions enough to warrant placement onto sandy fields. Placing a 6-inch layer on a 100-acre field would require about 80,600 cubic yards of sediment.

iii. Sediments Used for Greenhouse Applications. A proposed dredging project to improve wildlife habitat and recreation in the Peoria Lakes reach of the Illinois River will generate a large quantity of dredged sediment. The objective of this study was to investigate a possible beneficial use of the sediment as topsoil. Sediment was mixed with various amounts of biosolids, municipal compost, and horse manure. Barley and snapbeans were grown in the mixtures in the greenhouse. Plants grew well in all treatments, except snapbeans were stunted by salts in unleached biosolid mixtures. The highest overall yield for barley was obtained in the treatment composed of 50 percent sediment and 50 percent biosolid. For snapbeans, the highest yield was the treatment composed of 70 percent sediment and 30 percent biosolid. Heavy metals in plant tissues are within ranges considered normal, except for molybdenum (Mo) in snapbeans which is at a level of concern if the plants were used exclusively as animal fodder. Addition of biosolids to sediments decreased Mo plant availability. Based on these results, this sediment has no inherent chemical or physical properties that would preclude use as topsoil substitute.

In terms of standard agronomic parameters such as plant growth, results confirm previous work that established that sediments from the Peoria Lakes reach of the Illinois River make excellent topsoil material. Both legume and grass plants grew well in all sediment mixtures and improved the plant growth potential of unleached biosolids. Addition of biosolids to sediment mitigates some of the problem with growing plants directly in sediments or biosolids. Pure sediments may have poor physical characteristics, at least initially under some field conditions. Pure biosolids have excessive salts that inhibit plant growth, particularly legumes, as evidenced by the death of some snapbean plants on 100 percent biosolids. The sediments may experience improved tilth and higher plant nutrient content under field conditions when mixed with biosolids. The biosolids release less of their load of potentially toxic heavy metals and the injurious salt content is diluted by sediment addition. Mo uptake from sediments is decreased by biosolid addition.

An optimum sediment-to-biosolid ratio would be a range of 80:20 to 70:30 on a volume basis. This mixing ratio was also shown to reduce uptake of metals by crops, perhaps due to dilution as well as to modifications of soil properties, such as pH.

H. Conclusion and Recommendations. A number of technologies and innovative approaches show great promise in reducing costs and improving the current approach to remove and place sediment for restoration of Illinois River backwaters. Limited investigation of some of these techniques and the sediment's suitability for beneficial use have highlighted potential benefits. It is recommended that additional detailed evaluation and demonstrations of some of these concepts be implemented. These activities may be studied alone or conducted in conjunction with restoration projects. Some suggested lines of inquiry are presented below.

Lessons learned from past island projects constructed as part of the UMRS-EMP, along with information from other island projects (primarily in coastal areas) will be adapted to the unique conditions found in Illinois River backwaters. A demonstration of various ways to build islands with sediments would be useful. This could include the use of geotextile tubes and fabric, as well as sand and riprap where feasible. The evaluation should include different fabrics to determine whether sediment passes through over time, their overall durability, and their usefulness in combination with riprap. The use of geotextile tubes and other means of forming narrow windbreaks to reduce wave action and resuspension of sediments should also be investigated. The impact of frequent water level and presence of ice fluctuations on the structures requires particular attention.

Another investigation would be to test various options to place sediment on existing or potential islands in lifts to reach greater overall height. The areas would then be monitored to determine the durability of the material and the growth of various types of vegetation including mast-producing trees.

Various options exist for placing layers of sediment on farmland as a soil amendment. Investigations could include using small scrapers called soil movers that can be pulled by farm tractors to incorporate or shape sediments, directly dredging from backwaters to nearby fields with hydraulic or high solids equipment, or placement by trucks.

Further testing of transport options should be investigated. Displacement pumps are clearly capable of handling sediment typically found in the Illinois River. An analysis of the sizing and operation of pumps in relation to distance of the line is in order. This would include options where a pump located on a shallow draft platform pumps material through a pipe as well as to a placing boom. In addition, it would be valuable to evaluate the general design and operational feasibility of a shallow draft conveyor to move sediment from backwaters to islands, to the shore or to barges. If loaded onto barges, it would be important to demonstrate and determine the feasibility of quickly unloading barges of sediment with a slurry pump with minimal water added.

The best restoration option may involve a contractor removing incremental amounts of sediment from several locations in a river reach at different times during the first year and repeating the process over several years until the desired depths are met. This would allow the material at the placement sites to consolidate or be removed for use in more manageable quantities. It would likely require less land and construction at the placement site. This approach is similar in principle to some maintenance dredging contracts that cover river reaches.

In regard to beneficial use, the chemical and agronomic character of deposited sediment and the underlying original bottom in backwaters should be determined in order to identify restoration sites where beneficial use is a viable option. The initial work should require a few samples for chemical contamination and a larger number for characterization of suitability for use as soil or fill. A market analysis for sediment by itself or mixed with other material as a bagged or bulk soil would be useful.

The material on the deltas is sandy and is likely to be useful as fill or in some cases commercial sand. Cores of this material should be taken and evaluated. There is a need for such material at construction and brownfield redevelopment sites near the river and in the Chicago area. The feasibility of moving these deposits by barge, rail and truck needs to be investigated. In addition, sediment could be used as the basis for flowable fill, to be used in utility, road repair, and other construction applications.

Additional testing and use of innovative technologies and beneficial use options are recommended. This is justified based on the fact that restoration of depth diversity within the Illinois River Basin is a major goal that will require dredging and placement. In addition, a wide range of potential technologies and uses exist that merit further exploration.

Disclaimer: The use of trade names or reference to private companies does not constitute an endorsement by the U.S. Army Corps of Engineers.

ILLINOIS RIVER BASIN RESTORATION
COMPREHENSIVE PLAN
WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX E

COST ENGINEERING

ILLINOIS RIVER BASIN RESTORATION
COMPREHENSIVE PLAN
WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX E

COST ENGINEERING

I. GENERAL

Table E-1 summarizes the project costs for the recommended alternative (Alternative 6) studied for the Illinois River Basin Restoration. This estimate is broken down into five main goals:

Goal 1 Sediment Delivery
Goal 2 Backwaters and Side Channel
Goal 3 Floodplain and Riparian
Goal 4 Connectivity
Goal 5 Water Levels

Each goal is divided into categories of construction and restoration procedures or measures. Under these measures are specific cost items with their associated estimated costs. The level of detail for this preliminary estimate is consistent with the level of design. Costs including appropriate contingencies are presented in accordance with ER 1110-2-1302, Civil Works Cost Engineering. This estimate was prepared without using any site-specific plans but instead was based on conceptual feasibility level cost estimates, and historical construction costs of projects similar in nature. Sources for estimated construction costs included projects from the U.S. Army Corps of Engineers districts within the Mississippi Valley Division, the U.S. Department of Agriculture - Natural Resources Conservation Service in Illinois, and multiple state and local agencies within the State of Illinois.

The number of individual measures or construction practices represents a reasonable distribution of measures to achieve program goals. Actual numbers of individual measures are likely to vary. Specific design features and associated costs will be defined in separate feasibility reports. The operation and maintenance costs were based primarily on professional judgment of recognized experts in their field. Costs for planning, engineering and design comprise 30 percent of construction costs, while contract supervision and administration costs comprise 9 percent of construction costs.

Table E-1 is a summary of construction costs through the 7-year implementation (Tier I).

Table E-1. Program First Costs Through Implementation of Tier I
(October 2003 Price Levels)

Lands and Damages	$ 436,000
Fish and Wildlife Facilities	$ 91,000,000
Planning, Engineering, and Design	$ 27,331,000
Construction Management	$ 8,190,000
Technologies & Innovative Approaches	$ 24,140,000
System Management	$ 2,750,000
Total Program Costs	**$153,847,000**

The recommendation for the 7-year authorization, or Tier I, includes extending the current authorization through 2011 and increasing the total funding authorization to $153.85 million. This funding level would provide approximately $127.0 million for restoration projects; $24.1 million for developing technologies and innovative approaches (includes $12.5 million for system monitoring, $8.7 million for site-specific monitoring, $957,000 for a computerized inventory and analysis system, and $2 million for special studies); and $2.75 million for system management. Restoration efforts would be cost shared 65 percent Federal, or $100 million, and 35 percent non-Federal, or $53.85 million. The cost to operate and maintain project features constructed through Tier I are estimated to be $125,000 annually. Tables E-4 and E-5 illustrate funding for Tier I. Table E-6 illustrates the estimated schedule for implementation of Tier I.

The recommendation for the 11-year authorization, or Tier II, includes extending the current authorization through 2015 and increasing the total funding authorization to $384.6 million. This funding level would provide approximately $321.9 million for restoration projects, $56.9 million for developing technologies and innovative approaches (includes $28.5 million for system monitoring, $22.3 million for site-specific monitoring, $2.2 million for a computerized inventory and analysis system, and $4 million for special studies), and $5.75 million for system management. Restoration efforts would be cost shared 65 percent Federal, $250 million, and 35 percent non-Federal, $134.6 million. The cost to operate and maintain project features constructed through Tier II are estimated to be $201,000 annually. Tables E-4 and E-5 illustrate funding for Tier II.

Efforts associated with management include direct costs for Corps of Engineers project management as well as Illinois DNR staff time as in-kind services. These costs are estimated at roughly $750,000 per year once the program is established.

The technologies and innovative approaches component includes a number of items called for in Section 519. The proposed system- and goal-level monitoring would be phased in over approximately 7 years to about $4 million per year. The level of site-specific project monitoring would be based on roughly 7.5 percent of project construction costs. Due to the costs associated with establishing the technologies and innovative approaches component, it is estimated that roughly 16 percent of the initial construction authorization amount would be utilized for these efforts. However, if the program is continued and additional applications of the same measures are made, monitoring costs are anticipated to drop to approximately the 10 to 15 percent level over time. It is estimated that a computerized inventory and analysis system and special studies would be phased in to a level of approximately $300,000 and $500,000 per year respectively.

The largest component of the recommended $384.6 million authorization would focus on critical ecosystem restoration projects. The total amount directed toward restoration projects is estimated to be $322 million. This amount includes costs associated with first cost of construction, real estate, and operation and maintenance. Of the $322 million, $245 million would be directed toward the first cost of construction, which includes contract administration, land credits, supervision and administration, and operation and maintenance manual and $59 million toward the feasibility study, plans and specifications, and real estate costs. Based on the large study area, complexity of the ecosystem restoration, and the opportunities for increased cost effectiveness, adaptive management of up to 7.5 percent of the construction implementation costs were also included. The total cost to operate and maintain projects that would be constructed through implementation of Tier II (2015) is $694,000.

The 50-year implementation cost is shown in table E-2. The restoration cost includes $6,600 million in restoration projects as shown in Table E-3 as well as an estimated $495 million in adaptive management.

Table E-2. Summary of Program Costs for 50-year Implementation
(in millions of dollars)

Restoration Projects	$7,095
Technologies & Innovative Approaches	$ 875
System Management	$ 55
Total Implementation Cost	**$8,025**

II. PRICE LEVEL

This estimate was prepared to October 2003 price levels. These costs are considered to be fair and reasonable to a well-equipped and capable contractor and include overhead and profit.

III. CONTINGENCY DISCUSSION

After review of project descriptions and discussions with engineering and construction personnel involved in the project, cost contingencies were developed which reflect the uncertainty associated with each cost item. These contingencies are based on qualified cost engineering judgment of the available design data, type of work involved, and uncertainties associated with the work and schedule. The overall contingency for the cost estimate is about 35 percent. The basis for the selection of the contingency factor is primarily due to the conceptual design of a project feature, unknown quantities, and unknown site conditions. Many of the project features can be constructed using conventional methods.

IV. RECOMMENDED PLAN

A descriptive explanation of the work features and basic assumptions for the recommended alternative are included in Section IV.A. of the main report. Detailed MCACES estimates will be prepared for site-specific projects during the preparation of site-specific designs.

A description of plan components for the recommended authorization is included in Section IV.D. of the main report.

Table E-3. Summary of Construction Costs for 50-Year Implementation

Restoration Measures	Unit of Measure	USACE Const./Unit Cost	Contingency	Amount with Contingency in 2003 Dollars	Quantity	Total Construction Cost	Planning, Engineering and Design (30%)	Supervision and Administration (9%)	Real Estate Cost per Unit	Total Real Estate	Total Cost	Annual O&M Cost in 2003 Dollars	Total O&M
Goal 1 Sediment Delivery													
1.1 Grade Control													
1.1.1 Riffle Structure													
Major Tributary	Each	$110,000	35%	$148,500	10	$1,485,000	$445,500	$133,650	$4,238	$42,380	$2,106,530	$149	$1,485
Minor Tributary	Each	$22,000	35%	$29,700	424	$12,592,800	$3,777,840	$1,133,352	$4,295	$1,821,080	$19,325,072	$30	$12,593
1.1.2 Grade Control Structure													
Major Tributary	Each	$1,120,000	35%	$1,512,000	3	$4,536,000	$1,360,800	$408,240	$4,238	$12,714	$6,317,754	$500	$1,500
Minor Tributary	Each	$200,000	35%	$270,000	46	$12,420,000	$3,726,000	$1,117,800	$4,295	$197,570	$17,461,370	$200	$9,200
1.2 Bank Stabilization													
1.2.1 Vegetation													
Mainstem	100 ft	$11,000	35%	$14,850	0	$0	$0	$0	$784	$0	$0	$208	$0
Major Tributary	100 ft	$9,025	35%	$12,184	4754	$57,921,548	$17,376,464	$5,212,939	$734	$3,489,436	$84,000,387	$171	$810,902
Minor Tributary	100 ft	$7,100	35%	$9,585	8457	$81,060,345	$24,318,104	$7,295,431	$684	$5,784,588	$118,458,468	$134	$1,134,845
1.2.2 Stone Armor													
Mainstem	100 ft	$20,550	35%	$27,743	0	$0	$0	$0	$784	$0	$0	$25	$0
Major Tributary	100 ft	$16,900	35%	$22,815	593	$13,529,295	$4,058,789	$1,217,637	$734	$435,262	$19,240,982	$21	$12,176
Minor Tributary	100 ft	$13,200	35%	$17,820	871	$15,521,220	$4,656,366	$1,396,910	$684	$595,764	$22,170,260	$16	$13,969
1.2.3 In-stream weirs/barbs/groins/spur													
Mainstem	Ea. (1/100 ft)	$32,780	35%	$44,253	0	$0	$0	$0	$584	$0	$0	$80	$0
Major Tributary	Ea. (1/100 ft)	$9,350	35%	$12,623	2957	$37,324,733	$11,197,420	$3,359,226	$559	$1,652,963	$53,534,341	$23	$67,185
Minor Tributary	Ea. (1/100 ft)	$4,950	35%	$6,683	4346	$29,042,145	$8,712,644	$2,613,793	$534	$2,320,764	$42,689,346	$12	$52,276
1.2.4 Longitudinal Stone Toe													
Mainstem	100 ft	$10,275	35%	$13,871	0	$0	$0	$0	$584	$0	$0	$12	$0
Major Tributary	100 ft	$8,450	35%	$11,408	2631	$30,013,133	$9,003,940	$2,701,182	$559	$1,470,729	$43,188,983	$10	$27,012
Minor Tributary	100 ft	$6,600	35%	$8,910	4707	$41,939,370	$12,581,811	$3,774,543	$534	$2,513,538	$60,809,262	$8	$37,745
1.3. Wetland/Retention Structure													
1.3.1 Small Basin (<1 acre)	Each	$28,000	35%	$37,800	5150	$194,670,000	$58,401,000	$17,520,300	$6,645	$34,221,750	$304,813,050	$200	$1,030,000
1.3.2 Medium (1-5 acres)	Each	$90,000	35%	$121,500	1082	$131,463,000	$39,438,900	$11,831,670	$26,130	$28,272,660	$211,006,230	$500	$541,000
1.3.3 Large (150 acres)	Each	$3,300,000	35%	$4,455,000	5	$22,275,000	$6,682,500	$2,004,750	$423,638	$2,118,190	$33,080,440	$15,000	$75,000
Sum by Goal						**$685,793,588**	**$205,738,076**	**$61,721,423**		**$84,949,388**	**$1,038,202,475**		**$3,826,887**

Table E-3. Summary of Construction Costs for 50-Year Implementation

Restoration Measures	Unit of Measure	USACE Const./ Unit Cost	Contingency	Amount with Contingency in 2003 Dollars	Quantity	Total Construction Cost	Planning, Engineering and Design (30%)	Supervision and Administration (9%)	Real Estate Cost per Unit	Total Real Estate	Total Cost	Annual O&M Cost in 2003 Dollars	Total O&M
Goal 2 Backwaters and Side Channel													
2.1 Backwater Restoration													
2.1.1 8-Foot Depths	Backwater	$1,263,889	35%	$1,706,250								$0	
2.1.2 8 to 6 Foot Depths	Backwater	$171,111	35%	$231,000								$0	
2.1.3 6 to 3 Foot Depths	Backwater	$140,000	35%	$189,000								$0	
2.1.4 3 to 0 Foot Depths	Backwater	$23,333	35%	$31,500								$0	
2.1.5 4-Foot Deep Holes	Backwater	$3,265,046	35%	$4,407,813								$0	
2.1.6 8-Foot Deep Holes	Backwater	$2,527,778	35%	$3,412,500								$0	
2.1.7 12-Foot Deep Holes	Backwater	$2,381,944	35%	$3,215,625								$0	
Total Backwater Cost				$13,193,688	60	$791,621,250	$237,486,375	$71,245,913	$1,213,187	$72,791,228	$1,173,144,765	$0	$0
2.2 Island Protection													
2.2.1 Off-Bank Revetment	Island Protection	$361,387	35%	$487,872								$878	
2.2.2 Bankline Revetment	Island Protection	$129,067	35%	$174,240								$157	
2.2.3 Timber Piles	Island Protection	$119,680	35%	$161,568								$485	
Total Island Protection				$823,680.00	15	$12,355,200	$3,706,560	$1,111,968	$9,497	$142,454	$17,316,182	$1,520	$22,795
2.3 Side Channel Restoration													
2.3.1 Stub Dikes	Side Channel	$67,375	35%	$90,956								$164	
2.3.2 Dredging 6 ft	Side Channel	$102,667	35%	$138,600								$0	
2.3.3 Dredging 3 ft to 6 ft	Side Channel	$16,427	35%	$22,176								$0	
2.3.4 Dredging 0 to 3 ft	Side Channel	$2,738	35%	$3,696								$0	
Total Side Channel Restoration				$255,428.10	35	$8,939,984	$2,681,995	$804,599	$33,361	$1,167,622	$13,594,199	$164	$5,730
Sum by Goal						**$812,916,434**	**$243,874,930**	**$73,162,479**		**$74,101,304**	**$1,204,055,146**		**$28,526**

Table E-3. Summary of Construction Costs for 50-Year Implementation

Restoration Measures	Unit of Measure	USACE Const./ Unit Cost	Contingency	Amount with Contingency in 2003 Dollars	Quantity	Total Construction Cost	Planning, Engineering and Design (30%)	Supervision and Administration (9%)	Real Estate Cost per Unit	Total Real Estate	Total Cost	Annual O&M Cost in 2003 Dollars	Total O&M
Goal 3 Floodplain and Riparian													
3.1 Floodplain and Riparian													
3.1.1 Timber Stand Improvement (1)	Acre	$2,500	35%	$3,375	19600	$66,150,000	$19,845,000	$5,953,500	$3,502	$68,632,600	$160,581,100	$2	$39,200
3.1.2 Mast Tree Planting (1)	Acre	$1,400	35%	$1,890	19600	$37,044,000	$11,113,200	$3,333,960	$3,502	$68,632,600	$120,123,760	$65	$1,274,000
3.1.3 Prairie Plantings (1)	Acre	$1,000	35%	$1,350	31500	$42,525,000	$12,757,500	$3,827,250	$3,603	$113,481,000	$172,590,750	$5	$157,500
3.1.4 Moist Soil Management Units (1)	Acre	$6,000	35%	$8,100	39650	$321,165,000	$96,349,500	$28,904,850	$3,837	$152,126,900	$598,546,250	$20	$793,000
3.1.5 Wetland Plantings (1)	Acre	$2,650	35%	$3,578	39650	$141,847,875	$42,554,363	$12,766,309	$3,837	$152,126,900	$349,295,446	$7	$277,550
3.1.6 Gated Levee	Each	$2,000,000	35%	$2,700,000	8	$21,600,000	$6,480,000	$1,944,000	$4,382	$35,056	$30,059,056	$20	$160
3.1.7 Repair Environmental Levees	Each	$283,300	35%	$382,455	8	$3,059,640	$917,892	$275,368	$4,382	$35,056	$4,287,956	$0	$0
3.2 In-stream Aquatic Restoration													
3.2.1 Riffle Structure													
Major Tributary	Each	$110,000	35%	$148,500	1400	$207,900,000	$62,370,000	$18,711,000	$4,238	$5,933,200	$294,914,200	$149	$207,900
Minor Tributary	Each	$22,000	35%	$29,700	6795	$201,811,500	$60,543,450	$18,163,035	$4,295	$29,184,525	$309,702,510	$30	$201,812
3.2.2 Channelization Remeander in Floodplains													
Minor Tributary	100 ft	$45,000	35%	$60,750	6600	$400,950,000	$120,285,000	$36,085,500	$11,963	$78,955,800	$636,276,300	$365	$2,405,700
Sum by Goal						**$1,444,053,015**	**$433,215,905**	**$129,964,771**		**$669,143,637**	**$2,676,377,328**		**$5,356,822**
Goal 4 Connectivity													
4.1 Dam Removal													
Major Tributary	Each	$300,000	35%	$405,000	1	$405,000	$121,500	$36,450	$3,000	$3,000	$565,950	$0	$0
Minor Tributary	Each	$300,000	35%	$405,000	1	$405,000	$121,500	$36,450	$2,700	$2,700	$565,650	$0	$0
4.2 Fish By-Pass Channel													
Major Tributary	Each	$894,830	35%	$1,208,021	7	$8,456,144	$2,536,843	$761,053	$26,429	$185,003	$11,939,042	$2,416	$16,912
Minor Tributary	Each	$343,970	35%	$464,360	1	$464,360	$139,308	$41,792	$13,600	$13,600	$659,060	$929	$929
4.3 Fish Ramp Structure													
Major Tributary	Each	$1,688,132	35%	$2,278,979	11	$25,068,764	$7,520,629	$2,256,189	$8,427	$92,700	$34,938,283	$11,395	$125,344
Minor Tributary	Each	$107,658	35%	$145,339	18	$2,616,100	$784,830	$235,449	$3,789	$68,200	$3,704,579	$727	$13,081
4.4 Denil Structure													
Minor Tributary	Each	$788,906	35%	$1,065,024	2	$2,130,047	$639,014	$191,704	$3,600	$7,200	$2,967,966	$213	$426
Sum by Goal						**$39,545,415**	**$11,863,624**	**$3,559,087**		**$372,403**	**$55,340,530**		**$156,691**

Table E-3. Summary of Construction Costs for 50-Year Implementation

Restoration Measures	Unit of Measure	USACE Const./Unit Cost	Contingency	Amount with Contingency in 2003 Dollars	Quantity	Total Construction Cost	Planning, Engineering and Design (30%)	Supervision and Administration (9%)	Real Estate Cost per Unit	Total Real Estate	Total Cost	Annual O&M Cost in 2003 Dollars	Total O&M
Goal 5 Water Levels													
5.1 Dam Management													
5.1.1 Remote control dam	Lump Sum	$3,000,000	35%	$4,050,000	1	$4,050,000	$1,215,000	$364,500	$0	$0	$5,629,500	$0	$0
5.1.2 Revise Regulation Manuals (2)	Each	$80,000	35%	$108,000	7	$756,000	$0	$0	$0	$0	$756,000	$0	$0
5.1.3 Install and Maintain Gages (2)	Each	$15,000	35%	$20,250	10	$202,500	$0	$0	$0	$0	$202,500	$12,500	$125,000
5.1.4 Install New Tainter Gates	Each	$13,900,000	35%	$18,765,000	2	$37,530,000	$11,259,000	$3,377,700	$0	$0	$52,166,700	$15,000	$30,000
5.2 Storage													
5.2.1 Storage	Ac-ft	$2,133	35%	$2,880	160000	$460,800,000	$138,240,000	$41,472,000	$2,300	$368,000,000	$1,008,512,000	$5	$800,000
5.3 Infiltration													
5.3.1 Upland Structures and Filter Strips	Ac	$5,556	35%	$7,500	38400	$288,000,000	$86,400,000	$25,920,000	$3,400	$130,560,000	$530,880,000	$7	$259,200
5.4 Pool Drawdown													
5.4.1 Peoria Pool (2)	Lump Sum	$7,800,000	35%	$10,530,000	1	$10,530,000	$3,159,000	$947,700	$0	$0	$14,636,700	$0	$0
5.4.2 LaGrange Pool (2)	Lump Sum	$12,200,000	35%	$16,470,000	1	$16,470,000	$4,941,000	$1,482,300	$0	$0	$22,893,300	$0	$0
Sum by Goal						**$818,338,500**	**$245,214,000**	**$73,564,200**		**$498,560,000**	**$1,635,676,700**		**$1,214,200**
Grand Totals						**$3,800,646,951**	**$1,139,906,535**	**$341,971,961**		**$1,327,126,732**	**$6,609,652,178**		**$10,583,126**

(1) Unit costs shown are half those normally used for USACE construction projects of this type. Each of these measures assumed that construction or implementation would occur on half of the acreage shown and benefits would spread to the portion through volunteer establishment.

(2) No Planning, Engineering, and Design or Supervision and Administration costs are included because these activities involve mainly planning or would be negligible.

(3) Columns containing missing or zero ($0) for total cost or total O&M were not used to formulate cost except for Goal 2, where sub-measures comprising a restoration measure are listed.

Table E-4. Summary of Annual Component Costs for 7- and 11-Year Authorization

Illinois River Basin Restoration Comprehensive Plan													
Annual Component Costs (in 000's of Dollars)													
							TIER I				TIER II	TOTAL	
Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**	**Year 11**	**Years 1-11**	**% of Total**
Technologies and Innovative Approaches	**$0**	**$75**	**$856**	**$4,234**	**$5,703**	**$6,550**	**$6,723**	**$8,183**	**$7,713**	**$8,220**	**$8,686**	**$56,943**	**15**
System Monitoring	$0	$0	$0	$2,500	$3,000	$3,000	$4,000	$4,000	$4,000	$4,000	$4,000	$28,500	7
Site-Specific Monitoring	$0	$75	$856	$1,084	$1,996	$2,750	$1,923	$3,383	$2,913	$3,420	$3,886	$22,286	6
Computerized Inventory and Analysis System	$0	$0	$0	$150	$207	$300	$300	$300	$300	$300	$300	$2,157	1
Special Studies	$0	$0	$0	$500	$500	$500	$500	$500	$500	$500	$500	$4,000	1
System Management	**$0**	**$100**	**$100**	**$600**	**$600**	**$600**	**$750**	**$750**	**$750**	**$750**	**$750**	**$5,750**	**1**
Critical Restoration Projects	**$711**	**$3,715**	**$11,407**	**$15,534**	**$28,608**	**$39,413**	**$27,568**	**$48,490**	**$41,758**	**$49,018**	**$55,701**	**$321,922**	**84**
Adaptive Management	$0	$0	$0	$1,084	$1,996	$2,750	$1,923	$3,383	$2,913	$3,420	$3,886	$21,355	6
Sub Watershed (Minor Tributary)	$73	$990	$2,608	$4,034	$16,070	$27,741	$8,026	$18,865	$18,269	$28,748	$46,525	$171,948	45
Major Tributary	$433	$433	$747	$784	$4,112	$2,362	$3,224	$3,945	$559	$2,207	$4,377	$23,183	6
Floodplain Restoration (Main Stem)	$16	$22	$1,751	$3,444	$1,743	$118	$118	$235	$735	$3,408	$6	$11,595	3
Pool Drawdown (LaGrange Pool)	$0	$0	$0	$0	$435	$435	$946	$8,570	$9,347	$779	$0	$20,511	5
Backwater Restoration (Dredging)	$189	$2,080	$6,047	$5,644	$3,835	$2,346	$9,671	$9,881	$9,674	$9,898	$415	$59,680	16
Side Channel Restoration/ Island Protection	$0	$191	$254	$545	$418	$3,660	$3,660	$3,611	$261	$557	$493	$13,650	4
TOTAL	**$711**	**$3,890**	**$12,363**	**$20,368**	**$34,911**	**$46,562**	**$35,041**	**$57,423**	**$50,221**	**$57,988**	**$65,137**	**$384,615**	**100**
Federal Share of Total	$462	$2,529	$8,036	$13,239	$22,692	$30,266	$22,777	$37,325	$32,644	$37,692	$42,339	**$250,000**	**65**
Operations and Maintenance	$0	$0	$0	$0	$1	$27	**$65**	$125	$126	$149	**$201**	**$694**	

Table E-5. Summary of Cumulative Component Costs for 7 and 11-Year Authorization

Illinois River Basin Restoration Comprehensive Plan													
Cumulative Component Costs (in 000's of Dollars)													
							TIER I					TIER II	
Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**		**Year 8**	**Year 9**	**Year 10**	**Year 11**	
Technologies and Innovative Approaches	**$0**	**$75**	**$931**	**$5,164**	**$10,867**	**$17,417**	**$24,140**	**15.7%**	**$32,323**	**$40,037**	**$48,256**	**$56,943**	**14.8%**
System Monitoring	$0	$0	$0	$2,500	$5,500	$8,500	$12,500	8.1%	$16,500	$20,500	$24,500	$28,500	7.4%
Site-Specific Monitoring	$0	$75	$931	$2,014	$4,010	$6,760	$8,683	5.6%	$12,066	$14,980	$18,399	$22,286	5.8%
Computerized Inventory and Analysis System	$0	$0	$0	$150	$357	$657	$957	0.6%	$1,257	$1,557	$1,857	$2,157	0.6%
Special Studies	$0	$0	$0	$500	$1,000	$1,500	$2,000	1.3%	$2,500	$3,000	$3,500	$4,000	1.0%
System Management	**$0**	**$100**	**$200**	**$800**	**$1,400**	**$2,000**	**$2,750**	**1.8%**	**$3,500**	**$4,250**	**$5,000**	**$5,750**	**1.5%**
Critical Restoration Projects	**$711**	**$4,426**	**$15,833**	**$31,368**	**$59,976**	**$99,388**	**$126,956**	**82.5%**	**$175,446**	**$217,204**	**$266,221**	**$321,922**	**83.7%**
Sub Watershed (Minor Tributary)	$73	$1,062	$3,670	$7,704	$23,774	$51,515	$59,540	38.7%	$78,406	$96,675	$125,423	$171,948	44.7%
Major Tributary	$433	$867	$1,614	$2,398	$6,509	$8,872	$12,096	7.9%	$16,040	$16,599	$18,806	$23,183	6.0%
Floodplain Restoration (Main Stem)	$16	$37	$1,788	$5,232	$6,975	$7,093	$7,211	4.7%	$7,446	$8,180	$11,589	$11,595	3.0%
Pool Drawdown (LaGrange Pool)	$0	$0	$0	$0	$435	$870	$1,816	1.2%	$10,386	$19,732	$20,511	$20,511	5.3%
Backwater Restoration (Dredging)	$189	$2,269	$8,316	$13,960	$17,795	$20,141	$29,812	19.4%	$39,693	$49,367	$59,266	$59,680	15.5%
Side Channel Restoration/ Island Protection	$0	$191	$445	$990	$1,408	$5,068	$8,728	5.7%	$12,339	$12,600	$13,157	$13,650	3.5%
Adaptive Management	$0	$0	$0	$1,084	$3,080	$5,829	$7,753	5.0%	$11,136	$14,049	$17,469	$21,355	5.6%
TOTAL	**$711**	**$4,601**	**$16,964**	**$37,332**	**$72,243**	**$118,805**	**$153,847**	**100.0%**	**$211,269**	**$261,490**	**$319,478**	**$384,615**	**100.0%**
Federal Share of Total	$462	$2,991	$11,026	$24,266	$46,958	$77,223	**$100,000**		$137,325	$169,969	$207,661	**$250,000**	
Operations and Maintenance	$0	$0	$0	$0	$1	$28	**$93**		$218	$344	$493	**$694**	

Table E-6. 11-Year Implementation Plan

Ecosystem Plan Components	No. of Projects	Cost	Resources								Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Years 1-11
			PM	ED	RE	OD	CD	CT	Cont	Land	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Technologies and Innovative Approaches		**$57,200**									**$0**	**$75**	**$856**	**$4,234**	**$5,703**	**$6,550**	**$6,723**	**$8,183**	**$7,713**	**$8,220**	**$8,686**	**$56,943**
System Monitoring		$28,500	$713	$713					$27,075		$0	$0	$0	$2,500	$3,000	$3,000	$4,000	$4,000	$4,000	$4,000	$4,000	$28,500
Site Specific Monitoring		$22,543	$1,114	$1,114					$20,057		$0	$75	$856	$1,084	$1,996	$2,750	$1,923	$3,383	$2,913	$3,420	$3,886	$22,286
Computerized Inventory and Analysis System		$2,157	$54						$2,103		$0	$0	$0	$150	$207	$300	$300	$300	$300	$300	$300	$2,157
Special Studies		$4,000	$400	$400					$3,200		$0	$0	$0	$500	$500	$500	$500	$500	$500	$500	$500	$4,000
System Management		**$5,750**	**$4,888**	**$805**	**$58**						**$0**	**$100**	**$100**	**$600**	**$600**	**$600**	**$750**	**$750**	**$750**	**$750**	**$750**	**$5,750**
Adaptive Management		**$21,355**	**$1,068**	**$2,136**			**$2,136**		**$16,016**		**$0**	**$0**	**$0**	**$1,084**	**$1,996**	**$2,750**	**$1,923**	**$3,383**	**$2,913**	**$3,420**	**$3,886**	**$21,355**
Sub Watershed (Minor Tributary)		**$260,693**									**$73**	**$990**	**$2,608**	**$4,034**	**$16,070**	**$27,741**	**$8,026**	**$18,865**	**$18,269**	**$28,748**	**$46,525**	**$171,948**
Waubonsie		**$2,248**									Waubonsie											
2. Compile Plans and Specification for Project		$170	$36	$112	$12	$5	$5				P&S											
3. Complete LERRDS		$7			$7								LERRDS									
4. Contract Project Construction		$6						$6					Contract									
5. Construct Project / Land Credit		$2,060	$7	$66			$85		$942	$960				Construct								
6. Create Operations and Maintenance Manual		$5		$5											O&M Manual							
7. Conduct Annual O&M		$5		$5												Annual O&M	Annual O&M	Annual O&M	Annual O&M	Annual O&M	Annual O&M	
Iroquois River (Sugar Creek)		**$6,009**											Iroquois River									
1. Complete Feasibility Study		$250	$88	$125	$23	$9	$6						Feasibility									
2. Compile Plans and Specification for Project		$250	$53	$165	$18	$8	$8						P&S									
3. Complete LERRDS		$18			$18									LERRDS								
4. Contract Project Construction		$6						$6						Contract								
5. Construct Project / Land Credit		$5,473	$18	$140			$315		$3,500	$1,500					Construct							
6. Create Operations and Maintenance Manual		$12		$12												O&M Manual						
7. Conduct Annual O&M		$12		$12													Annual O&M	Annual O&M	Annual O&M	Annual O&M	Annual O&M	
Blackberry Creek		**$6,309**										Blackberry Creek										
1. Complete Feasibility Study		$550	$193	$275	$50	$19	$14					Feasibility										
2. Compile Plans and Specification for Project		$250	$53	$165	$18	$8	$8						P&S									
3. Complete LERRDS		$18			$18									LERRDS								
4. Contract Project Construction		$6						$6							Contract							
5. Construct Project / Land Credit		$5,473	$18	$140			$315		$3,500	$1,500					Construct							
6. Create Operations and Maintenance Manual		$12		$12													O&M Manual					
7. Conduct Annual O&M		$12		$12														Annual O&M	Annual O&M	Annual O&M	Annual O&M	
McKee Creek		**$6,309**											McKee Creek									
1. Complete Feasibility Study		$550	$193	$275	$50	$19	$14						Feasibility									
2. Compile Plans and Specification for Project		$250	$53	$165	$18	$8	$8							P&S								
3. Complete LERRDS		$18			$18										LERRDS							
4. Contract Project Construction		$6						$6							Contract							
5. Construct Project / Land Credit		$5,473	$18	$140			$315		$3,500	$1,500						Construct						
6. Create Operations and Maintenance Manual		$12		$12													O&M Manual					
7. Conduct Annual O&M		$12		$12														Annual O&M	Annual O&M	Annual O&M	Annual O&M	
Senachwine Creek		**$7,500**										Senachwine Creek										
1. Complete Feasibility Study		$550	$193	$275	$50	$19	$14					Feasibility										
2. Compile Plans and Specification for Project		$250	$53	$165	$18	$8	$8						P&S									
3. Complete LERRDS		$18			$18									LERRDS								
4. Contract Project Construction		$6						$6						Contract								
5. Construct Project / Land Credit		$6,664	$18	$140			$315		$4,691	$1,500					Construct							
6. Create Operations and Maintenance Manual		$12		$12												O&M Manual						
7. Conduct Annual O&M		$12		$12													Annual O&M	Annual O&M	Annual O&M	Annual O&M	Annual O&M	
Tenmile Creek		**$7,500**										Tenmile Creek										
1. Complete Feasibility Study		$550	$193	$275	$50	$19	$14					Feasibility										
2. Compile Plans and Specification for Project		$250	$53	$165	$18	$8	$8							P&S								
3. Complete LERRDS		$18			$18									LERRDS								
4. Contract Project Construction		$6						$6							Contract							
5. Construct Project / Land Credit		$6,664	$18	$140			$315		$4,691	$1,500					Construct							
6. Create Operations and Maintenance Manual		$12		$12													O&M Manual					
7. Conduct Annual O&M		$12		$12														Annual O&M	Annual O&M	Annual O&M	Annual O&M	
Crow Creek West		**$7,500**										Crow Creek West										
1. Complete Feasibility Study		$550	$193	$275	$50	$19	$14					Feasibility										
2. Compile Plans and Specification for Project		$250	$53	$165	$18	$8	$8							P&S								
3. Complete LERRDS		$18			$18									LERRDS								
4. Contract Project Construction		$6						$6							Contract							
5. Construct Project / Land Credit		$6,664	$18	$140			$315		$4,691	$1,500					Construct							
6. Create Operations and Maintenance Manual		$12		$12													O&M Manual					
7. Conduct Annual O&M		$12		$12														Annual O&M	Annual O&M	Annual O&M	Annual O&M	
Yellow River		**$7,500**										Yellow River										
1. Complete Feasibility Study		$550	$193	$275	$50	$19	$14					Feasibility										
2. Compile Plans and Specification for Project		$250	$53	$165	$18	$8	$8							P&S								
3. Complete LERRDS		$18			$18									LERRDS								
4. Contract Project Construction		$6						$6							Contract							
5. Construct Project / Land Credit		$6,664	$18	$140			$315		$4,691	$1,500					Construct							
6. Create Operations and Maintenance Manual		$12		$12													O&M Manual					
7. Conduct Annual O&M		$12		$12														Annual O&M	Annual O&M	Annual O&M	Annual O&M	
Implementation Phase I	**1**	**$25,813**												Implementation Phase I								
1. Complete Feasibility Study		$2,109	$738	$1,054	$190	$74	$53							Recon Feasibility		Approval						
2. Compile Plans and Specification for Project		$1,406	$295	$928	$98	$42	$42									P&S						
3. Complete LERRDS		$71			$71												LERRDS					
4. Contract Project Construction		$6						$6									Contract					
5. Construct Project / Land Credit		$22,171	$71	$571			$1,285		$14,281	$5,963								Construct				
6. Create Operations and Maintenance Manual		$50		$50																O&M Manual		
7. Conduct Annual O&M		$50		$50																	Annual O&M	
Implementation Phase II	**2**	**$25,813**														Implementation Phase II						
1. Complete Feasibility Study		$2,109	$738	$1,054	$190	$74	$53									Recon Feasibility		Approval				
2. Compile Plans and Specification for Project		$1,406	$295	$928	$98	$42	$42											P&S				
3. Complete LERRDS		$71			$71														LERRDS			
4. Contract Project Construction		$6						$6											Contract			
5. Construct Project / Land Credit		$22,171	$71	$571			$1,285		$14,281	$5,963										Construct		
6. Create Operations and Maintenance Manual		$50		$50																		
7. Conduct Annual O&M		$50		$50																		
Implementation Phase III	**2**	**$25,813**															Implementation Phase III					
1. Complete Feasibility Study		$2,109	$738	$1,054	$190	$74	$53										Recon Feasibility		Approval			
2. Compile Plans and Specification for Project		$1,406	$295	$928	$98	$42	$42												P&S			
3. Complete LERRDS		$71			$71															LERRDS		
4. Contract Project Construction		$6						$6												Contract		
5. Construct Project / Land Credit		$22,171	$71	$571			$1,285		$14,281	$5,963											Construct	
6. Create Operations and Maintenance Manual		$50		$50																		
7. Conduct Annual O&M		$50		$50																		
Implementation Phase IV	**4**	**$25,813**																Implementation Phase IV				
1. Complete Feasibility Study		$2,109	$738	$1,054	$190	$74	$53											Recon Feasibility		Approval		
2. Compile Plans and Specification for Project		$1,406	$295	$928	$98	$42	$42													P&S		
3. Complete LERRDS		$71			$71																LERRDS	
4. Contract Project Construction		$6						$6													Contract	
5. Construct Project / Land Credit		$22,171	$71	$571			$1,285		$14,281	$5,963												
6. Create Operations and Maintenance Manual		$50		$50																		
7. Conduct Annual O&M		$50		$50																		

Table E-6. 11-Year Implementation Plan

Ecosystem Plan Components	No. of Projects	Cost	Resources: PM	ED	RE	OD	CD	CT	Cont	Land	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Years 1-11
Major Tributary		**$22,765**									$433	$433	$747	$784	$4,112	$2,362	$3,224	$3,945	$559	$2,207	$4,377	$23,183
Kankakee State Line		**$649**																				
2. Compile Plans and Specification for Project		$250	$53	$165	$18	$8	$8															
3. Complete LERRDS		$2			$2																	
4. Contract Project Construction		$6						$6														
5. Construct Project / Land Credit		$391	$2	$12			$27		$300	$50												
6. Create Operations and Maintenance Manual		$1		$1																		
7. Conduct Annual O&M		$1		$1																		
Kankakee River		**$6,458**																				
1. Complete Feasibility Study		$650	$228	$325	$59	$23	$16															
2. Compile Plans and Specification for Project		$200	$42	$132	$14	$6	$6															
3. Complete LERRDS		$21			$21																	
4. Contract Project Construction		$6						$6														
5. Construct Project / Land Credit		$5,567	$21	$168			$378		$4,200	$800												
6. Create Operations and Maintenance Manual		$14		$14																		
7. Conduct Annual O&M		$14		$14																		
Fox River/ Hoffman Dam	1	**$7,829**																				
1. Complete Feasibility Study		$730	$255	$365	$66	$26	$18															
2. Compile Plans and Specification for Project		$487	$102	$321	$34	$15	$15															
3. Complete LERRDS		$25			$25																	
4. Contract Project Construction		$6						$6														
5. Construct Project / Land Credit		$6,565	$25	$198			$446		$4,953	$943												
6. Create Operations and Maintenance Manual		$16		$16																		
7. Conduct Annual O&M		$16		$16																		
Implementation Phase II	1	**$7,829**																				
1. Complete Feasibility Study		$730	$255	$365	$66	$26	$18															
2. Compile Plans and Specification for Project		$487	$102	$321	$34	$15	$15															
3. Complete LERRDS		$25			$25																	
4. Contract Project Construction		$6						$6														
5. Construct Project / Land Credit		$6,565	$25	$198			$446		$4,953	$943												
6. Create Operations and Maintenance Manual		$16		$16																		
7. Conduct Annual O&M		$16		$16																		
Floodplain Restoration (Main Stem)		**$11,595**									$16	$22	$1,751	$3,444	$1,743	$118	$118	$235	$735	$3,408	$6	$11,595
Pekin North		**$6,975**																				
2. Compile Plans and Specification for Project		$20	$4	$14	$1		$1															
3. Complete LERRDS		$23			$23																	
4. Contract Project Construction		$23						$23														
5. Construct Project / Land Credit		$6,888	$23	$76			$254		$4,800	$1,735												
6. Create Operations and Maintenance Manual		$21		$21																		
7. Conduct Annual O&M		$21		$21																		
Implementation Phase I	1	**$4,620**																				
1. Complete Feasibility Study		$295	$100	$168	$21		$6															
2. Compile Plans and Specification for Project		$196	$35	$141	$14		$6															
3. Complete LERRDS		$10			$10																	
4. Contract Project Construction		$23						$23														
5. Construct Project / Land Credit		$4,086	$10	$58			$180		$2,004	$1,834												
6. Create Operations and Maintenance Manual		$9		$9																		
7. Conduct Annual O&M		$9		$9																		
Pool Drawdown (LaGrange Pool)		**$20,511**									$0	$0	$0	$0	$435	$435	$946	$8,570	$9,347	$779	$0	$20,511
Implementation Phase I	1	**$20,511**																				
1. Complete Feasibility Study		$1,087	$337	$674	$65		$11															
2. Compile Plans and Specification for Project		$725	$130	$544	$36		$14															
3. Contract Project Construction		$6						$6														
4. Construct Project / Land Credit		$18,693	$82	$659			$1,482		$16,470													
5. Revise Regulation Manual		$0																				
6. Conduct Annual O&M		$0																				
Backwater Restoration (Dredging)		**$93,525**									$189	$2,080	$6,047	$5,644	$3,835	$2,346	$9,671	$9,881	$9,674	$9,898	$415	$59,680
Peoria- Upper Island		**$7,618**																				
3. Complete LERRDS		$32			$32																	
4. Contract Project Construction		$6						$6														
5. Construct Project / Land Credit		$7,550	$32	$253			$630		$6,135	$500												
6. Create Operations and Maintenance Manual		$0		$30																		
7. Conduct Annual O&M		$0																				
Pekin South		**$7,699**																				
2. Compile Plans and Specification for Project		$320	$74	$200	$25	$11	$11															
3. Complete LERRDS		$32			$32																	
4. Contract Project Construction		$6						$6														
5. Construct Project / Land Credit		$7,341	$32	$225			$320		$5,600	$1,164												
6. Create Operations and Maintenance Manual		$0																				
7. Conduct Annual O&M		$0																				
Implementation Phase I	1	**$19,552**																				
1. Complete Feasibility Study		$1,975	$691	$988	$178	$69	$49															
2. Compile Plans and Specification for Project		$1,317	$277	$869	$92	$40	$40															
3. Complete LERRDS		$66			$66																	
4. Contract Project Construction		$6						$6														
5. Construct Project / Land Credit		$16,188	$66	$528			$1,187		$13,194	$1,213												
6. Create Operations and Maintenance Manual		$0																				
7. Conduct Annual O&M		$0																				
Implementation Phase II	1	**$19,552**																				
1. Complete Feasibility Study		$1,975	$691	$988	$178	$69	$49															
2. Compile Plans and Specification for Project		$1,317	$277	$869	$92	$40	$40															
3. Complete LERRDS		$66			$66																	
4. Contract Project Construction		$6						$6														
5. Construct Project / Land Credit		$16,188	$66	$528			$1,187		$13,194	$1,213												
6. Create Operations and Maintenance Manual		$0																				
7. Conduct Annual O&M		$0																				
Implementation Phase III	2	**$19,552**																				
1. Complete Feasibility Study		$1,975	$691	$988	$178	$69	$49															
2. Compile Plans and Specification for Project		$1,317	$277	$869	$92	$40	$40															
3. Complete LERRDS		$66			$66																	
4. Contract Project Construction		$6						$6														
5. Construct Project / Land Credit		$16,188	$66	$528			$1,187		$13,194	$1,213												
6. Create Operations and Maintenance Manual		$0																				

Table E-6. 11-Year Implementation Plan

Ecosystem Plan Components	No. of Projects	Cost	Resources PM	ED	RE	OD	CD	CT	Cont	Land	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Years 1-11
											Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Side Channel Restoration / Island Protection		**$22,273**									**$0**	**$191**	**$254**	**$545**	**$418**	**$3,660**	**$3,660**	**$3,611**	**$261**	**$557**	**$493**	**$13,650**
Alton Pool	**2**	**$4,500**										Alton Pool										
1. Complete Feasibility Study		$159	$56	$79	$11	$11	$2					Recon Feasibility		Approval								
2. Compile Plans and Specification for Project		$106	$22	$68	$7	$7	$1							P&S								
3. Complete LERRDS		$5			$5									LERRDS								
4. Contract Project Construction		$6						$6							Contract							
5. Construct Project / Land Credit		$4,223	$5	$43			$97		$4,034	$43					Construct							
6. Create Operations and Maintenance Manual		$2		$2														O&M Manual				
7. Conduct Annual O&M		$2		$2															Annual O&M	Annual O&M		
Starved Rock Pool	**2**	**$1,545**										Starved Rock Pool										
1. Complete Feasibility Study		$159	$56	$79	$11	$11	$2					Recon Feasibility		Approval								
2. Compile Plans and Specification for Project		$106	$22	$68	$7	$7	$1							P&S								
3. Complete LERRDS		$5			$5									LERRDS								
4. Contract Project Construction		$6						$6							Contract							
5. Construct Project / Land Credit		$1,268	$5	$43			$97		$1,079	$43					Construct							
6. Create Operations and Maintenance Manual		$2		$2														O&M Manual				
7. Conduct Annual O&M		$2		$2															Annual O&M	Annual O&M		
LaGrange Pool	**4**	**$2,545**																LaGrange Pool				
1. Complete Feasibility Study		$159	$56	$79	$11	$11	$2											Recon Feasibility		Approval		
2. Compile Plans and Specification for Project		$106	$22	$68	$7	$7	$1													P&S		
3. Complete LERRDS		$5			$5															LERRDS		
4. Contract Project Construction		$6						$6													Contract	
5. Construct Project / Land Credit		$2,268	$5	$43			$97		$2,079	$43											Construct	
6. Create Operations and Maintenance Manual		$2		$2																		
7. Conduct Annual O&M		$2		$2																		
											Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**	**Year 11**	**Years 1-11**
PROJECT COST		**$431,362**	$17,703	$42,596	$5,719	$1,854	$24,064	$240	$265,395	$73,792	$711	$3,715	$11,407	$14,451	$26,612	$36,663	$25,645	$45,107	$38,844	$45,598	$51,815	**$300,567**
TOTAL COST		**$515,667**	$25,939	$47,763	$5,776	$1,854	$26,200	$240	$333,846	$73,792	$711	$3,890	$12,363	$20,368	$34,911	$46,562	$35,041	$57,423	$50,221	$57,988	$65,137	**$384,615**
CUMULATIVE COST											$711	$4,601	$16,964	$37,332	$72,243	$118,805	$153,847	$211,269	$261,490	$319,478	$384,615	**$384,615**
FEASIBILITY COST		**$35,195**	$12,271	$17,738	$3,110	$1,228	$848	$0	$0	$0	$433	$1,541	$3,674	$2,483	$2,755	$3,549	$4,397	$8,091	$6,101	$2,604	$0	**$35,628**
P&S COST		**$23,371**	$4,723	$14,988	$1,561	$683	$658	$0	$0	$0	$243	$243	$711	$1,794	$1,433	$1,462	$2,364	$2,195	$3,320	$7,027	$2,590	**$23,383**
LERRDS COST		**$1,218**	$0	$0	$1,218	$0	$0	$0	$0	$0	$35	$38	$22	$86	$92	$72	$91	$57	$164	$177	$402	**$1,236**
CONTRACT COST		**$18,945**	$82	$659	$0	$0	$1,482	$252	$16,470	$0	$0	$6	$35	$24	$54	$6	$16	$8	$34	$17	$50	**$250**
CONSTRUCTION / LAND CREDIT COST		**$385,577**	$1,154	$9,199	$0	$0	$20,746	$0	$245,221	$73,883	$0	$1,888	$6,965	$10,032	$22,252	$31,536	$18,718	$34,750	$29,207	$35,289	$49,183	**$239,818**
O&M MANUAL COST		**$238**	$0	$238	$0	$0	$0	$0	$0	$0	$0	$0	$0	$31	$26	$38	$60	$7	$17	$53	$6	**$238**
ANNUAL O&M COST		$694	$0	$694	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1	$27	$65	$125	$126	$149	$201	$694

ILLINOIS RIVER BASIN RESTORATION
COMPREHENSIVE PLAN
WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX F

REAL ESTATE PLAN

ILLINOIS RIVER BASIN RESTORATION
COMPREHENSIVE PLAN
WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX F

REAL ESTATE PLAN

I. PURPOSE OF THE REPORT

This Real Estate Plan is being submitted as the technical Real Estate document of the Illinois River Basin Restoration and Illinois River Ecosystem Restoration Feasibility and Comprehensive Plan with Integrated Environmental Assessment. The preparation is in accordance with Engineering Regulation (ER) 405-1-12 and follows the general outline for feasibility reports, even though this report is not seeking individual project implementation authority.

Actual site locations under this report have not been determined. There are a few cases where site-specific reports have been developed under this legislation but are yet to be approved.

This Real Estate Plan is to be considered tentative in nature and for planning purposes only. Several assumptions were made for report purposes in regard to lines on ground and ownership determination. Both property acquisition lines and the estimates of cost are subject to change, even after this report is approved.

Baseline Cost Estimates for Real Estate have been completed in a generalized sense for all of the sites. These baseline estimates—as well as some site-specific investigations—will be used to develop a concept level estimate for all of the proposed sites. Because this report is seeking a programmatic approval of future projects, additional planning reports will be submitted for approval prior to implementation of any specific project.

Government-owned or privately-owned lands were not mapped out or drawn at any of the proposed project locations. The Real Estate Division of the Rock Island District Corps of Engineers was asked to provide this information based on latest known communications. It is assumed that future projects that arise due to approval of the Illinois River Basin Restoration Comprehensive Plan will allow for the Real Estate Division to adequately provide detailed and accurate project information.

II. DESCRIPTION OF LANDS, EASEMENTS, RIGHTS-OF-WAY, RELOCATIONS, AND DREDGED OR EXCAVATED MATERIAL DISPOSAL AREAS (LERRD) REQUIRED FOR CONSTRUCTION, OPERATION AND MAINTENANCE OF THE PROJECT

A. Project Locations and Description. Section 519 of the Water Resources Development Act (WRDA) 2000 defines the Illinois River Basin as the Illinois River in Illinois, its backwaters, its side channels and all tributaries, including their watersheds, draining into the river. The Illinois Basin comprises 55 counties within the states of Illinois, Indiana and Wisconsin (figure 1).

Figure F-1. Map of the Illinois Basin (shaded in yellow)

Alternative 6 is the preferred alternative for this study and provides for the following measures:

Ecological Integrity - Restoration would provide a measurable increase in the level of habitat and ecological integrity at the system level.

Sediment Delivery - reduce sediment delivery from Peoria Lakes tributaries by 40 percent, other tributaries upstream of Peoria Lakes by 11 percent, and tributaries downstream of Peoria Lakes by 20 percent. System benefits include reduced delivery of 20 percent to Peoria Lakes and 20 percent system wide.

Backwaters and Side Channel - restore 12,000 acres in 60 of the approximate 100 backwaters on the system; dredge an average of 200 acres per backwater, the optimal level of 40 percent of the approximate 500-acre average of backwater area. This would create optimal backwater and over-wintering habitat spaced approximately every 5 miles along the system. Restoration of 35 side channels and protection of 15 islands.

Floodplain, Riparian, and Aquatic - restore 75,000 acres of mainstream floodplain (approximately 14.9 percent of total mainstream floodplain area), including approximately 31,700 acre of wetlands, 25,300 acres of forest and 18,000 acres of prairie; tributary restoration of 75,000 acres (approximately 8.8 percent of total tributary floodplain area) including approximately 47,600 acres of wetlands, 13,900 acres of forest and 13,500 acres of prairie; and aquatic restoration including 500 miles of tributary stream (16.6 percent of the approximately 3,000 miles of channelized streams) with a mix of improved in-stream aquatic habitat structure and channel meandering.

Connectivity - restore fish passage at all mainstem dams on the Fox River (12 dams), all dams on the West Branch of the DuPage River (5 dams), all mainstem dams and one tributary (Salt Creek) of the Des Plaines River (17 dams), Wilmington and Kankakee Dams on the Kankakee River, Bernadotte Dam on the Spoon River, and the Aux Sable Dam.

Water Level - create 107,000 acres of storage area at an average depth of 1.5 feet and 38,400 acres of infiltration. Increase water level management at navigation dams using electronic controls and increased flow gauging. Results include an 11 percent reduction in the 5-year peak flows in tributaries, an overall average 20 percent increase in tributary base flows, and up to 66 percent reduction in the occurrence of half-foot or greater fluctuations during the growing season in the mainstream Illinois River. This alternative also would see benefits accrue from drawdowns in LaGrange or Peoria Pools.

Water Quality - anticipate improvements in water quality due to reduced sedimentation, phosphorus and nitrogen delivery. These improvements would result from sediment delivery reduction measures and water level management measures.

If fully implemented over the next 50 years, Alternative 6 would:

- provide a measurable increase in system ecological integrity;
- reduce systematic sediment delivery by 20 percent;
- restore 12,000 acres of backwaters;
- restore 35 side channels;
- protect 15 islands;
- restore 75,000 acres of mainstream floodplain;

- restore 75,000 acres of tributary floodplain;
- restore 1,000 stream miles of aquatic habitat;
- provide fish passage along the Fox, DuPage, Des Plaines, Kankakee, Spoon, and Aux Sable Rivers;
- reduce the 5-year peak flows in tributaries by 11 percent;
- increase tributary base flows by 20 percent;
- produce a 66 percent reduction in water level fluctuations along the mainstream during the growing season; and
- provide system level improvements in water quality.

The recommendation includes extending the current authorization through 2015.

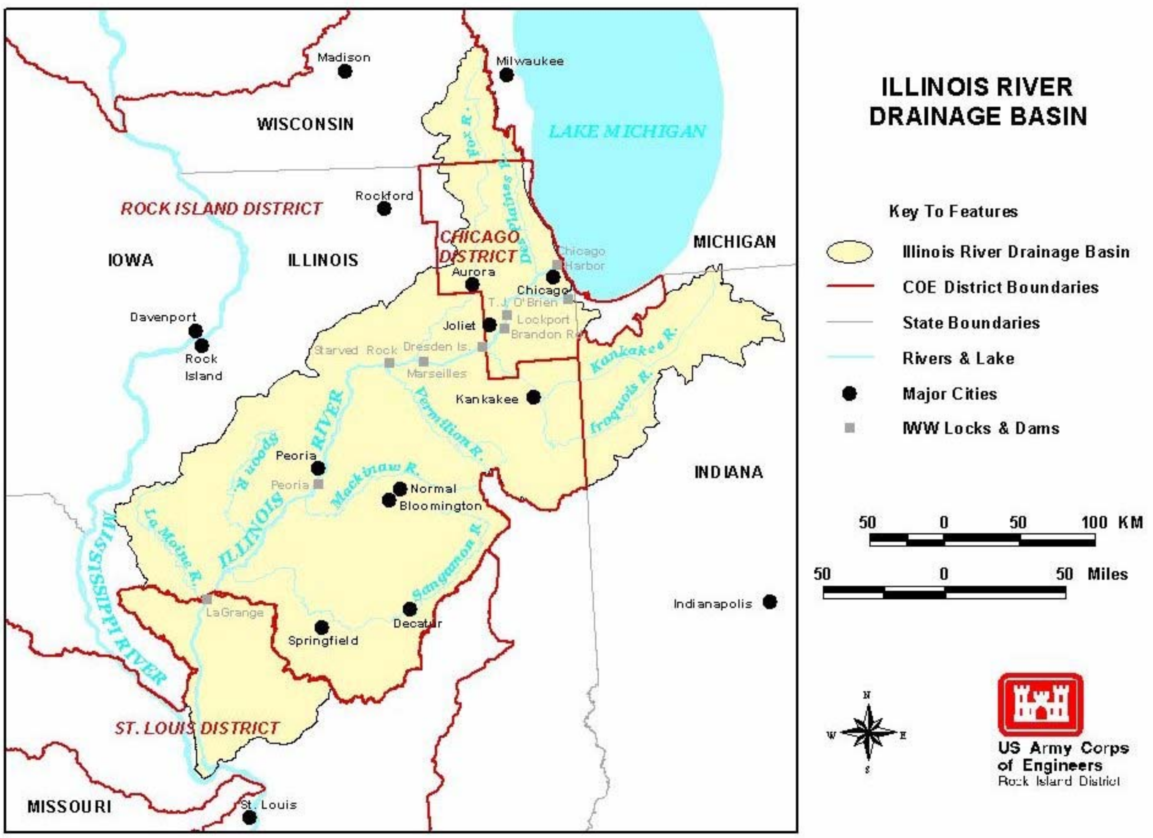


Figure F-2. Map of Illinois River Drainage Basin

1. Location. Site-specific locations are not available for the purpose of this report.

2. Project Description and Rationale. For the purposes of this report, an estimate of $3,000 per acre was assumed for agricultural and recreation lands anticipated for the project. This amount includes contingencies but does not include land acquisition expenses. Land values in residential and urban areas could be considerably higher. As an example, the Waubonsie project land was valued between $6,000 and $8,000 per acre. It is uncertain at this time where other projects will be located.

3. Baseline Cost Estimate. A baseline cost estimate has not been prepared for this report due to the lack of actual locations and the number of landowners involved. Figures were given to the Engineering Division of the Rock Island Corps of Engineers to aid in development of their construction figures, i.e. $3,000 per acre. Gross Appraisals will be performed as individual project areas are developed, actual land boundaries are determined, and the number of landowners are known. Four reports— Pekin Lake – Northern Unit; Pekin Lake – Southern Unit; Waubonsie Creek; and Peoria – Upper Island—that have been established under this authority contain gross appraisal information and Baseline Cost Estimates.

4. Summary of Estates and Acres Required. This section will be addressed in future Real Estate Plans for each individual project, as applicable.

5. Map of Possible Areas of Impact Due to Construction. There are no maps that represent the possible areas of impact due to construction. There are currently no references to landowner boundaries. There is also no reference as to the location of proposed project areas. Future real estate reports will include the applicable Section, Township, and Range details.

B. Location

A determination of actual boundaries of federally-owned lands and privately-owned lands has not been made. Information in this Real Estate Plan Appendix is based entirely on assumption and is to be utilized for initial planning purposed only.

As each project is proposed for implementation the issue of the proper estate to be acquired will be revisited. There is a recommendation within this document that estates less than Fee be authorized for this project where they represent the appropriate estate. The possible estates to be utilized for each individual site component are listed in paragraph D, Summary of Estates Required.

Since the lands could not accurately be located or addressed there were several assumptions made in the establishment of estimated costs. Any additional costs would be determined on a case-by-case basis.

C. Consolidated Summary of Type and Number of Properties Affected by the Proposed Project

This Real Estate Plan is based on assumptions and limitations. There have been no property data searches made or detailed mapping performed. Each individual proposed project area will contain specific information that reflects the estimated number and type of properties affected.

D. Summary of Estates Required

1. Standard Estates. The following standard estates from ER 405-1-12 may be utilized for the project. Additional estates required for access may be necessary and will be reviewed during each individual plan preparation.

Fee Title Estate

> The fee simple title to (the land described in Schedule A)(Tract Nos. ____, ____ and ____), subject, however, to existing easement for public roads and highways, public utilities, railroads and pipelines.

Temporary Work Area Easement

A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)(Tracts Nos. ______, ______ and ______), for a period not to exceed ___________________, beginning with date possession of the land is granted to the United States, for use by the United States, its representatives, agents, and contractors as a (borrow area) (work area), including the right to (borrow and/or deposit fill, spoil and waste material thereon) (move, store and remove equipment and supplies, and erect and remove temporary structures on the land), and to perform any other work necessary and incident to the construction of the _______________________ Project, together with the right to trim, cut, fell and remove therefrom all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such rights and privileges as may be used without interfering with or abridging the rights and easement hereby acquired; subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

Channel Improvement Easement

A perpetual and assignable right and easement to construct, operate, and maintain channel improvement works on, over and across (the land described in Schedule A) (Tracts Nos. ____, ____ and ____) for the purposes as authorized by the Act of Congress approved __________________, including the right to clear, cut, fell, remove and dispose of any and all timber, trees, underbrush, buildings, improvements and/or other obstructions therefrom; to excavate, dredge, cut away, and remove any or all of said land and to place thereon dredge or spoil material; and for such other purposes as may be required in connection with said work of improvement; reserving, however, to the owners, their heirs and assigns, all such rights and privileges as may be used without interfering with or abridging the rights and easement hereby acquired; subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

Flowage Easement (Permanent Flooding)

The perpetual right, power, privilege and easement permanently to overflow, flood and submerge (the land described in Schedule A) (Tracts Nos. ___, ___, and ___) (and to maintain mosquito control) in connection with the operation and maintenance of the ____ project as authorized by the Act of Congress approved ____________________________, and the continuing right to clear and remove any brush, debris and natural obstructions which, in the opinion of the representative of the United States in charge of the project, may be detrimental to the project, together with all right, title and interest in and to the timber, structures and improvements situate on the land (excepting ___________________ (here identify those structures not designed for human habitation which the District Engineer determines may remain on the land)); provided that no structures for human habitation shall be constructed or maintained on the land, that no other structures shall be constructed or maintained on the land except as may be approved in writing by the representative of the United States in charge of the project, and that no excavation shall be conducted and no landfill placed on the land without such approval as to the location and method of excavation and/or placement of landfill; 1/ the above estate is taken subject to existing easements for public roads and highways, public utilities, railroads and pipelines; reserving, however, to the landowners, their heirs and assigns, all such rights and privileges as may be used and enjoyed without interfering with the use of the project for the purposes authorized by Congress or abridging the rights and easement hereby acquired; provided further that any use of the land shall be subject to Federal and States laws with respect to pollution.

1/ If sand and gravel or other quarriable material is in the easement area and the excavation thereof will not interfere with the operation of the project, the following clause will be added: "excepting that excavation for the purpose of quarrying (sand) (gravel) (etc.) shall be permitted, subject only to such approval as to the placement of overburden, if any, in connection with such excavation;"

Road Easement

A perpetual and assignable easement and right-of-way in, on over and across (the land described in Schedule A) (Tracts Nos. , and) for the location, construction, operation, maintenance, alteration and replacement of (a) road(s) and appurtenances thereto; together with the right to trim, cut, fell and remove therefrom all trees, underbrush, obstructions and other vegetation, structures, or obstacles within the limits of the right-of-way; (reserving, however, to the owners, their heirs and assigns, the right to cross over or under the right-of-way as access to their adjoining land at the locations indicated in Schedule B); 2/ subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

2/The parenthetical clause may be deleted, where necessary; however, the use of this reservation may substantially reduce the liability of the Government through reduction of severance damages and consideration of special benefits; therefore, its deletion should be fully justified.

Flowage Easement (Occasional Flooding)

The perpetual right, power, privilege and easement occasionally to overflow, flood and submerge (the land described in Schedule A) (Tracts Nos.____, ____ and ____). (and to maintain mosquito control) in connection with the operation and maintenance of the ___________ project as authorized by-the Act of Congress approved ______________, together with all right, title and interest in and to the structure; and improvements now situate on the land, except fencing (and also excepting ______________________ (here identify those structures not designed for human habitation which the District Engineer determines may remain on the land) 3/ ; provided that no structures for human habitation shall be constructed or maintained on the land, that no other structures shall be constructed or maintained on the land except as may be approved in writing by the representative of the United States in charge of the project, and that no excavation shall be conducted and no landfill placed on the land without such approval as to the location and method of excavation and/or placement of landfill;

3/ the above estate is taken subject to existing easements for public roads and highways, public utilities, railroads and pipelines; reserving, however, to the landowners, their heirs and assigns, all such rights and privileges as may be used and enjoyed without interfering with the use of the project for the purposes authorized by Congress or abridging the rights and easement hereby acquired; provided further that any use of the land shall be subject to Federal and State laws with respect to pollution. If sand and gravel or other quarriable material is in the easement area and the excavation thereof will not interfere with the operation of the project, the following clause will be added: "excepting that excavation for the purpose of quarrying (sand) (gravel) (etc.) shall be permitted, subject only to such approval as to the placement of overburden, if any, in connection with such excavation;"

Railroad Easement

A perpetual and assignable easement and right-of-way in, on, over and across (the land described in Schedule A) (Tracts Nos. , and) for the location, construction, operation, maintenance, alteration and replacement of a railroad and appurtenances thereto; together with the right to trim, cut, fell and remove therefrom all trees, underbrush, obstructions, and other vegetation, structures, or obstacles within the limits of the right-of-way; (reserving, however, to the landowners, their heirs and assigns, the right to cross over or under the right-of-way as access to their adjoining land at the locations indicated in Schedule B;) 4/ subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

4/ The use of this reservation clause may substantially reduce the liability of the Government through reduction of severance damages.

2. Justification for Easement Estates in Lieu of Fee. Acquisition of easement estates in lieu of Fee estates is proposed for future projects based upon the extent of the interest required for the construction, operation, and maintenance of each respective project. A Channel Improvement Easement is adequate for the project needs in that all restoration work will be performed within the stream or directly adjacent to the stream.
A Temporary Work Area Easement would be required to provide staging areas for equipment and supplies, and to be used as material disposal placement sites. In addition**,** acquisition of easements versus Fee Simple Title to proposed lands is preferred by the primary project sponsor, the Illinois Department of Natural Resources (Illinois DNR), and by the public and private landowners whose lands may be needed for future projects. There are landowners who do not wish to convey Fee Simple Title to the project sponsor. However, they are receptive to granting the necessary easement estate to the sponsor so that project features may be incorporated on their lands.

The use of an easement estate versus a fee estate would require case by case evaluation. District Counsel may also be tasked to prepare a legal opinion applying the facts of the specific project with regard to the navigation servitude. The Headquarters USACE must approve the use of a non-standard estate. Fee would be the required estate in areas where project features include recreation.

III. LANDS REQUIRED OWNED BY THE SPONSOR

Not all of the sponsors for this project have been identified. The Illinois DNR has shown interest in the Illinois region of the study area. Other sponsors and lands in Wisconsin and Indiana will be determined as the need arises. These lands will be identified in future planning documents as required.

IV. NON-STANDARD ESTATE DISCUSSION

There are currently no non-standard estates being proposed within this report.

V. FEDERAL PROJECT WITHIN THE LERRD REQUIRED FOR THE PROJECT

Previous Federal projects lay within the boundaries of some of the anticipated proposed project features. These lands will be identified in future planning documents as required.

VI. FEDERALLY-OWNED LAND WITHIN THE PROJECT AREA

Along the Mississippi River, the United States has acquired all the real estate interests needed for the construction, operation and maintenance of the navigation channel project; the situation along the Illinois Waterway (IWW), however, is different. Portions of the IWW were improved or were in the process of being improved by non-Federal entities prior to the United States assuming complete control of the Illinois Waterway Navigation Project with respect to improvement for the purpose of navigation; therefore, the United States did not acquire a real estate interest in all of the lands that are affected by the construction, operation and maintenance of the IWW Navigation Project. As a result, the existing real estate interests and rights the United States has with respect to the real estate required for the construction, operation and maintenance of the Illinois Waterway Navigation Project is a complex mixture and varies with each location along the waterway. Following is a summary explanation of the existing real estate interests and rights which the United States has along the IWW.

> By Public Law 520, 71st Congress, dated 3 July 1930, Congress authorized the United States to undertake the project for improvement of navigation on the Illinois Waterway, in accordance with the report of the Chief of Engineers as submitted in Senate Document Numbered 126, 71st Congress 2nd Session. In the report of the Chief of Engineers, it is explained that the Constitution of the State of Illinois prohibits the State from conveying title to any of the real estate and associated improvements that the State had acquired and developed for the improvement of the waterway. The Secretary of War asked the Attorney General of the United States to confirm whether or not, upon the Illinois Waterway Project being authorized by Congress, the United States would have complete control of the waterway including the structures, even though the State of Illinois could not formally convey title to the United States. The Attorney General concluded that, with respect to the parts of the waterway that are navigable streams improved by the State, the United States may, under appropriate acts of Congress, take complete control over the improvement and regulation of navigation without any amendment to the Constitution of Illinois or permission from the State. The Governor of the State of Illinois, in a brief to the Secretary of War dated 19 March 1930, states the opinion of the Governor, "that, upon adoption of the Illinois Waterway by the Federal Government, and upon an appropriation being made for its completion,

> the Federal government will acquire as full and complete jurisdiction and control of said waterway and its appurtenances, as if, by appropriate authority, conveyance of title had been made by the State of Illinois." Therefore, while the State of Illinois did not convey title of the real property interest and associated improvements acquired and developed by the State of Illinois for the waterway, it was the understanding and intent of both the United States and the State of Illinois that the United States would have complete control of the waterway upon the project being authorized by Congress, as if title had been conveyed. This provides only a brief summary of what is contained in the Chief of Engineers report. For a complete understanding of the circumstances, refer to the full text of the communications in Senate Document Numbered 126, 71st Congress 2nd Session.

In other portions of the IWW including part of the Des Plains River, the Lockport Lock, the Chicago Sanitary and Ship Canal, the Chicago River and the Calumet-Sag Channel, the Metropolitan Water Reclamation District of Greater Chicago (MWRD) acquired real estate interests and developed improvements prior to the United States being authorized to develop those portions of the waterway for navigation.

The Department of the Army entered into a Memorandum of Agreement with MWRD which provides for the Department of the Army to operate and maintain certain improvements that were developed by MWRD on portions of the waterway in the Chicago River, the Chicago Sanitary and Ship Canal and part of the Des Plains River including, but not limited to, the Chicago River Lock and Lockport Lock, and to perform certain additional activities in connection with maintenance of portions of the waterway. The agreement also states that the MWRD and the Department of the Army hereby convey to each other, at no cost, all rights of entry and/or easements necessary for each to carry out its responsibilities under this agreement.

The Calumet-Sag Channel project was authorized with the provision that a local interest shall furnish all lands and easements necessary to prosecute the work. MWRD signed Assurance Agreements for the Calumet-Sag Channel Project agreeing to furnish free of cost to the United States all lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas (LERRD) necessary for the new work and for subsequent maintenance when and as required. The MWRD subsequently has conveyed easements, fee title and rights-of-entry to the United States over areas required by the United States for the project.

Subsequent to the United States assuming control and operation of the various portions of the IWW, the United States proceeded to acquire certain additional real estate interests, in the name of the United States, that were required for the construction, operation and maintenance of the IWW Project.

Therefore, the real estate interests and rights which the United States has for the Illinois Waterway Project vary greatly, depending on the specific portion of the project. Table 1 provides a basic summary of the entities believed to hold real estate interests required for the various parts of the Illinois Waterway Project at both the Locks and Dams and in the Pools.

Table F-1 identifies entities believed to hold existing real estate interests—that is, Lock and Dam and Pool area sites—required for the IWW in the various project portions.

Table F-1. Illinois Waterway Ownership Facts

Project Portion	Lock and Dam Site Ownership	Pool Area Ownership
LaGrange Lock & Dam	United States	There is no indication in the records of any real estate interests acquired for the LaGrange Pool.
Peoria Lock & Dam	United States	State of Illinois and United States
Starved Rock Lock & Dam	State of Illinois	State of Illinois and United States
Marseilles Lock, Canal and Dam	State of Illinois and United States	State of Illinois and United States
Dresden Island Lock & Dam	State of Illinois	State of Illinois and United States
Brandon Road Lock & Dam	State of Illinois	The United States has some real estate interests. This pool is primarily contained by walls. If there is any additional real estate interest held for the pool, it would likely be the State of Illinois and/or the MWRD.
Lockport Lock, and Chicago Sanitary & Ship Canal	MWRD	MWRD
Calumet Sag Channel	No Lock	United States and MWRD
T. J. O'Brien Lock	United States	None known
Chicago River, Chicago Harbor and Lock	Located in Chicago District; real estate information unavailable in Rock Island District.	Located in the Chicago District; real estate information unavailable in the Rock Island District.

The Corps of Engineers maintains records only of those real estate interests that are held by the United States for the Illinois Waterway Project. It would be ideal to have complete documentation of all of the real estate interests needed for the project stating who holds the interests. However, to identify all of the real estate interests held by the other entities that are required for the project would require a significant effort and expenditure of funds to research and compile the records. Therefore, it is most practical to identify who may currently have real estate interests for the project on a case-by-case basis as the need arises.

With respect to the real estate interests that were previously acquired by the State of Illinois for the Illinois Waterway Project where the state has not actually conveyed title to the United States, if any new work is to be done on that property, it would at least require a title search to verify that the State of Illinois still owns the property. If the State of Illinois owns the property to be affected by new work, it may also be prudent to verify with the State of Illinois that they agree the property is part of that which the United States assumed control of for the purpose of improving navigation.

The United States also has the right to construct, operate and maintain the navigation project in areas located below the ordinary high water line without the requirement to obtain any real estate interest in those areas. Questions have been raised in discussions relative to the Navigation Study and associated Environmental Restoration projects as to whether or not navigation servitude applies in the case of environmental restoration work. If navigation servitude does not apply, it will require that appropriate real estate interests be obtained for such work where it is located below the ordinary high water line, the same as for areas located above the ordinary high water line. This can be a critical factor in determining the total cost and feasibility of such projects. To determine the real estate interests required for environmental restoration projects will first require a definite determination as to whether or not navigation servitude applies. If such projects located below the ordinary high water line are to be proposed and pursued, a request should be made early on for a legal determination as to the applicability of navigation servitude in such cases in order that the full extent of any real estate interests required for the project can be determined.

It is unknown at this time as to what federally-owned lands exist within the Indiana and Wisconsin portions of the basin. This will be addressed in future planning reports for each individual project.

VII. NAVIGATIONAL SERVITUDE

All of the projects with real estate located below the Ordinary High Water line within the Navigational Servitude will be evaluated. An Attorney's Opinion of Compensability addressing the use of the servitude for these types of projects will be prepared on a case-by-case basis.

VIII. POSSIBILITY OF INDUCED FLOODING DUE TO PROJECT

It is unknown at this time if induced flooding will be caused within the project areas. However, site-specific project evaluations will determine potential effects and seek to avoid induced flooding.

IX. RELOCATION ASSISTANCE BENEFITS

All of the projects that evolve from the Illinois River Basin Restoration Comprehensive Plan will be evaluated as to the provisions and requirements necessary for relocation assistance benefits. This will be performed during each project plan as necessary.

The Relocation Assistance Program mandated by Public Law 91-646 would be utilized in the event that any person would be displaced from their home, business, or farm. Relocation benefit costs are separate and in addition to the acquisition payments of real property. Relocation benefits would be reviewed during the study phase for each respective project that may be implemented. Project lands would be typically located within the river itself or on flood prone land that is unimproved. It is anticipated that implemented projects that would affect improved lands would not involve a significant number of displacements.

X. MINERAL ACTIVITY/TIMBER HARVESTING IN PROJECT AREA

Mineral, oil, and gas rights will not be acquired except in areas outside the Navigational Servitude where development would interfere with project purposes. Mineral rights not within the servitude will either be acquired where necessary (for project purposes) or will be reserved and subordinated to the Federal government's right to regulate their development in a manner that will not interfere with the primary purposes of the project, including public access. Each proposed project would be evaluated to determine where minerals should be acquired, reserved and subordinated, or in some cases left entirely outstanding. The multiplicity of ownerships in mineral interests, the variety of minerals, and the different methods of mineral exploration, recovery, and production make it impracticable to define in advance specific guidelines concerning the reservation of mineral interests and their subordination to primary project purposes in any given project. The implementation of real estate planning documents will fully discuss and consider the need for or extent of acquisition and/or reservation of mineral interests.

XI. SPONSORS' LEGAL AND PROFESSIONAL CAPABILITY TO ACQUIRE LERRD

As individual projects are submitted for approval, an assessment of sponsor capabilities would be made. Proposed sponsors would be reviewed for their legal and professional capability to acquire the required LERRD.

The Illinois DNR will be the sponsor for the following identifiable projects within the basin area that is lying within the Rock Island District Corps of Engineers boundary: Pekin Lake – Northern Unit; Pekin Lake – Southern Unit; Waubonsie Creek; and Peoria – Upper Island. Separate reports and Real Estate Plans have been developed for these projects.

The Illinois DNR has the knowledge and capability to adequately take care of their Real Estate responsibilities. However, due to limited staffing, the Illinois DNR may require assistance to support them in their acquisition activities. The acquisition activities for each individual project will be assessed on a case-by-case basis to determine the need for assistance.

The sponsors for lands lying within the basin area of Indiana and Wisconsin have yet to be determined.

XII. ZONING ORDNANCES PROPOSED

It is uncertain if zoning ordnances will be proposed for this project. This will be further investigated as each individual project is planned and developed.

XIII. SCHEDULE OF LAND ACQUISITION MILESTONES

The implementation of study documents will take place as each project is proposed. The time and cost to prepare Real Estate Plans, Real Estate Design Memorandums and Real Estate maps, as applicable, will vary depending on the size and nature of each proposed project.

Upon approval of the implemented study document, real estate acquisition schedules would be variable and be based on the number of tracts involved, sponsor capabilities, and input by the individual project sponsors. As required, each respective Real Estate Plan or Real Estate Design Memorandum would provide a schedule of land acquisition milestones.

XIV. FACILITY OR UTILITY RELOCATIONS

Each project submitted for implementation approval will undergo an evaluation of facility or utility relocation. If applicable, a Preliminary Attorney's Opinion of Compensability will be prepared in accordance with ER 405-1-12 and included in the Real Estate Plan or Real Estate Design Memorandum, as applicable.

The issue of relocation of towns is unknown and unlikely at this time due to the uncertainty of the environmental feature.

XV. IMPACTS OF SUSPECTED OR KNOWN CONTAMINANTS

Environmental site assessments would take place prior to the implementation of each respective project and any environmental conditions or contamination issues would be addressed at that time. Minor impacts associated with site acquisition usage, dredging, and dredged material placement may occur during the construction of proposed projects; however, no significant adverse impacts are expected. The use of best management practices and proper construction techniques would minimize adverse water quality impacts. No separable lands have been identified as being needed for mitigation purposes.

XVI. LANDOWNERS' SUPPORT OR OPPOSITION TO THE PROJECT

Since no detailed site specific project boundaries have been identified, it is unknown at this time whether landowners support or oppose the projects. The State of Illinois would seek to work with willing landowners. This intent may not apply to other sponsors or areas of Wisconsin and Indiana where the sponsors have not yet been identified. The sponsors would however retain the ability to utilize Eminent Domain proceedings per the Project Cooperation Agreement (PCA).

XVII. RISKS OF ACQUIRING LANDS BEFORE EXECUTION OF THE PCA OR AUTHORIZED DOCUMENTS

Prior to execution of the PCA, in accordance with ER 405-1-12, Chapter 12, the Sponsors will be advised in writing of the risks associated with acquiring land. There are provisions in the Section 519 language of WRDA 2000 that state:

> (A) VALUE OF LANDS.—If the Secretary determines that lands or interests in land acquired by a non-Federal interest, regardless of the date of acquisition, are integral to a project or activity carried out under this section, the Secretary may credit the value of the lands or interests in land toward the non-Federal share of the cost of the project or activity. Such value shall be determined by the Secretary.

There may be lands that apply to this provision. If such lands arise, the appropriate documentation will be provided to the Secretary for determination.

XVIII. OTHER REAL ESTATE ISSUES RELEVANT TO THE PROJECT

The non-Federal sponsors shall provide a percentage of the cost of construction of any project carried out, including provision of all the LERRD required to accommodate construction, operation, and maintenance of the project. If the value of LERRD exceeds the percentage of total project costs, the sponsors may be reimbursed for that portion in excess of the percentage, or the Government may assume financial responsibility for payment of the portion that exceeds that percentage.

A Real Estate Plan will be prepared in accordance with ER 405-1-12 for all lands that are to be acquired by the sponsors for each proposed project.

The Government and each respective sponsor will enter into a Project Cooperation Agreement (PCA) prior to initiation of land acquisition by the sponsor. Generally, the sponsor is responsible for 100 percent of all operation and maintenance costs of the project.

There is currently no standard model PCA available for this project. A PCA has been approved for the Peoria – Upper Island Project. Over time, as additional projects are completed, a model PCA will be pursued.

In the event that the LERRD required by a proposed project is encumbered with a conservation easement estate, the critical “bundle of sticks” of ownership may not be available to convey to the USACE, such as the right to construct, overflow and inundate the land, etc. Most conservation programs entail partnerships with others, to include federal agencies, state agencies, or non-governmental offices. The management by many different agencies contributes to the complexity of conservation type programs. The value of proposed project lands encumbered with a pre-existing conservation easement may be affected. Therefore, the allowance of a LERRD credit for encumbered project lands would require additional research, as necessary.

ILLINOIS RIVER BASIN RESTORATION
COMPREHENSIVE PLAN
WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX G

U.S. FISH AND WILDLIFE SERVICE
COORDINATION ACT REPORT

FISH AND WILDLIFE COORDINATION ACT REPORT

for the

ILLINOIS RIVER ECOSYSTEM RESTORATION STUDY

Submitted to:
U.S. Army Corps of Engineers
Rock Island District
Clock Tower Building
Rodman Avenue, P.O. Box 2004
Rock Island, Illinois 61201-2004

Prepared by:
Kraig McPeek
U.S. Fish and Wildlife Service
Rock Island Ecological Services Field Office
4469 48th Avenue Court
Rock Island, Illinois 61201

U.S. FISH AND WILDLIFE SERVICE
GREAT LAKES – BIG RIVERS REGION
FORT SNELLING, MINNESOTA

May 2004

Table of Contents

LIST OF TABLE AND FIGURES

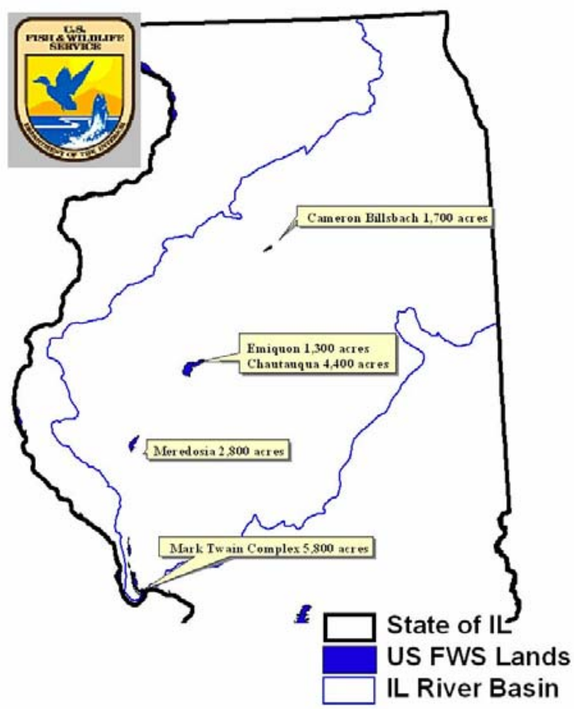
S:\Office Users\Kraig\CAR\Index.doc

Chapter 1 – Introduction, Background and Purpose

Introduction

The U.S. Fish and Wildlife Service (Service) became a major partner in the Illinois River (IR) community in 1936, when Congress authorized the acquisition of 4,488 acres of IR floodplain to establish the Chautauqua National Fish and Wildlife Refuge (Figure 1.1). The purpose of the refuge was national in scope and aimed at preserving the wetlands, waters, and floodplains so critical to the continued existence of fish and wildlife. Since that time, our work on the IR system has expanded to include over 16,000 acres of lands and water in the National Wildlife Refuge system along the IR and its floodplain. Including state-managed lands, about 10 percent of the IR floodplain is managed for fish and wildlife purposes.

Figure 1.1, US Fish and Wildlife Service, National Refuge Lands within the Illinois River Basin



In addition to direct land management authority, the Service is authorized under the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.) to provide reports, such as this one, on federally funded projects. The purpose of the report is to present information on the likely effects of the proposed project on fish and wildlife resources. The Fish and Wildlife Coordination Act presents an opportunity for the Fish and Wildlife Service to offer recommendations and comments which will help to improve proposed project alternatives and features for fish and wildlife habitat.

Further, we provide technical assistance under the National Environmental Policy Act (NEPA) of 1969. The NEPA requires that an environmental impact statement be prepared when a Federal action is proposed which may result in significant impacts to the environment. It further requires an analysis of cumulative effects, defined in 40 CFR §1508.7 as:

> "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

As an ecological restoration initiative, we believe that the net result from all related projects would be beneficial to the natural resources of the IR basin.

The Service also provides technical expertise on the protection and enhancement of federally threatened and endangered species by consulting with Federal agencies on effects to those species. Consultation under the Endangered Species Act is outlined in Chapter 7 of this report.

Background

The Illinois River Ecosystem Restoration Study is being carried out under the Corps of Engineers' General Investigations Program. The study was initiated pursuant to the provision of funds in the Energy and Water Development Appropriations Act, 1998. The study was authorized by Section 216 of the 1970 Flood Control Act. Congress has provided specific authority to address Illinois River Basin Restoration in Section 519 of the Water Resources Development Act (WRDA) of 2000. This authority calls for the completion of a comprehensive plan and critical restoration projects. Efforts were initiated following the provision of funds in the Energy and Water Development Appropriations Act of 2002.

This Fish and Wildlife Coordination Act Report addresses the final response to the Comprehensive Plan portion of the Illinois River Restoration authority provided in Section 519 of the WRDA of 2000.

Purpose

The purpose of this report is to present information and our opinions, recommendations, and comments on impacts of the proposed IL 519 authority, Illinois River Restoration Project, and the preferred alternative. This authority seeks to improve the Illinois River Ecosystem by concentrating on seven key ecosystem related goals and implementing a selected alternative to address system-wide problems. We offer direct comments on each of these goals as well as the alternative formulation and agency coordination throughout this report and, in particular, in the final chapter (9) of the report titled conclusions and recommendations.

We also provide an analysis and recommendations on the ongoing river management projects such as the restructured 9-foot Channel Navigation Study, Environmental Management Plan (EMP), and Long Term Resource Management Program (LTRMP) and how those programs will interact, either independently or in cooperation with, the IL 519 authority. It is vital for the successful restoration of the system that these programs be complimentary and cohesive. As we strive to repair the ecological damage of the past century, it is important that river resource managers address other on-going authorities/initiatives and identify ways to compliment one another.

Chapter 2 - Proposed Project Description and Formulation Process

The Rock Island District Corps of Engineers (Corps), in partnership with the Illinois Department of Natural Resources (IDNR), has investigated an array of alternatives to initiate ecosystem restoration of the IR basin. Both small and large-scale management features, related to the ongoing management of the basin and potential future management of the basin, have been investigated and discussed with representatives from the majority of interested stakeholders throughout the State of Illinois. These investigations included: (1) Identifying a series of critical restoration projects and locations, (2) Identifying basin-wide programs that currently act to alleviate specific concerns related to sediment, and (3) Identify natural resource needs in terms of biologically significant areas, water level management, side channel habitat restoration, and backwater restoration. In addition to system wide investigations, the project includes LTRMP to be established and implemented by the IDNR in conjunction with the Illinois Natural History Survey and the Illinois State Water Surveys as a portion of the non-Federal cost share to the project.

Description of Project Area

The IR begins near Channahon, Illinois, at the confluence of the Des Plaines and Kankakee Rivers and flows over 270 miles to Grafton, Illinois, where it joins the Upper Mississippi River (UMR). The Illinois Waterway includes all of the IR and continues approximately 60 additional miles upstream along portions of several rivers and man-made channels to Lake Michigan. Except where indicated, this document references the IR portion of the basin and its associated tributaries including their watersheds draining into the IR. The basin is approximately 30,000 square miles and contributes to roughly 40 percent of the entire State of Illinois in land area. The IR basin consists of eight major tributaries including the Des Plaines, Kankakee, Fox, Vermilion, Mackinaw, Spoon, Sangamon, and La Moine Rivers and their watersheds.

Project Objectives

The feasibility study identifies several planning objectives which include the following: (1) Assess overall restoration needs and develop a consensus-based desired future condition of the Illinois River Watershed, (2) Address restoration of ecosystem function, structure, and dynamic processes to the nationally recognized IR system. Help restore a naturalistic, functioning, and self-regulating system and protect critical resources from further degradation, (3) Develop Critical Restoration Projects in the context of broader system/ecosystem or watershed level. Consider the interrelationships of plant and animal communities and their habitats in a larger ecosystem context (health, productivity, and biological diversity), (4) Incorporate an adaptive management approach to restoration efforts considering the interconnectedness of water and land, dynamic nature of the economy and environment, and need for flexibility in the formulation and evaluation process, (5) Develop watershed or sub-watershed management plans identifying the combination of recommended actions to be undertaken by various potential stakeholders, (6) Collaborate in partnership with other governmental agencies, organizations, and the private sector, (7) Produce benefits consistent with the North American Waterfowl Management Plan, U.S. Shorebird Conservation Plan, Partners in Flight Bird Conservation Plan, Clean Water Action Plan, Mississippi River/Gulf of Mexico Watershed Nutrient Task Force, and

Brownfield's Cleanup and Redevelopment, (8) Provide ancillary recreational benefits, (9) Minimize the conversion of farmland, and (10) Meet requirements established in Section 519 of the WRDA 2000.

As an overarching objective and identified as (6) in the above section, the planning process was intended to coordinate a multi-agency multi-program restoration initiative to develop system-wide management actions which, when implemented as system alternatives, would restore, improve, and/or protect the natural resources of the IR basin and return it to a 'self-sustaining' ecosystem.

In an effort to organize system needs, a series of six goals were established to address the basin's ecological needs (Chapter 3). These goals, in conjunction with the above objectives, were combined to create seven system alternatives (Chapter 4) to be evaluated for ecological benefits.

Listed here are a few of the small and large scale measures which have been identified as system needs and are incorporated into each of the seven alternatives for the system either through a specified goal or through management actions of alternatives.

Small-Scale Measures (wetland and stream corridor improvements)

- Stabilize unstable streams in rural and urban areas, particularly streams where the rate or magnitude of erosion yields abrupt or progressive changes in location, gradient, or pattern of natural or human-induced changes (ex., work with a variety of U.S. Department of Agriculture (USDA) and Soil and Water Conservation District (SWCD) programs).

- Reduce the effects of excessive sedimentation in the river and its associated water bodies.

- Restore riparian and floodplain biological functions.

- Restore connections between system ecological elements.

Large-Scale Measures

- Water level management (of the IR mainstem).

- Backwater restoration (12,000 acres in recommended plan).

- Side channel habitat restoration (35 project locations in recommended plan).

As early as 1945, it was known that the levees along the IR needed to be rectified to reduce flood heights and/or improve habitats for waterfowl, fish, and other floodplain dependant species. The Illinois Department of Conservation (now IDNR) urged that the levee and drainage districts be considered for storage of flood waters. In addition, they argued that these levees could serve as high quality habitat for floodplain dependant species (IL DOC 1950).

The statements by the Department of Conservation in 1950 remain concerns today. As outlined by the feasibility report, extensive water level management opportunities still exist within and along current levee and drainage districts. These opportunities, however, will require extensive coordination between interested agencies and landowners. It is important that river managers, interested drainage districts, and stakeholders participate in this process. The IL 519 Study teams will need to work with floodplain organizations to understand and alleviate some the concerns which exist.

The IL 519 program should seek future partnerships with drainage districts. These partnerships may allow for the utilization of specified areas as recreational hunting areas while assisting with water level management, one of the most serious problems impacting the IR.

Chapter 3 – Ecosystem Restoration Goals

Goals

In an effort to efficiently plan and organize the IR Ecosystem Restoration alternatives, a program objective and six goals were formed and subcommittees tasked with organization within each of these goal categories. Although each goal category can be linked to others, they also stand alone and require specific attention when assessing the system as a whole. Ultimately combinations of goals comprise system-wide alternatives (Table 4.1). The objective of the program and the six goals and associated problem statements are:

Objective: Restore and maintain ecological integrity, including habitats, communities, and populations of native species and the processes that sustain them.

Problem: The combined effects of habitat loss to urban and agricultural development, human exploitation, habitat degradation and fragmentation, water quality degradation, and competition from aggressive invasive species have significantly reduced the abundance and distribution of many native plant and animal species in the Illinois River Basin. In addition, human alterations of Illinois River Basin landscapes have altered the timing, magnitude, duration, and frequency of habitat forming and seasonal disturbance regimes. These systemic changes, no longer simple cause and effect relationships, are now severely limiting both the habitat and species populations and use of the Illinois River Basin.

Goal 1: Reduce sediment delivery to the Illinois River from upland areas and tributary channels with the aim of eliminating excessive sediment load.

Problem: Increased sediment loads from the basin have severely degraded environmental conditions along the mainstem Illinois River by increasing turbidity and filling backwater areas, side channels, and channel border areas. Improved practices have reduced the amount of sediment generated from many agricultural areas, but large quantities of sediment are still delivered to the river due to eroding channels and tributary areas, including urban and rural construction sites. The most critical problems are the loss of depth and habitat quality in off-channel areas connected to the mainstem river. Similar problems can be seen at other areas within the basin where excessive sediment has degraded tributary habitats.

Goal 2: Restore aquatic habitat diversity of side channels and backwaters, including Peoria Lakes, to provide adequate volume and depth for sustaining native fish and wildlife communities.

Problem: The dramatic loss in productive backwaters, side channels, and channel border areas is due to excessive sedimentation. In particular, the Illinois River has lost much of its critical spawning, nursery, and over-wintering areas for fish, habitat for diving ducks and aquatic species, and backwater aquatic plant communities. A related problem is the need for timely action. If restoration is not undertaken soon, additional significant aquatic areas will be lost due to conversion to terrestrial habitats.

Goal 3: Improve floodplain, riparian, and aquatic habitats and functions.

Problem: Land use and hydrologic change has reduced the quantity, quality, and function of aquatic, floodplain and riparian habitats. Flood storage, flood conveyance, habitat availability, and nutrient exchange are some of the critical aspects of the floodplain environment that have been adversely impacted.

Goal 4: Restore and maintain longitudinal connectivity on the Illinois River and its tributaries, where appropriate, to restore or maintain healthy populations of native species.

Problem: There is a lack on lateral and longitudinal hydrologic connectivity on the Illinois River and its tributaries. Aquatic organisms do not have sufficient access to diverse habitat such as backwater and tributary habitat that are necessary at different life stages. Lack of longitudinal connectivity slows repopulation of stream reaches following extreme events such as pollution or flooding and reduces genetic diversity of aquatic organisms.

Goal 5: Restore Illinois River and tributary hydrologic regimes to reduce the incidence of water level conditions that degrade aquatic and riparian habitat.

Problem: Historical basin changes and river management have altered the water level regime along the mainstem Illinois River, stressing the natural plant and animal communities along the river and its floodplain. The most critical changes include an increased incidence of water level fluctuation, especially during summer and fall low water periods, and the lack of drawdown in areas upstream of the navigation dams.

Goal 6: Improve water and sediment quality in the Illinois River and its watershed.

Problem: The state's surface water resources are impaired due to a combination of point and non-point sources of pollution. Through effective regulatory efforts, point sources of impairments have continued to decline. Non-point sources of water quality impairment, such as sediments and nitrates, continue to degrade the surface waters of the state.

The Corps and IDNR have done an excellent job identifying system restoration goals that are not only critical to the restoration of the IR ecosystem, but are also tangible and can produce achievable ecological outputs. However, significant coordination is still needed to establish the required agreements to make the IL 519 successful and the restoration of the IR possible. In particular, goals 1, 3, and 6 are being actively pursued in various efforts by a number of different entities throughout the basin. These similar interests may provide significant cumulative benefits through coordination and support by this study.

Chapter 4 – Project Alternatives

Project Alternatives

Using the recommendations of each restoration goal subcommittee, eight basic system alternatives were designed. These eight alternatives cover a wide level of effort and range from 'no action under the 519 authority', 'regional improvement', 'maintaining the current system' to 'reasonable upper bound to system improvements'. Table 4.1 represents each alternative, the level of effort, and some expected benefits of each of the goals. After each alternative had been outlined, the IL 519 team evaluated each alternative and selected a preferred alternative. The preferred alternative reflected opinions of several regional and state experts in the fields of waterfowl ecology, sediment retention, fishery ecology, aquatic vegetation, and other IR system issues. In addition to reflecting these experts' opinions, the preferred alternative sought to establish a future condition of the IR which was consistent with management plans and restoration efforts of the basin.

Alternative Plans Considered in the IL 519 Study, See Table 4.1: The eight alternatives were established and evaluated in this feasibility report starting with 'No Action' and incrementally increasing in scope to the eighth alternative. Table 4.1 outlines the goal by goal benefits which are expected to be seen from each of the evaluated alternatives. These alternatives were formulated and evaluated through a series of multi-agency coordination meetings and represent predicted desired/future conditions as outlined by the participating agencies and individuals.

Table 4.1, System-wide Alternatives w/ benefits by goal category

Alternative Name	1	2	3	4	5	6
	Sediment Delivery	Backwaters & Side Channels	Floodplain, Riparian, & Aquatic	Connectivity	Water Level Management	Water Quality
No Action	Some Increase Delivery	Decline 1-2%/yr	No Change	Potential Improvement	More Fluctuations	Minor Improvement
Alt 1	0% Upper Tribs 20% Peoria Tribs 0% Lower Tribs	3,600 BW acres 10 Side Channel 10 Island Protect	5,000 acres MS 5,000 acres Trib 25 stream miles		1.5% Peak Reduce 30k acre-ft	Minor Regional Improvements
Alt 2	0% Upper Tribs 40% Peoria Tribs 0.5% Lower Tribs	6,100 BW acres 20 Side Channel 15 Island Protect	5,000 acres MS 10,000 acres Trib 50 stream miles		2.5% Peak Reduce 45k acre-ft	Regional Improvements
Alt 3	11% Upper Tribs 40% Peoria Tribs 4% Lower Tribs	8,600 BW acres 30 Side Channel 15 Island Protect	20,000 acres MS 20,000 acres Trib 100 stream miles	Fox, DuPage, DesPlaines	2.5% Peak Reduce 45k acre-ft, Auto Gates	Some System Improvements
Alt 4	11% Upper Tribs 40% Peoria Tribs 4% Lower Tribs	6,100 BW acres 20 Side Channel 15 Island Protect	5,000 acres MS 20,000 acres Trib 100 stream miles	Fox, DuPage, Des Plaines, Kankakee, Spoon, Aux Sable	7.5% Peak Reduce 160k acre-ft, Auto Gates	Some System Improvements
Alt 5	11% Upper Tribs 40% Peoria Tribs 4% Lower Tribs	8,600 BW acres 30 Side Channel 15 Island Protect	40,000 acres MS 40,000 acres Trib 250 stream miles	Fox, DuPage, Des Plaines, Kankakee, Spoon, Aux Sable	7.5% Peak Reduce 160k acre-ft, Auto Gates	Some System Improvements
Alt 6	11% Upper Tribs 40% Peoria Tribs 20% Lower Tribs	12,000 BW acres 35 Side Channel 15 Island Protect	75,000 acres MS 75,000 acres Trib 500 stream miles	Fox, DuPage, Des Plaines, Kankakee, Spoon, Aux Sable	7.5% Peak Reduce 160k acre-ft, Auto Gates, Drawdown	Some System Improvements
Alt 7	11% Upper Tribs 40% Peoria Tribs 20% Lower Tribs	18,000 BW acres 40 Side Channel 15 Island Protect	150,000 acres MS 150,000 acres Trib 1000 stream miles	Fox, DuPage, Des Plaines, Kankakee, Spoon, Aux Sable, 3 Mainstem Dams	7.5% Peak Reduce 160k acre-ft, Auto Gates, Drawdown, Replace Wickets	Some System Improvements
	Preferred alternative plan is Alt. 6					

Recommended Plan, Alternate 6

Ecological Integrity: Restoration under this goal would provide a measurable increase in the level of habitat and ecological integrity at the system level through implementation of all goal recommendations. It is a basic assumption of the study team and participating agencies (including the Service) that this initiative would produce system-wide biological and ecological benefits. Alternate 7 would produce more resource benefits but the cost has been determined to be too high.

These recommendations, when combined into Alternate 6, will provide a level of management that is unparalleled within the basin at this time. However, we emphasize the need and importance of coordination between Federal, state, and private restoration efforts within the basin. These efforts, though common in goal, can become less efficient if appropriate coordination and funding opportunities are not established. In addition, we feel that immediate and localized benefits could be seen at sites that are in existing Federal, state, and private conservation agency ownership. Targeting these pre-existing sites could greatly reduce planning and real estate costs while maximizing benefits to the system.

Sediment Delivery: Alternate 6 calls for the reduction in sediment delivery from the Peoria tributaries by 40 percent, other tributaries upstream of Peoria Lakes by 11 percent, and tributaries downstream of Peoria Lakes by 20 percent. System benefits include reduced delivery of sediment by 20 percent to Peoria Lakes and 20 percent system-wide.

Excessive sedimentation is well known to be a significant source of ecological loss within the IR basin. However, sedimentation is part of a natural process by which stream channels meander through their floodplains via erosion and deposition. It is only when a particular stream is prevented from meandering that erosion and sedimentation begin to adversely affect the stream. In reference to this alternative's goal of reducing 40 percent of the Peoria tributaries sediment delivery, excessive sediment control could also produce negative ecological impacts at the localized stream level as well as at a cumulatively larger scale. Localized investigations may be warranted to determine if retention of significant sediment loads will alter critical habitat forming processes and adaptive management measures may be required to alter project features to ensure system stability.

In regard to the use of grade control structures, the feasibility report (page 4-3) states that, "Pool and riffle units provide a diverse range of hydraulic and biological niches that are critical to sustaining thriving river habitats". The use of this technique for sediment control is relatively new and few biological investigations have been completed. These structures do provide pool habitat as well as some degree of riffle habitat. However, the larger stone used for construction may not provide the critical habitats which are found in natural riffles. We recommend that (at a project specific level) the Corps adhere to any newly published scientific literature relevant to the specifications of pool-riffle complexes.

Backwater and Side Channels: Under Alternate 6, restoration is proposed for 12,000 acres in 60 of the approximate 100 backwaters on the IR system. The alternative calls for dredging an average of 200 acres per backwater, at an optimal level of 40 percent of the approximate average 500-acre backwater area. This would create optimal backwater and over-wintering habitat spaced approximately every five miles along the system. The alternative also calls for the restoration of 35 of the remaining 56 side channels in the IR and protection of 15 islands.

Because these very issues are also being studied and recommendations being made under the Corps' Navigation Study, if this authority moves forward, a much greater level of coordination needs to be initiated to insure that overlap and competition does not become an issue. The environmental restoration objectives of the Navigation Study may prove to be of vital importance to this effort and vice versa (see Chapter 8, Agency Coordination).

Floodplain, Riparian, and Aquatic Restoration: Restoration under Alternate 6 is proposed for 75,000 acres of mainstem floodplain (approximately 14.9 percent of total mainstem floodplain area) including approximately 31,700 acres of wetlands, 25,300 acres of forest, and 18,000 acres of prairie. Tributary restoration is proposed for 75,000 acres (approximately 8.8 percent of total tributary floodplain area) including approximately 47,600 acres of wetlands, 13,900 acres of forest, and 13,500 acres of prairie. Aquatic restoration is proposed for 500 miles of tributary streams (16.6 percent of the approximately 3,000 miles of channelized streams) with a mix of improved instream aquatic habitat structure and channel remeandering.

We agree that these types of habitat restoration are needed within the basin. Mainstem floodplain habitats have been lost at an alarming rate during the last century and have created the degraded system that we have today. It seems appropriate that a strong initiative of this goal should be to establish contacts and relationships with private floodplain landowners. These relationships will be vital in the establishment of restoration efforts. Funding to private entities should also be considered in order to create privately owned habitat projects within the floodplain.

As it relates to tributary floodplains and tributary streams, we encourage the project management branch of the Corps to work with their regulatory branch and coordinate information flow between one another. The regulatory branch of the Corps is the primary agency responsible for the issuance of Section 404 water quality permits and, as a result, has contacts with a significant number of tributary landowners who wish to channelize streams and/or alter wetlands that exist on their lands. With the cooperation of the regulatory branch, initial contacts could be made to minimize future stream impacts as well as identify past channelization projects using their R.A.M.S. database. This database is tied directly to a geographic information system and can be used to spatially assess potential project sites for restoration or preservation.

Connectivity: This alternative calls to restore fish passage at all mainstem dams on the Fox River, all dams on the West Branch of the DuPage River, all mainstem dams and one tributary (Salt Creek) of the Des Plaines River, Wilmington and Kankakee Dams on the Kankakee River, Bernadote Dam on the Spoon River, and the Aux Sable Dam.

Water Level Management: This alternative aims to create 107,000 acres of storage area at an average depth of 1.5 feet and 38,400 acres of groundwater infiltration, increase water level management at navigation dams using electronic controls and increased flow gauging. Results are predicted to include an 11 percent reduction in the five-year peak flows in tributaries, an overall average 20 percent increase in tributary base flows, and up to 66 percent reduction in the occurrence of half-foot or greater fluctuation during the growing season in the mainstem IR. This alternative also would see benefits accrue from drawdowns in the LaGrange or Peoria Pools.

Though sedimentation has been identified as a serious problem within the IR basin, uncontrolled fluctuations in the water levels of the IR also create a very significant problem for the ecology of the IR. These fluctuations create unstable substrates and produce undesirable water regimes in many of the backwaters. These problems combine to create a system that has lost and is unable to re-grow a significant percentage of its aquatic vegetation. Though cumulative benefits will be seen throughout the life of this project (as uplands and tributary watersheds are restored), priority should be give to measures which return some natural regime to the hydrology of the IR. Drawdowns within the LaGrange and Peoria Pools may prove to be extremely effective if annual base flows present the opportunity to sustain a pool-wide drawdown. Drawdown attempts are annually initiated on Pool 13 of the Mississippi River and similar drawdowns have been complete on Pools 8 and 25 on the Mississippi River. These projects on the Mississippi may present 'lessons learned' which could be utilized for the IR drawdown attempts.

Water Quality: This alternative is anticipated to improvement water quality due to reduced sediment, phosphorus, and nitrogen delivery. These improvements would result from sediment delivery reduction measures and water level management measures.

As an overall ecosystem restoration project, we anticipate that the IR will slowly regain some of its lost capacity to process excessive nutrient loads. In addition to the direct benefits in water quality due to the reduction of sediment loads, phosphorus and nitrogen, a healthy system will improve the overall water quality.

Chapter 5 - Existing Natural Resources in the Illinois River Basin

This chapter attempts to provide a general summary of habitat and land use characteristics, a list of public lands, and a general description of the current status and importance of natural resources within the IR basin. A more comprehensive overview of fish and wildlife resources, their habitats, and the physical and biological processes that affect them can be found in "Ecological impacts of navigation system development, operation, and maintenance" (Theiling 2000) and the April 2000 Draft Coordination Act Report from the Service to the Corps regarding the Navigation Study on the Upper Mississippi River System.

The Illinois River floodplain ecosystem is in a severely degraded condition. The most serious threats to the river during the last 100 years have been related to poor water and sediment quality, excessive sedimentation, exotic species, and isolation of the river main stem from its floodplain. In spite of the fact that water quality has improved greatly in recent decades, the river is currently unable to support the diverse assemblages of fish, wildlife, macroinvertebrate, and plant species that were present prior to 1900. Although protected and restored areas, particularly in the lower pools, provide important habitat for a variety of fish and wildlife species, additional conservation measures, rehabilitation projects, and long-term monitoring are needed to improve the condition of this once highly productive ecosystem.

Many sources of information were used to compile this chapter. The primary sources of information were the "Ecological impacts of navigation system development, operation, and maintenance" (Theiling 2000), and the *Ecological Status and Trends of the Upper Mississippi River System 1998* (Status and Trends Report) prepared by the Upper Midwest Environmental Sciences Center (UMESC) in Onalaska, Wisconsin (USGS 1999). The Status and Trends Report describes UMR and IR natural resources trends primarily based on monitoring data collected by the LTRMP in Pools 4, 8, 13, 26, and the Open River on the UMR and the LaGrange Pool on the IR. The natural resources inventory (described below) was also used as a source of fish and wildlife resource information.

Natural Resources Inventory

As a partner in river resource management, the Service initiated compilation of a Geographic Information System (GIS) database of natural resources for the UMR and IR in 1998. The primary objectives of the project were to: (1) Illustrate the spatial distribution of existing important habitats for fish and wildlife resources throughout the UMR and IR floodplain ecosystems, (2) Identify existing and potential navigation-related impacts to those resources, and (3) Identify potential mitigation opportunities.

The UMESC produced base maps for the project which contained land cover/land use classifications, river miles, wing dams, boat access points, refuge boundaries, levees, and topographic quadrangles. The base maps were used as a foundation to identify and digitize the following additional categories of information: bald eagle roosting and feeding areas, bald eagle nests, heron and egret nesting colonies, waterfowl use areas, migratory and resident bird habitats, mussel and fingernail clam resources, commercial fisheries, sport fisheries, fish over-wintering areas, fish spawning areas, other important fish habitats, reptile and amphibian use areas, mammal use areas, unique habitats, areas with potential for enhancement or restoration, navigation impact areas, and areas which have already been restored.

The Service completed the draft database which contained information gathered from existing literature and from over 60 river biologists and managers who participated in a series of 8 workshops held from June 1998 to February 1999. Workshop participants included representatives from the following Federal and state agencies: U.S. Fish and Wildlife Service, U.S. Geological Survey, U.S. Army Corps of Engineers, Minnesota Department of Natural Resources, Wisconsin Department of Natural Resources, Iowa Department of Natural Resources, Illinois Department of Natural Resources, and Missouri Department of Conservation.

Draft maps and tables were created and printed by UMESC and sent to over 100 professional biologists, managers, and university professors from the agencies mentioned above as well as the Nature Conservancy, National Audubon Society, Western Illinois University, and Midwest Raptor Research Fund for the technical review process. UMESC finalized the database consistent with the information and comments received during the review period, and hard copy atlases displaying all records with customized icons were printed (USFWS 2000b; USFWS 2000c). Table 5.1 and Figure 5.2 demonstrate the types of spatial and narrative information contained in the database and atlases. Table 5.1 represents all entries within the IR Natural Resource Inventory and contains 1277 records which are summarized by category and IR pool. Figure 5.2 is a spatial representation of the IR near the Tazewell and Mason County line.

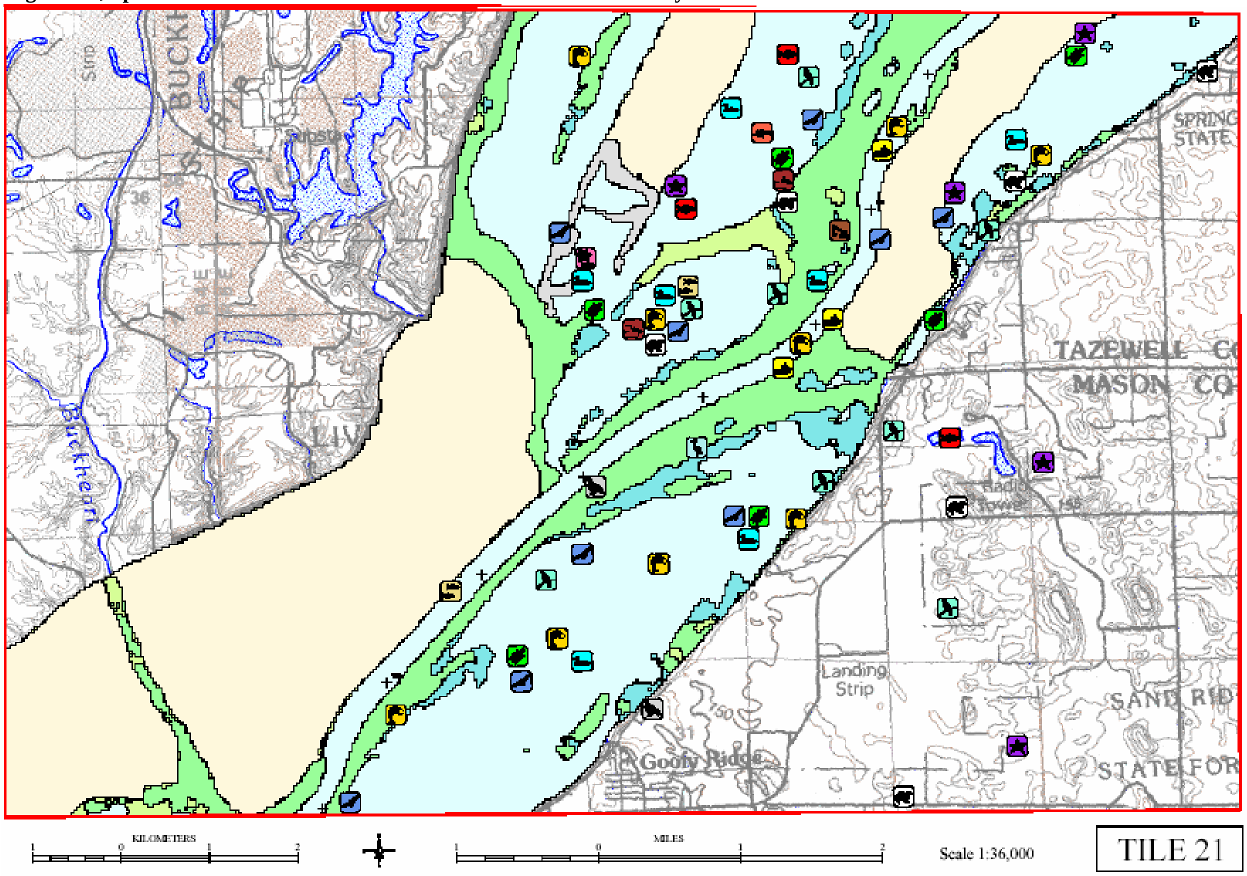
Although we caution against using this information for purposes other than making gross comparisons between areas or for making very generalized conclusions, this dataset presents a unique compilation of existing natural resources along the IR mainstem. Though not developed for this specific purpose, the inventory can act as a significant resource at the regional, systemic, and executive team levels of the IL 519 Study process. In addition, this tool (developed by a multidisciplinary team including the Corps and IDNR) could be utilized and improved/expanded for tracking additional restoration efforts which are funded or authorized under the IL 519 authority.

In addition to housing natural resource data, the inventory also contains a general reference for recreational use areas up and down the river. As an identified objective, the feasibility report states that ancillary recreational benefits would be seen through implementation of the IL 519 authority. The resource inventory could also assist with this objective.

Table 5.1, Number of records in the IR resources inventory data set by category and pool.

Resource Category	Pool								
	Alton	LaGrange	Peoria	Starved Rock	Marseilles	Dresden Island	Brandon Road	Lockport	**Total**
Migratory and resident birds	31	58	32	2	6	5	0	0	**134**
Waterfowl use areas	27	59	39	3	9	6	0	1	**144**
Heron and egret nesting colonies	3	4	2	0	0	0	0	0	**9**
Bald eagle nests	5	6	0	0	0	0	0	0	**11**
Bald eagle roosting and feeding areas	18	51	21	0	2	0	0	0	**92**
Fish over-wintering areas	9	12	4	1	2	0	0	0	**28**
Fish spawning areas	12	18	26	7	4	2	0	0	**69**
Sport fisheries	22	71	83	7	9	12	1	1	**206**
Commercial Fisheries	2	29	0	0	0	0	0	0	**31**
Other important fishery resources	6	7	6	3	2	0	0	0	**24**
Mussel and fingernail clam resources	18	15	7	2	2	0	0	0	**44**
Mammal use areas	9	23	12	2	4	0	0	1	**51**
Reptile and amphibian use areas	54	29	1	0	1	0	0	0	**85**
Unique areas	20	40	28	7	15	5	0	9	**124**
Areas with potential for enhancement	34	10	3	0	1	1	0	0	**49**
HREPs and other restored areas	9	9	2	0	0	0	0	0	**20**
Navigation impact areas	4	41	36	6	11	4	3	1	**106**
Total	**283**	**482**	**302**	**40**	**68**	**35**	**4**	**13**	**1227**

Figure 5.2, Spatial distribution of the IR near the Tazewell/Mason County Line



Floodplain Lands Managed for Fish and Wildlife Resources

Land management authorities vary in the IR corridor. Unlike the UMR, the Corps owns only a small amount of land in the IR floodplain, except in Alton Pool. Public lands along the lower IR are primarily owned and managed by the IDNR or the Service. Along the upper IR, public lands are managed by the IDNR or county forest preserve districts.

<u>National Wildlife Refuges:</u> Congress has placed over 16,000 acres of land and water in the IR floodplain into the National Wildlife Refuge System (Table 5.3). The commercial navigation channel passes along or through most of these tracts. Refuge lands along the IR are managed primarily for the benefit of fish and wildlife, but also contribute greatly to recreation, flood storage, and water supply functions of the system. These lands provide significant habitat for many animal and plant species which utilize floodplain habitats. Such habitat has been largely eliminated or is being developed or modified in many non-refuge areas.

Table 5.3, Summary of National Wildlife Refuge lands along the Illinois River

Illinois River National Wildlife and Fish Refuges	**Acres**	**Location**
Cameron-Billsback Unit	1,709	Peoria Pool
Chautauqua NWR	4,488	LaGrange Pool
Emiquon NWR	1,303	LaGrange Pool
Meredosia NWR	2,883	Alton Pool
Mark Twain National Widlfie Refuge Complex		
Two Rivers NWR	5,840	Alton Pool
Total IR acres in the National Wildlife Refuge System	**16,223**	

Two Rivers National Wildlife Refuge of the Mark Twain National Wildlife Refuge Complex includes over 5,800 acres along the lower portion of the IR, near its confluence with the UMR. The refuge has additional lands along the UMR. Key goals of the refuge are to conserve and enhance the quality and diversity of fish and wildlife and their habitats and to restore floodplain function in the river corridor. It is recommended that where appropriate, the IL 519 goals be coordinated with existing or draft refuge Comprehensive Conservation Plans (CCPs). These CCPs may present existing plans to increase fish and wildlife habitat and offer a roadmap to success in these areas without the need for extensive additional planning efforts.

State Managed Lands**:** The IDNR manages over 50,000 acres for migratory waterfowl and hunting at 23 sites along the IR, including 6 state parks and several boat access sites. In the Alton Pool, approximately 8,800 acres of Corps-owned lands are managed by IDNR. In general, management objectives of these lands are to provide refuge for fish and wildlife and to provide access and enhance opportunities for outdoor recreation including camping, hiking, boating, hunting, fishing, trapping, and wildlife observation.

Private Management: There is a considerable amount of fish and wildlife habitat controlled by private interests in the IR floodplain. Private duck hunting clubs manage approximately 60,000 acres of the floodplain (Havera 1995). The Illinois Chapter of The Nature Conservancy is restoring natural floodplain communities on former agriculture levee districts as part of an overall IR conservation plan. Among their goals is reestablishing the ecological processes that once supported the abundant and diverse biological communities along the river. Restoration has begun at their Spunky Bottoms Project, which consists of 1157 acres in Brown County. Plans include reestablishing wetland habitats and working with the Corps of Engineers on a Section 1135 project that will include a water control structure to provide a managed connection with the river. Planning is also underway for the Conservancy's Emiquon Project in Fulton County, where their recently acquired 7604-acre property will have over 6000 acres of restored open water, marsh, wet prairie, and bottomland hardwood habitats in the floodplain. The Wetlands Initiative is in the process of acquiring a 2500-acre drainage and levee district along the IR near Hennepin, and similar restoration efforts are anticipated.

General Habitat and Land Cover Characteristics

The IR floodplain has two distinct geomorphic reaches which cover a total of approximately 613,000 acres (Theiling 2000). The upper IR is a geologically young section of the river, extending upstream from the town of Hennepin, and the lower IR follows an ancient reach of the

Mississippi River, from Hennepin to Grafton, Illinois. Land cover types based on LTRMP 1989 data are summarized in Table 5.4.

The upper IR reach includes the Starved Rock and Marseilles navigation pools and is characterized by a steep gradient, narrow floodplain, and a lack of non-channel aquatic habitat. This reach accounts for only 10 percent of the total IR floodplain area.

Table 5.4, Percentage of land cover types in the Illinois River floodplain by upper and lower reaches (source: LTRMP 1989 data).

Land Cover Type	Upper Illinois River	Lower Illinois River
Aquatic Vegetation	1%	2%
Grasses/Forbs	12%	4%
Urban/Developed	20%	3%
Sand	<1%	<1%
Open Water	23%	16%
Agriculture	24%	61%
Floodplain Forest	21%	14%

The lower IR reach includes the Peoria, LaGrange, and Alton navigation pools and has a very broad floodplain, extensive backwaters, and a low gradient that drops less than one foot per mile. This reach accounts for 90 percent of the total area of the IR floodplain (Theiling 2000). Extensive sedimentation problems in this reach continue to threaten the productivity of backwater and main channel border areas. Floodplain development has isolated a majority of the floodplain from the main channel and many backwaters are now behind levees. For example, in the LaGrange and Alton Pools approximately 55 percent of the floodplain is isolated from the main channel.

Table 5.5, Historical overview of conditions on the Illinois River, 1900 to present.

Time Period	Description
pre-1900	Historically, the Illinois River was ecologically diverse and served as a nationally significant commercial fishery, sport fishery, and waterfowl hunting area.
1900	The Chicago Sanitary and Ship Canal was constructed, and water from Lake Michigan and sewage from Chicago were diverted into the Illinois River.
1910	The river's benthic organisms were destroyed due to the increased pollution and low dissolved oxygen levels.
1920	Aquatic plant beds had virtually disappeared from the river.
late 1920's - early 1930's	Sewage treatment plants were constructed in Chicago, resulting in improved water quality and dissolved oxygen levels in the river. Aquatic plant beds and macroinvertebrates returned.
1930's	The lock and dam system was constructed to support commercial navigation.
1955-1960	The river changed rapidly during this time frame, and a critical ecological threshold was broken. Macroinvertebrates and aquatic plant beds disappeared from the river, followed by a subsequent rapid decline in fish and wildlife populations. Accelerated de
1970's	The Clean Water Act of 1972 facilitated reductions in toxic waste and organic pollutant loads in the river, resulting in improved water quality. However, excessive sediment inputs as well as sediment resuspension continued to result in the loss and degra
1990's	The exotic zebra mussel (native to eastern Europe) entered into the Illinois River from Lake Michigan and spread rapidly throughout the river. Most native mussel beds in the river were infested by 1993.
2001	The Illinois River still has not recovered to an ecologically sustainable condition. In spite of the water quality improvements afforded by waste water treatment facilities, sedimentation, non-point source pollution, and poor water clarity remain serious

Overall habitat conditions on the IR have been severely degraded during the last 100 years. A historical summary of events and conditions on the river are provided in Table 5.5.

Water Quality: A number of factors including domestic sewage, industrial wastes, and agricultural land use practices have adversely affected water quality in the IR during the past 100 years. In the past 30 years, improvements in water quality have taken place with implementation of the Clean Water Act. However, runoff from urban areas and agricultural fields in the watershed continue to transport sediment, fertilizers, and pesticides into the waters of the IR. Waves generated by wind and commercial tows re-suspend fine sediments, resulting in ongoing poor water clarity. Sedimentation is perhaps the most serious problem threatening the river's resources today.

Fishery Resources: The distribution and relative abundance of fish are more completely known than most other faunal groups in the IR. A total of 150 species representing 27 families have been recorded from the waters of the IR and upper waterway, of which 66 are considered common to abundant (Havera et al. 1980). Considerable variation in numbers of species is found from upstream to downstream, with greater species diversity in the lower pools where more backwater lake habitats are available (Havera et al. 1980).

Fishery resources have been adversely impacted by a number of perturbations during the last 100 years, including industrial and municipal pollution, agricultural and urban runoff, extensive levees, loss of aquatic habitat due to sediment deposition, poor water clarity, and exotic species. Although fishery populations have fluctuated greatly during the last century and species composition has changed remarkably, the fishery has shown a strong recovery in recent years.

Recreational Fishing: The IR sport fishery has improved greatly since measures to reduce toxic waste and organic pollutant loads were enacted by public agencies in the 1970s. Estimated angling expenditures per day are $49.1 million for over two million sport fishing activity days. The IR averages over two million sport fishing days annually, or about 5 percent of the total fishing in Illinois. Game species commonly occurring in the IR include largemouth bass, white bass, smallmouth bass, sauger, channel catfish, drum, crappie, bullhead, bluegill, and miscellaneous sunfish such as the green and pumpkinseed.

Use of the sport fishery on the IR directly corresponds to the health and desirability of the fish population. A definite increase in sport fishing pressure has been noted in recent years. New recreation areas make boating access for fishing easier in the Tri-County area (Peoria) than in many areas along the river. The resurgence of the game fish population is being well utilized and fishing should remain good as long as water conditions remain favorable.

Commercial Fishing: Historically, the IR was a nationally significant commercial fishery. At the turn of the century, a 200-mile reach between Hennepin and Grafton produced 10 percent of the total U.S. catch of freshwater fish, more than any other river without a commercial anadromous fishery. During this time, about 180 pounds per acre were harvested. The commercial fishery declined during the 1950s and 'bottomed-out' in 1979, with a harvest of only 305,018 pounds.

However, the fishery has shown remarkable improvement since 1979. Data provided by the

IDNR indicates that the average annual harvest from the IR during the five-year period 1996-2000 was 923,094 pounds. In the year 2000, the total harvest was 796,360 pounds, with 48 percent coming from LaGrange Pool, 32 percent from Alton Pool, and 20 percent from Peoria Pool. In terms of biomass, the 2000 catch was comprised of 52 percent buffalo, 27 percent catfish, 11 percent common carp, 4 percent Asian carp, and 2 percent drum.

Mussel Resources: In 1900, approximately 40 mussel species occurred in the IR. However, mussel populations were decimated by a variety of perturbations encountered during the next several decades (Table 5.6). Since passage of the Clean Water Act in 1972, mussels have shown some signs of recovery. For example, the resource had recovered sufficiently to allow the harvest of 181 tons of mussels from the river in 1988 (Fritz 1989). Surveys conducted by the Illinois Natural History Survey from 1993 to1995 indicated that a number of species had begun to recolonize in several pools (e.g., 11 species in Marseilles Pool, 8 species in Starved Rock Pool, 15 species in Peoria and LaGrange Pools, and 17 species in Alton Pool) (USGS 1999).

Table 5.6, Numbers of freshwater mussels species by pool and year (Illinois Natural History Survey)

Navigation Pool	1870-1900	1906-1909	1966-1969	1993-1995
Marseilles	38	0	0	11
Starved Rock	36	0	0	8
Peoria	41	35	16	15
La Grange	43	35	18	15
Alton	41	36	20	17

However, further recovery of mussel resources remains threatened by the exotic zebra mussel, which was first documented in the IR in 1991. Zebra mussels entered into the IR via Lake Michigan and spread rapidly throughout the river. Most native mussel beds in the river were infested by 1993 (USGS 1999). One site near the confluence with the UMR had zebra mussel densities as high as 100,000 per square meter in 1993 (USGS 1999). As with mussels on the UMR, the future status of IR mussel fauna is very uncertain.

Birds: Historically, IR floodplain habitats have supported a wide variety of bird populations including waterfowl, colonial waterbirds, songbirds, wading birds, shorebirds, raptors, and woodpeckers. Prior to the 1950s, the IR floodplain was one of the most important waterfowl staging areas in the country (USGS 1999). Since then, however, human modifications to this floodplain ecosystem have resulted in habitat degradation and an associated decrease in bird use of the IR corridor. Dabbling duck populations on the IR have decreased steadily since the late 1940s as waterfowl migration routes have shifted from the IR to Pools 19-26 of the UMR (USGS 1999).

In spite of the overall degradation in habitat within the IR floodplain, protected and restored areas in the lower pools continue to provide important areas where waterfowl and other migratory birds can stop, rest, feed, and nest. The Alton, LaGrange and Peoria Pools support greater species diversity and higher numbers of migratory and resident birds than upstream pools (USFWS 2000b). The lower pools of the IR may provide benefits to as many as 264 bird species (USFWS 2001a).

The American Bird Conservancy has designated the Illinois River National Wildlife and Fish Refuges as an *Important Bird Area in the United States*, reflecting the importance of these areas to bird populations. In addition to supporting waterfowl, refuge lands are also known to support bald eagles and other raptors, colonial waterbirds, songbirds, wading birds, shorebirds, and woodpeckers (USFWS 2001a). Continued efforts to protect and restore habitats within the IR floodplain will be of benefit to many migratory bird populations over the long-term.

Mammals: A total of 28 species of mammals have been officially recorded in the Illinois River National Wildlife and Fish Refuges, including foxes, coyotes, raccoons, whitetail deer, badgers, beaver, muskrat, woodchucks, rabbits, squirrels, opossum, mink, and otter (USFWS 2001a). The federally endangered Indiana bat is also known to utilize forested habitats along the river and has been recorded within the IR floodplain in LaSalle, Pike, and Jersey Counties (Walters 2001). It is anticipated that future protection and restoration of floodplain areas would induce benefits to a wide variety of mammal species.

Reptiles and Amphibians: Wetlands and backwater lakes within the IR floodplain provide important habitat for a variety of reptiles and amphibians, including frogs, toads, salamanders, turtles, and snakes. As expected, the resources inventory (USFWS 2000b) shows that the Alton, LaGrange, and Peoria Pools in the lower IR are of particular importance for these animals. Further, the Illinois chorus frog, a state-listed species, has been recorded at several locations within the IR floodplain (USFWS 2000b). Protection and restoration of IR floodplain habitats should be considered an important component in the conservation of Illinois' reptiles and amphibians. Additionally, data gaps should be filled to better establish population status and trends.

Macroinvertebrates: Ammonia toxicity has been identified as a causal agent in the widespread disappearance of benthic macroinvertebrates on the IR during the mid-1950s (USGS 1999). Because these organisms play such an important role in the aquatic food web, declines in macroinvertebrate populations in the past have been linked to subsequent declines in fish and bird populations on the IR. Sparks (1984) identified the decline in benthic macroinvertebrates as an important causal factor in the decline of the IR commercial fishery since 1950. The shift in migratory bird use away from the IR in the 1950s is also likely directly related to the status of the macroinvertebrate community.

Today, macroinvertebrate communities continue to remain poor in the upper reaches of the IR, and fingernail clams and mayflies now only occur in low densities in the lower river reaches (USGS 1999). In contrast to the UMR, fingernail clam densities are higher in channel areas than in non-channel areas in the IR; this is probably attributable to the fine grained sediments in channel areas, lack of channel border habitats, and water and sediment quality problems in the backwaters of the IR (USGS 1999).

If habitat conditions in IR backwaters can be restored to support a more diverse, healthy macroinvertebrate community, then fish and waterfowl populations will also clearly benefit. Management strategies aimed at achieving this goal should be incorporated and prioritized in the IL 519 project authority and among all restoration efforts in the IR floodplain and watershed.

Floodplain Forests: Floodplain forest habitat covered 14.3 percent (or 78,467 acres) of the IR valley landscape in 1989 (USGS 1999). Although existing floodplain forest acreages have been greatly reduced in comparison to pre-settlement times, these habitats are still an important component of IR floodplain ecosystem. They provide important habitat for fish and wildlife during flood conditions, reduce soil erosion, and improve water quality. Floodplain forests are particularly important to migratory bird populations. Management actions, much like those at Pekin Lake, are needed to restore and enhance the quality of floodplain forests in the IR floodplain.

Aquatic Vegetation: Aquatic plant beds were well-established in IR backwaters prior to the 1900s. Organic pollution nearly eliminated these beds by 1922, but they returned in the late 1930s in response to waste water treatment (USGS 1999). In the mid-1950s, a critical threshold with respect to sediment problems was reached, and aquatic vegetation died out on the IR. This die-off was followed by backwater substrates becoming easily disturbed, an increase in turbidity, a shift in the fish community toward more tolerant species, and a shift in waterfowl migrations away from the IR. Aquatic plant beds have not recovered since the 1950s, and their distribution is primarily restricted to backwater areas isolated from the river (USGS 1999).

Aquatic plant beds perform a number of important ecological functions including: generation of dissolved oxygen, stabilization of substrates, filtration of suspended sediments, uptake of nutrients, supplying tubers as an important food source, providing habitat for invertebrate communities, and providing shelter for young and spawning fish (USGS 1999). Therefore, restoration of aquatic plant beds should be incorporated as an important objective for ongoing and future restoration projects in the IR floodplain.

Chapter 6 – Probable Future Conditions (with and without project)

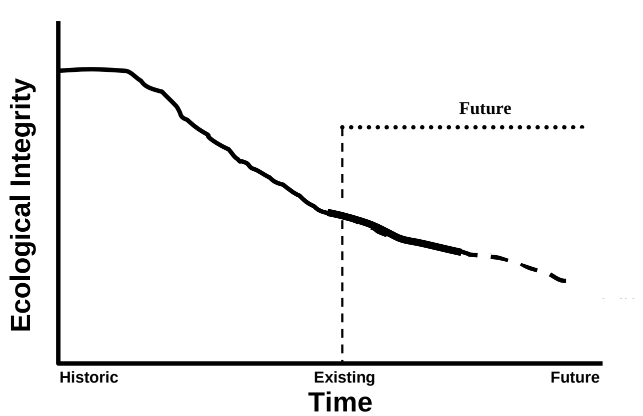
Over the past century, fish and wildlife habitats on the IR have been severely degraded by navigation activities, floodplain development, poor water quality (point and non-point source pollution), tributary watershed degradation, and exotic species introduction. Improved water quality in the last 30 years has resulted in significant beneficial effects on aquatic organisms, but overall the ecosystem is still declining. Although some biologists believe that the rate of degradation has subsided, many habitats and IR species populations are expected to degrade further in coming decades. The cumulative effects of navigation project operation and maintenance actions, impacts from floodplain development, continued sedimentation, continual degradation in tributary watersheds, un-natural hydrologic regimes, and the additional spread of exotic species will continue to degrade species diversity and habitat quality and quantity unless management actions are taken to reverse this trend.

As they are currently funded or structured, we agree with the Corps that the currently authorized restoration and management activities are not adequate to reverse the system-wide decline in fish and wildlife habitat that is occurring.

Future Without Project Condition

Based on assumptions, which are outlined by the Corps' Feasibility Study and have been documented by other environmental reports on the IR system regarding current conditions of the ecosystem and anticipated changes, it appears likely that the future without project conditions of the IR will continue to degrade from the present condition without management intervention. Figure 6.1 depicts future projected conditions of the IR as predicted by regional experts. These predicted conditions were established through expert panel discussions and extensive research efforts within the state and IR basin. This predicted degradation is well documented (see Status and Trends Report and the Upper Mississippi River and Illinois Waterway Cumulative Effects Study).

Figure 6.1, Predicted Future condition of IR w/out Project



**** Not to Scale – Illustrative Purposes only***

In addition to this feasibility study, another recent investigation makes predictions on the future of fish and wildlife resources on the IR and is used in this chapter to help describe probable future conditions without the project. This study is the *Upper Mississippi River and Illinois Waterway Cumulative Effects Study* (Cumulative Effects Study), also prepared by the Rock Island District Corps for the System Navigation Study (USACE 2000a; USACE 2000b). The Cumulative Effects Study analyzed historic photographs to quantify trends in aquatic habitat since river impoundment in the 1930s. Geomorphologists extrapolated the observed trends over the next 50 years. Biologists then interpreted what effect these aquatic habitat changes would have on fish and wildlife. The Cumulative Effects Study has some significant limitations. It does not address terrestrial habitat changes which are critical to ecosystem health, and depth was not included as an aquatic parameter which seriously impaired the evaluation of changes in habitat quality.

For the purposes of this study, the future without project analysis was defined as follows. The without project condition is what the river basin and its uses are anticipated to be like over the 50-year planning period without any restoration implemented as part of the study. Of general concern to the Service is the lack of the future without project analysis to address the likelihood of environmental restoration occurring within the IR basin as part of the Navigation Study being completed by the Corps. If, however, the Corps is making an assumption that that the future only includes continued operation and maintenance of the 9-foot Channel Project and no significant changes related to environmental restoration, then that assumption should be described within the feasibility report.

The Rock Island District has the responsibility for completing both the IL 519 Study and the Navigation Study and should produce an analysis of future condition based on the co-inhabitance of the two authorities.

Corps of Engineers Cumulative Effects Study

The Corps' Cumulative Effects Study predicts changes in UMR and IR aquatic habitat likely to result from multiple influences (e.g., floodplain development, changes in water quality, and sediment input from the watershed), not just navigation traffic-related effects. Trends in floodplain terrestrial habitat were not analyzed since the Corps' focus was on aquatic habitats potentially affected by navigation traffic. Despite some serious limitations, the study still provides a useful forecast of future trends in fish and wildlife aquatic habitats.

General conclusions drawn by the geomorphic analysis of the IR include the following:

1. The flow along the IR is affected by numerous man-made and natural influences including structures to operate and maintain the 9-foot navigation channel. These include levees, wing dams, bridges, channel erosion and sedimentation, dredging, locks and dams, dams and reservoirs on tributaries, watershed land use, consumptive water use, and potentially climate change.

2. River stages within the IR navigation pools are significantly influenced by the operation of the 9-foot Channel Project locks and dams.

3. The 9-foot Channel Project and levees have influenced river stages within the IR. The construction of levees along the IR has isolated large portions of the floodplain from the river and reduced available flood storage capacity.

Regarding predictions for aquatic habitat changes, the Cumulative Effects Report estimates the following:

With respect to the IR and upper waterway, the report states that significant portions of existing backwater areas would be converted to marsh or wetland by the year 2050, referring to the work of other investigators. The report concludes that "...little overall change has occurred along the main channel from the confluence with the UMR upstream to the Brandon Road Lock and Dam." These statements are very consistent with the finding of the IL 519 Study and underline the significance of the sedimentation issues in the IR basin.

Predictions made by the Cumulative Effects Study for the IR are summarized in the following table (Table 6.2).

Table 6.2, Summary of aquatic habitat changes on the Illinois Rivers (summarized from the Corps' Cumulative Effects Study (USACE 2000a; USACE 2000b)).

	Habitat Trends	Animal/Plant Trends
Illinois River	Significant loss of backwater lakes anticipated due to sedimentation. No change in main channel habitat.	Main channel species will remain stable, but backwater guilds will likely decline.

The following aquatic guilds were assessed in the Cumulative Effects Study based solely on general planning information. No depth data was available and no field testing was conducted. Thus, the assessment is limited to assumptions based on increasing or decreasing aquatic surface area. The IL 519 Study Feasibility Report also addresses these issues and concluded with similar findings. The following sections include a summary of the IL 519 Study, a summary of the Cumulative Effects Study, and our analysis for each aquatic guild.

Aquatic Vegetation: The IL 519 Study concluded that on the mainstem IR, submersed aquatic plants died off in the mid-1920s. In the late 1930s, these plants made a brief recovery in response to early wastewater treatment efforts. By the 1950s, aquatic plants reached a critical threshold, in relation to sediment and wave-related problems, from which they have not recovered. Currently, submersed aquatic plants are found only in isolated areas of the mainstem. This loss of vegetation has lead to easily disturbed backwater substrates, increased turbidity, poorer habitat conditions, and fish communities increasingly dominated by species tolerant of low dissolved oxygen and poor habitat. Waterfowl, particularly diving ducks, have shifted their migrations away from the IR. Limiting factors to submersed aquatic plant recovery include sediment quality, excessive sedimentation and turbidity, rough fish activity, and unstable water levels.

The Cumulative Effects Study concludes that many areas will only sustain their productivity with the assistance of habitat improvement projects such as the EMP, water level management, and island stabilization. These improvements are needed to maintain no net loss due, in part, to the ongoing 9-foot Channel Project with increasing traffic. Without such improvements we can anticipate that continued sedimentation and attendant turbidity will lead to further degradation of aquatic plant diversity and productivity.

Waterfowl and Wetlands: The IL 519 Study concluded that there were declines in diving ducks (essentially gone since the 1950s) and dabbling ducks (80 percent decline in mallard populations) in the basin, documented and summarized by the Illinois Natural History Survey. These losses can be linked to a loss of food sources (aquatic plants and macroinvertebrates) in the 1950s and ongoing habitat degradation and loss. On the mainstem, habitat conditions are typically favorable only in areas isolated from the river. The loss of aquatic plants and the benthic community were identified as limiting factors on waterfowl populations.

The Cumulative Effects Study concluded that diving ducks such as canvasback and scaup feed on aquatic vegetation and invertebrates during their fall migration. Impounded areas above certain Locks and Dams and backwater areas are especially important. Future use of the UMR (specifically the IR valley) by diving ducks will depend on the availability of these food resources. Any factors affecting aquatic vegetation and invertebrates in the impounded areas will likely cause a similar response to the numbers of diving ducks using the areas. With up to 50 percent of the canvasbacks in North America using the Mississippi River basin, protection and enhancement of these resources is critical.

Fish: The IL 519 Study concluded that fish populations and diversity are thought to be stable in the lower pools and still improving in the upper pools, though at lower levels than those estimated prior to European settlement. The long-term outlook may be for populations and native species diversity to decline gradually (increasing invasive species, suitable habitat declining, and loss of mainstem benthic community).

The Cumulative Effects Study concluded that in recent decades, as water quality has improved, so have fish populations. Some species of fish which prefer high velocity main channel and side channel habitats are very healthy such as walleye, channel catfish, drum, and shovelnose sturgeon. Despite impediments such as navigation dams which block fish movement, these fish populations will likely remain stable or increase in the future. The pallid sturgeon, however, may be on the verge of extinction due to habitat loss in the unimpounded reach of the Mississippi River and lower reach of the IR. Other fishes that prefer backwaters and low velocity waters such as buffalo, bluegill, largemouth bass, and crappie are likely to decrease in number as suitable backwater habitats are lost to sedimentation, unless management actions reverse this trend. Suitable overwintering areas may become scarce, affecting entire fish communities within pools that cannot navigate to suitably deep areas to overwinter.

Freshwater Mussels: The IL 519 Study concluded that mussels had historically declined in response to over-harvesting and poor water quality, as well as ongoing problems with excessive sedimentation. After initial efforts to improve water quality, mussel populations also improved. This improvement was most evident in the upper river, where water quality impacts were most severe. Commercial mussel harvests have resumed in the lower mainstem pools. However, the general trend is still declining (numbers and species), attributed to excessive siltation, loss of habitat, chemical pollution (including herbicide and insecticide runoff), and competition from exotic species (zebra mussels).

The Cumulative Effects Study concluded that unionid mussels are one of the most important invertebrate groups on the river. Generally, mussels prefer coarse and firm stable substrates where several species may aggregate in groups known as “mussel beds.” Since the early 1900s, sedimentation has caused a significant loss of suitable mussel habitat throughout the IR. Construction of channel regulatory structures, such as wing dikes, has also eliminated significant areas of habitat in the main channel border and side channels. Some loss of habitat is likely to continue from these activities.

Potentially, the most significant threat to the future of IR mussels is the threat posed by the exotic zebra mussel. Limited sampling of mussel beds in early 2000 indicated that large numbers of native mussels were being killed by zebra mussel infestation. However, early sampling in 2003 and 2004 indicates that zebra mussel infestations may be declining and native unionids beds are stabilizing (Don Helms, aquatic ecologist, pers. com. 2004). This trend is likely to fluctuate as is typical of exotic species population dynamics, which create peak and bust-type cycles. River biologists are thus expecting the zebra mussel population to rebound and see lasting effects from this invasion. Although much has been learned, there is much more to learn about the impacts of this exotic mussel. It is assumed that native unionids will continue to decline over the next 50 years.

<u>Macroinvertebrates</u>: The IL 519 Study concluded that long-term widespread declines in benthic macroinvertebrates are linked to domestic and industrial pollution, metal contaminated sediments and ammonia, as well as increasingly silty substrates. These declines have had adverse effects on river fishes and birds. Because of their wide distribution and potential to exhibit dramatic community changes when exposed to water and sediment pollution, they are ideal indicators of environmental quality.

The Cumulative Effects Study predicts that burrowing invertebrates could decline in the future as sedimentation continues. This group of animals includes mussels, fingernail clams, mayflies and other insects, and worms. Continued sedimentation and turbidity, aggravated by navigation and tributary watershed degradation, will further degrade aquatic habitats used by macroinvertebrates.

<u>Floodplain Forests</u>: The IL 519 Study concluded that floodplain forests have been severely impacted by habitat loss, altered hydrology, fire suppression, and increasing fragmentation. Invasive species are becoming more common, primarily in the understory. In addition, higher water tables associated with the navigation pools have reduced, and in some areas, eliminated mast tree regeneration. More flood and water tolerant species, such as silver maple, have become the dominant species and species diversity is decreasing. Timber harvesting of maples is becoming increasingly common, leading to further losses in forested areas and increasing forest fragmentation. Without restoration efforts in both reestablishing forests and restoring species diversity, forests and forest-dependent species will continue to decline.

The Cumulative Effects Study concluded that agricultural and urban development have caused a significant loss of floodplain forest along the IR. IR floodplain forests are heavily influenced by water stage. The water level alterations of the early 1900s and navigation locks and dams of the 1930s severely altered the floodplain forests of the system. Most notably these changes led to more flood tolerant trees and the loss of a significant portion of the mast producing tree species. In addition to these early twentieth century changes, the flood of 1993 caused significant mortality in many of the remaining forest stands along the IR, particularly in the lower reaches. Elevated water levels from river impoundment continue to stress forests and hamper regeneration. Acreage of willow and cottonwood communities is predicted to decline further in the impounded reaches, but remain at the same level in the unimpounded reach. In the areas heavily impacted by sedimentation, patches of willow and cottonwood seedlings have since colonized openings created by the flood of 1993.

Amphibians and Reptiles: The Cumulative Effects Study concluded that turtles, frogs, snakes, toads, and salamanders comprise some of the least studied fauna on the floodplain. Most of these animals favor backwater shallow wetland habitats. Their diversity is promoted by isolation from predators. For this reason, they are likely to decline in diversity as isolated wetlands in the floodplain decline, and also in numbers where backwater habitats are also declining from sedimentation.

Migratory Birds: The Cumulative Effects Study concluded that bottomland forest habitats support significant numbers of migratory birds such as songbirds, bald eagles, herons, egrets, and ospreys. Shorebirds use shallow wetlands and mud flats. Red-shouldered hawks, which are a state endangered species in Illinois, are dependant upon larger contiguous forest tracts which are now found primarily along the river. Declines in songbird use and diversity may be inevitable if forest habitat continues to decline.

Ecological Integrity: Based on all the factors above, the general ecosystem integrity, or health, of the Illinois River Basin is still declining in spite of the dramatic water quality improvements made as a result of the Clean Water Act. Pressure on the remaining habitats will continue to increase as the population increases. Finally, changes to the ecosystem over time have been dramatic. Current trends may be difficult to reverse and will require significant commitments of resources and time.

USGS Status and Trends Report

In addition to the Cumulative Effects Study and this feasibility report, the USGS Status and Trends Report (USGS 1999) evaluated the present status and makes predictions for three reaches of the UMR and the lower reach of the IR with respect to six criteria. These six criteria are as follows.

Table 6.3, Summary of Status and Trends Criteria for the IR

CRITERIA	Illinois River Lower Reach
Viable Native Populations & their Habitats	Degraded & stable
Ability to Recover From Disturbances	Degraded & stable
Ecosystem Sustainability	Degraded & declining
Capacity to Function as part of a Healthy Basin	Degraded & stable
Annual Floodplain Connectivity	Degraded & stable
Ecological Value of Natural Disturbances	Degraded & stable

1. The ecosystem supports habitats and viable native animal and plant populations similar to those present prior to any disturbance.

2. The ecosystem is able to return to its pre-existing condition after a disturbance, whether natural or human-induced.

3. The ecosystem is able to sustain itself.

4. The river can function as part of a healthy basin.

5. The annual flood pulse “connects” the main channel to its floodplain.

6. Infrequent natural events such as floods and droughts are able to maintain ecological structure and processes within the reach.

Each river reach was graded for the six criteria as being degraded, heavily impacted, moderately impacted, or unchanged/recovered. Future trends for these criteria were then forecast for each river reach. Trends for each criteria can be stable, improving, or declining. A summary of the report's evaluation for the IR is presented in Table 6.3.

The USGS report predicts that habitats in the IR will continue to degrade overall from sedimentation and erosion because the river's natural processes are unable to function. Habitat projects to reestablish terrestrial and aquatic structural diversity are needed to offset deteriorating habitats. Point source pollution, high sediment loads from the watershed, agricultural run-off, and introduction of exotic species will continue to pose threats.

The combination of floodplain isolation, sedimentation, altered water regimes, and poor sediment quality make any short-term reversal of IR degraded habitats unlikely. Each of these factors is so degraded that improvement of any one alone may not result in much overall benefit.

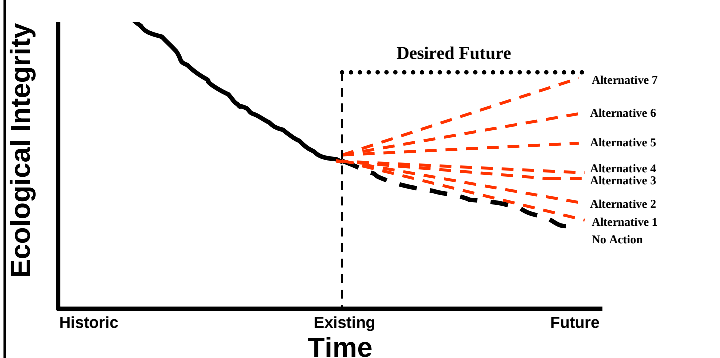
The USGS report concluded that in order to maintain the current ecological conditions of the IR system and to restore degraded functions, a significant increase in restoration activities is needed.

Future With Project Conditions

The Corps has hosted a series of meetings between the IDNR, the Service, The Nature Conservancy, and other interested parties over the past two years to discuss and outline expected future conditions of the IR. During these meetings, future desired environmental conditions and measurable targets were discussed and established for the key categories of fisheries, waterfowl and wetlands, mussels, macroinvertebrates, aquatic vegetation, forests, and ecological integrity (please see Section III, page 3-47 of the feasibility report for specific targets by category). Representatives of each agency also discussed and identified the system alternative which was most likely to address the serious ecological problems facing the IR and that would obtain the future desired conditions. Alternatives 6 and 7 were chosen as most likely to create the desired future conditions and ultimately Alternative 6 was chosen as the preferred alternative. Figure 6.4 presents the probable future conditions of the IR under each of the system goals evaluated.

Restoration Alternatives

Figure 6.4, Predicted Future condition of IR with Project by Alt



** Not to Scale – Illustrative Purposes only*

When undertaking a restoration initiative of this scale, it is important that key priorities be established to alleviate future competition of limited funds and resources. For that reason, the IL 519 Study group has discussed the importance of criteria prioritization and has established the following list of priorities:

1. Habitat restoration and/or protection projects should be closely coordinated and combined with projects developed under other goals and authorities, in order to maximize systemic ecological integrity and effectiveness of restoration efforts and dollars.

2. The assessment process should focus on quality of the habitat and the presence of threats for the area under consideration. Those areas threatened most immediately should be targeted for protection.

3. Connectivity to the IR and major tributaries and between protected areas should be key focus area.

4. Preference should be given for improving and protecting existing moderately degraded habitat areas near rare and unique communities.

5. Give special consideration to rare areas.

6. Alter hydrologic regime most relevant disturbance regime to encourage species regeneration.

7. Terrestrial patch size recommendations (amount shown or greater):

    a. Bottomland hardwood forest = 500-1000 acres; 3000 acres needed for some interior avian species.

    b. Grasslands = 100-500 acres.

    c. Nonforested wetland = 100 acres, spaced 30-40 miles apart.

    d. Riparian zone = 100 feet each side; 200-300 feet wide total.

8. Aquatic habitat recommendations:

    a. Mainstem backwaters/side channels $\geq$ 6 feet deep, spaced 3-5 miles apart.

    b. Instream riffles – Depending on the size of the stream, the number of structures required ranges from 4 per mile for large tributaries to 22 for minor tributaries.

Though we understand that future issues may alter these priorities, it should be stressed that this list was established through agency discussion and was agreed upon at several group meetings. This list should be used to guide planning efforts at the regional team, system team, and executive team levels.

Chapter 7 – Endangered Species Consultation

The Endangered Species Act (ESA) directs all Federal agencies to work to conserve endangered and threatened species and to use their authorities to further the purposes of the Act. Section 7 of the Act, called "Interagency Cooperation," is the mechanism by which Federal agencies ensure the actions they take, including those they fund or authorize, do not jeopardize the existence of any listed species.

Consultation under the ESA for the Illinois River 519 Study was initiated by a letter from Mr. Kenneth A. Barr, Rock Island District Corps of Engineers, dated August 2003. The letter requested a list of federally threatened and endangered species occurring within the project area, which was considered the entire Illinois River Basin within the boundaries of the State of Illinois. This information is provided in Table 7.1.

Table 7.1, Federally Listed Threatened or Endangered Species within the IR basin

	Status	Common Name (Scientific Name)	Habitat
Birds	Threatened	Bald eagle (*Haliaeetus leucocephalus*)	wintering and breeding
Mammals	Endangered	Indiana bat (*Myotis sodalis*)	caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
		Gray bat (*Myotis grisescens*)	caves and mines; rivers & reservoirs adjacent to forests
Plants	Endangered	Leafy prairie clover (*Dalea foliosa*)	prairie remnants on thin soil over limestone
		Pitcher's thistle (*Cirsium pitcheri*)	only on shorelines or sand dunes of the Great Lakes. *believed to be extirpated from Illinois
	Threatened	Decurrent false aster (*Boltonia decurrens*)	disturbed alluvial soils
		Eastern prairie fringed orchid (*Platanthaera leucophaea*)	mesic to wet prairies
		Lakeside daisy (*Hymenopsis herbacea*)	dry rocky prairies
		Mead's milkweed (*Asclepias meadii*)	virgin prairies
		Prairie bush clover (*Lespedeza leptostachya*)	dry to mesic prairies with gravelly soil
Invertebrates	Endangered	Hines emerald dragonfly (*Somatochlora hineana*)	spring-fed wetlands, wet meadows and marshes
		Karner blue butterfly (*Lycaeides melissa samuelis*)	pine barrens and oak savannas on sandy soils and containing wild lupines (*Lupinus perennis*), the only known food plant of the larvae.
Mussels	Endangered	Clubshell mussel (*Pleurobema clava*)	riverine habitats.
Reptiles	Candidate	Eastern massasauga rattlesnake (*Sistrurus c. catenatus*)	shrub wetlands

The Illinois River Basin is host to 13 federally threatened or endangered species, one candidate species, and numerous state threatened or endangered species. We offer the following description of how projects proposed and planned under the IL 519 authority would comply with the Endangered Species Act of 1973, as amended.

To comply with ESA at the program level (i.e. this feasibility report), a programmatic consultation must be completed. The programmatic consultation may be completed before or after project authorization. However, it must be completed before construction begins or any irretrievable commitment of resources is made.

It is the Federal action agency's responsibility to fulfill Section 7 consultation. It has been our recommendation to the Corps that consultation be initiated and completed in advance of authorization of the IL 519 program. However, the Corps has chosen to fulfill their responsibility under the ESA after the program receives congressional authorization. At that time, the Corps will complete a programmatic Biological Assessment (BA) and consult with us to identify and avoid, to the extent feasible, impacts to all federally threatened or endangered species within the IR basin.

A major purpose of this study is to benefit fish and wildlife of the IR Basin. No specific projects will be approved or constructed prior to the completion of the forthcoming programmatic BA, and consultation with the Service under Section 7 of the ESA has been completed. If additional consultation under Section 7 of the ESA is required for site specific projects which have impacts or actions not covered under the programmatic documentation, then independent consultation will be initiated and completed at that time. All future activities under this potential authority will be coordinated through the appropriate USFWS office.

Chapter 8 – Program/Agency Coordination

Coordination between the Service and the Corps

Service staff have been actively involved in the IL 519 Study process and with the project team by attending meetings and providing comments on draft documents. In addition to present coordination efforts, increased coordination will be needed during implementation, at a site specific level. National Wildlife Refuges, Partners for Fish and Wildlife (PFW), and other Service interests can help to achieve many of the goals outlined by this feasibility report. It is our interest to be an active team member at the Regional Team level, as well as at a system-wide management level.

Partners for Fish and Wildlife: The PFW program through the Service has restored thousands of acres of natural habitats within the State of Illinois. Although not all within the IR basin, Table 8.1 outlines the Service's conservation efforts within the State of Illinois through this program and the associated acreages restored. This program operates out of the Rock Island Field Office and our National Wildlife Refuge offices. It is a very effective and efficient way of restoring habitats. It should be considered for partnership in future goal attainment calculations. During fiscal year (FY) 2003 alone, the PFW program restored approximately 2,015 acres of habitat within the state. In addition, the PFW is an active partner with USDA programs. Together they work with interested landowners on land conservation through either USDA or PFW programs. Service biologists within the PFW program frequently work with the county NRCS district conservationist, state biologists, and many other conservation authorities throughout the state. Through the combination of the effectiveness of the program and the strong relationships among natural resource managers, the program has become very successful.

Table 8.1, PFW restoration in IL (IL PFW Coordinator Wayne Fischer, pers. Comm.)	
Wetland basins	1987-2003, PFW has restored 376 wetland basins consisting of 7,581 acres
Upland restoration	1991-2003, PFW has restored 46 upland areas consisting of 1,603 acres
During FW 2003	PFW has restored 20 basins totaling 2,015 acres.

Coordination Needs

General agency coordination has been conducted between the IDNR, USACE, USFWS, and many other interested parties regarding the IL 519 Project. However, intensive collaboration and program integration between the IDNR/USACE and the NRCS, SWCD, friends groups, ecosystem partnerships, conservation clubs, TNC, Wetland Initiative, private stakeholders, etc. is needed for the successful development of specific projects. Many of these established entities are vital to the achievement of the system goals as outlined by the IDNR and Corps. It may be appropriate for the Corps to investigate avenues of providing funding to these groups to implement small scale projects that can achieve cumulative success at the watershed scale. It would also appear counterproductive for the Corps to spend project dollars preparing plans and specifications for project features that may or may not already be planned by other agencies (i.e. stream bank stabilization features, etc.).

As stated in the 'Significance of the Illinois River Basin' section of the executive summary report, "local communities, counties, and non-governmental organizations have developed approximately 40 management plans calling for restoration of all or a portion of the Illinois River Basin". Yet nowhere within the feasibility report does it outline how those management plans would be utilized under this authority or even complimented by this authority. It also isn't clear how, if implemented under separate funding, these management plans would be incorporated into the desired future conditions of the goal categories, most notably Goal #1 (sediment load reduction) and Goal #6 (improve water and sediment quality). Significant benefits are seen annually through projects implemented by SWCD, local NRCS, IL EPA, the Service, and other conservation agencies. These benefits should be acknowledged in future desired conditions.

<u>Upper Mississippi Environmental Management Program</u>: The most significant approved system-wide effort to enhance and restore UMR and IR fish and wildlife resources is the habitat rehabilitation enhancement projects (HREP) being constructed by the EMP. The EMP was first authorized by the Water Resources Development Act of 1986 (PL 99-662) and permanently authorized in that Act in 1999. The objectives of most HREPs are to restore fish and wildlife habitats degraded by sedimentation. As of 1997, approximately 28,000 acres (or about 1 percent) of the UMR-IR system have been enhanced through this program. In the future over 100,000 acres (or approximately 3.6 percent) of UMR-IR floodplain habitat may be enhanced.

EMP habitat restoration projects have helped reverse habitat decline within their immediate areas. The projects have been typically designed to achieve a select number of objectives such as migratory bird habitat, improved aquatic vegetation, fish overwintering, or bottomland hardwoods. However, in practice, each project has provided multiple fish and wildlife benefits.

For many EMP habitat projects, there is significant maintenance cost for structural upkeep. In the future, short-term mini-projects with little or no maintenance may prove to be more cost effective.

The Service is a strong proponent of the EMP. However, as it is currently funded or structured, we do not believe that the EMP alone can reverse the system-wide decline in fish and wildlife habitat that is now occurring. Future EMP habitat projects must be able to address the systemic driving variables as well as the localized symptoms of habitat decline. It has become apparent that the EMP, IL 519, navigation-related mitigation, and other similar projects need to be integrated into an overall ecosystem management program. The IL 519 Feasibility Report does not adequately describe these relationships. Much effort during the plan formulation was directed to identifying resource problems, opportunities, and ecosystem goal identification. However, more attention is needed toward agency collaboration and program integration needed to successfully restore the IR ecosystem.

<u>USDA Programs</u>: Several USDA programs provide funding to agricultural producers in support of environmental objectives, generally administered through the local NRCS field offices. The Environmental Quality Incentives Program (EQIP) provides technical, financial, and educational assistance to farmers and private landowners who are faced with serious threats to soil, water, and related natural resources. Working with approximately 2,400 landowners within the Illinois River Basin, the EQIP program has expended approximately $2.9 million for financial and educational assistance to treat natural resources concerns on approximately 250,000 acres. The

Wildlife Habitat Incentive Program (WHIP) has provided approximately $250,000 of assistance to develop and improve wildlife habitat on private lands within the Illinois River Basin.

The Wetland Reserve Program (WRP) increases wildlife habitat and improves water quality by providing additional wetland habitat, slowing overland flow, and providing natural pollution control. To date, approximately $3.4 million has been spent in the Illinois River Basin to restore 2,300 acres of habitat on 13 properties. Also, the Conservation Reserve Program (CRP) enrollments beyond the Conservation Reserve Enhancement Program (CREP) enrollments provide additional in-place conservation practices facilitating resource management in the Illinois River Basin. Finally, the Forestry Incentives Program provides an avenue of assistance to private landowners for planting trees, improving timber stands, as well as other non-industrial private forest land practices.

In April 1997, the USDA officially launched the National Conservation Buffer Initiative and pledged to help landowners install 2 million miles of conservation buffers by the year 2002. The initiative is led by the NRCS (in cooperation with the Agricultural Research Service, Farm Service Agency, Forest Service, and Cooperative State Research, Education, and Extension Service), state conservation agencies, conservation district, and numerous other public and private partners. The National Conservation Buffer Initiative encourages farmers and ranchers to understand the economic and environmental benefits of buffer strips and use these practices through the various programs of the conservation tool kit. Programs used for this effort include the continuous CRP sign-up, as well as the EQIP, WHIP, WRP, Stewardship Incentives Program, and Emergency Watershed Protection Program.

USDA programs have been very successful in the relative short time frame in which they have been in existence. Specific lessons learned through this program should prove to be invaluable to the IL 519 Study team as they work to establish similar achievements as has the USDA within the IR basin. Again, we encourage the Corps to investigate opportunities to assist in the funding of specific USDA type programs which perhaps already have landowner contacts and have identified prime project sites to meet or address one of the seven environmental restoration goals.

Coordination Within the Rock Island District Corps

Section 404 Regulatory Branch: As the primary regulator of Section 404 permits, the regulatory branch of the Rock Island District plays an extremely important role in this restoration initiative. It appears that many beneficial projects could be targeted by contacts made through the regulatory branch. Interested and willing landowners could be directed to contact key members of regional teams for assistance in stream restoration (as opposed to channelization), wetland protection (as opposed to draining), and many other important habitat protection measures.

Relationship of the IL 519 Study to the Navigation Study**:** The feasibility report written for the IL 519 Study states on page eight, third bullet under Assumptions and Exceptions that: "The Comprehensive Plan (IL 519 Study) will develop recommendations consistent with the Upper Mississippi River-Illinois Waterway System Navigation Feasibility Study and the Upper Mississippi River Comprehensive Plan projects, but will not duplicate efforts and investigations regarding transportation and flood protection needs". However, significant duplication is noted between the restoration measures and intensities of those measures within the two programs' preferred alternatives. The Service strongly recommends that these two initiatives be more closely coordinated with one another and potentially integrated as part of one another.

Table 8.2, Comparative restoration of IL 519 and the navigation study.

Restoration measures by alternative through Navigation Study (Reach 4: Illinois Waterway)						
Ecosystem Measure	**Alternative A**	**Alternative B**	**Alternative C**	**Alternative D**	**Alternative E**	**Virtual Reference**
Island Building	0	3	4	4	4	4
Fish Passage	0	0	0	0	5	5
Floodplain Restoration	0	0	0	4	14	15
WLM - Pool Scale	0	0	0	0	0	0
WLM- Backwater	0	0	0	1	1	1
Backwater Restoration (Dredgi	**0**	**340**	**680**	**920**	**1,040**	**1,120**
Side Channel Restoartion	0	20	30	34	36	39
Wing Dam/Dike Alteration	0	3	3	3	3	3
Island Protection	0	15	15	15	15	15
Shoreline Protection	0	59	59	59	59	59
Topographic Diversity	0	0	0	0	0	0
Dam Point Control	0	0	0	0	0	0
Floodplain Restoration-Im.Op.	0	2	2	2	2	2
Total	0	119	147	168	191	199
Percent of Total	0	60%	74%	84%	96%	99%
* BW dredging was assumed at a 20 acre footprint		* information provided at NAV Study Public Meeting October 2003				

Restoration measures by alternatives of the IL 519 Authority							
Ecosystem Measure	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 4**	**Alternative 5**	**Alternative 6**	**Alternative 7**
Island Building	0	0	0	0	0	0	0
Fish Passage	0	0	0	3*	6*	6*	9*
Floodplain Restoration (Main Stem)	5,000	5,000	20,000	5,000	40,000	75,000	150,000
WLM - % Peak Reduced	1.50%	2.50%	2.50%	7.50%	7.50%	7.50%	15.00%
Backwater Restoration (Dredgin	**3,600**	**6,100**	**8,600**	**6,100**	**8,600**	**12,000**	**18,000**
Side Channel Restoartion	10	20	30	20	30	35	40
Island Protection	10	15	15	15	15	15	15
Shoreline Protection	0	0	0	0	0	0	0
Total acres restored	8,600	11,100	28,600	11,100	48,600	87,000	168,000
% of Total that is BW dredging	42%	55%	30%	55%	18%	14%	11%
		* represents fish passage at Fox, DuPage, DesPlaines, Kankakee, Spoon, Aux Sable, then 3 main stem dams in that progressive order					

Particular discrepancies exist between many of the main stem systematic issues and restoration efforts. These discrepancies subsequently produce much overlap between the two authorities. This overlap, though understandable, would be inefficient and unproductive as these two important authorities move forward to construction. Much of this potential duplication could be avoided if new institutional arrangements would be established. A new institutional framework should be considered that provides a central forum for integrating the IL 519, EMP, Navigation Study, and others (e.g. 1135, 206, and Comprehensive Plan). The Navigation Study has recommended a management triad consisting of a (1) River Council, (2) Science Team, and (3) Regional Management Team. The River Council could be the policy forum for integrating the IL 519 authority with other projects. Table 8.2 presents an ecosystem measure comparison of the two authorities and their respective preferred alternatives (preferred alternatives are shaded).

Much like the Mississippi River, the Illinois River has paid a significant environmental toll for the seven lock and dam structures and other navigation related structures. Environmental alternatives which mitigate navigation impacts may be implemented on the Illinois River, if the Navigation Study is approved. As is currently outlined in the IL 519 Feasibility Report, all projects to be funded under this authority would require a 35 percent cost share from the non-Federal partner (IDNR) and 65 percent Federal cost. However, as outlined in the Navigation Study, some restoration efforts to offset navigation impacts would be implemented at 100 percent Federal cost. This will create a level of competition between the two authorities and especially in restoration categories such as Backwater Restoration (see Table 8.2).

Each of these initiatives appears to have been formulated completely independent of one another and this is reflected in an apparent duplication of effort. For example, each identifies the need to restore backwater topographic diversity and defines the importance of water level management changes for the IR. The IL 519 Study has determined that a total of 12,000 backwater acres would need to be dredged in order to restore the system in the preferred alternative (Table 8.2, Alternative 6), whereas the Navigation Study recommended that only 920 backwater acres would need to be dredged (Table 8.1, Alternative D). The Corps' Navigation Study predicts that dredging those 920 acres would benefit up to 27,600 acres (at a 1:30 ratio). Applying this rationale to the IL 519 Study would greatly exceed the 12,000 acres proposed by the IL 519 by thousands of acres. The same types of disconnects can be seen when looking at the water level management feature of the two alternatives.

Pending authorization by Congress, these two programs and related projects such as the EMP and UMR Comprehensive Plan should be more closely integrated and, at least, should become complementary of one another.

Chapter 9 - Recommendations and Conclusions

Conclusions

1. The IR ecosystem has been so severely degraded by human activities during the last 100 years that its ecological integrity and ability to recover from disturbance has been greatly diminished. Sedimentation problems continue to pose serious threats to backwater areas in the lower pools which currently provide habitat for a number of fish and wildlife species. A collaborative and adaptive management strategy involving implementation of conservation measures, rehabilitation projects, and long-term monitoring is needed to improve the condition of this ecosystem. Management decisions and actions at both the watershed and more localized scales will ultimately determine the future fate of this once highly productive river resource.

2. In cooperation with the IDNR, we believe that the Corps has done a good job of identifying system wide environmental needs and establishing an implementation process to address many of these issues. However, significant coordination is still needed to establish the appropriate level of government, non-government, and private cooperation to successfully restore the Illinois River Basin.

3. Because of sedimentation and human-induced alterations to the floodplain ecosystem, aquatic and terrestrial habitats throughout the IR will continue to decline at spatially variable and largely unquantified rates. Prioritization schemes should be implemented at the project fact sheet level to insure that limited dollars be applied most efficiently.

4. The main channel of the IR will remain stable, but backwaters will continue to decline from sedimentation. In coordination with the Navigation Study and EMP restoration efforts, critical backwater areas within each pool should be identified and restored as expeditiously as possible.

5. Main channel fish populations are expected to remain healthy, but fish species requiring backwater habitats for any life requirements will likely decline. An anticipated rapid response to backwater restoration efforts will likely be seen among fish guilds requiring backwater habitat.

6. During the fall, state natural resource agencies, the Service's National Wildlife Refuges, and many privately owned duck clubs artificially manipulate water levels in several management areas along the IR. These moist soil units enhance growth of aquatic vegetation and supplement natural sources of food. Unmanaged backwater areas that currently provide dabbling duck food resources are likely to decline in future years as backwaters diminish. There may be opportunities to work with private landowners and establish partnerships to enhance the management of these areas and potentially the integrity of the IR.

7. The quality of bottomland hardwood forest habitat will decline. Associated species which depend upon mast and mature/over mature stands will decline due to lack of regeneration.

8. As they are currently funded or structured, we do not believe that the current ecosystem restoration efforts within the basin can reverse the system-wide decline in fish and wildlife habitat without a more intense coordination between and among agencies. Future IL 519, EMP, Navigation Study, etc. habitat projects must be able to address the systemic driving variables as well as the localized symptoms of habitat decline.

Recommendations

1. All management actions (both Federal and state) such as those implemented under EMP, IL 519, Navigation Study, USDA, USFWS, and other restoration efforts along the mainstem of the IR and the mainstem floodplain need to be coordinated with one another to ensure efficient and successful management of the IR basin. This coordination may be best met through specific institutional arrangements and the formation of a management triad consisting of (1) River Council, (2) Science Team, and (3) Regional Management Team.

2. Several similar recommendations have become apparent during the coordination of this project and in light of strides made by the UMR Navigation Study to implement environmental restoration as a key component of that study's alternative matrix. It is strongly recommended that the IL 519 and the Navigation Study be more closely coordinated with one another and potentially integrated as part of one another. Much like the Mississippi River, the Illinois River has paid a significant environmental price for structures that allow and improve navigation. Environmental alternatives which mitigate navigation impacts on the Illinois River need to be coordinated with projects funded through the IL 519 authorization.

3. We recommend that a regular line of coordination be established between the Corps and the Service for endangered species consultation for the IR basin. Regional teams should coordinate with the appropriate field office of the Service (Chicago, Rock Island, or Marion, Illinois) and establish how project fact sheets would be coordinated with the Service. It is also recommended that the regional teams outreach to the appropriate field office and identify Service employees to act as a participant to the regional team. These types of relationships are important in establishing a smooth flow of information and to avoid unnecessary delays in project formulation.

4. As the primary regulator of Section 404 permits, the regulatory branch of the Rock Island District plays an important role in the success of this restoration initiative. It appears that many beneficial projects could be targeted through contacts made by the regulatory branch through Section 404 permit applications. Interested and willing landowners could be directed to contact key members of regional teams for assistance in projects such as stream restoration (as opposed to channelization) or wetland protection (as opposed to draining). Wetland, stream, and forest mitigation as outlined in the Corps' recent 'draft mitigation guidelines' could be emphasized for the most important areas within each tributary watershed of the Illinois River Basin.

5. We encourage the Corps to investigate opportunities to assist in the funding of specific USDA type programs where landowner contacts have been made and prime project sites identified to address one or more of the seven environmental restoration goals. In addition to government-led efforts, there may also be opportunities to work with various non-government organizations to accomplish many of the basin goals as well. These types of partnerships could reduce planning efforts and present more efficient 'on the ground' projects.

6. Alternative features, predominantly with regard to sediment reduction techniques, which are untested for their ecological integrity function (i.e. riffle structures, bendway weirs, etc.) should be implemented through a cautious and scientific approach to identify ecological reactions. Opportunities should be sought to collaborate with state and/or private universities to study the biological interactions of these features.

7. Adaptive management techniques should be established that would allow the Corps and IDNR to redirect focus of the IL 519 authority if future conditions of the IR turn out to be less desirable than predicted, especially in regard to sediment delivery assumptions into the Illinois River Basin.

Literature Cited

Alvord, J.W., and C.B. Burdick. 1915. Report of the Rivers and Lakes Commission on the Illinois River and Its Bottomlands with Reference to the Conservation of Agriculture and Fisheries and the Control of Floods. Springfield, Illinois.

Barrows, H.H. 1910. Geography of the Middle Illinois Valley. Bulletin No. 15. Illinois State Geological Survey. Urbana, Illinois. pp. 1-55.

Bellrose, F.C., S.P. Havera, F.L. Paveglio, Jr., and D.W. Steffeck. 1983. The Fate of Lakes in the Illinois River Valley. Illinois. Natural History Survey Biological Notes, No. 119.

Forbes, S.A. 1910. The investigation of a river system in the interest of its fisheries. Biological Investigations of the Illinois River. Illinois State Laboratory of Natural History. Urbana, Illinois, pp. 11-12.

Fritz, A.W. 1989. Summary of Illinois mussel shell harvest. Illinois Department of Conservation. Springfield, Illinois.

Havera, S. 1995. Some misconceptions about conflicts between waterfowl and fisheries management. Pages 26-41 *in* the proceedings of the 51st annual meeting of the Upper Mississippi River Conservation Committee. Upper Mississippi River Conservation Committee, Rock Island, Illinois.

Havera, S.P., et al. 1980. Projected effects of increased diversion of Lake Michigan water on the environment of the Illinois River valley: Havana, Illinois. Illinois Natural History Survey Report to the Chicago District, Army Corps of Engineers, 524 pp. + App.

Koel, Todd M. and Richard E. Sparks. (2002). “Historical patterns of river stage and fish communities as criteria for operations of dams on the Illinois River”. River Research and Applications, 18, 3-19.

Sparks, Richard E. (1995). “Need for ecosystem management of large rivers and their floodplains”. Bioscience, 45, 168-182.

State of Illinois. 1950. Survey and Report on Potential Conservation Areas Along the Illinois River From Hennepin to Grafton. Illinois. Department of Conservation.

Sparks, R.E. 1984. The role of contaminants in the decline of the Illinois River: implications for the Mississippi. Pages 25-66 *in* J.G. Wiener, R.V. Anderson, and D.R. McConville, editors. Contaminants in the Upper Mississippi River. Butterworth Publishers, Stoneham, Massachusetts.

Theiling, C.H. 2000. Ecological impacts of navigation system development, operation, and maintenance. Prepared for the U.S. Fish and Wildlife Service, Rock Island Field Office.

U.S. Army Corps of Engineers. 1974a. Final Environmental Impact Statement – Upper Mississippi River Nine-foot Channel Navigation Channel Operations and Maintenance. Rock Island District, Illinois.

U.S. Army Corps of Engineers. 1974b. Environmental Impact Statement: Operation and Maintenance, 9-foot channel, Upper Mississippi River, head of navigation to Guttenberg, Iowa. Saint Paul District. St. Paul, Minnesota. 596pp.

U.S. Fish and Wildlife Service. 2000b. Natural resources inventory for the Illinois River: Lockport to Grafton, Illinois. Prepared by the U.S. Geological Survey, Upper Midwest Environmental Science Center, LaCrosse, Wisconsin for the U.S. Fish and Wildlife Service, Rock Island, Illinois.

U.S. Fish and Wildlife Service. 2001a. Illinois River National Wildlife and Fish Refuges home page (midwest.fws.gov/ill_rvr/).

U.S. Geological Survey. 1999. Ecological status and trends of the Upper Mississippi River System 1998: a report of the long term resource monitoring program. U.S. Geological Survey, Upper Midwest Environmental Sciences Center, La Crosse, Wisconsin. LTRMP 99-T001. 236 pp.

Walters, L.L. 2001. Sensitive species and high quality natural communities within and adjacent to the Upper Mississippi River and Illinois River floodplain corridors. U.S. Fish and Wildlife Service, Rock Island Field Office.

Wiener, J.G., C.R. Fremling, C.E. Korschgen, K.P. Kenow, E.M. Kirsch, S.J. Rogers, y. Yin, and J.S. Sauer. 1998. Mississippi River. Pages 351-384 *in* M.J. Mac, P.A. Opler, C.E. Puckett Haeker, and P.D. Doran, editors. Status and trends of the nation's biological resources, Vol. 1. U.S. Geological Survey, Reston, Virginia.

S:\Office Users\Kraig\CAR\Coordination Act Report.doc

ILLINOIS RIVER BASIN RESTORATION
COMPREHENSIVE PLAN
WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX H

MONITORING PLAN

TABLE OF CONTENTS

List of Tables

List of Figures

EXECUTIVE SUMMARY

Rivers and streams are a valuable and integral part of every major ecotone and alteration of these systems has a long and varied history throughout the world. Many of these changes are a direct result of various management practices designed to meet human needs including flood control, power generation, navigation, irrigation, and recreation. Dominant management practices used to meet these needs have typically involved altering flow and habitat availability through impoundment, channelization, leveeing, and water diversion. All of these practices have far ranging temporal and spatial impacts on the physical and biological processes that define a given ecosystem. However, new initiatives to repair aspects of ecosystem structure and function are beginning to emerge. The Illinois River Ecosystem Restoration (IRER) project is one such initiative that is focusing on restoring not only mainstem areas of the Illinois River, but also much of the contributing watershed.

The IRER is a multi-disciplinary, collaborative initiative between several federal agencies (U.S. Army Corps of Engineers, U.S. Environmental Protections Agency, U.S. Fish and Wildlife Service, U.S. Geological Survey, Natural Resources Conservation Service), the state of Illinois (Department of Natural Resources, Environmental Protection Agency, Department of Agriculture), local and/or regional government agencies, and several non-government organization (e.g., The Nature Conservancy). The overall goals of the IRER are to: 1) maintain and restore biodiversity 2) reduce sediment delivery from tributaries, 3) restore backwater and side channel habitats, 4) restore floodplain and riparian habitats, 5) reconnect the river to its floodplain, 6) naturalize hydrology, and 7) improve sediment and water quality with the intent to improve the structure and function of the Illinois River Basin. To achieve these goals, most of the restoration practices implemented through IRER will focus on projects that establish physical reductions in sediment loads; restore or protect side channel, backwater, and floodplain habitats; and naturalize water level fluctuations throughout the basin. One very important aspect of this restoration effort is documenting the physical and biological responses throughout the process to provide information into an iterative feedback loop. These responses can primarily be measured through long term monitoring at several spatial scales. Our objectives were to develop a conceptual and structural framework for watershed assessment and long term monitoring as part of the IRER program.

This report contains two chapters. The first chapter deals specifically with developing a long-term monitoring framework. This monitoring protocol highlights an inter-disciplinary effort attempting to monitor all major characteristics of the river (e.g., water quality, geomorphology, biota). The bulk of this chapter focuses on identifying appropriate biotic and abiotic response variables that can be used to identify ecosystem change as a result of restoration practices. Within the Illinois River Basin, there are many potential measures that may be useful in assessing goal-specific accomplishments. The response measures identified throughout the proposed plan should provide information that is ecologically meaningful, relevant to the spatial and temporal scales being measured, responsive to implemented restoration practices, provide benchmarks of progress in accomplishing the stated goals, and be easily understood.

The proposed monitoring framework is defined at three distinct, hierarchical spatial scales to facilitate ecosystem response to the restoration goals and will also provide information that 1) characterizes the current status of the ecosystem (status), 2) tracks changes in the ecosystem through time at multiple spatial scales (trends), and 3) rigorously evaluates project specific management practices (evaluation). Within each spatial scale, the typical sampling design, sampling approach, and likely variables (or metrics) that should be measured are discussed. Response variables will be discussed at two levels: 1) those that are critical and must be measured and 2) those additional variables that are desirable and would provide a significant amount of information, but may not be as immediately critical as those listed above. We recognize that several ongoing data collection efforts and programs (e.g., Environmental Management Program's Long Term Resource Monitoring Program, Illinois River long term fish population study, USGS and ISWS hydrology monitoring, water quality monitoring, etc.) within the basin will likely be beneficial and complimentary to the proposed monitoring program presented here. Therefore, the intent of the proposed monitoring framework is to complement the already existing programs to create a more comprehensive monitoring effort.

Because river restoration is a newly emerging field, there are likely considerable knowledge gaps that may need to be investigated to provide a better understanding of ecosystem responses to restoration practices. In this situation, short term (i.e., 3-5 year) studies may be appropriate to identify the underlying processes that will aid in understanding the ecosystem. Accordingly, we have provided a summary of potential focused research topics.

In the second chapter of this report, we present a general summary of watershed assessment approaches. Watershed assessments are a crucial first step in identifying environmental degradation and also in identifying the action needed to fix problems. However, we present only the basic paradigms to appropriate watershed assessments because information beyond biotic and abiotic conditions (e.g., public opinion, economics, etc.) should be included and are beyond the scope of this document.

Chapter I
LONG TERM MONITORING

INTRODUCTION

River Restoration Background

Rivers and streams are a valuable and integral part of every major ecotone and alteration of these systems has a long and varied history throughout the world. Many of these changes are a direct result of various management practices designed to meet human needs including flood control, power generation, navigation, irrigation, and recreation. Dominant management practices used to meet these needs have typically involved altering flow and habitat availability through impoundment, channelization, leveeing, and water diversion. All of these practices have far ranging temporal and spatial impacts on the physical and biological processes that define a given ecosystem. For example, about 14% of the world's total annual runoff is held in reservoirs that has ultimately resulted in changes to both the biotic and abiotic characteristics of these systems because the aquatic environment has been converted to a lentic system (Downes et al. 2002). Biotic changes can range from local changes in community composition and/or structure to broader extirpations of species or entire communities and changes in fundamental processes (e.g., nutrient cycling; bioenergetics, etc.). Abiotic shifts are similarly affected with relatively localized issues like point-source pollution to systemic issues like sedimentation and shifts in geomorphology of the stream bed and its floodplain.

The effects of these modifications are beginning to be ameliorated in some systems. The science of restoring riverine systems is relatively young, but attempts to repair damaged systems due to human impacts are emerging in several places around the world. Common techniques used to address major problems within a river system include improving water quality, removing dams, reconnecting channels with their floodplains, flow remediation, and increasing stream meander. Many ongoing river restoration projects are spatially limited by focusing on restoring small rivers and streams or fairly localized reaches of larger rivers (e.g., Cook et al. 1992; Biggs et al. 1998; Cals et al. 1998; Lake 2001; Erskine 2001). However, there are now a handful of restoration projects materializing that are taking a more holistic approach to large river restoration including much, if not all, of the entire basin. For example, the Kissimmee River restoration effort has been the impetus of restoration activities since the early 1970's where the focus has been aimed at restoring the river basin's flow regime, water quality, and habitat diversity (Toth et al. 1997). Other major river systems that have existing or emerging restoration programs include the Murray-Darling Basin (Australia), the Rhine River Basin (Europe) and the Volga River (Russia). While the spatial and temporal scales and the specific objectives that exist among these projects may vary slightly, the overriding goal of these efforts remains the same - to restore the ecosystem.

Ecosystem restoration is defined as an applied approach to re-establish the structure and function of an ecosystem (Cairns 1988; Downes et al. 2002). Conceptually, structure pertains to biotic and abiotic diversity; whereas, function typically refers to the processes that drive the ecosystem (e.g., productivity, sedimentation, nutrient transport, nutrient loading). Therefore, the primary goal of any restoration effort should be to redirect the structure and function trajectory of a degraded ecosystem to something that more closely approximates historic conditions (i.e., pre-impoundment, pre-channelization, pre-European settlement, etc.). It is crucial that both structure and function be considered and incorporated into restoration planning processes to ensure a holistic approach to restoration activities. This means that the restoration process should be a thorough, relatively long term and comprehensive commitment that also incorporates an iterative process to capitalize on new information as it becomes available (Williams et al. 1997).

There are a myriad of established restoration techniques and/or programs that can be readily implemented in the riparian areas and smaller watersheds of the Illinois River (Table 1). Likewise, a smaller list of generally accepted management practices are available for restoration in larger tributaries and river systems (e.g., dredging and water control structures). The challenge will be to assess their efficacy and impacts at both local and smaller spatial scales along the river basin. Therefore, a key element to this process is establishing an ability to identify or detect changes to the ecosystem in response to restoration practices used to accomplish the restoration goals. Consequently, it is critical to establish, *a priori*, a scientifically rigorous and explicit monitoring design to ensure that the most efficient use of time and money are implemented with the greatest information return.

The thrust of evaluating restoration successes or failures involves an ability to extricate the complex interactions between natural variability, human activity, and responses to restoration efforts in a given system (Bryce and Hughes 2003). These issues are magnified in large river systems, like the Illinois River, because they typically traverse a longitudinal gradient that can encompass many landscapes. Further complications arise in larger rivers because they are relatively unique and provide little opportunity for replicated study at the broadest spatial scales. Similarly, responses can also occur at varying time scales that are dependent upon processes driving the system and the extent of the restoration effort. This creates several unique challenges to restoring large rivers, especially in the assessment and monitoring stages (Pegg and McClelland in press). Issues like appropriate scales of measure (e.g., mainstem, local, other), logistical limitations, and financial constraints all pose significant obstructions to appropriately evaluate ecosystem responses. Recent advances in technology, like remote sensing, have helped overcome some of these obstructions providing an opportunity to develop a sound restoration monitoring program. However, novel approaches will be required to adequately assess ecosystem changes through time and at multiple spatial scales.

Illinois River Ecosystem Restoration (IRER)

This Illinois River Ecosystem Restoration effort is a multi-disciplinary, collaborative initiative between several federal agencies (U.S. Army Corps of Engineers, U.S. Environmental Protections Agency, U.S. Fish and Wildlife Service, U.S. Geological Survey, Natural Resources Conservation Service) the state of Illinois (Department of Natural Resources, Environmental Protection Agency, Department of Agriculture), local and/or regional government agencies, and several non-government organizations (e.g., The Nature Conservancy) with the intent to improve structure and function of the Illinois River Basin (Figure 1). The over-riding philosophy behind this restoration effort centers on the fact that there are several specific factors, or stressors, currently degrading the structure and function (or integrity) of the Illinois River Ecosystem. Those factors have been identified as excessive sedimentation rates, loss of floodplain and side channel connectivity and highly variable water levels that ultimately translate into environmental extremes and/or loss of habitat for biotic organisms. Specifically, the goals of the IRER are to:

- Restore and maintain ecological integrity, including habitats, communities, and populations of native species, and the processes that sustain them,
- Reduce sediment delivery to the Illinois River from upland areas and tributary channels with the aim of eliminating excessive sediment load,
- Restore aquatic habitat diversity of side channels and backwaters, including Peoria Lakes, to provide adequate volume and depth for sustaining native fish and wildlife communities,
- Improve floodplain, riparian, and aquatic habitats and functions,
- Restore and maintain longitudinal connectivity on the Illinois River and its tributaries, where appropriate, to restore or maintain healthy populations of native Species,
- Restore Illinois River and tributary hydrologic regimes to reduce the incidence of water level conditions that degrade aquatic and riparian habitat, and
- Improve water and sediment quality in the Illinois River and its watershed.

Under these objectives, most of the restoration practices implemented through the IRER will focus on projects that establish physical reductions in sediment loads; restoring or protecting side channel, backwater, and floodplain habitats; and naturalizing water level fluctuations throughout the basin.

As the number of site-specific projects increases, we ultimately expect cumulative ecosystem improvements that should be detected at not only the localized project sites, but also at broader spatial scales including major tributaries and the mainstem Illinois River (see Comprehensive Plan for more detail). Therefore, it is critical that ecosystem responses to the restoration practices be appropriately assessed to ensure the restoration goals are effectively measured at all spatial scales. Accordingly, our objective was to develop a framework for long term monitoring and watershed assessment that would provide valuable insight into the restoration efforts, through an iterative process, as part of the IRER program. Because river restoration is a newly emerging field, there are likely considerable knowledge gaps that may need to be investigated to provide a better understanding of ecosystem responses to restoration practices. In this situation, short term (i.e., 3-5 year) studies may be appropriate to identify the underlying processes that will aid in understanding the ecosystem. Accordingly, we have also provided a summary of potential focused research topics.

Conceptually, as ecosystem limiting factors are sufficiently addressed throughout the Illinois River Basin, ecosystem structure and function will improve. The issue at hand is determining how to measure both the amelioration of the limiting factors (stressors) and improvements to the ecosystem in a scientifically rigorous, yet cost effective approach. There are three main approaches to gathering information relevant to this type of assessment: 1) use existing or newly developed indicators of ecosystem health, 2) develop conceptual and/or quantitative models that predict ecosystem change, and 3) collect data over long time periods to determine the overriding processes. Each approach has associated positive and negative biases and uncertainties that should be considered. Arguably, these three approaches can and should be linked and coordinated to ensure data needs for each are met. Simply stated, proper planning and implementation to capitalize on all three approaches will provide the best evaluation of the status of the IRER program in terms of meeting the established restoration goals.

Indicators of Ecosystem Health

Summary indices have been used in the past to provide a general view of ecosystem condition. Their popularity stems from the fact that a relatively small amount of information need be collected to hopefully show overall condition because collecting information on every aspect of an ecosystem is not feasible from both a logistics and cost stand point. Many of the indices typically use an aggregation of several measured variables, or metrics, used to mark overall system health. This approach began initially by using specific chemical indicators of point source contamination for assessment and monitoring of aquatic systems (Karr 1991). However, there has been a growing body of evidence over the past two decades that shows one or a select few biotic and abiotic variables can provide much more meaningful ecological indicators that can aid in evaluating the full range of ecosystem condition and responses to restoration or disturbances in aquatic and terrestrial ecosystems (Karr 1991; Pajak 2000; Yoder and DeShon 2003). For example, monitoring programs like the U.S. Environmental Protection Agencies' (EPA) Environmental Monitoring and Assessment Program (EMAP) now include a variety of biotic indicators in addition to physical measures to estimate the condition of aquatic ecosystems (Hughes et al. 2000). These indicators take into account the physical condition of the environment, but also focus on various levels of the ecological hierarchy, including indicators of individual organism health or condition, population level metrics, and complex, multimetric indices that aggregate measures from multiple assemblages of organisms and their environment that reflect overall ecosystem health.

Good indicators, including complex and multimetric indicators, are useful for assessing and tracking shifts in resource condition because they offer easy comparability across regions. However, even though multimetric indicators such as Index of Biotic Integrity (IBI) have proven to be responsive to ecosystem change (Gammon and Simon 2000; Karr and Chu 2000; Bryce and Hughes 2003), the complexity of both the indicators themselves and their interaction with various stressors can present challenges to accurately and effectively communicating information to decision makers and the public (Schiller et al. 2001). Much of the controversy stems from the ambiguity and inherent variability associated with some of the measures used in the aggregation of measurements into an index. The exact process of the aggregation can be controversial and mathematically complex, and is usually conducted by specialized research scientists (Barber 1994; Schiller et al. 2001).

While such indicators provide valuable information, there are several uncertainties associated with solely using this approach. First, the spatial extent of this system is considerably larger than the ecosystems in which many of the biotic indicators were developed. This means that the transferability of IBIs and similar indices among catchments and at varying scales of inference (e.g., spatial scales) without careful consideration and evaluation may be limited (Angermeier and Karr 1986) and should be a strong emphasis for additional focused research. Another uncertainty with using indicators is that a reference condition is typically needed to establish responses. Most of the Illinois River Basin has been subjected to anthropogenic impacts (Sparks 1995). Locating pristine reference sites will therefore be unlikely and will have to rely on using historical data, conceptual and quantitative models, and the best professional judgement of the resource managers to establish restoration targets that reflect a reference type condition or restoration goal. Because this is not entirely an objective process, a considerable amount of variability can be introduced into an index at this stage. Given these uncertainties, indicators still remain a preferred method of assessing ecosystem responses because the philosophy is conceptually simple and they are also easy to relay to decision makers. An added benefit to using a suite of indicators is that the information used to calculate each metric can be easily used within an adaptive management plan. Much of the information collected can be readily used in newly developed metrics as knowledge of the system increases. Inherently the main focus of the monitoring framework should be to collect data that are appropriate to an iterative process whereby the indicators are evaluated for their effectiveness to measure ecosystem responses to the restoration goals. Therefore, the infrastructure of using indicators should include an ability to identify, evaluate, and implement existing and new indicators through focused research and evaluation. Conceptually, the linkages between the components of this process are shown in Figure 2.

Within the Illinois River Basin, there are many potential measures that may be useful in assessing goal-specific accomplishments in subject areas like geomorphology, hydrology, and biology (Tables 2-5). The list of variables in Tables 2 -5 is by no means comprehensive and provides only general categories from which information may be gathered throughout the basin. Much of the long term monitoring framework discussed below is aimed at identifying important information that can be gathered from these general categories. In many cases, the information can be broken into sub-categories or other measures of change like population metrics (e.g., Karr 1991) that may summarize information about the entire ecosystem. However, it is important to note that within these categories, useful variables calculated from this list should provide information that is ecologically meaningful, relevant to the spatial and temporal scales being measured, responsive to implemented restoration practices, provide benchmarks of progress in accomplishing the stated goals, and easily understood.

Conceptual and Quantitative Models

The second approach to assessing restoration activities is the use of both conceptual and quantitative models. This approach is important because it can provide valuable information into the iterative restoration process. Conceptual models can be useful tools in presenting a clear idea of how the ecosystem generally works and also may provide information about how resource managers perceive the effects of various changes.

Quantitative models capitalize on existing and new data as they are collected and are an integral part of the restoration equation. These models are useful to provide a more mechanistic understanding of how the ecosystem has responded to change (Bahr et al. 2003). The largest asset to modeling is that it goes well beyond simple data collection and can provide a more holistic view of the ecosystem. DeAngelis et al. (2003) further highlighted three main reasons for using models within a monitoring framework. First, models may be needed to evaluate restoration targets for indicators or measures that can be directly measured. Second, models formalize hypothesized causal relations that link restoration efforts to ecological outcomes. Finally, models provide a means of forecasting to evaluate outcomes of various restoration practices. Examples that may prove useful to the IRER program include models that evaluate sedimentation rates, changes in hydrology, and changes in biotic trophic interactions (bioenergetics). The drawback is that in some instances proper models are not well developed or information is often limited in either spatial or temporal extent thereby limiting the inferences and applicability of such models. Fortunately, the information put into the models will continually improve through additional data provided by the long term data collection efforts. This aspect highlights the fact that there should be an adequate balance between modeling and data collection so that both approaches can be simultaneously advanced.

Long Term Data Collection

Ultimately, the empirical data that are used for the indicator and modeling approaches will be collected through coordinated data collection efforts that will maintain a long term data string. While long term data collection is the foundation for both the indicator and modeling approaches, it also provides unique characteristics in that it can provide information about the underlying processes of ecosystem structure and function - both present and future. Additional information that is gained over time will also be invaluable to the indicator and modeling aspects of the monitoring program by making them substantially more robust.

Long term data collections can also provide a great deal of information about the statistical abilities of the monitoring framework to detect change. For example, Lubinski et al. 2001 evaluated the ability of the Long Term Resource Monitoring Program (LTRMP) on the Upper Mississippi River Basin to detect change at several spatial scales for several biotic and abiotic components. Lubinski et al. (2001) used existing data from the LTRMP to conduct a power analysis of several factors and found that the LTRMP sampling design, while having widely variable results, was relatively adequate to detect changes in water quality, aquatic vegetation, and fish data, but needed additional sampling for macroinvertebrates. Existing Illinois River data will provide some insight on how effective the data collection may or may not be, but similar types of evaluations should also be conducted on the IRER monitoring data set at appropriate intervals to document the efficacy of the program and also to identify areas that need improvement.

As the cumulative number of restoration projects increase throughout the basin, ecosystem responses are expected at many spatial and temporal scales. However, there are likely lags in any detectable changes in the ecosystem because it will take some time for the ecosystem to "stabilize" after construction or to reach some additive level where the ecosystem shows change. For example, as water quality improves at a restoration site, noticeable responses in biotic communities may take one or several years to allow the communities to respond to the new conditions through completion of life cycles and immigration. In this context, there is evidence suggesting the fish communities along the Illinois River improved at a lag of about 10 years in response to improved water quality (Pegg and McClelland in press). Unfortunately, very little published information is available to provide guidelines for identifying appropriate temporal and spatial inferences. The crux of this issue therefore is determining what constitutes the appropriate temporal and spatial scales for measuring change among each variable measured. The paucity of information in this realm then mandates that long term data be collected to not only provide insight into response times for the IRER program, but will also provide guidance for other restoration projects within the region and nation.

Report Structure

This report contains two chapters. The first chapter deals specifically with developing a long term monitoring framework. This monitoring protocol highlights an inter-disciplinary effort attempting to monitor all major characteristics of the river (e.g., water quality, geomorphology, biota). The bulk of this chapter focuses on identifying appropriate biotic and abiotic response variables that can be used to identify ecosystem change as a result of restoration practices.

This monitoring framework is defined at three distinct, hierarchical spatial scales to facilitate ecosystem response to the restoration goals and will also provide information that 1) characterizes the current status of the ecosystem (status), 2) tracks changes in the ecosystem through time at multiple spatial scales (trends), and 3) rigorously evaluates project specific management practices (evaluation). The broadest scale is the mainstem scale and will likely represent the cumulative or system-level improvements. Second, the sub-basin scale will be monitored to measure responses within a somewhat smaller spatial context than the mainstem effort. Because each discipline will be required to deal with this spatial scale in slightly different fashions to measure ecosystem responses, monitoring efforts highlighted at this level will be discussed in detail within each discipline. However, the spatial scales will generally be sampled at the Hydrologic Unit Code (HUC) 8 or HUC 12 levels (Figure 3). Finally, project-specific monitoring will be conducted to evaluate the implemented restoration practices. Project-specific monitoring should also provide a more rapid assessment (in relative terms) of biotic and abiotic improvements. This framework is designed to show ecosystem responses at all spatial scales to provide an easy assessment of the restoration targets identified in the IRER goals and objectives.

Within each spatial scale, the typical sampling design, sampling approach, and likely variables (or metrics) that should be measured will be discussed . Response variables will be discusses at two levels: 1) those that are critical and must be measured and 2) those additional variables that are desirable and would provide a significant amount of information, but may not be as immediately critical as those listed above. The cost estimates provided (Table 6) should be cost-indexed for future inflation. The data collected from this effort will be electronically stored and available via computer using technology already in place (e.g., Illinois River Decision Support System).

In the second chapter, we present a general summary of watershed assessment approaches. Watershed assessments are a crucial first step in identifying environmental degradation and also in identifying the action needed to fix problems. However, we present only the basic paradigms to appropriate watershed assessments because information beyond biotic and abiotic conditions (e.g., public opinion, economics, etc.) should be included and are beyond the scope of this document.

Coordination with Ongoing Sampling Efforts

There are several ongoing data collection efforts and programs (e.g., long term fish population study, hydrology monitoring, water quality monitoring, Long Term Resource Monitoring Program, etc.) within the basin that will likely be beneficial and complimentary to the proposed monitoring program presented here. These data are beneficial because they provide the only existing information about the current condition of the ecosystem. Although existing information is valuable, the existing programs are by no means comprehensive and leave many critical information gaps throughout the basin. However, a concerted effort to dovetail existing work with the proposed monitoring framework discussed here can provide much more valuable information than any one data collection effort could ever achieve on its own. In other words, the sum of all these programs can equal more than a simple summation of the respective parts. The composite set of information can then lead to more accurate data for detecting ecosystem improvements and will ultimately lead to more informed ecosystem management decisions. Therefore, the intent of the following monitoring framework is to complement the already existing programs to create a more comprehensive monitoring effort. Built into the framework is the assumption that existing data collection efforts are required to meet other objectives, in addition to the restoration monitoring. Therefore, they shall continue as such without direct financial support from the IRER. Coordinating additional monitoring with existing programs will provide gains in knowledge of ecosystem responses rather than compete. With this in mind, several important monitoring efforts are specifically discussed in the monitoring framework section as they may be integrated into the IRER monitoring program. Many other data sets exist that can also contribute significantly to the monitoring and assessment of the Illinois River Basin but may not provide as clear a link or be as readily assimilated into this framework. Therefore, a more comprehensive summary of these data sets may prove most useful in the watershed assessment phase and are summarized there.

Our intent is to recommend a wholly integrated monitoring framework across disciplines and spatial scales. However, in presenting the monitoring framework, we feel it important to specifically identify the types of data that each discipline/spatial scale requires to make appropriate restoration goal oriented assessments. This is merely a presentation issue within this report and in no way implies redundant data collection efforts are necessary. Rather, we envision data collection of variables common among disciplines (e.g., land cover, physical habitat measures, etc.) to be collected by the discipline that has the best expertise to collect the data. These data will then be provided among disciplines to create a fully integrated database.

Study Design – Statistical Approaches

Designing a framework that provides the ability to test hypotheses in a rigorous, statistical fashion is crucial to the success of not only the monitoring plan, but also the restoration activities being evaluated. Further, the value of such a program without this characteristic is severely reduced. There are several options that can be used to perform these analyses including trend analysis, regional references, Before-After Control-Impact (BACI) design, and iterative modeling as new information is gathered (as discussed in the project-specific sediment monitoring section). Each approach is useful, but exhibits desirable characteristics within certain disciplines that facilitate restoration evaluations. Therefore, we recommend a monitoring design that provides an opportunity to quantitatively measure ecosystem change in the following ways.

Trend Analysis

Many larger ecosystems pose unique problems that prevent experimental assessment using traditional approaches. The main problem is that in most cases, un-impacted systems of similar size, structure, and function are not available, thereby making either paired or replicated analyses impossible. In this instance, monitoring aspects of the system over long periods can provide the most robust approach in measuring system changes. The value of this approach is that the power in detecting overall changes increases with time because temporal variability can eventually be accounted for with a long enough time series of data. Therefore, we recommend a consistent and recurring monitoring effort at the broader spatial scales presented here.

Regional References for Sub-Basin Comparison

Regional reference sites are least disturbed areas within the same region as the treated sub-basin. Abiotic and biotic indicators of stream quality at the regional reference sites are used as benchmarks to assess changes in treated sub-basins once restoration practices are implemented. There are two basic approaches to establishing the regional reference condition (Wiley et al. 2002). The simplest is to use sites that have not been impacted or have a relatively low level of anthropogenic impacts for comparison among the impacted sites. Alternatively, when clearly identifiable reference sites are not available, Simon (2002) recommends regional normalization for the variables or metrics being measured. Regional reference condition normalization is an approach that uses statistical modeling techniques to estimate reference conditions. The mechanics behind this normalization are relatively detailed, but conceptually simple. The basic premise is that standardized comparisons are made against sites that have the least amount of impact in the region or target measures that are then used to gauge ecosystem responses to restoration or other management practices. A limitation to this approach is that the normalization will be required for each sub-basin or other spatial scales to which this technique might be applied to ensure applicability. However, given the paucity of un-impacted sites within the sub-basins of the Illinois River, this method can be very useful.

BACI Design

It is widely recognized that implementation of restoration/remediation practices in watersheds is our best hope of minimizing the impacts of nonpoint source pollution on surface waters. Accomplishing this in a cost-effective manner requires a much greater understanding of the large-scale effects of restoration practices on both physical and biotic attributes of aquatic systems. Such understanding is best obtained through carefully designed and controlled long-term experiments carried out at several spatial scales. The overall objective of this long-term monitoring framework is to develop and implement a scientifically sound monitoring program that will effectively detect physical and biologically meaningful changes in stream integrity in response to watershed management practices. Our study design was developed based on the experiences of other watershed remediation programs in the United States (Spooner and Line 1993; Wolf 1995; Wang et al. 1996) as well as our own experiences in the Pilot Watershed Program (Dodd et al. 2003).

A sound experimental design is essential to document a strong relationship between implementation of restoration practices and changes in overall stream quality as well as specific indicators of stream quality (i.e., macroinvertebrate and fish communities). The basic design advocated by Spooner and Line (1993) and Wang et al. (1996) involves the use of paired watersheds, in which only one of the two watersheds receives restoration practices. The paired watersheds should be as similar as possible in characteristics such as climate, geology, drainage area, aquatic thermal regimes, land use, and stream gradient. The experimental design used to assess the impacts of unreplicated perturbations is referred to as the Before-After-Control-Impact-Pairs (BACIP) design (Stewart-Oaten et al. 1986; Stewart-Oaten et al. 1992). In this design, paired samples are taken simultaneously (as nearly as possible) at the Impact site (i.e., where a restoration practice has been applied) and a nearby "Control" site. Replication is achieved by collecting such paired samples on a number of dates both Before and After the treatment has been applied in the Impact site. Each observed difference (e.g., in smallmouth bass density, sediment load) between the Impact and Control sites in the Before period is considered to be an estimate of the mean difference that would have existed in the After period had the restoration practice not been implemented. A time series of observed differences between the Impacted and Control sites is developed, and a change in the mean difference between the Before and After periods indicate that the system at the Impacted site has undergone a change relative to the Control site. Assumptions of the statistical model for this design are discussed in detail by Stewart-Oaten et al. (1992). The design can be augmented to allow increased ability to detect treatment effects by incorporating more than one Control site (Underwood 1991; Underwood 1994).

The ability of the BACIP design to detect effects of a treatment depends strongly on the number of sampling dates Before and After the treatment is initiated, the effect size of the treatment (defined as the difference between the average Before and After differences between the Impacted and Control sites), and the variability in the differences between the Impacted and Control sites in each period (Osenberg et al. 1994). Obtaining an adequate number of Before samples is crucial, because additional Before samples cannot be obtained after the treatment is initiated. Osenberg et al. (1994) showed that parameters that are measured (e.g., water chemistry, invertebrate/fish communities) can vary markedly in their ability to detect significant treatment effects. In addition to using larger scale data such as water quality or fish community characteristics at the watershed scale, Osenberg et al. (1994) suggests that parameters based on properties of individual organisms (e.g., growth rate) may be useful in detecting treatment effects, especially when the number of sampling dates is relatively small.

There are several spatial scales at which the BACIP design can be applied in watershed studies. For example, if we are interested in the local effect of a restoration practice (e.g., installation of a 1 km vegetated buffer strip), a Control site could be selected immediately upstream of the buffer strip, and measurements for the Impact site could be made within the treated segment. Assessment of sub-watershed and watershed-wide effects of restoration practices requires the use of a paired watershed to serve as the Control as well as incorporation of several sites throughout the Impacted and Control watersheds. In general, our approach will be to use the BACIP design to assess local, sub-watershed, and watershed-wide effects of restoration practices on the hydrology, geomorphology, and biological communities.

Long Term Monitoring Design

Bisbal (2001) identified five universal themes that are common among most monitoring programs. Those features include characteristics that:

1. All programs should measure attributes of environmental conditions and biotic inventory at relevant temporal spatial scales,
2. Research should be conducted to improve ecosystem understanding in both disturbed and undisturbed ecosystems,
3. Provide integration, coordination, and collaboration of efforts across organizations and geographic scales,
4. Ensure management decisions are based on the best and current information available, and
5. Predict future conditions and suggest hypotheses for future evaluation.

In this context, the long term monitoring framework we present here is designed to highlight the most critical data that need collection (i.e., minimum funding level) and additional information that would facilitate tracking or testing for ecosystem structure and function (i.e., ideal funding level) as they meet the goals and objectives of the IRER.

Responses can be measured at many temporal and spatial scales. The best means to track change is to ensure that the monitoring is conducted at the same scale as that applied to the restoration efforts. Therefore, we suggest a monitoring framework that encompasses three spatial scales to ensure responses are detected both in a timely and systemic manner. The first level of monitoring will deal specifically with responses in the mainstem Illinois River and its floodplain. This monitoring will likely give the best indication of changes in the overall system. The second level of monitoring will move away from the mainstem and focus on sub-basins or tributaries to the Illinois River. This scale of monitoring will likely provide information on the regional responses of the ecosystem to restoration or other factors that can facilitate change. Finally, we will monitor and rigorously evaluate restoration practices at the project specific level. This scale will provide the best ability to test the effectiveness of practices implemented on the project site using standard statistical designs (e.g., BACI).

Monitoring Plan
MAINSTEM

GEOMORPHIC MONITORING PLAN

Changes in the geomorphology of the uplands and river systems are complexly linked to the seven ecosystem restoration goals identified for the Illinois River basin. Basin geomorphology, including stream channel morphology and processes, landscape (uplands beyond the 100 yr floodplain) morphology and processes, and underlying geology, has direct implications for five of these goals:

- Reduce sediment delivery to the Illinois River from upland areas and tributary channels with the aim of eliminating excessive sediment load.
- Restore aquatic habitat diversity of side channels and backwaters, including Peoria Lakes, to provide adequate volume and depth for sustaining native fish and wildlife communities.
- Improve floodplain, riparian, and aquatic habitats and functions.
- Naturalize Illinois River and tributary hydrologic regimes to reduce the incidence of water level conditions that degrade aquatic and riparian habitat.
- Improve water and sediment quality in the Illinois River and its watershed.

In the Geomorphology Monitoring Plan (GMP) developed here, tools are suggested for measuring progress towards these goals. Geomorphology as a field encompasses a wide range of aspects of the physical and chemical environment. This plan focuses on providing an historical and spatial geomorphic context for the hydrology, sediment and habitat monitoring activities described in this document. At small scales, the GMP is mainly concerned with evaluating factors that affect sediment yield from the upland landscape, whereas at large scales the GMP is mainly concerned with the geomorphic response of stream channels to specific restoration projects. Sediment quality, water quality, and wetlands issues are also addressed.

Monitoring Goals and Objectives

The goals of the GMP vary with scale. Because monitoring is most successful when addressed towards particular research questions, monitoring at the project scale will seek to identify specific large scale responses of stream channels to particular restoration practices. At the mainstem and sub-basin scales, it is difficult to pose specific process-response questions, and to link large-scale projects to systemic changes (Rae 1995; Reid 1995; Lisle 1999; Watershed Professionals Network 1999). Therefore the goal of the GMP at small scales is to periodically assess indicators for trends in system "health" and to gauge progress of the IRER in reaching its goals. The goals of the GMP will be met by achieving the following objectives:

Provide baseline characterization of watershed geology and morphology.

Essential in the assessment phase is a comprehensive picture of the three-dimensional geology, materials properties, and configuration of the watershed. Assessment will cull from wide variety of existing and some new data to establish the current condition of the watershed and infer future response to change. This description of the physical setting is integral to all other monitoring and assessment activities.

Characterize anthropogenic and intrinsic changes in the watershed that affect water and sediment runoff (stream power and sediment yield).

Features such as precipitation, Impervious Factor, and BMP area have potentially strong influence on water and sediment runoff that are put into ISWS sediment budget model. Measurements could eventually become inputs to an upland sediment yield computer model that would be linked to the ISWS sediment budget for assessment of landscape sensitivity and prediction of sediment yield changes with changes in the watershed.

Determine intrinsic dynamical behavior of stream channels within each target watershed.

Rates of change of stream channels that are part of "natural" meandering behavior can be used to evaluate channel response to restoration measures. The objective is accomplished through analysis of historical air-photo data, and periodic surveys of channel pattern and morphology, and analysis of floodplain geology.

Evaluate impact of site-specific restoration projects, BMP implementation in floodplain and uplands, land use changes, and climatic variability.

Pre-project assessment and post-project monitoring of stream geomorphology is essential for evaluating success of each project. In addition, project effects must be compared to the long term effects of agricultural BMPs and other land use practices. These effects are not often reported, although they are expected to be marked and widespread. Changes in channel cross-section, bed and bank material, channel slope, and channel pattern are critical data for many ecosystem monitoring and assessment activities. Periodic surveys at ISWS streamflow monitoring sites and additional locations determined during baseline watershed assessments will provide the basic data.

Determine long term changes in sediment and water quality along the Illinois River and major tributaries.

In the Comprehensive Plan, it is assumed that objectives for meeting sediment and water quality goals will be achieved through progress in meeting the other goals. This assumption will be tested by periodic (~ 10 yr) review of reports from federal (USGS, USEPA) and state (IEPA) agencies, and a new IDNR sampling program to provide temporal and spatial control.

Provide measurements of change in channel and watershed geomorphology.

Continued observation of channel and floodplain adjustments to projects and watershed changes are critical to monitoring work of collaborating disciplines. A set of indicators appropriate for measuring progress towards restoration goals can be established from a broad suite presented here.

Review of Conceptual Models of Fluvial Geomorphology

Generally, models of stream dynamics and watershed processes can be divided into three groups, theoretical, empirical, and conceptual. Predictive capability of each of these model types varies. Theoretical models are based on mathematical and physical principles and can predict phenomenon very accurately under ideal conditions. Theoretical models serve as the basis for empirical and conceptual models. Empirical models are developed by collecting and analyzing data. Much of our understanding of fluvial systems has been acquired through the use of empirical models. Empirical models estimate the relationships between variables (e.g. drainage area and discharge) and therefore can characterize a geomorphologic process in a specific stream for the duration that data was collected. After empirical relationships have been established, scientists may attempt to extrapolate these relationships and make predictions. Conceptual models are developed from relationships derived from empirical and theoretical models, and help mangers and scientists to simplify difficult concepts by breaking them down into general categories. While conceptual models may aid our understanding of stream systems and facilitate communication among peers, the use of conceptual models for prediction of geomorphologic process for designing restoration projects is unwarranted. A model that is both applicable and useful to the Illinois River Basin should first characterize the geomorphologic relationships to determine rates and directions of change of processes in Illinois streams. Through characterizing geomorphologic processes, locations of sediment sources and sinks may be determined. Four of the dominant models in current fluvial geomorphologic thought are described below.

A Classification of Natural Rivers (Rosgen 1994)

Model description – The Rosgen method is a conceptual model, but is more accurately described as a classification scheme. The Rosgen-method "integrates", or rather indexes, variables through stratifying data from a wide range of physiographic and climatic settings into "stream types".

The expressed objectives of the Rosgen method are:

1. "Predict a river's behavior from its appearance."
2. "Develop specific hydraulic and sediment relations for a given morphological channel type and state."
3. "Provide a mechanism to extrapolate site-specific data collected on a given stream reach to those of a similar character."
4. "Provide a consistent and reproducible frame of reference of communication for those working with river systems in a variety of different professional disciplines."

Data needs – Table 7 lists information required for each level of stream inventory and the objectives of each level.

Model Assessment – The Rosgen method has received wide recognition and is potentially applicable to Illinois streams. However, the data on which the Rosgen method is based was largely collected from the western North America and New Zeeland. Therefore geologic, climatologic, and ecologic factors distinctive of the Midwest may not be well accounted for. More important, the reliability of the model for predicting of channel change is tenuous at best and has yet to be verified (Miller and Ritter 1996; Ashmore 1999). It may instead be limited to conceptualization of stream dynamics and communication frame of reference for resource managers (Juracek and Fitzpatrick 2003).

Miller and Ritter (1996) and Ashmore (1999) questioned several of the assumptions in the method presented in Rosgen (1994) as well as some of the variables (or metrics) used. Ashmore (1999) argued “that grain size and slope are the primary variables for channel design and that stream type is irrelevant.” He pointed out that empirically derived relationships do not require the classification of streams and that Rosgen classification ignores the accepted understanding of fluvial processes. Miller and Ritter (1996) gave a pointed discussion as to why the Rosgen classification cannot be used to formulate management outlined by Rosgen (1994). Perhaps the most problematic is that Rosgen classification does not consider climatic or hydrologic regime. As Rosgen (1994, p. 187) stated “Stream types can imply much more than what is initially described in it's alphanumeric title.”

The Rosgen method is based on data from natural rivers. By contrast, most channels and their watersheds in the Illinois River Basin are modified. Drainage (tiling, ditching, channelization) and pumping have greatly changed the hydrography and hydrology over the past two centuries (Thompson 2002, Prince 1997). In many cases it is likely that streams and their watersheds are still responding to settlement era modifications, not to mention more recent disturbance. Because restoration efforts will be focused on the disturbed and not natural systems, geomorphologic models based on disturbed system are likely more applicable and more useful for designing and monitoring restoration projects.

Channel Evolution Model for Incised Channels (Schumm et al. 1984)

Model description – Schumm et al. (1984) present a model for channel evolution based on data from several creeks in northern Mississippi. This model uses space for time substitution to represent change through time (e.g. evolution). The first step in developing the model is classifying stream reaches based on the dominant processes at work in each reach. Identifying locations of nickpoints by field inspection was central to classifying reach types. For example, uppermost reaches (upstream of the primary nickpoint in Oaklimiter Creek) were considered Types I, II, and III and were characterized as degradational with little sediment in the bed of the channel and erosion and sediment transport as the dominant processes. Lowest reaches were classified as Types IV and V and were characterized by sediment accumulation, meandering planform and stable alternate bars. In the Schumm et al. (1984) model for channel evolution it was determined that width to depth ratios discriminated between reaches that were in disequilibrium (unstable) and quasi-equilibrium (stable).

Data needs – Data for this channel evolution model were generated from Soil Conservation Service surveys. Morphometric data were either generated from cross-sectional and longitudinal surveys (i.e., width, depth, width-to-depth ratio, slope) or measured directly in the field (depth of sediment in the channel). Stage of channel evolution is determined based on these morphometric variables (Table 8).

Model Assessment – The model was developed for watersheds ranging from 50 to 400 mi^2. Schumm et al. (1984) stated that the predictive power of their channel evolution model is limited by the range of conditions on which it was based and size. Therefore this particular channel evolution model would only be applicable to Illinois streams if they are found to be in the same range of conditions including but not limited to size. Data similar to those collected for northern Mississippi streams would have to be collected to verify that Illinois streams fall within the appropriate range. The conceptual channel evolution model would not be directly useful for monitoring purposes, however procedures used to develop the channel evolution model could be used to measure change over time.

Channel Evolution Model for Disturbed Channels (Simon 1989; Simon 1994)

Model Description – Simon (1989, 1994) presents an empirical model of bed elevation adjustment in response to channel modification. The data collected on West Tennessee streams that were cleared of vegetation and modified by channelization. Simon observed that degradation occurred for 10-15 years upstream of an area of maximum disturbance (AMD) and aggradation occurred downstream of the AMD. Sites that were initially degrading after disturbance experienced a secondary phase of aggradation in response to excessive incision. From the results of this model, conceptual models of bank-slope development and modified channel evolution were produced. The key to applying these models is knowing when and where a channel disturbance or modification has occurred.

Data needs – To model bed level adjustment, aggradation/degradation rates were calculated using periodic bed level elevations at USGS and Corps gauging stations. Bed level adjustment can only be estimated for streams that have multiple gauging stations and where regular measurements of bed level are collected at several points along the stream. Elevation and discharge data needs to be collected over a sufficient duration as to encompass the channel disturbances (development or restoration). The conceptual models were based on observations of bank slope, bank material, ages of vegetation, bed-level adjustment among other factors.

Model Assessment – This model was developed from data collected in streams with watersheds ranging from 10 to 2445 mi^2. The techniques used in the model could be applied in Illinois streams of similar size where data is collected at multiple gauging stations (water, sediment, and bed level) or where data at a gauging station is supplemented by regular measurement of bed level at several locations along a stream of interest. If the density of bed elevation data points in space and time are sufficient this model could be applied to streams prior to restoration to characterize response to disturbance and therefore more efficiently apply restoration measures. Nevertheless, pervasive stream behavior as specified in the model has not been demonstrated for the Illinois River basin. The potential for using the bed elevation adjustment model for long term monitoring of restoration is high if monitoring networks are in place prior to restoration.

Relative Bed Stability index (Olsen et al. 1997)

Model Description – This assessment method works under the assumption that an increase in peak flows over time leads to increased channel instability. The authors propose a quantitative method called the relative bed stability index (RBS) to assess channel stability on the stream reach level. They generate RBS values for critical shear stress and critical unit discharge empirically for stream reaches in western Montana.

Data needs – This technique requires slope, discharge, and grain size data (D-50, D-84). After RBS's are calculated for several stream reaches, their percentage distributions give indications of how many unstable stream reaches exist. Field measurements include channel cross section, water surface slope, streambed particle size distribution, and field identification of bankfull stage.

Model Assessment – This method could be applied at the reach scale (project level) to assess channel stability. The RBS index could provide estimates of relative stability at the reach scale if baseline data were collected prior to project construction. The data used to develop this assessment technique were exclusive of many features inherent to natural streams (reaches with bends, pools, bars) and thus cannot account for horizontal instability (channel migration). This technique may be useful in assessing situations where excessive channel incision is occurring but may not be diagnostic for determining restoration measures.

Summary

Four geomorphologic models are assessed in this report. This is a very small sample of the potential pool of geomorphologic models, but it is representative of the range techniques available for geomorphologic monitoring of streams in the Illinois River Basin. Conceptual models are presented by Schumm et al. (1984), Rosgen (1994), and Simon (1989). While Rosgen's model may be useful as a communication tool, the Schumm et al. (1984) and the Simon (1989) models aid in communicating the nature of site-specific phenomenon by linking process to response (c.f., Juracek and Fitzpatrick 2003). The procedures used by Schumm et al. and Simon in developing their respective models could prove useful in monitoring change through time in stream channels in Illinois, and thus could also be used evaluate the success of restoration practices on a watershed, subwatershed or project scale. Olsen et al.'s (1997) method to assess relative bed stability is reach-specific and could be useful at project sites. Nevertheless, other more comprehensive procedures should be investigated.

Review of Existing Monitoring Study Designs

There is no comprehensive geomorphic monitoring presently done in Illinois, although there are a few monitoring programs that could be drawn upon. The existing stream monitoring network is a critical component and its features and shortcomings are described elsewhere in this document. Upland erosion estimates by county Soil and Water Conservation Districts have been ongoing since 1994, but the data are not statistically valid at any scale (Illinois Department of Agriculture 2002) and have to be carefully examined for usefulness in determining sediment yield or indicating landscape change. As annotated in Appendix A, datasets such as landcover, aerial photography, and Conservation Reserve Enhancement Program (CREP) records are potentially rich with geomorphic information, but considerable work must be done to extract and that information and to develop suitable analytical metrics. Water and sediment quality data are currently monitored at both the Federal and State levels, but methods vary significantly so that robust conclusions cannot be easily drawn.

We have reviewed geomorphic monitoring programs and research efforts directed at evaluating monitoring tools. The scales and scopes of these programs, which come from across several continents, vary considerably (Table 9). The best plans consider not only processes and products in stream systems, but link these to evolution of the surrounding landscape (e.g., Collins and Knox 2003; Harvey 2001; Simon 1989). Further, they are targeted with clear goals with defined endpoints (Rae 1995; Reid 1995; Lisle 1999; Trush 1995). The plans are tuned to regional or local requirements.

General guidance for developing a set of indicators for geomorphic change at small scales is provided by Osterkamp and Schumm (1996), Welch (2003), and USNPS (2000b). Osterkamp and Schumm (1996) suggested that monitoring the combination of flow and sediment yield would be likely to show long term, basin wide environmental change. Sediment yield could be assessed by monitoring slope soil profiles, using coring to determine sediment storage in floodplains, and other techniques. Welch (2003) developed a ranked set of indicators for monitoring in Canadian parks. The ranking considered relevance of the indicator to monitoring goals and environmental setting, degree of connection of an indicator with other indicators, and practicality of measurement. Although the exact list is not necessarily appropriate to Illinois, the conceptual model could be useful.

Many of the monitoring programs reviewed rely solely on observations of in-channel processes. In fact, geomorphic components are often restricted to flow gaging, sometimes including suspended sediment monitoring. By contrast, others (Rae 1995; Spittler 1995; Owens and Walling 2002; Rhoads and Miller 1999; Lisle 1999) found that ignoring beyond-channel or "watershed" processes severely limited the value of the monitoring, especially the ability to discriminate cause-effect relationships. Harvey (2001) is an excellent example of developing critical linkages between watershed and channel processes.

By way of summary, Table 2 lists 12 geoindicators after Berger and Iams (1996) that could be used to monitor geomorphic change in the Illinois River basin. Geoindicators are "measures of geological processes and phenomena occurring at or near the Earth's surface and subject to changes that are significant in understanding environmental change over periods of 100 years or less" (Berger 1996). Thus they have been selected because measurement methods with statistical discriminating ability have been demonstrated. Although the specific measures are not new, the geoindicators program has made a significant contribution by casting an extensive list of geological processes and products into a monitoring framework. The geoindicators framework has been used by the U.S. and Canadian national parks in resource management planning (USNPS 2000a; USNPS 2000b; McCarthy 2001).

Table 2 is comprehensive in the sense that some indicators overlap with other disciplines, while other indicators may have only local significance. Indicators selected from this list and exact methods used to measure them must address particular research questions at specific scales. At this stage of planning it is not easy to determine what will be the most useful indicators, although several are suggested below. Karst activity, for example, is relevant to only small portions of the basin and thus may not be immediately important. Several of the water and sediment quality parameters are already monitored to some degree by agencies such as USGS and IEPA, although we recommend additional sampling and small scale analysis here. Similarly, flow and suspended sediment protocols are being developed by ISWS.

Proposed Monitoring Plan

The Hydrologic and Sediment Monitoring Plan described elsewhere in this document is targeted at changes in sediment transport and delivery by streams. The Geomorphic Monitoring Plan complements that effort by focusing on changes in watershed or upland conditions affecting sediment yield (sediment derived from the watershed; the difference between yield and delivery is storage) as well as stream morphology. These analyses both feed on data acquired in other monitoring programs (e.g., flow and suspended sediment load) as well as feed back information on the physical setting for analyses within those programs.

Small scale monitoring, which is addressed at ecosystem restoration in the Illinois River mainstem and sub-basins, would most likely comprise periodic and general assessments of watershed condition. That is, investigation would be limited mainly to trend analysis, at least until ecosystem management covers a significant portion of an individual sub-basin. Monitoring at these scales should focus on factors that affect sediment yield, including climate, landcover, and soil erodibility (Table 2). Changes in these parameters indicate potential changes in sediment yield, which in turn can be compared to changes in stream carrying capacity of suspended and bedload sediment, and to sediment delivery as measured at stream gauging stations as determined in the Sediment and Hydrology Monitoring Plan. Predictions of sediment storage or removal from alluvial valleys can then be made. Wetlands are expected to be important features of restoration in the Illinois River Basin, but their use as a either a tool or a target of monitoring is complex. Wetlands in this context are discussed generally below. Improvements in water and sediment quality are expected to occur as secondary benefits of restoration projects. To determine progress towards these goals, a geochemical monitoring plan is suggested.

Critical Response Measures:

Stream Power and Sediment Yield – One objective in basin-wide geomorphic monitoring should to determine trends in parameters that affect stream power and sediment yield from the uplands. Stream power, a function of flow, channel slope, and channel morphology is an estimate of a stream's ability to erode and transport sediment, and thus is fundamental to stream channel dynamics (Rhoads 1995). A significant portion of the sediment currently transported by tributary streams is thought to be remobilized from pulses of sediment delivered from uplands and stored in floodplains during agricultural clearance of the watershed (Bhowmik and Demissie 2001). Sediment yielded from the uplands either is fed directly to streams or replenishes the supply of stored sediment. Thus monitoring watershed factors that influence the combination of stream power and sediment yield provides critical context to flow and sediment load monitoring proposed elsewhere in this document. Further, the combination of slope, landcover/landuse, soil erodibility, and hydrology can feed a robust model for upland sediment yield. Changes in the landscape that affect stream power and are likely to be sensible over 5-100 years include climate, landcover, and landuse (including land practices and channel modifications). Slope and soil erodibility are unlikely to change at small scales of analysis over this span of time. A basinwide analysis of these data should be conducted every 10 years.

People are perhaps the dominant geomorphic agent worldwide (Hooke 2000). Their activities are captured in landcover and landuse maps, although the potential effects are complex. The dominant activities in the IRB are urban and suburban development, agriculture, and transportation. Also important but smaller in areal extent is resource extraction (water, earth materials, etc.). Landuses are patchy across the landscape, each type may affect rates, volumes, or flow patterns of water and sediment runoff differently for specific types of precipitation events (Riggs and Ames 2000). Thus the scale of influence of any specific landuse or collection of landuses may be restricted (Niehoff et al. 2002).

Impervious factor (also ‘imperviousness’, ‘impervious cover’), extracted from landcover maps or other data sources, has been used as an indicator of landuse in several of the monitoring plans we reviewed. It is the sum of societal hard surfaces that prevent infiltration of precipitation, and thus affect overland runoff, typically by increasing the onset and peakedness of flood discharges on hydrographs. The increased overland runoff may also affect sediment yields. Although landuse affects on ecosystems are complex and thus detailed analysis requires complex models, impervious factor is a good initial indicator of the effects of the built environment on system hydrology (Randhir 2003). Although commonly applied in urban regions (e.g., Zielinsky 2002), it has also been used in monitoring programs in non-urban settings (e.g., Water Resources Section 2002). Impervious factor is typically conceptualized as the proportion of a watershed that has been built upon; the effective impervious area (EIA) only includes built areas that are directly connected to the watershed drainage system. Effective impervious area thus includes street surfaces and adjacent sidewalks, driveways connected to streets, rooftops directly connected to a curb or stormwater system, and parking lots (Randhir 2003). Further, there are several ways of estimating impervious factor, and results may differ significantly (Endreny et al. 2003). It is important to note that mitigation areas are not typically included in determinations of impervious factor. A refined EIA metric could include credits for mitigation if a suitable data source could be found.

Climate changes that could occur over a period of decades and affect basin hydrology include storm intensity, storm frequency, temperature, and seasonality. Climate monitoring and research has a long history at the ISWS. These data need to be reviewed for implications of long-term trends on stream power.

Data Needs -- Landcover data are a rich dataset that attracts much attention because it is relatively easy to obtain and provides statewide coverage at moderate resolution. Further, the Illinois Department of Agriculture is expected to update the landcover dataset at 1 to 3 yr intervals (IDNR et al. 2003), providing the potential for a consistent and current dataset for long term monitoring. The existing dataset is adequate for regional (1:100,000 and smaller) studies. Research must be done, however, to assure that the landcover data provide sufficient accuracy in impervious factor estimates at sub-basin and project sub-basin scales, as well. Endreny et al. (2003) demonstrated that the source scale of impervious factor estimates has a strong affect on modeled watershed hydrography when scaling a calibrated BASINS model from a catchment (0.2 mi^2) to a sub-basin (400 mi^2). We recommend a pilot research effort to determine impervious factor from DOQQs using digital methods analogous to Endreny et al. (2003; see also ESRI 2003). This may increase the scalar usefulness of impervious factor as an indicator by an order of magnitude.

Regional climate data are obtained by the ISWS and reported from eight stations within the Illinois River basin subannually. These data should be sufficient to allow identification of long-term regional climatic trends that affect flow. If larger scale analyses are needed, however, it must be determined whether or not estimations of precipitation within a target watershed are sufficiently accurate from these data.

Slope can be determined from DEMs that exist at resolutions varying from 10m to 30m at 1:24,000. Higher resolution LIDAR data has also been captured for the DesPlaines valley. Although spatial coverage over the Illinois River basin is good, the accuracy of slope estimated from variably-scaled data must be assessed. Further, portions of this dataset are out of date and the dataset is mainly static unless new initiatives are begun. A static dataset could be a problem for project or catchment investigations because large scale slope changes can be significant over 50 years. For example, significant differences in slope from decades-old maps have been observed during ongoing mapping at ISGS. Nevertheless, regional slope evolution operates at much longer time scales, so current slope data may be sufficient for regional studies. A focused research project is suggested to address these issues.

Soil erodibility data obtained from USDA soil surveys are presently available basinwide as small scale (1:250,000) STATSGO data. Within a few years, all counties are expected to have large scale (1:15,000) SSURGO data that would be suitable for several scales of analysis.

Estimated cost: $75,000 for each decadal analysis assuming use of existing data.

Desirable Response Measures:

Agricultural and Planning BMPs-- Agriculture plays a dominant role in shaping the landscape of Illinois through cropping practices and drainage. Agricultural practices are influenced through several state and federal programs, but since participation is voluntary and the programs have independent and potentially conflicting goals, combined effects are not well documented. Presumably the general result is one of reduced soil loss (sediment yield) from uplands and increased direct runoff from drainage. Although the affects are complex, it would be useful to gauge progress in land management by comprehensively mapping areal coverage of BMPs. Possible indicators are percent area of watershed in BMP and percent area of contiguous BMP. Sub-basin wide data would have to be compiled from USDA-Farm Service Agency and Soil and Water Conservation District records. The format of records varies from paper to GIS-ready, depending upon the county. Agricultural BMP mapping provide an interesting comparison to impervious factor because their areal extents have a presumed inverse relationship.

BMP data could be extended to include runoff mitigation sites in developed areas. These would help refine impervious factor analysis. There is no known database of mitigation sites, although some may be maintained by county planners or approximations may be developed from developing areas where zoning requires runoff mitigation planning. Data mining and feasibility studies for database creations would be an essential preliminary step.

Estimated cost: $35,000 - $75,000 per survey.

Wetland Function – Wetlands play multiple roles in the management plan: as goals of the plan, as management tools, and as geoindicators. The existence of wetlands alone contributes to the goal of achieving biodiversity and habitat. In addition, wetlands are a management practice; increasing wetland acreage will increase the functions of wetlands and achieve other goals. For example, water quality improvements can be made by increasing wetland area, which will increase floodwater storage and remove more suspended sediment. Finally, wetlands and their functions are geoindicators that can be used to determine the state of watershed health, need for management, and success of management strategies.

Wetlands perform a number of known functions, including providing habitat for flora and fauna;

providing hydrologic functions such as flood control, stabilizing channels and banks, and sustaining low flows; providing water-quality improvements such as denitrification, removing sediments and adsorbed metals, and others. However, the quantity of each wetland function likely depends on the type of wetland and its setting.

Scope of current wetland research and monitoring

The vast majority of current wetland research and monitoring in the Illinois River Watershed is done on a project-specific basis. Different governmental agencies, non-governmental organizations (NGOs), and private companies and individuals are performing or funding wetland restoration and creation, and they require widely varying levels of monitoring. Significant wetland restoration and creation projects are either funded or regulated by federal and state agencies under various governmental programs, including the U.S. Army Corps of Engineers (Section 404), Illinois Environmental Protection Agency (319 Program), the Natural Resources Conservation Service (WRP, CREP), and others. Unfortunately, the data are not being collected in a systematic or uniform manner due to the differing guiding regulations. No known systematic wetland research or inventory is underway throughout the Illinois River watershed other than the National Wetlands Inventory from the 1980s, which is now out of date.

Establishing Goals and Monitoring

If wetlands are to be studied as a measure of the Illinois River watershed, it is first necessary to determine what wetland parameters need to be monitored. This can only be done in the context of the goals of the Illinois River management plan, because each function of a wetland will impact the goals of the management plan differently.

Unfortunately, the location of Illinois wetlands, the magnitude of their functions, and their impact on the management goals is not fully known and is not being determined by the project-specific monitoring that is currently underway in the watershed. Therefore, it is necessary to establish a research program that identifies and quantifies the functions of the various types of wetlands throughout the watershed and determines how each function helps fulfill the goals of the management plan. With that information, the steps that should be taken to maximize the benefits of wetlands toward fulfilling the goals of the management plan can be determined.

In the interim, it may be possible to use indicators or data collected at reference sites as a partial substitute for basin-wide data. Indicators may include such as total wetland acreage, duration and frequency of flooding, sedimentation rate, water quality, and others. Some goals, such as increased habitat and flood storage, are directly related to total wetland area, although the magnitude of the function provided by each type of wetland will differ widely. Other goals may not be described well by indicators, and it may be preferable to use studies of reference sites to infer the health, function, and status of Illinois wetlands before and after the management goals are being implemented. The few wetland studies in Illinois that identify or quantify wetlands functions may act as a guide to the indicators that can be used.

Estimated cost: None can be specified at this time.

Sediment and Water Quality - Goal 7 of the Comprehensive Plan calls for improvements in sediment and water quality. Progress towards this goal is expected to be the passive result of restoration projects not directed at sediment and water quality, however. Nonetheless, monitoring must be conducted in order to determine whether or not there is progress towards these goals.

Various federal and state agencies have monitoring plans for water quality and sediment quality (e.g., LTRMP 1999; IEPA 2002). They employ a wide range of biological, chemical and physical indicators to develop indices of the "quality" of the waters in Illinois. Results from these investigations are difficult to integrate, however. The level of spatial coverage and frequency of sampling vary from agency to agency. More importantly, results from different monitoring activities are not be readily comparable due to differences in sampling and analytical protocols. Stream sediments are often collected with various surface grab samplers with no further treatment (Rhoads and Cahill 1999). Other protocols specify variously subsampling sediment by wet or dry sieving at various size fractions ranging from 63 micron to 2 mm (Adolphson et al. 2002; LTRMP 1999; IEPA 2002).

To resolve these issues and to gauge systemic responses of sediment and water quality to restoration activities, a program should be established at IDNR to collect water and sediment quality data in key watersheds of the Illinois River. The program would obtain water and bulk sediment samples to be analyzed for a suite of nutrients, inorganic contaminants, and organic contaminants following methods of Rhoads and Cahill (1999). Monumented sites on high to small order streams would be reoccupied cyclically complete a basin-wide assessment every ten years. Robust statistical techniques have been developed for evaluating temporal and spatial trends in geochemical data, although they may require tuning to the specific needs of this project (Singh 1993; Singh and Nocerino 1995; Singh et al. 1994). A manual for standard methods of collection and analysis would be developed to ensure long-term data reliability. Elements of both a critical and desired program are outlined below. These programs are in addition to those suggested in the Aquatics plan, because the Aquatics protocols are specifically directed to habitat and fish-toxicity issues.

The decadal analysis of the dataset would include a survey of results from other geochemical monitoring programs.

Phase I (Critical and Desirable Programs)

1) Identify the lead agency and PI for project. 2) Prioritize stream sampling locations. 3) Develop sampling, analytical and data storage procedures. 4) Hire a fulltime field/database technician (s).

Estimated cost: $35,000 to $70,000.

Phase II (Critical Program)

Stream water and sediment samples will be collected annually from major tributaries to the Illinois River and 10% of the watersheds or surface area. Annual sampling will be cycled so that all watersheds are sampled at least once sampled in ten years. Five key sites will be sampled annually. Approximately 250 water and 125 surface sediment samples should be obtained. Water samples will be analyzed for nutrients, inorganics and standard water quality parameters ($14,000). All sediment samples will be analyzed for nutrient and inorganic contaminants, and a subset of 50 will be analyzed for organic contaminants ($28,000).

Estimated cost: $95,000/year, including supplies, overhead, and 1 FTE.

Phase II (Desirable Program)

Stream water and sediment samples will be collected from major tributaries to the Illinois River and 20% of the watersheds or surface area. Annual sampling will be cycled so that all watersheds are sampled at least once sampled in five years. Ten key sites will be sampled annually. Approximately 500 water and 250 surface sediment samples should be obtained. Water samples will be analyzed for nutrients, inorganics and standard water quality parameters ($28,000). All sediment samples will be analyzed for nutrient and inorganic contaminants, and a subset of 100 will be analyzed for organic contaminants ($56,000).

Estimated cost: $185,000/year, including supplies, overhead, and 2 FTEs.

ECOLOGICAL MONITORING PLAN - AQUATIC

The mainstem Illinois River is comprised of six impounded reaches of varying lengths and habitat characteristics. The upper river is generally characterized as a narrow valley, with a more swift current due to a higher gradient. The lower river has a lower gradient and is characterized as an alluvial floodplain (Starrett 1971). These physical differences translate into distinct differences in geomorphology as well as habitat structure and complexity and may, in part, contribute to divergences in biotic and abiotic variables between the upper and lower river (Baker et al. 1991; Lamouroux et al. 1999). For example, recent studies of fish populations in the Illinois River have suggested two distinct fish communities that are consistent with geomorphic differences (Pegg and McClelland in press). The first community is generally comprised of the lower three pools; whereas, the second community is made of fishes found in the upper three pools. This and other similar information provides useful insight into how monitoring data should be collected along the mainstem Illinois River. Further, any data collected at this level should provide information at resolutions covering impounded, upper/lower division, and entire river to assess ecosystem responses in the context of the restoration goals is recommended. Therefore, a sampling design that ensures complete coverage of all pertinent hierarchical scales.

Sampling for aquatic biota will be structured in a stratified random block design with dominant habitat types being the lowest sample unit. This is a common experimental design and one that is currently used through the Environmental Management Plan's (EMP) Long Term Resource Monitoring Program (LTRMP) of the Upper Mississippi River Basin. While the variables that should be measured along the Illinois River may differ slightly from that of the LTRMP, the proposed sampling framework will philosophically follow the LTRMP's design in most respects (e.g., Gutrueter et al. 1995). The premise of this design is that the sample sizes are structured such that they are weighted by the size of a given study reach and the available habitats found within that reach.

Measurable changes in biotic communities to restoration practices will likely occur through both relatively simple, direct responses as well as through more complex secondary or higher order interactions. The organisms that can provide information on these responses are varied and complex in themselves ranging from microscopic fungi to larger fish and water birds (Table 3). All of these taxa can provide valuable information, but some are better suited for monitoring due to sampling logistics and public/scientific perceptions of value. Therefore, it is critical to enure that any taxa measured will provide meaningful information towards detecting systemic transformations. The following provides a general overview of the critical and desirable response measures (with their associated justifications) for monitoring on the mainstem Illinois River.

An important aspect to note is that the sample sizes recommended for each measure do not indicate exclusive sampling efforts for each measure. In most cases, data needed for each measure will be collected simultaneously at each site to improve cost efficiency.

Biotic indicators used to assess ecosystem health and responses to restoration are not well developed for larger rivers like the Illinois River, but there are a few regionally developed indices that may provide some broad initial guidance on community responses until an Illinois River specific index can be developed (e.g., Wisconsin River and Ohio River indices) through focused research. Developing ecological indicators for large rivers presents several challenges relative to non-wadeable streams. Reference sites are absent, since nearly all large rivers in temperate latitudes have been significantly altered (Benke 1990; Dynesius and Nilsson 1994). Natural variation in life-history, adaptations to environmental conditions across a biological hierarchy, and within indicator metrics (e.g., richness, growth, proportion of large river species) is much greater within the geologic, climatic, latitudinal, and longitudinal landscape of rivers than for wadeable streams where many of the existing indices were developed. For example, tolerance to turbidity in native riverine fishes is an important variable used in many indices. However, the actual measured metric can have highly different meaning in the context of where the fish evolved. Much of the mainstem Missouri River has historically been very turbid and the fish are therefore well adapted to high turbidity, whereas natives fishes in the upper Mississippi and Illinois rivers are less well evolved to cope with high turbidity conditions. The interpretation of a high score in the turbidity tolerance metric could then have very different meaning depending on which system is being assessed. However, the need to communicate environmental information to decision makers in an understandable fashion is essential if ecological assessments are to affect public policy and benefit the resource. The challenge for developing ecological indicators in any focused research will be to disentangle the complex interactions between natural environmental variation and effects of human activity on the landscape (Bryce and Hughes 2003), and effectively communicate this information to the public (Schiller et al. 2001). However, we expect that some elements of this mainstem data set will likely show ecosystem responses in terms of the restoration goals. Many of these elements will likely be included in any indicator developed for the Illinois River and will therefore still provide valuable and meaningful information on their own. These measures may include items like shifts in community composition, improved abundances of native species, and many of the same metrics calculated in the sub-basin and project specific evaluation scales (Table 4) as structure and function are systemically improved. The thrust of the proposed monitoring effort therefore is focused on judicious data collection that will provide insight into individual biotic responses and also feed information into a myriad of potential comprehensive biotic metrics that can be used to measure ecosystem responses to the IRER goals.

Critical Response Measures:

Fish - Fish have been used widely in the past to document changes to various ecosystems (e.g., Karr 1991). This group of organisms are valuable because they are found throughout the mainstem Illinois River and provide a cumulative reflection of many trophic levels to environmental changes including many of the expected changes that will occur through the IRER efforts. Additionally, a large amount of information can be gathered on this group with a relatively small amount of effort including species distributions, changes in species richness, changes in community structure and function, population dynamics data, growth rates, and many other categories that have all been used to classify the 'health' of fish communities (e.g., Karr 1991). These responses can also be measured at multiple scales (i.e., mainstem, sub-basin, local) and through time that increases our ability to integrate our findings across multiple spatio-temporal scales. Finally, this group is an ideal selection for monitoring because the general public has at least a basic understanding of what changes in fish communities mean to an ecosystem.

The fish data collected through this monitoring effort will supplement three major on-going monitoring efforts in the basin 1) Long term fish population monitoring (F-101-R), 2) annual sampling by the IDNR through F-67-R, and 3) the LTRMP. All three data sets provide valuable information on the existing and historic conditions of the Illinois River in some capacity. However, each is limited in either spatial and/or temporal coverage of the mainstem. For example, the LTRMP samples fish populations throughout the La Grange Reach using a multiple gear approach, but provides no information on the remainder of the river. The other two projects are similarly hindered in that they sample at sites located throughout the mainstem river, but are conducted in only certain habitats and over a very limited time frame each year (late summer/early fall) and use only electrofishing gears that is biased toward sampling only shoreline habitats. Therefore, the proposed monitoring framework presented here should attempt to fill in the spatial and temporal data gaps to provide the best information possible on the fish community responses to the restoration goals. Ongoing research is attempting to evaluate the compatibility of these three data sets for future analyses but the results are not expected for some time. However, the LTRMP efforts use a multiple gear approach to characterize the fish community within a broad range of habitats (i.e., mainstem, side channel, backwater) compared to the other two projects. This aspect of the LTRMP is highly desirable and makes it a favorable approach the proposed framework should build upon to provide easy comparability.

Fish sampling protocols on the mainstem will typically follow the LTRMP with respect to gear selection, site selection, and data gathering (Gutrueter et al. 1995). Information from other reaches collected for IRER monitoring will therefore easily dovetail into existing data and monitoring efforts that should strengthen the overall capabilities of this monitoring program. However, a significant variation to the LTRMP sample design is that we recommend collecting seasonal fish data as weather conditions allow to provide data on seasonal habitat use and distributional patterns. Specifically, winter sampling will not breach the compatibility of the LTRMP and IRER data sets. Rather this adds an additional temporal dimension that is lacking in the LTRMP effort.

Linking existing with new data collection efforts can be relatively easily accomplished by simply expanding the level of effort used in the LTRMP to include the remaining reaches of the Illinois River that are not currently being sampled. The main assumption here is that the power to detect changes in the fish community will be similar to Lubinski's et al. (2001) findings for the Upper Mississippi River Basin. For example, annual LTRMP fish sampling in the La Grange reach typically collects about 450 samples per year from the dominant habitats available during the summer and fall. If this level of effort is scaled up to the entire length of the mainstem, then a proportionate number of samples that should be collected from the rest of the river would total about 1,100 over the same time frame. An additional river-wide effort of about 520 samples collected during the winter months should also be incorporated into the monitoring framework to ensure over-winter habitat use issues can be addressed. This level of effort is assuming all dominant habitats (main channel, side channel, connected backwater, unconnected backwater) sampled in the La Grange Reach are available in the same proportion throughout the river. Because the upper half of the river does not have an extensive floodplain like that of the lower river, it is reasonable to expect the actual number of sample sites to be scaled down appropriately as habitat availability is quantified throughout the basin. Therefore, the suggested sample sizes here should represent the maximum number of samples to be collected.

Aquatic Vegetation - Aquatic vegetation is an important component of riverine ecosystems because it provides nutrient remediation characteristics, stabilization of sediments and also provides habitat and food for many aquatic organisms. Therefore, aquatic vegetation is highly sought after and establishing or maintaining stands of aquatic vegetation have been the crux of many habitat remediation efforts along the river. Vegetation may also provide local and regional response information to restoration practices. In the lower half of the Illinois River, vegetation responses could be a very effective measure of the status of naturalized water levels (Goal 6) because it is currently thought that rapid and extreme water level fluctuations that presently occur are limiting factors for vegetation in the main channel border, side channel, and connected backwater habitat areas. Furthermore, because all dominant habitats will be sampled, aquatic vegetation data can be used to compare management strategies (i.e., connected vs. unconnected backwaters).

Submersed and emergent aquatic vegetation will be monitored using standard LTRMP sampling techniques (e.g., rake, quadrat, transects; Yin et al. 2000) at the same location fish sampling occurs. Where feasible and/or available, remote sensing technologies will also be used to measure stands of vegetation at all spatial scales. Remote sensing may considerably reduce field costs for this data collection effort in the future. Unfortunately, the costs are currently inhibitive and will require the vegetation monitoring to establish and maintain a large field component at present.

Macroinvertebrates - One of the more important taxa that can quickly identify localized changes in mainstem habitats are macroinvertebrates (excluding freshwater mussels). These taxa are important not only because of their rapid response to environmental change, but they also play a significant role in food web dynamics by breaking down organic matter into useable nutrients for themselves and other lower trophic organisms and also by providing a food source for higher trophic organisms like fish, birds, reptiles, and amphibians.

A limitation to using macroinvertebrates is their lack of mobility. Therefore, presence or absence of a species or group of species will likely provide localized to regional information on responses to the IRER efforts. However, their importance to the ecosystem warrants continual assessment at all spatial scales possible. Sampling methodology will should generally the ponar grab sample method used by LTRMP. This effort samples macroinvertebrates in all the dominant riverine habitats, but is limited in both temporal sampling and the level of analyses. The LTRMP effort currently only samples macroinvertebrates during one season (spring) at about 120 random sites (stratified by available habitat) within the La Grange Reach. These efforts should be expanded to include the entire basin and at least seasonal (4 times/year) sampling, if not a more frequent level of effort. Therefore, the level of additional work would be considerable (about 1,550 samples annually), but will likely provide more immediate response indicators than fish or aquatic vegetation that have longer life-cycles. Within this context, the macroinvertebrates should also be identified to the lowest taxonomic level possible rather than grouped into a few large categories as is the current standard protocol for the LTRMP (Thiel and Sauer 1999). Taking this approach will not preclude these data from integration with the LTRMP data, but will provide considerably more information on communities and their responses to the restoration goals beyond the very general information that is currently provided.

Water Quality - Water quality, while not a direct measure of biotic responses, can be extremely useful in measuring biotic associations and reactions to newly created environmental conditions. We propose to measure physical attributes of water quality like turbidity, conductivity, and flow rates as well as variables that can give information on nutrient availability like total nitrogen, total phosphorus, chlorophyll-a, etc. Data will also be collected to assess general habitat characteristics (e.g., substrate type, amount of structure, etc) of sample sites where biotic data collection occurs.

Standardized water quality sampling has been well established by the EPA, USGS, and other organizations. Many of those aspects have been included in the LTRMP protocols and we therefore recommend following the LTRMP water quality sampling protocols (www.umesc.usgs.gov/ltrmp.html). However, the location for sample selection and timing though should be slightly modified and will be at two levels. Ideally, a full suite of water quality and physical habitat data should be collected where any biotic sampling occurs. These data will be used to identify causal relations between physical and chemical improvements in the system. However, completing a full suite of water quality parameters for each site is not feasible. Therefore, physical water quality and habitat information (temperature, conductivity, dissolved oxygen, etc.) will be measured at each site, but other water quality information (nutrients, anions, cations) will only be collected at about 10 percent of the biotic sample sites from each habitat and reach combination.

Secondly, water quality monitoring should be at regular intervals (e.g., bi-weekly) throughout the year at a select few sites within each reach. The exact total number of sites should generally total less than 10 per impounded reach. Key sites would typically include headwater and tailwater, main channel, major side channel, tributary confluences of major tributaries, and other important sites as determined by the U.S. Army Corps of Engineers and State of Illinois.

The water quality monitoring effort described above does not include monitoring efforts that measure toxic chemicals (e.g., PCBs, atrazene, etc.) and heavy metals (e.g., mercury). These parameters are being adequately measured by existing water quality monitoring efforts through the USGS (National Water Quality Assessment program), USEPA, and the Illinois Environmental Protection Agency. Therefore, there is no need to expand the sampling effort in this area of water quality monitoring. An added benefit to using these data is that in many instances these contaminants are also measured in fish tissue providing another link between biotic and abiotic responses to ecosystem improvements.

Zooplankton - One potentially valuable indicator of system productivity that is not currently measured through any existing monitoring program is zooplankton. These organisms are at the lower end of the food-web and may be valuable indicators of system productivity. In this context, zooplankton may show the most rapid systemic response to IRER restoration goals due to their position in the trophic level. Very little information is available on zooplankton communities throughout the river other than a few short-term studies that have largely focused on ancillary issues to monitoring such communities (Kofoid 1899; Emge et al.1974; Goodrich 1999). Therefore, it will be important to collect zooplankton community structure and abundance data throughout the river. Sample collection is relatively simple and should follow methods highlighted in Lemke et al. (2003) or similar sampling protocols at sites where other biotic information are being collected.

One drawback to this approach is that identification can be time consuming and require a relatively high level of training in the laboratory. However, their ecological significance makes them a desirable taxa to monitor. A simple means to determine the scale of information needed will be to evaluate zooplankton community and structure data through focused research at the beginning of the monitoring effort. This evaluation will primarily use saturation curves to refine the exact number of samples required to make sound assessments of this diverse group of organisms without losing significant information.

Estimated cost: $525,000 for the first year and $475,000 for subsequent years.

***Desirable Response Measures*:**

Mussels - Freshwater mussels are likely one of the more sensitive groups of organisms to environmental change in lotic systems. They are certainly one of the most threatened groups of organisms in North America and as a result warrant attention (Cummings 1991). Multiple gear approaches have been used in the past to characterize mussel communities suggesting a multi-gear approach as most the effective sampling approach to gather information. Typically these gears include using divers, braille rails, and dredges. Using these collection techniques can also be somewhat cost inhibitive. This is especially the case if divers are required as this type of diving necessitates better than entry level expertise and experience. The typical life-cycle of these organisms is such that measurable responses to ecosystem improvement may take may years. However, freshwater mussels are extremely sensitive to negative changes in environmental conditions. This makes mussels a valuable data source because they may be good measures to an unexpected biotic response from management practices or restoration efforts. There are some limited data collection efforts in the Illinois River that are conducted by the IDNR during commercial harvest periods. However, these data are usually limited to a specific area that is marked for harvest each year and not comprehensive. Data collection for this taxa would likely be somewhat different than that identified for the other biotic components. Community measures would largely focus on sampling known mussel beds to monitor shifts in communities at representative locations throughout the river.

Estimated cost: Additional $75,000 per year.

ECOLOGICAL MONITORING PLAN - TERRESTRIAL

In its pristine condition the Illinois River watershed was a very diverse system. Communities associated with the riparian zone alone included upland forest, mesic prairie, wet meadow, shallow marsh, deep marsh, shrub wetland, floodplain forest, deep water, channel, shallow water, and hill prairie (U.S. Fish and Wildlife Service). Diverse plant communities along the river supported incredible wildlife abundance and diversity with may species highly adapted to specific habitat conditions. The river and its wetlands were once considered one of the most productive fishing and waterfowl hunting areas in the United States (Bell 1981).

Many wildlife species still spend part of the year along the Illinois River and the streams in its watershed, from year round residents to species found there only during migration, and entirely terrestrial species to those found on land for brief but critical stages of their life. Wildlife use the Illinois River, its tributaries, and the lands found along them as a continuum and the boundaries of legally defined floodplains, riparian zones, and wetlands mean little to animals. In addition, the aquatic-terrestrial interface is dynamic, at one time changing gradually on a seasonal cycle, now it changes rapidly and on a much shorter cycle. Rapid changes in water depth and position of the interface force major changes in wildlife distribution and use of habitat. Many wildlife species found in the watershed have declined significantly. For some species, such as waterfowl, declines are well documented, but relatively little is known of the current and former status of many others.

Monitoring of wildlife abundance and quantification of their habitats is very intensive. Even species that use similar habitats require different sampling methodologies. Therefore, indicators have drawn interest for monitoring of environmental conditions and methods have been tested using birds and amphibians. Wildlife are particularly attractive as potential indicators because they integrate the cumulative effects of environmental stresses. Across species groups there may be redundancy in their responses. However, due to differences in the ecology of different species and species groups, and because some species are subject to stressors outside the Illinois River system none can be used as a single indicator for all the others. Many species have become so rare that they warrant monitoring their status alone.

Maintenance and restoration of community and species level biodiversity is an over arching goal of the Illinois River restoration program. Biodiversity within the Illinois River basin is an important component of biodiversity within the state of Illinois. Many wildlife species by themselves integrate factors at multiple spatial scales and specific relationships are difficult to quantify, but wildlife components taken together provide an excellent biodiversity and system integrity indicator for the Illinois River watershed as a whole.

Wildlife monitoring is intended to build on current monitoring programs. However, because most programs are not designed to assess conditions strictly along the Illinois River and its tributaries, do not collect data at enough points for a statistically useful sample at the sub-basin or watershed scale, or are not designed to evaluate responses from restoration efforts, they do not adequately provide for the needs of this program. The objectives of the wildlife/terrestrial monitoring component are to use wildlife and terrestrial vegetation measures to quantify habitat conditions and indicate watershed protection, to suggest protocols that can be used to assess wildlife and vegetation response to restoration, and provide measures that are scientifically sound and interpretable by the general public. Wildlife and vegetation monitoring should compliment other aspects of the overall monitoring program. Development of this monitoring protocol is ongoing and must remain adaptive after monitoring begins.

Some data will only be collected along the mainstem, some only in sub-watersheds, and some will be collected in both areas. Monitoring of critical response measures includes 10 programs with 14 components (Table 5). Some components rely entirely on analysis of data collected under existing programs or require adding additional sampling points to existing programs. Other components use existing programs as a framework to build a program designed specifically for the Illinois River watershed.

Sampling Considerations & Data Analysis

Caution should be exercised in evaluating the results of restoration practices. Many projects, for example riparian forest establishment, will take time to develop and anticipated species response could take many years. Intensive monitoring of birds, plants, and amphibians should detect subtle changes and document restoration trajectory.

Data at specific monitoring points, project areas, within sub-basins and mainstem, and for the entire watershed should be evaluated over time. Data should be summarized and reported at each spatial level to indicate status and success of restoration activities for each scale. Statistical comparisons between sampling units should be avoided but qualitative comparisons can be made.

Sauer et al. (2003) provides an excellent treatment of considerations and analyses for estimating population change for different types of monitoring data. For monitoring components surveyed annually, an assessment should be made after 5 years, incorporating observed variation, to determine if sample sizes are suitable for detection of response and whether strong relationships exist between variables.

Critical Response Measures:

B. Wetland habitat communities in floodplain - Landscape assessment using remote sensing is a powerful tool for quantifying small scale patterns and major habitat deficiencies. However, wildlife utilize habitat at much larger scales and remote sensing is inadequate for accurately distinguishing different community types. Aerial/photographic survey of floodplain habitat or spatial assessment with intensive ground-truthing provides a more accurate and detailed assessment of the amount of each wetland community type within the floodplain. This is particularly important because a change in wetland community by degradation may remain undetected using only remote sensing and many wildlife species, while sensitive to landscapes, make use of habitat at smaller scales. In addition, several important wetland community types (i.e., submergent, floating leaved, emergent, and moist soil) have become rare along the Illinois River as a result of major hydrologic fluctuations.

The USGS Upper Midwest Environmental Sciences Center provides a community level coverage along the Illinois River mainstem for the Long Term Resource Monitoring Program (LTRMP) once every 5-10 years. A sub-community level classification is produced for the entire mainstem using a combination of aerial photography and expert interpretation. The LTRMP community level data should be used to monitor changes in community composition over time for the entire mainstem, river segments, and for project areas. Community level assessment of sub-basin riparian areas is not recommended because of lower overall diversity of communities in sub-basins and cost to complete classifications for all riparian area throughout the watershed.

Community level assessment relates to Illinois River restoration goals similar to landscape level assessment but at a higher spatial resolution. Vegetative communities along the Illinois River mainstem have been affected primarily by altered hydrology and sedimentation. Vegetative response in some mainstem wetlands has been rapid when hydrologic conditions have been temporarily restored during drawdowns or drought (USGS 2003). Therefore successful hydrologic restoration is the key, and combined with measurable reduction in sediment could result in rapid increases in target plant communities.

Estimated cost: $1,000.

D. *Waterfowl* - Historically the Illinois River was a nationally significant waterfowl area with wetlands along the river providing important feeding and resting habitat for waterfowl during migration (Bell 1981, Havera 1999). The Illinois River still provides important waterfowl habitat, however, years of surveys have documented dramatic declines in waterfowl along the river. While many waterfowl species have declined in numbers resulting from loss of habitat in their nesting areas, the decline in use of the Illinois River can also be attributed to habitat loss and degradation and a resulting shift in migratory stopover patterns. For example, diving ducks were once found in large numbers along the Illinois River but shifted their use to the Mississippi River and other areas following the loss of their preferred food sources (Havera 1999). Differences in habitat preference among waterfowl species make their numbers a potential indicator for many habitat types.

The proposed waterfowl monitoring program will supplement existing fall and winter surveys conducted by the Illinois Natural History Survey (INHS) and the Illinois Department of Natural Resources (IDNR) by reinstituting spring migration surveys. The spring surveys will be used to determine waterfowl response to spring habitat conditions. Spring surveys should be conducted weekly from mid-February through April. Selection of monitoring sites for both spring and fall/winter surveys should be based on the experience and expertise of INHS & IDNR biologists. However, monitoring sites should not be limited to areas that already support high numbers of waterfowl resulting from higher quality habitat. Monitoring of potential or historically important waterfowl habitat areas may be a means to track restoration progress. In addition, the list of potential monitoring sites should be updated periodically to include new areas that develop following restoration efforts.

Waterfowl species that still make use of the basin are expected to respond quickly to changes in habitat conditions. Some annual change in waterfowl numbers reflects habitat quality on nesting grounds. Differences in migration use-days between Illinois River habitat areas probably better reflects relative habitat quality between sites. Species with reduced use of the Illinois River basin may take longer to respond depending on the level of change and the annual variation of habitat conditions for different areas.

Monitoring of waterfowl relates strongly to restoration goal one of restoring and maintaining a diverse waterfowl population and sustainable populations of all species. Waterfowl should also respond to improved aquatic habitat diversity and efforts to improve riparian habitat and function.

Estimated cost: $38,000.

E. Wading birds and cormorants - This group includes relatively common species such as the great blue heron and several rare species listed as endangered or threatened. Optimal habitat for wading birds depends on very specific hydrologic conditions. Ideal conditions allow backwaters to fill from the adjacent river during flood stage allowing fish to enter, followed by a slow draw-down which creates foraging opportunities for these birds as fish are stranded in small pools (Gawlik et al. 2003). These conditions are most critical for medium and small wading birds because they tolerate a narrower range of water depths. Hydrologic conditions along much of the Illinois River prevent adequate fish use of wetland areas or appropriate foraging conditions for most species.

Colonial nesting waterbirds are also sensitive to disturbance and rookeries are typically found some distance from high levels of human activity. Most species prefer mature trees for placement of nests. High mortality of floodplain forest trees has resulted in fewer potential nest sites in some areas.

Monitoring will include an aerial survey conducted annually to document rookery locations, followed by intensive ground monitoring of all known rookeries to document the number of active nests. Monitoring will be confined to rookeries found along the Illinois River mainstem. If monitoring of all mainstem rookeries becomes cost prohibitive, a random sample can be selected for monitoring. However, all nest areas that contain cormorants, rare herons or egrets should be monitored. Data should be used to document and map all rookeries, and summarized by number of active nests by rookery and by species.

Herons, egrets, and cormorants are good indicators of hydrologic conditions, fish populations, and riparian forest structure. A response in rookery distribution and numbers will be most rapid following hydrologic restoration, provided nest trees are present in an area. Anticipated response time is 5-10 years. Species diversity and abundance of colonial nesting waterbirds is expected to increase at the mainstem level over a longer time period following restoration progress, including forest maturation.

Estimated cost: $25,000.

G. Shorebirds - Many species migrate through Illinois in large numbers but few species breed here. Most shorebirds require protected beaches or predator-free islands for nesting, and show high fidelity to nest sites. The altered hydrology and flows on the Illinois River have eliminated stable islands. Suitable foraging habitat is found in shallow water areas and mudflats, but major water level fluctuations results in this habitat being present for short periods.

Shorebirds make use of a range of areas during migrations. Some species use ephemeral wetlands in agricultural fields as stopover habitat during wet springs. Similar to other riparian associated species, route based surveys have limited utility for most shorebirds (de Szalay et al. 2000). Monitoring should be targeted to unique habitats within riparian areas, areas utilized every year, and breeding species. Fall water levels currently provide the most suitable habitat for shorebirds within the Illinois River basin, therefore abundance during spring migration should be emphasized as an indicator.

Some monitoring is being conducted opportunistically within the Illinois River basin (Horath et al. 2002) but the program should be greatly expanded. Sampling should include all or a random sample of known and potential habitat areas along the mainstem and tributaries. The International Shorebird Survey (ISS) protocol (Manomet Center for Conservation Sciences 2004) will be used at selected sites. The ISS spring surveys are conducted April 1 through June 10 and fall surveys July 11 through October 31. Complete surveys are difficult to achieve for large and diverse sites, therefore an estimate must be made of the habitat type and area observed. Sampling can be done from selected vantage points within a habitat area. Summary analysis for habitat areas and for the entire mainstem should include migration use-days for all shorebirds and by species. Potential Illinois River basin breeding species are a target indicator because their use may reflect basin factors over a longer time scale.

Estimated cost: $50,000.

H. Bald eagles and ospreys- Bald eagles and ospreys utilize similar habitat. Both species build their nests in large, usually dead trees near open water and forage primarily on fish. The habitat requirements of both species are similar to herons, although they usually forage in deeper water than wading birds. Eagles may exclude ospreys from breeding territories but osprey nests have been documented in heron rookeries. Both species are recovering from population lows in the 1950's and 60's, and they are both considered rare in Illinois (Havera and Kruse 1988). The number of eagle nests is increasing along the Illinois River but no osprey nests have been documented in recent years. Restored habitat along the Illinois River, including management for mature riparian forests or construction of nest platforms near suitable foraging sites but away from human disturbance may result in further increases in nesting activity by both species. Foraging conditions will benefit from improved water quality and generally lower water conditions in backwater lakes and side-channel areas.

Monitoring will build on existing programs and emphasize numbers of nesting eagles. Breeding activity and success should be monitored by maintaining a database of nests, mapping known nest sites, and soliciting reports of new nests from biologists and the public. All nests or a subset of nests should be checked 3 times during the nesting season to determine the proportion of nests occupied and number of young fledged (IDNR protocol – Glen Kruse, personal communication). In addition, winter habitat conditions for eagles should be assessed using the IDNR mid-winter eagle survey. Similar to many other Illinois River wildlife species, eagles and ospreys respond directly to habitat conditions over relatively small areas but integrate the indirect cumulative effects of hydrology, sedimentation, and pollutants over large spatial scales.

Estimated cost: $2,000.

N. Aquatic reptiles - Aquatic reptiles are a relatively unstudied component of large river systems. In part, this results from difficulty in monitoring them at large scales. Many species are thought to be rare or declining. Moreover, this group provides excellent indicators of both aquatic and terrestrial components of riparian systems because they forage in water, reproduce on land, have unique habitat requirements, and some are extremely sensitive to water quality. Amphibians and fish are an important forage component for many aquatic reptiles. Both snakes and turtles require basking sites during spring and early summer when morning temperatures are cool. Water snakes (genus Nerodia), and probably aquatic turtles, require shallow wetlands with gentle slopes at the land-water interface (Laurent and Kingsbury 2003).

Monitoring should be conducted along the mainstem in 30 randomly selected side channels and backwater areas. Monitoring at each site will include basking transects to record numbers of snakes, turtles, and basking sites, location observed, and basking substrate. Run transects by kayak adjacent to the shore line. Because some aquatic turtles are sensitive to water quality, turtle trapping should also be done at each site to determine aquatic turtle community composition and species richness. Monitoring should be conducted from April through early June when basking behavior is most common and before vegetation becomes too dense (Laurent and Kingsbury 2003).

Estimated cost: $27,000.

Other measures - Several proposed wildlife/terrestrial habitat response measures are sampled by HUC 8 units, including both mainstem and tributary HUCs (Table 10). The response measures that include both mainstem and tributary HUCs include: landscape habitat composition, site-specific habitat/vegetation, bottomland/riparian forest and grassland birds, marsh birds, amphibians, and terrestrial mammals. The sampling protocol for these measures are explained the Sub-basin - Ecological/Terrestrial Section. Estimated cost for the mainstem component of these measures follows.

Estimated cost: Landscape habitat composition and metrics (A) - $3,000; CTAP based intensive monitoring of site-specific habitat/vegetation ©), bottomland/riparian forest and grassland birds (K & L), marsh birds (F), and amphibians (M) - $252,000; Terrestrial mammals (I) - $6,000.

Desirable Response Measures:

O. Avian reproduction - Abundance of breeding birds does not necessarily indicate functional habitat quality. Reproductive success may be low even where adult abundance is high (i.e., sink habitat). High quality habitat patches may suffer from landscape or patch fragmentation effects due to high rates of nest predation and parasitism. Therefore, avian reproductive success integrates many factors and provides a good indication of functional habitat quality at the patch and landscape levels.

To evaluate nest success, five sites per habitat (i.e., forest, grassland, wetland) in each sub-basin should be monitored from roughly April to July. Similar to bird monitoring, each sub-basin will be monitored once every 5 years. Nests should be monitored once every 3 days during the active nest cycle and analyzed using the Mayfield method (Mayfield 1975). Nest success should be analyzed by species, reproductive guild, and community, and can be summarized within watershed units.

Avian reproductive success integrates large spatial scales but is expected to respond slowly to restoration efforts. Wetland or grassland breeding avian species will respond more quickly than forest breeding species because herbaceous communities develop more quickly following restoration than forests. A detectable response in reproductive success will probably only be seen following significant increases in habitat patch size and a long period of time for habitat development. Detectable changes in forest bird reproductive success may not be observed for at least 30 years.

Estimated cost: $41,000.

P. Amphibian reproduction - Amphibian embryos are extremely sensitive to environmental conditions. Successful reproduction by amphibians depends on hydrology, water chemistry, and specific habitat requirements (U.S. EPA 2002b). Amphibians require fishless wetlands for successful reproduction and different species prefer different microhabitats for egg deposition. Counts of egg masses provide an indication of breeding effort and the proportion of viable egg masses indicates wetland health (U.S. EPA 2002b). Amphibian adults and embryos are sensitive to many of the same factors with embryos more sensitive than adults. Amphibian egg masses can be used to detect non-vocal species, including salamanders, not detected using call-based surveys.

To monitor amphibian reproduction, a random sub-sample of 15 of the selected amphibian monitoring sites in each sub-basin should be selected. Potential sample sites can be from any of the three habitat types (i.e., forest, grassland, wetland) where calling amphibians were detected. Data collected should include egg mass counts by species and proportion of viable eggs per egg mass. Two visits should be made to each site to detect all breeding species at a site.

Similar to frog and toad call counts, amphibian reproductive effort is expected to respond quickly to improving habitat conditions, particularly hydrology and water quality. Diversity of breeding amphibians provides an additional indicator of habitat complexity. Viability of amphibian eggs generally provides and indication of environmental conditions, potentially at a scale beyond the Illinois River basin.

Estimated cost: $6,000.

HYDROLOGIC AND SEDIMENT MONITORING PLAN

The Integrated Management Plan for the Illinois River watershed had identified sedimentation and un-natural water level fluctuations as the two major causes for ecological degradation in the Illinois River. After extensive discussions and investigations, the Illinois River Basin Restoration project team has identified seven ecosystem restoration goals for the basin. Even though all of the seven goals are related to the hydrology and sediment transport and deposition characteristics of the rivers and streams in the basin, five of the goals address sediment and hydrology directly. These goals are:

- Reduce sediment delivery to the Illinois River from upland areas and tributary channels with the aim of eliminating excessive sediment load.
- Restore aquatic habitat diversity of side channels and backwaters, including Peoria Lakes, to provide adequate volume and depth for sustaining native fish and wildlife communities.
- Improve floodplain, riparian, and aquatic habitats and functions.
- Naturalize Illinois River and tributary hydrologic regimes to reduce the incidence of water level conditions that degrade aquatic and riparian habitat.
- Improve water and sediment quality in the Illinois River and its watershed.

To achieve these goals, a much better understanding of the hydrology and sediment transport and deposition characteristics of the Illinois River and its tributary streams is needed. An effective hydrologic and sediment monitoring network will be vital to a successful restoration program for the Illinois River. This proposed monitoring network will not only provide data that can be used to measure progress towards meeting the goals of the program but will provide the information that is needed now to effectively and efficiently begin implementation of the Illinois River Basin Restoration Project. The hydrologic and sediment monitoring plan presented here is developed to address these needs.

Monitoring Goals & Objectives

It is proposed that a long-term network of streamflow and suspended sediment monitoring sites be established within the Illinois River Basin (IRB), building upon the existing stream and sediment monitoring stations operated by the United States Geological Survey (USGS) the United States Army Corps. of Engineers (USACOE), and the Illinois State Water Survey (ISWS). This monitoring network would have three goals: 1) assess the current hydrologic regimes and suspended sediment transport rates occurring within the IRB; 2) monitor and quantify any changes in hydrologic regimes and suspended sediment transport rates that occur in the future; and 3) evaluate the impacts of restoration projects on stream hydrology, sediment transport and sedimentation. The proposed network will accomplish these goals by providing crucial data needed to help meet the following objectives:

Establish a more detailed and improved sediment budget for the Illinois River: As sedimentation is a major problem in the Illinois River, an accurate and frequently updated sediment budget describing sediment transport rates in the Illinois River and its 11 major tributaries is of primary importance for future river management decisions. The present sediment budget for the Illinois River Basin is our best estimate based on limited available data. The proposed monitoring plan will enable us to develop a much improved sediment budget for the Illinois River basin. With an improved sediment budget resource managers will be better able to establish current or baseline conditions, target restoration efforts, determine basin wide trends over time in sediment loads and delivery and improve our understanding of the codependency of factors influencing the ecological status of the Illinois River and its tributaries.

Identify drainage areas with the highest sediment yields: A detailed sediment budget describing the sediment transport rates of different tributaries, physiographic regions, and stream sizes will determine which types of streams/watersheds have the highest sediment yields within the IRB. In turn this data will provide for an efficient allocation of restoration efforts by allowing managers to prioritize efforts within those areas where the greatest return can be expected.

Evaluate the impact of site specific projects, watershed BMPs, changes in land-use, and climate variability: Monitoring the hydrology and sediment transport rates occurring before and after specific projects/BMPs have been implemented within a stream and/or watershed will provide much needed information regarding the effectiveness of implemented work. Similarly, monitoring the hydrologic and sediment regimes of a watershed before and after land-use changes occur will provide information on how land use affects hydrologic regimes and suspended sediment transport rates. Long-term hydrologic records within a variety of watersheds are also essential for evaluating and accounting for the effects of climatic variability when determining any long-term hydrologic trends within the IRB.

Provide flow and sediment data on small to medium size streams: Many of the important hydrologic, hydraulic, and sediment processes crucial to determining the Illinois River's overall flow regime, sediment transport rates, and ecological health depend on the processes occurring within the small- and medium-sized streams within the basin. Long-term flow and sediment data collected on small- and medium-sized streams are necessary for evaluating the effects that tributaries have on the ecology of the Illinois River through such mechanisms as sediment deposition and their effects on river stages.

Provide calibration, validation, and boundary condition data for the many numerical models likely to be used in studying and developing Illinois River management plans: Many of today's water resource questions are being answered through the use of numerical models that simulate hydrologic, hydraulic, and sediment transport rates. These models allow resource managers to interpret how proposed restoration projects affect not only the project location but how specific projects may influence other components of the system at different spatial scales. To calibrate, validate, and run these models, long-term flow and sediment data are needed. The proposed network will significantly increase the availability of such information in the IRB.

Quantify basic hydrologic parameters for use at ungaged locations within the IRB: The hydrologic and sediment transport properties of many ungaged watersheds will need to be estimated using hydrologic and sediment data collected from watersheds that have similar characteristics. Implementation of the proposed network will provide the required data for watershed models and regional statistical analysis techniques that can be used to estimate hydrologic and sediment transport rates at ungaged locations within the IRB. This in turn will facilitate the planning, development, and evaluation of future IRB restoration projects and best management practices.

Monitor changes in channel morphology: Channel slope and cross-sectional shape are routinely used to compute many hydraulic and geomorphic relationships. The grain size distributions of a stream's bed material, bank material, and suspended sediment are crucial pieces of information used in computer models, sediment transport equations, effective discharge computations, and habitat assessments. The periodic collection of this data at monitoring sites throughout the IRB will provide basic information to hydraulic engineers, geomorphologists, and biologists on current conditions and how channel conditions are changing within streams over time.

Existing Monitoring Network

Streamflow Records - In Illinois there are currently 97 active continuous discharge gages in the Illinois River Basin (IRB) of which 89 are operated by the USGS and 8 are operated by the ISWS. The names and locations of these active gaging stations are presented in Table 11. Also identified in Table 11 are the 80 discontinued gaging stations in the IRB, the number of years over which data have been collected at each station, and whether these data are a full 12-month record (F) or partial (P) record.

The locations of active and inactive gaging stations in Illinois are given in Figure 4. Figures 5 and 6 show the active and inactive gaging stations on streams that have watershed areas less than 400 and 100 square miles, respectively. A review of these figures shows:

- Fifty-two (54%) of the 97 active stations are in the Chicago metropolitan area, specifically in the Fox, Des Plaines, and Chicago-Calumet watersheds. Most of these are in small urban (or urbanizing) watersheds (<100 square miles).

- In the remaining portion of the IRB, most of the gages are on larger watersheds, with drainage areas greater than 400 square miles. There are 19 stations in watersheds less than 400 square miles, 11 of which are located in the Sangamon River watershed (Figures 5 and 6).

- Outside of the Chicago area, there are 10 active gages on small watersheds (<100 square miles). Three of these watersheds are located either in urban areas or immediately downstream of reservoirs (Figure 7a). Of the remaining seven gages, only one has a continuous discharge record longer than 5 years. The other six gages, operated by the ISWS, have relatively short discharge records and are supported by short-term CREP and Lake Decatur research projects (Demissie et al. 2001; Keefer and Demissie 1996).

Suspended Sediment Records - In Illinois there are 21 active monitoring sites collecting suspended sediment data in the IRB. Figure 4 shows the locations of these sites. The USGS is currently collecting sediment data at six locations in the Illinois River Basin. The USACOE is currently collecting suspended sediment data at two locations within the IRB, while the ISWS is currently collecting suspended sediment data at the remaining 13 locations. Between 1972 and 2003 suspended sediment data have been collected at a total of 58 monitoring sites in the IRB. The names and locations of both active and inactive suspended sediment monitoring sites along with details regarding the amount of sediment data available at each of these gaging stations is described in Table 12. The drainage areas being monitored by the 21 active sites are shown in Figure 7b. The locations of these sites are given in Figure 8. Figures 9 and 10 show the locations of sub-basins where suspended sediment monitoring sites monitor basins with drainage areas of less than 400 square miles and less than 100 square miles, respectively. From the information in Figures 7-10 one can make the following six observations:

• Three of the 21 active sites are on the Illinois River while 13 sites are on major Illinois River tributaries with watershed areas greater than 400 square miles. Eight of the 13 suspended sediment sites on major tributaries are part of the Illinois State Water Survey's WARM network, which collect instantaneous suspended sediment samples once a week at various sites throughout Illinois (Allgire and Demissie 1995). Most of the WARM sites provide periods of record in excess of 20 years. Two of the monitoring sites on major Illinois River tributaries are monitored by the USACOE. Data has been collected at both sites since 1997. The remaining three sites, recently reactivated by the USGS, are located on the Fox, Des Plaines and Spoon Rivers.

• The 5 sites monitoring drainage areas less than 400 square miles are all within the Spoon and Sangamon River watersheds (Figure 9). Monitoring at these sites is supported by the short-term CREP research project.

• There are only two suspended sediment monitoring sites in the Chicago metropolitan area.

• None of the bluff streams that are within the mainstem Illinois River Sub-basin and drain less than 400 square miles are currently being monitored for sediment.

• If long term-support is not obtained to continue the sediment monitoring at the ISWS's CREP monitoring sites, no sediment monitoring will occur on streams draining less than 400 square miles.

• If funding is not available to maintain the ISWS 5 CREP monitoring sites and four USGS sites that began collecting sediment data this year (2003), the overall sediment monitoring network will be reduced from 21 sites to 12 sites in the next few years (Figure 7b).

The number of active sediment and discharge monitoring locations within the various major Illinois River sub-basins is shown in Table 13. From this table and Figures 8-10 it can be seen:

• That no sediment monitoring is occurring within three of the 11 major sub-basins of the Illinois River. These sub-basins are the Chicago/Calumet, Iroquois, and Macoupin sub-basins.

• Six Illinois River sub-basins have sediment monitoring sites only on the sub-basin's major river. These six sub-basins are the Des Plaines, Fox, Kankakee, La Moine, Mackinaw, and Vermillion sub-basins.

• The sediment loads representative of streams draining less than 100 square miles and flowing into nine of the Illinois River's major tributaries are not currently being monitored (Figure 10).

• None of the many bluff streams with drainage areas smaller than 400 square miles that flow directly into the Illinois River (found in the Illinois River sub-basin) are currently being monitored for discharge or sediment.

Shortcomings of the Existing Network

The current flow and sediment monitoring network in the Illinois River Basin is insufficient for addressing the many scientific and management questions which need to be answered in order to develop a sound river management program for the Illinois River Basin. The following paragraphs identify four major areas in which the current monitoring network fails to meet current monitoring needs.

Insufficient data to establish a detailed sediment budget for the Illinois River. Only about 70 percent of the major tributaries to the Illinois River are being monitored for suspended sediment. Moreover, as most of the monitoring records at these stations are based on weekly instantaneous suspended sediment samples, load values (particularly peak loads) transported during storm events may be poorly estimated (Allgire and Demissie 1995). Consequently, current sediment budgets for the Illinois River must be currently computed using limited and derived data (Demissie et al. 1992). To obtain a more accurate sediment budget for the IRB, suspended sediment sampling frequency needs to be increased at existing suspended sediment monitoring locations and additional suspended sediment sampling needs to be performed near the confluences of all the Illinois River's major tributaries. Without such basic monitoring our ability to understand and manage the numerous sediment problems within the Illinois River is severely hindered.

Insufficient long-term monitoring of small- and medium-sized streams. Outside the Chicago-metropolitan area virtually no long-term monitoring of flow and sediment is being conducted on small- (< 100 square miles) to medium- (< 400 square miles) sized streams. This lack of long-term monitoring on small- to medium-sized streams is problematic for several reasons. First, one cannot effectively monitor the impacts that watershed BMPs have on downstream conditions. Second, the sediment loads of small- and medium-sized streams cannot be easily estimated and incorporated into overall sediment budgets for the IRB (Demissie et al. 1992). Third, the data needed to perform geomorphic studies involving effective discharge, bankfull discharge, and stream restoration design for small streams is not available (Crowder and Knapp 2002). Similarly, a paucity of long-term flow monitoring on smaller streams prevents one from quantifying the effects that climate variability, and changes in land use have on the IRB's smaller streams (Knapp and Markus 2003).

No monitoring of sediment grain size distributions, bed load transport rates, and basic instream channel properties. Currently, streamflow and suspended sediment monitoring sites are not monitoring erosion/deposition rates, changes in cross-sectional shape, and channel slope. Nor are the grain size distributions of the channel's bed material, bank material, and suspended sediment being periodically measured. Such fundamental information is needed to run hydraulic/ hydrologic models and to use existing sediment transport equations. Additionally, such information can be used to provide a more detailed assessment of the existing hydraulic, ecological, and geomorphic conditions within the IRB.

No sedimentation monitoring program exists for the backwater lakes along the Illinois River. Current bathymetric and sediment characterization information does not exist for most of the backwater and floodplain lakes of the Illinois River. It is crucial to perform periodic bathymetric surveys for these lakes. Updated bathymetry and sediment characteristic data when combined with historical mapping products such as the Woermann maps will provide information on the processes that are occurring within these backwater lakes as well as insight into how sedimentation differs between lakes with respect to orientation, channel geometry, degree of connectivity to the mainstem, and/or inputs from local tributaries. This information will also be necessary for the development of site-specific plans for restoration efforts. Sediment volumes, existing or planned minimum depths, and areal extents of various habitat types and potential beneficial uses of sediment can all be determined for current conditions or calculated for different management alternatives.

The proposed monitoring plan consists of three components: mainstem monitoring, basin-wide monitoring, and project specific monitoring. The mainstem and basin-wide components focus on providing a network of monitoring sites and periodic bathymetric surveys to address long-term and systemic issues within the IRB. Based on the current monitoring network's shortcomings, it is recommended that the existing monitoring network be significantly enhanced by placing additional sediment and discharge monitoring sites throughout the Illinois River Basin. The proposed increases in sampling frequency and number of sites are intended in part to address two issues in understanding sediment yields and transport in the Illinois River basin: 1) what is the temporal variation in sediment delivery at selected sites, including changes over time resulting from best management practices (BMPs), and 2) what is the spatial variation in sediment across the basin? These data are needed before we can effectively predict which sub-watersheds are the major sources of sediment in streams so that we can more effectively address how and where to target restoration efforts. In both the temporal and spatial context we are currently trying to use a limited amount of sediment data to analyze a highly variable process.

Recent analysis of sediment records in Illinois by the ISWS for use in estimating effective discharges (Crowder and Knapp 2002) highlighted the problems with determining sediment-discharge relationships with limited data. For those stations on large streams where suspended sediments were sampled every one or two weeks, many years of data were needed to define a stable sediment rating, such that it is difficult to identify meaningful temporal trends within these long sampling periods. One major obstacle is that there is considerable variability (scatter) in the sediment load for a given discharge class, and for higher discharge classes there are relatively few samples from which to estimate the mean sediment load. The use of standard power function (log linear) curves to estimate average sediment loads in lieu of adequate data proved to be inaccurate. Whereas increased sampling on larger tributaries for low and medium flow events (for which there is normally plenty of data) may not significantly improve sediment-discharge relationships, increased sampling of higher flow events is needed for establishing and identifying temporal changes in such relationships. For smaller streams, sediment sampling during storms becomes particularly crucial because most high flow events will be totally missed by standard periodic sampling.

From the current sediment network we have been successful in identifying broad-scale sediment budgets and spatial differences in sediment delivery across the Illinois River basin. However, we have data from very few small watersheds, such that it is difficult to determine whether our small watershed data are representative of other ungaged watersheds across the Illinois River basin. Both modeling efforts and data at additional sites will be needed before we can determine the amount of spatial variability, uncertainties, and relatives difference that could be related to management practices.

A final factor that needs to be addressed is the influence of climatic variability on analyzing trends in stream sediment. The amount of flow and sediment in a stream are highly responsive to the variable sequence of climatic events. In analyzing the influence of climate variability on streamflow quantity, ISWS studies have concluded that streamflow variability associated with climate fluctuations may often be sufficient to mask the impacts of other factors (such as changes related to moderate levels of land-use change or BMPs). We need to keep in mind that we are trying to estimate changes in average stream sediment of 10-20% over time, and that interdecadal changes in total flow volume associated with climate variability are commonly in excess of 20 percent. This is why long-term records are needed for identification of trends in hydrology, sediment yield, and related processes.

Within this plan the placement of new monitoring sites focuses on characterizing the physical processes occurring within different types of morphological and physiographic settings along with identifying the influence land use and climate variability may have on hydrologic and sediment transport processes. Within the Till Plains Section of the Central Lowland Province, there are four major physiographic units making up the IRB (outside the Chicago area): the Galesburg Plain, the Springfield Plain, The Bloomington Ridged Plain, and the Kankakee Plain (Leighton 1948). Table 12 also shows the major physiographic region(s) each sub-basin lies within. Additional monitoring sites are being added so that small- and medium- streams are monitored within each of the sub-basins and the four major physiographic regions making up the IRB.

With a large network of streamflow gages already operating in the Fox, Des Plaines, and Chicago/Calumet sub-basins, additional streamflow and sediment monitoring within these sub-basins is not proposed.

The Illinois River sub-basin is identified as being in particular need of additional monitoring. The bluff streams found in this sub-basin are unique and the apparent high sediment delivery rates of the streams may play a crucial role in the Illinois River's sediment transport processes. To date there has been little hydrologic and suspended sediment monitoring conducted on these bluff streams. Consequently several new monitoring sites are proposed for this sub-basin.

Overall, this proposed monitoring plan efficiently allocates monitoring efforts between the mainstem Illinois, major tributaries of the Illinois River and small- and medium-sized streams throughout the IRB. The resulting network of hydrologic and sediment monitoring stations is a holistic monitoring approach that will better reflects the stream processes occurring within the large variety of watersheds found in the IRB.

Critical Response Measures:

Streamflow and Suspended Sediment - Standardized sampling equipment and procedures will be implemented at all sites within the monitoring network. The equipment and sampling regiment used at a particular location will reflect the stream's size, and storm hydrograph duration. Methods at each gaging site will also follow commonly accepted streamflow and sediment sampling procedures as described by Edwards and Glysson (1999), Rantz (1982a), Rantz (1982b), and FISP (1952).

In general, the monitoring network will collect continuous stream gage data, record hourly or sub-hourly discharge estimates, and collect daily suspended sediment samples. When needed, storm sampling will also be provided at each monitoring site.

Morphologic and Sediment Grain Size Data - At each site, channel slope, cross-sectional shape, suspended sediment grain size distribution, and bed and bank-material compositions will be periodically sampled and/or measured for a reach extending about ten times the width of the stream at the gaging site.

Bathymetric/Sedimentation Survey of Backwater Lakes - The backwater and associated floodplain lakes of the Illinois River are known to be vital to the processes that determine the overall ecology of the Illinois River. To better quantify the sediment characteristics and sedimentation processes that are occurring within these lakes, periodic bathymetric surveys and sediment sampling will be performed at locations where sedimentation has been identified as an ecologic or economic concern.

Ecologically important backwater lakes, side channels, and wetland areas will be identified and periodically surveyed using standard bathymetric surveying practices (USCOE 2002), so that sedimentation patterns and rates can be determined for different reaches of the Illinois River. Sedimentation rates will be determined through sediment dating techniques using Pb^{210}analysis of collected core samples. The use of radiometric dating techniques provides data on sedimentation rates for specific periods and how these rates have changed over time as opposed to the average rate of sedimentation that can be inferred from bathymetry alone. Priority will be given to performing bathymetric surveys that describe sedimentation rates over the entire length of the Illinois mainstem. However, if justified, locations on Illinois Tributaries may also be surveyed.

Locations for bathymetric and sediment characteristic surveys will be identified with input from the agencies conducting ecological monitoring and implementing specific projects (e.g., dredging, water retention, and habitat restoration).

Proposed Basin-Wide Hydrologic and Sediment Monitoring Sites

With the present monitoring network our ability to detect basin wide changes in sediment transport and delivery is negligible, other than at those few stations monitoring small watersheds such as the CREP monitoring network. With the proposed basin wide monitoring network our ability to detect system wide trends and changes in sediment loads and delivery rates would significantly improve. Assuming this network will be operated throughout the Illinois River Basin 519 Restoration Project (10+ years) the accuracy of our sediment yield estimates will improve by more than 50 percent when compared to current capabilities. This improved estimate should allow researchers to determine if progress is being made towards the stated objectives of the IRB 519 Project.

A list of monitoring sites that compose the proposed network that would provide data to achieve the objectives listed in the "Goals and Objectives" section is provided below. Following the name/location of each proposed discharge and sediment monitoring site are comments describing which actions need to be implemented at that location. At locations where discharge and sediment are currently being monitored a recommendation is made to "increase sampling frequency." For stations that currently have active streamflow gages, but need sediment monitoring, a recommendation to "monitor sediment" is made. At sites where neither discharge nor sediment is currently being monitored a recommendation is made to "activate" or "reactivate" discharge and sediment monitoring. To "activate" a station implies no prior data has been collected at that site, whereas to "reactivate" a station means previous discharge and/or sediment data was collected at that site. The locations of all of the proposed monitoring sites within the Illinois River Basin are shown in Figure 11.

Mainstem Locations:

Sites on the Illinois River.

A01 Illinois River at Henry (monitor sediment)

A02 Illinois River at Kingston Mines (monitor sediment)

A03 Illinois River at Marseilles (increase sediment sampling frequency)

A04 Illinois River at Valley City (increase sediment sampling frequency)

These monitoring sites were selected for two reasons. First, the locations are distributed along the entire length of the Illinois River. Second, the sites will be collecting sediment samples at existing stream gages. Note, while suspended sediment has been collected at Pekin and is currently being collected at Chillicothe, stream gages do not exist at either of these locations and discharges must be estimated. Hence, it is recommended that future suspended sediment monitoring take place at Henry and Kingston Mines, where stream gages exist.

Proposed monitoring sites on major tributaries to Illinois River, sites on small tributaries not in the mainstem Illinois sub-basin, sites on small- to medium-sized streams in the mainstem Illinois River sub-basin, and sites representing different morphologic and physiographic regions are presented in the Sub-basin - Hydrologic and Sediment Monitoring Plan section.

The mainstem locations explained above along with the three types of gages explained in the Sub-basin - Hydrologic and Sediment Monitoring Plan section, create a network composed of 58 monitoring sites throughout the Illinois River Basin. While it is believed that this network provides a sound and reasonable framework for meeting the goals and objectives set forth in this proposal, it is recognized that funding for such a comprehensive network may not be feasible. Consequently, a smaller monitoring network, consisting of 45 monitoring sites, is described. This network is believed to contain the minimum number of monitoring stations that would be needed to significantly improve the existing hydrologic and sediment monitoring network and begin providing data to meet the goals and objectives of this proposal. Following is a comparison of the networks capabilities and associated costs.

Under this option, the monitoring network would comprise of 45 monitoring sites. Like the comprehensive network, this network would provide a much improved sediment budget for the IRB and significantly increase monitoring on small- to medium-sized streams. However, compared to the Comprehensive Network, the minimum network would spend about 32 percent less effort monitoring the Illinois River's major tributaries and about 20% less effort collecting hydrologic and sediment data pertaining to small- to medium-sized streams. Monitoring on the Illinois mainstem under this and the comprehensive network would be the same. Thus, the resulting network still emphasizes the collection of data on small- to medium-sized streams, but also provides significantly more data on the larger tributaries than is currently being collected.

In summary, the critical network would support:

1) All four proposed sites on the Illinois River (A01-A04)

2) Fifteen of the twenty-two proposed sites on the Illinois River's major tributaries

3) Five of the seven proposed sites on small tributaries not in the Illinois River sub-basin

4) Ten of the eleven proposed sites on small- to medium-sized streams in the mainstem Illinois River sub-basin

5) Eleven of the fourteen proposed sites to represent different morphologic and physiographic regions

Estimated cost: $1,118,000 to implement and operate this hydrologic and sediment monitoring network during the first year and $634,000 per subsequent year. These costs reflect the combined cost of the mainstem and sub-basin hydrologic and sediment monitoring plan.

Desirable Response Measures:

This comprehensive network, containing a total of 58 monitoring sites, will provide a much improved sediment budget for the IRB and begin long-term monitoring of a large variety of small- to medium-sized streams consistent with the goals and objectives of this proposal. This network also promotes continued monitoring at sites where data has already been collected and increasing the period of record is desirable. Finally, this network monitors specific watersheds where substantial watershed development and research activities are likely to occur (e.g. Spoon). Focusing our monitoring efforts within areas where restoration efforts are likely to occur is beneficial for a number of reasons. This proposed gage network provides the opportunity for adequately describing baseline conditions. Also by being situated in the sub-watersheds where projects will be placed these gages are optimally suited to detect change. It is reasonable to assume the effects of restoration efforts will first be seen in the tributaries. When comparing tributary sub-basins to the entire Illinois River Basin, the decreases in contributing watershed area, sediment storage capacities and codependency of causative variables should all lead to earlier detection of the benefits from restoration efforts. By having a gaging network that addresses different spatial scales we will improve our ability to provide data to help support project siting and other ecological monitoring activities in settings where resources and results can be shared.

In summary the Desirable Network would support:

1) Four sites on the mainstem of the Illinois River (A01-A04)
2) Twenty-two sites on the Illinois River's major tributaries (B01-B22)
3) Seven sites on small tributaries not in the Illinois River sub-basin (C01-C07)
4) Eleven sites on small- to medium-sized streams in the mainstem Illinois River sub-basin (D01-D11)
5) Fourteen proposed sites to represent different morphologic and physiographic regions (E01-E14)

Estimated cost: $1,423,000 to implement and operate this hydrologic and sediment monitoring network during the first year and $815,000 per subsequent year. These costs reflect the combined cost of the mainstem and sub-basin hydrologic and sediment monitoring plan.

Monitoring Plan
SUB-BASIN

ECOLOGICAL MONITORING PLAN - AQUATIC

Most studies on the effects of restoration practices have been implemented on small spatial (e.g. reach-scale) and temporal scales (e.g., Magette et al. 1989). Very few studies have documented the effectiveness of restoration practices in wadeable streams at spatial scales larger than the reach or local scale (Wang et al. 1996; Wang et al. 1997; Wang et al. 2002). In the few studies that were completed at larger spatial (e.g., sub-basin) and temporal scales, the emphasis has been on the effects of stream restoration on chemical/physical parameters (e.g., nutrient concentration, sediment yield) (Trimble and Lund 1982; Gale et al. 1993; Walker and Graczyk 1993; Park et al. 1994; Cook et al.1996; Edwards et al. 1996; Meals 1996; Bolda and Meyers 1997). Responses of the biota to sub-basin wide or watershed wide implementation of restoration practices have been considered only in more recent studies and much less frequently than physical parameters (Fitzpatrick et al. 2001; Stewart et al. 2001; Wang et al. 2002). Currently, there is a lack of understanding on how ecological processes operating at large spatial and temporal scales affect stream fish populations (Schlosser 1995; Roni et al. 2002) and invertebrate assemblages (Richards et al. 1996). However, it is clear that processes operating at large scales (e.g., land use in a sub-basin) can strongly affect the integrity of stream fish and invertebrate communities (Roth et al. 1996; Fitzpatrick 2001; Stewart et al. 2001).

Monitoring responses of a stream system to restoration using several spatial scales (reach, sub-basin, and basin) improves the ability to detect meaningful changes in the integrity of the aquatic community and to discover mechanistic explanations for linkages between abiotic and biotic parameters operating at different scales. By monitoring lotic systems at the sub-basin scale, an intermediate spatial scale, we can assess the collective effects of individual restoration practices implemented at the reach scale to make predictions on potential effects of restoration at the basin scale. Although the sub-basin is an intermediary scale between individual projects and the mainstem of the Illinois River, changes in stream quality at this scale can be better understood by determining mechanisms for changes in stream conditions at an even smaller watershed and sub-watershed scale. To better comprehend the collective effects of restoration at the sub-basin scale and link those with effects of individual projects, monitoring at the sub-basin scale in addition to the sub-basin scale is essential. We are defining sub-basins as large tributaries to the Illinois River mainstem (HUC 8 scale) with watersheds (HUC 10 scale) nested in sub-basins and sub-watersheds (HUC 12) nested within watersheds (Figure 3).

The aquatic ecology monitoring framework focuses on documenting changes in both biotic and abiotic factors in sub-basins of the Illinois River as well as determining immediate and local effects of various practices on the overall stream community. Documenting these changes at various scales (sub-basin, watershed, and sub-watershed) will require the use of different sampling protocols and study design/analytical methods. At the watershed and sub-watershed scale, the Before-After-Control-Impact (BACI) study design will be used to assess changes in physical habitat and aquatic biota (see description in Study Design - Statistical Approaches section in the Introduction). This design accounts for temporal variability increasing the likelihood of detecting true changes in lotic systems at smaller scales and allowing improvements in stream quality to be attributed to restoration practices instead of other events such as changes in climate conditions during the study. With increased scale to the sub-basin level, the BACI design is more difficult to implement due to the challenge of finding a suitable reference sub-basin in the Illinois River basin that will have little or no restoration practices implemented. In this case, trend analysis/repeated measures and regional reference sites (Rasmussen et al. 1993; von Ende 1993; see Study Design - Statistical Approaches section in the Introduction) will be used to evaluate the effectiveness of restoration on aquatic communities. Regional reference sites are least disturbed areas within the same region as the treated sub-basin. Abiotic and biotic indicators of stream quality at the regional reference sites are used as benchmarks to assess changes in treated sub-basins once restoration practices are implemented.

To accurately monitor the combined effects of restoration practices on stream quality, critical parameters need to be identified and collected. Below, we identify those parameters which must be collected (i.e., critical metrics) to accurately detect changes in stream integrity as a result of restoration practices. We also discuss parameters that should be incorporated into a monitoring program (i.e., desirable metrics) in order to obtain a more mechanistic understanding on how changes in one parameter (e.g., habitat quality) affects another (e.g., fish abundance).

Critical Response Measures:

It is crucial that water quality parameters (those related to sampling efficiency and condition of biota), habitat, fish assemblages, and invertebrate (including mussels) communities be monitored at least once a year for several years before and after implementation of restoration practices. Within each sub-basin designated for practices, multiple sites must be monitored at the sub-basin scale (i.e. both upper and lower portions of the mainstem of major tributaries to the Illinois River) as well as at the watershed and sub-watershed scale. For the sub-basin sites, regional references will be used to assess improvements in stream integrity. At both the watershed and sub-watershed scale, reference watersheds within the same sub-basin (when possible) will be monitored to determine improvements in lotic communities. To utilize historical water quality, habitat, and biotic data, we will collect data at sites previously sampled during IEPA/IDNR basin surveys where possible and use qualitative and quantitative collection methods similar to protocols used by these agencies (IEPA 1994; IDNR 2001). Length of each sampling site must include at least one riffle-run-pool sequence (i.e., approximately 35 times the mean stream width) (Lyons 1992; IDNR 2001) with non-channelized sites being no less than 150m and channelized sites being no less than 300m in length (Holtrop and Dolan 2003). For non-wadeable sub-basin sites, station length will be sampled for a given time (30 minutes) instead of a given distance as described in IDNR protocols (IDNR 2001).

Habitat - Chemical/physical habitat data must be collected using two levels of sampling: site-scale and transect-scale. Site-scale parameters (Table 14) will be collected at one location in the site (e.g., water temperature, discharge) or are based on maps of the entire site (e.g., drainage area, stream order) and are assumed to be representative of the entire site. For chemical/physical habitat, efforts will be made by each discipline to sample the same sites in order to collect a more complete dataset on water quality and channel morphology data without duplicating efforts. At locations were this is not feasible, water quality data as it pertains to sampling efficiency, biotic health, and productivity of the stream (temperature, dissolved oxygen, conductivity, periphyton concentrations, etc; Table 14) and channel morphology data using point/transect methods (Table 15) should be collected during biotic assessments.

Transect-scale variables are those which are expected to vary considerably within a site (Table 15). These variables, which pertain to stream channel morphology, bottom substrate, cover for fish, macrophyte abundance, condition of stream banks, and riparian land use/vegetation, should be measured on at least ten, equally spaced transects perpendicular to flow. A modified Stream Assessment Protocol for Ontario (Stanfield et al. 1998) will be used to sample these habitat variables. This protocol is similar enough to IEPA habitat protocol (IEPA 1994) to allow for comparisons with IEPA/IDNR basin survey data. However, in the Ontario protocol, in-stream substrate is measured instead of visually estimated and bank/riparian conditions are assessed. This protocol has been rigorously tested and found to provide consistent and reliable results on repeated habitat sampling of stream systems (Stanfield and Jones 1998). In addition to utilizing habitat data from IEPA/IDNR basin surveys to supplement baseline data, landuse data will be used to assess improvements in system integrity due to implementation of restoration practices at the sub-basin scale.

Fish and Macroinvertebrates - Fish and invertebrate assemblages must also be monitored at least once a year at the same time and site locations as habitat data collection. Every effort will be made to select sites with historical data to obtain additional baseline data and to coordinate sampling among each discipline to collect water quality and channel morphology data that will be useful in predicting and explaining biotic integrity. At sites where water depth is too deep to wade safely with electrofishing gear (i.e. sub-basin sites), boat electrofishing gear will be used to collect fish assemblage data and site length will be determined primarily by electrofishing run time (IDNR 2001). To detect changes in fish populations and assemblage structure at watershed and sub-watershed sites, quantitative collection of fish data is necessary using a single pass with an electric seine and block nets to prevent fish escapement (IDNR 2001). Species richness, abundance, percent composition, and the Index of Biotic Integrity (IBI) metrics will be used to assess changes or shifts in integrity of fish assemblage structure as a result of restoration practices at each of the spatial scales.

Invertebrate communities must be assessed through a randomly stratified design whereby habitat types are sampled in proportion to their occurrence within each site. Both quantitative (Dodd et al. 2003) methods to obtain relative abundance and percent composition of each taxa and qualitative (IEPA 1987; IEPA 2002) methods will be used to compare current invertebrate communities with historical data. At the watershed and sub-watershed sites, quantitative samplers (i.e. Hess sampler in riffles and core samplers in pools/runs) and qualitative samplers (kicknets) used for wadeable sites will be employed. At sub-basin sites, where water depth may be too great to wade, ponar grabs should be used to quantitatively assess invertebrate communities in deep pools and runs in addition to Hess and core samplers (quantitative methods) and kicknets (qualitative methods) in the wadeable margins. Invertebrates should be identified to family when possible in order to allow for distinctions in stream quality/integrity among restored and reference sites. Taxa richness, densities, percent composition, biotic indices (Family Biotic Index and Macroinvertebrate Biotic Index), and percent of intolerant taxa (Ephemeroptera, Plecoptera, and Trichoptera, %EPT) will be used to assess responses of invertebrates to restoration practices. Mussels, which are also good indicators of sedimentation in a system, should also be assessed at least once a year using IDNR's semi-qualitative wading technique (IDNR 2002) to obtain additional baseline data and to assess changes in mussel populations after restoration. Although mussels are long-lived and, therefore, may have a longer lag time in terms of changes in taxa richness, relative abundance of mussels should increase within a relatively short time frame.

Very few studies have examined effects of restoration practices on fish and invertebrate communities as well as physical habitat at the watershed or sub-basin scale, and therefore, it is uncertain as to the time frame in which significant improvements will occur at these spatial scales. However, based on power analysis of baseline data in the Pilot Watershed Program, we feel confident that improvements in habitat, fish, and invertebrate indicators of stream integrity will be detected within 5-10 years after restoration (with at least 5 years of baseline data) at the sub-watershed and watershed scale (Dodd et al. 2002). This preliminary power analysis is supported by a Wisconsin study which examined the effects of best management practices on habitat and fish assemblages where changes in stream quality were reported after only 4-5 years of implementation at the sub-watershed scale (Wang et al. 2002). Because the sub-basin scale is much larger than the watershed or sub-watershed scale, we estimate that improvements in stream integrity will take longer than the 5-10 years we propose for the watershed scale.

Estimated cost: $ 100,000 per sub-basin/year (cost will vary depending on number of sub-basins).

Desirable Response Measures:

Supplemental data collection on chemical/physical habitat, fish, and invertebrates is desired in order to provide further understanding of relationships occurring between abiotic and biotic factors and how they interact under implementation of restoration practices at various spatial scales (sub-basin, watershed, and sub-watershed). To improve our ability to detect improvements in system integrity within sub-basins of the Illinois River, additional sites should be monitored throughout treated sub-basins (including at the watershed and sub-watershed scale) before and after restoration.

Water quality - Water quality parameters of stream integrity should be monitored continuously (see numbers 4-6 in Table 14) when possible by using gaging stations.

Habitat - Physical habitat, including periphyton abundance (see number 7 in Table14), should be monitored seasonally (Table 15). Habitat types (riffles, runs, pools, side-channels, back-waters, etc.) should be measured and mapped within each site to indicate changes or shifting of these habitats which are critical for different life stages of organisms. More detailed bank and riparian data should be collected by quantitatively sampling vegetation using quadrats in randomly selected locations to obtain percent composition and dominance of plant taxa as well as overall condition of the bank and riparian corridor.

Fish and macroinvertebrates- Because composition, structure, and life stages present in the biotic communities of lotic systems change with seasons, particularly for invertebrates, we propose to sample fish and invertebrate assemblages seasonally at the same time as physical habitat collection. Seasonal sampling (spring, summer, and fall) will allow a greater understanding on how restoration practices affect biotic communities at different times of year under different habitat conditions (e.g. higher flow, low percent overstory cover, and low temperatures in spring versus low flow, high overstory cover, and higher temperatures in summer).

To assess effects on relative abundance of fish communities more completely, it would be desirable to quantitatively sample fish using a multi-pass method at longer stream reaches, particularly at sites where habitat complexity makes it difficult to get a reliable estimate of taxa richness and relative abundance using electrofishing gear (i.e. stream reaches with lots of woody debris and root snags where fish can hide) (Holtrop and Dolan 2003). A single pass method is critical and will provide a reliable estimate for species richness and percent composition, but a multi-pass method is desirable in that it will give a more reliable estimation of abundance and densities (Simonson and Lyons 1995).

To improve our understanding of which abiotic and biotic factors directly or indirectly affect fish communities, we also propose collecting and analyzing boney-structures to estimate changes in growth rates and overall health of the fish populations due to restoration practices. Changes in habitat suitability, prey availability, and fish health resulting from restoration practices can be evaluated through analysis of growth rates because growth is affected by both endogenous and exogenous conditions (DeVries and Frie 1996). Species composition, abundance, and size structure are used to describe changes in the population dynamics of stream fish communities, but the results of these metrics alone offer little insight into which factors or how these factors regulate communities. For example, these fish metrics do not give an indication of how well the habitat meets the needs of the species and does not provide information about the length of time it took for the individuals in a population to reach their current size. Besides improving our understanding of the mechanisms regulating stream fish communities, growth rates also gives us an idea of the stream conditions before a study commences. Age and growth analysis will add a much needed mechanistic understanding of how fish integrity is affected by restoration practices in Illinois River sub-basins with minimal effort. Boney structures will be collected from fish during fish community sampling and processing/analysis of these structures will take minimal time (approximately 1 – 1 ½ months a year).

By including additional data metrics beyond those described as “critical”, our monitoring framework will increase knowledge of how changes in abiotic and biotic factors interact at different spatial scales and allow agencies and managers to better predict how restoration practices will collectively influence stream systems in future restoration projects.

Estimated cost: An additional $20,000 per sub-basin/year (cost will vary depending on number of sub-basins).

ECOLOGICAL MONITORING PLAN - TERRESTRIAL

For terrestrial monitoring, the Illinois Natural History Survey Critical Trends Assessment Program (CTAP; Milano-Flores 2003) provides a useful framework for monitoring vegetation and terrestrial wildlife. The CTAP program is designed to monitor the condition of forests, grasslands, wetlands, birds, insects, and streams in Illinois. For each habitat type, 150 sites are monitored on a rotating, 5-year cycle. Site selection is based on randomly selected patches within randomly selected townships throughout the state. Because townships do not provide a suitable sampling framework within the Illinois River basin, we recommend a slightly modified CTAP protocol in which the sample unit is a habitat patch stratified by sub-basins (i.e., eight digit USGS Hydrologic Catalog Units).

In the proposed modified CTAP approach, data will be collected at 30 sample points in each of three habitat categories (i.e., forest, grassland, wetland) in each sub-basin. This framework results in 1,710 monitoring sites (19 sub-basins x 90 points per sub-basin). The spatial sampling frame for our modified framework is the Federal Emergency Management Agency 100 year flood-zones (Illinois State Water Survey 1996) or 300m from USGS digital line graph streams, whichever is wider. Iverson et al. (2001) demonstrated the potential of using 300m buffers to evaluate wildlife habitat in riparian zones for small streams with relatively narrow floodplains. Sampling in each sub-basin will occur once every 5 years.

The proposed monitoring design will support tracking conditions and restoration progress at site and sub-basins scales, while allowing integration up to the entire Illinois River basin. Specific sampling considerations are outlined below. Sub-basins can be combined based on geographic location and landscape characteristics to decrease number of monitoring sites and therefore costs.

A. Landscape habitat composition and metrics - Land use throughout the watershed has an effect on the status and function of the river and the species present. Land use composition is easily assessed using remote sensing and geographic information systems (GIS). Regular assessment documents landscape change and indicates increasing or decreasing watershed protection (Wang et al. 1997; Snyder et al. 2003). Spatial configuration of habitat provides a better indication of landscape quality for organisms but relationships are complex and difficult to quantify (Gustafson 1998).

Land cover should be regularly monitored to evaluate changes in landscape composition and pattern over time. Land use statistics should be summarized by HUC unit (sub-basin), for the entire watershed, and within the defined riparian zone where species monitoring will occur. Increasing amounts of forest, wetland, and grassland reduce soil erosion, filter contaminants, and increase wildlife habitat. The amount of cropland and urban areas in a watershed have been shown to negatively affect aquatic systems (Wang et al. 1997; Snyder et al. 2003). Important measures of habitat spatial pattern for riparian wildlife include forest (including bottomland) patch size and connectivity, wetland (non-forested) patch size and nearest neighbor distance, grassland patch size, width of natural cover along streams, and connectivity of all natural cover along channel.

Land cover classification and assessment is a powerful tool that relates directly and indirectly to many Illinois River restoration goals. The information provided by analyzing landscape habitat composition and pattern relates to diversity and sustainability of habitats and communities, and habitat suitability for species. Species or community level modeling can be applied using land cover data to determine habitat deficiencies that may be limiting distribution or abundance. Analysis of classified satellite imagery will allow tracking of restoration success for general land cover categories over broad spatial scales, including habitat connectivity.

The ability to measure change in land cover is limited primarily by classification level and accuracy. The Illinois land cover data (IDNR et al. 2003) has a pixel size of about 30m x 30m and therefore cannot be used to monitor changes at a very small spatial scale. The tradeoff between classification detail and accuracy results in broad habitat classifications. Land cover changes for patches greater than 30m x 30m can be detected throughout the basin and individual pixels compared over time to track changes. Change can be summarized from the pixel level up to the entire Illinois River watershed at important levels of spatial organization and related to restoration objectives. Land cover data and analysis, in conjunction with the IDNR Comprehensive Wildlife Conservation Plan that is currently being developed, could be used to guide restoration efforts that will provide the greatest benefit to wildlife species of interest.

Estimated cost: $3,000.

C. Site-specific habitat/vegetation monitoring - Intensive vegetation sampling compliments landscape and community level assessment. Much of the wildlife habitat along the Illinois River and its tributaries has been lost due to land use change, hydrologic alteration, or sedimentation, and these are changes that can be measured by landscape and community level assessment. Much of the remaining habitat suffers from changes in vegetation structure or species composition. For example, many of the floodplain forests have lost their mast producing species component and suffered high mortality of mature trees resulting from altered hydrology (Nelson and Sparks 1998; Havera 1999). Vegetation sampling at randomly selected sites provides a means for evaluating diversity at the species level, for monitoring rare species, and for detecting invasive species. Monitoring vegetation at specific sites also provides the opportunity to collect detailed information on vegetation structure that relates to wildlife habitat suitability.

Site selection for intensive vegetation monitoring will follow the protocols described at the beginning of the sub-basin section. Vegetation data generally will be collected using a standard transect approach following CTAP protocols (Milano-Flores 2003). Data collected for all three habitat types (i.e., forest, grassland, wetland) includes plot species composition/richness, ground cover by species, stems of woody species <5cm dbh, and stems and dbh of woody species >5cm dbh. Additional details of the CTAP program can be found in the Critical Trends Assessment Program Monitoring Protocols manual (Milano-Flores 2003). Some vegetation types, like forest and scrub-shrub wetlands, are expected to respond slowly to restoration activities, but intensive vegetation monitoring should be able to detect subtle changes and indicate habitat trajectories.

Guidelines for specific habitat types:

<u>Forest monitoring</u> – Forest patches will be selected using Illinois land cover data forest types (IDNR et al. 2003). CTAP requires a 20 acre forest patch size minimum with a radius of 150m of homogenous forest type, and actual sample sites must be surrounded by a 114m forest buffer, but

that restriction could be relaxed if necessary for our program to reach the desired sample size. This may be necessary in smaller watersheds, those with a high proportion of urban area, or watershed units dominated by intensive agriculture.

Grassland monitoring – Grassland patches will be selected from rural and urban grassland types from Illinois land cover data (IDNR et al. 2003) and subject to additional criteria determined by site visits. The only patch size constraint is there must be at least 500m^2 of suitable habitat area that is $\geq$10m wide. Suitable grasslands must have <50% shrub and <50% canopy cover.

Wetland monitoring – Wetland sites are selected from Illinois Wetlands Inventory data (IWI; Suloway and Hubbell 1994). The CTAP wetland program monitors only emergent palustrine wetlands that can safely be sampled on foot. Our program will also include scrub-shrub palustrine wetland types and can be extended to include areas on islands that can only be reached by boat. Wetlands must be $\geq$ 2 acres in size with a minimum of 500m^2 of suitable habitat area that is at least 10m wide. Because wetland alteration has continued at a rapid pace even since the IWI was completed, an additional criteria is that sample sites must have $\geq$ 50% obligate, facultative wetland, or facultative plants. Wetland vegetation monitoring should compliment LTRMP vegetation monitoring.

Intensive vegetation monitoring relates to Illinois River restoration goals similar to both community and landscape level assessment but at a higher spatial resolution. Intensive vegetation monitoring will provide a source of information lacking for the Illinois River watershed and provide detailed information on vegetation composition and structure over time. For most restoration practices, subtle changes in vegetation should be detected in the first cycle after implementation. Intensive monitoring will also allow tracking of rare, exotic, and invasive species. Monitoring of vegetation at specific sites can be utilized to ground truth landscape and community level data for classification accuracy.

K and L. Bottomland/riparian forest & grassland birds - Passerine birds have been proposed as excellent multi-scale biological indicators because they are usually easily detected, widespread, many exist in relatively high numbers, and they integrate multiple factors across a landscape (U.S. EPA 2002a; O'Connell et al. 1998). Bird species and communities are sensitive to vegetation composition and pattern, landscape pattern, hydrology, water quality, disturbance, predation, and parasitism (U.S. EPA 2002a). The Illinois River basin is an important area for passerine birds and many rare species rely on habitat found in the riparian zones of the river and its tributaries. Bottomland forests along large rivers are particularly important and support a highly diverse and unique bird community (Knutson et al. 1996). Rare species and bottomland forest obligates include brown creeper, red-shouldered hawk, cerulean warbler, prothonotary warbler, and red-eyed vireo. Species may serve as indicators at different spatial scales based on their size and ecology. For example, raptors and waterfowl range more widely and therefore serve as indicators at larger spatial scales than species like rails or sparrows that wander over a relatively small area during the breeding season (U.S. EPA 2002a). Riparian grasslands could provide habitat for many of the rare grassland species still found in Illinois.

Existing programs such as the North American Breeding Bird Survey "BBS" (U.S. Geological Survey 1998) provide much data. However, because BBS is a road-based survey, little sampling is done in riparian areas where road density is typically low. Therefore, riparian associates and obligate species remain undetected or are detected in very low numbers. We propose a monitoring program following CTAP bird monitoring protocol (Milano-Flores 2003) at the same randomly selected sampling locations where intensive vegetation data will be collected. CTAP methodology is comparable to BBS data collection and much of the same data is collected, however CTAP is designed to relate the bird community and species abundance to habitat conditions at the site. Differences between the two bird monitoring programs include CTAP counts lasting 10 minutes compared with 3 minutes for BBS. CTAP ornithologists record direction and distance to each calling individual allowing the use of distance sampling techniques to estimate bird densities, whereas BBS observers only collect data on numbers. After the ten minute call-count is complete, CTAP ornithologists use a tape to broadcast calls of Illinois marsh birds followed by a one minute listening period for responses. BBS protocol does not allow call solicitation. CTAP protocol requires collection of call data for at least two sample points at each site with a minimum distance between points (300m for grassland and wetland, 150m for forest). If the habitat patch is too small for two sample points, a second sample point is located in the closest similar habitat patch of suitable size. Multiple sample points provide an estimate of local variation.

Monitoring will occur at 30 randomly selected sample points per habitat (forest, grassland, and wetland) in each watershed unit. Abundance should only be assessed at the species level for those species that are generally abundant. Presence/absence or analysis by habitat guild (i.e., riparian forest associates) provides a sound basis for analysis of rare species or those normally only present in low numbers. Data collected within a watershed can be summarized by habitat type in the monitoring year.

Restoration practices that will benefit riparian forest and grassland birds include managing for large habitat tracts, increasing tree species diversity in bottomland forests, and managing for mature forests (Knutson et al. 1996).

F. Marsh birds - Marsh birds are a secretive group of birds that live primarily in emergent or floating leaved vegetation. Their habitat requirements tend to be specific with respect to wetland area and/or vegetation structure. Most species are rarely seen or heard and therefore require specialized sampling techniques. Abundance can be difficult to measure because most species naturally exist at low densities. Therefore species presence, particularly during the breeding season indicates good quality marsh habitat. Presence and breeding activity, particularly of rare species, are good indicators of suitable habitat conditions, and the number of sites where they are found is a more appropriate measure than abundance at a site. Presence/absence data can be summarized across watershed units to provide an indication of distribution and habitat quality.

With the widespread loss of wetland habitat in Illinois, few marsh birds breed in the state. The rarest species, such as the black rail, require short emergent vegetation. This type of habitat is the first to be destroyed by flooding and therefore is rare within the Illinois River watershed.

Monitoring will occur in conjunction with passerine bird monitoring at intensive vegetation sampling points. Observers will use taped calls of marsh birds found in Illinois to solicit call responses. Number of calls and number of individuals responding should be recorded. Because all sample points will be within the riparian zone and because mesic grasslands or forests with well developed herbaceous understories could provide habitat for marsh birds, marsh bird monitoring will occur at all vegetation sample points. While abundance data will be collected, initially data will be summarized based on the number of sample points where species are present within a watershed unit. If restoration supports a numeric response, abundance data can be utilized as an index to track restoration progress.

Marsh birds are good indicators of their specific habitat type and therefore indirectly of hydrologic conditions. Species that use tall emergent vegetation, such as American bittern, may respond more rapidly because we anticipate their habitat will respond more quickly to habitat restoration than short emergent communities. Successful restoration should also result in increasing numbers of marsh birds nesting within the Illinois River basin.

M. Amphibians - There has been considerable interest in using amphibians as indicators of wetland condition (Micacchion 2002; US EPA 2002b). Ecological and life history characteristics that make amphibians desirable as bioindicators include they have both aquatic and terrestrial life stages; they are vulnerable to habitat fragmentation, water chemistry, hydrology, pollution, and climate change; they have a complex life history; and they require fishless ponds for successful reproduction. In addition, most frogs and toads are vocal during the breeding season and call indices can be used to infer changes in abundance.

The relative abundance of frogs and toads can be monitored at concentration areas using frog call surveys (U.S. EPA 2002b, U.S. Geological Survey 2001). We recommend collecting frog and toad call count data at intensive vegetation monitoring points. This will allow efficient selection and monitoring of sites and relation of abundance and species richness to habitat conditions. The protocol uses 2 counts conducted during evenings in the spring. Suitable conditions for conducting surveys and data collected generally follow North American Amphibian Monitoring Program protocol (USGS 2001). Since only 2 surveys will be used, survey dates should be at least two weeks apart and should be carefully selected to account for the most species possible. The first count can be conducted when the minimum night-time air temperature reaches 41˚F. The second count can be done once the minimum night-time air temperature reaches 50-55˚F. Counts begin ≥ 30 minutes after sunset and last for five minutes. Multiple sample points should be surveyed at each site according to CTAP bird monitoring protocol for selection and spacing of points (Milano-Flores 2003).

Unless wetlands are a considerable distance from existing amphibian populations, the most common frog and toad species respond very quickly to habitat restoration. Species richness for a particular wetland or within a sub-watershed is expected to respond more slowly depending on distance to source populations, annual hydrologic variation, and probably many other factors. Frog and toad communities using isolated wetlands indicate conditions primarily at the patch level, whereas amphibians in connected riverine wetlands integrate conditions over larger scales. Salamander population parameters should be considered as well.

Estimated cost for site-specific habitat/vegetation ©), Bottomland/riparian forest and grassland birds (K&L), marsh birds (F), and amphibians (M) - $945,000.

J. Bats - Bats have not been well studied relative to other wildlife species groups (Arnett 2003) but they are good indicators of riparian system integrity and disturbances (Fenton 2003).

Relatively little quantitative data are available regarding the current abundance of most species found in Illinois but clearing of riparian forests, stream channelization, rural housing development, and organochlorine insecticides have contributed to long-term population declines for many species (Herkert 1992). Life history traits provide evidence bats are adapted to stable and predictable habitats (Kunz and Pierson 1994). All Illinois bat species are insectivores and many forage in forested riparian areas. Some species rely entirely on caves for wintering, nesting, and summer roosting, while others utilize trees and shrubs for roost sites and maternity colonies. Most bats forage within a few miles of their roost site. These factors, combined with presence of the Federally Endangered Indiana bat within the Illinois River basin makes bats an attractive indicator species of integrity for the riparian zones of small to medium sized, forested streams.

Foliage and tree roosting bats provide the best indication of forest conditions because multiple aspects of their ecology are dependent on riparian habitat conditions. However, this group of bats poses special challenges for monitoring because they live in small colonies that are widely dispersed (O'Shea et al. 2003). The most effective means of monitoring bats is nocturnal trapping. Trapping provides data on species richness and can allow abundance estimation using multiple trapping sessions and mark-recapture models. However, trapping is very intensive and therefore difficult to implement over a large spatial scale. Technological advances have led to acoustic monitoring devices that combined with software analysis and calibration by trapping permits species discrimination and potentially the development of species specific bat population indices. Gannon et al. (2003) provide a discussion of methodology for acoustic monitoring and data analysis.

Bats should be monitored at randomly selected sub-watershed riparian forest sites. Two approaches can be used. Trapping alone provides information on presence/absence, species richness, and forest obligate species. Trapping combined with acoustic monitoring will permit calibration of species calls and the development of indices using acoustic monitoring alone. For both approaches, data should be analyzed to determine the number of sites where bats are present within each sub-watershed and the species found at each. Annual monitoring will show trends over time at the sub-basin level.

Bats are an important biodiversity component within the Illinois River watershed and an indicator of riparian forest integrity for small to medium sized streams. Bats would be expected to respond, but slowly, to riparian forest restoration. A more rapid response (within 10 years) could be anticipated following projects that protect existing habitat, reduce disturbance and insecticide application. Such projects may include retiring of agricultural fields, preventing forest clearing and stream dredging practices, and protection of riparian areas from housing development. Progression of restoration would likely follow bats feeding in areas first, followed by greater roosting and reproduction as older trees and snags become available.

Estimated cost: $119,000.

I. Terrestrial mammals - Because of their large range size and high trophic position, medium to large mammals integrate a range of environmental conditions over large scales. Riparian mammals like muskrat, beaver, mink, and river otter are sensitive to habitat, water quality, and pollutants. Bobcats require large habitat areas that are relatively free from human disturbance. Some mesopredators, like raccoons and opossums, have shown a positive numeric response to human alterations of the landscape and are now ubiquitous. These species are important nest predators of bird and reptile nests and at unnaturally high numbers or in small habitat patches they impair habitat function.

Major challenges to using mammals as indicators are low abundance and detection rate, particularly for positive indicators. The terrestrial mammal monitoring component will utilize existing data surveys and expand on current monitoring programs. Mammal monitoring will rely on summary analysis of data collected from several IDNR surveys and addition of sample sites to the IDNR Furbearer Sign Survey. A combination of methods is recommended to monitor rare and widely distributed species like river otters and bobcats (Melquist and Dronkert 1987; Rolley 1987). IDNR archery deer hunter surveys and trapper surveys provide data that can be used to monitor population trends for most furbearer species, and the IDNR firearm deer hunter survey provides data on bobcat sightings. However, additional funds are needed to increase the number of sample sites for the Furbearer Sign Survey. Another component to be considered is counts of muskrat houses at marsh sites.

Many IDNR surveys are based at the spatial scale of counties. Watershed level analysis should include summaries of all counties entirely or partly within the Illinois River basin. Riparian level analysis should include only those counties partly within the riparian zone of the Illinois River and its tributaries. Expanding the Furbearer Sign Survey will allow trends and distribution of species to be analyzed for smaller watershed units.

Bobcats and riparian/wetland associated mammals are the positive target indicators. The initial response of target species to restoration will likely be functional. Individuals will probably begin using more area following restoration before there is a response in species numbers. Therefore, positive indicators probably will not show significant changes until at least 20 years into the restoration program and then only with significant increases in habitat. Caution should be exercised in interpreting trends and there should be an attempt to differentiate response from restoration to adaptability and range expansion.

Estimated cost: $17,000.

Desirable Response Measures:

O. Avian reproduction - Abundance of breeding birds does not necessarily indicate functional habitat quality. Reproductive success may be low even where adult abundance is high (i.e., sink habitat). High quality habitat patches may suffer from landscape or patch fragmentation effects due to high rates of nest predation and parasitism. Therefore, avian reproductive success integrates many factors and provides a good indication of functional habitat quality at the patch and landscape levels.

To evaluate nest success, five sites per habitat (i.e., forest, grassland, wetland) in each sub-basin should be monitored from roughly April to July. Similar to bird monitoring, each sub-basin will be monitored once every 5 years. Nests should be monitored once every 3 days during the active nest cycle and analyzed using the Mayfield method (Mayfield 1975). Nest success should be analyzed by species, reproductive guild, and community, and can be summarized within watershed units.

Avian reproductive success integrates large spatial scales but is expected to respond slowly to restoration efforts. Wetland or grassland breeding avian species will respond more quickly than forest breeding species because herbaceous communities develop more quickly following restoration than forests. A detectable response in reproductive success will probably only be seen following significant increases in habitat patch size and a long period of time for habitat development. Detectable changes in forest bird reproductive success may not be observed for at least 30 years.

Estimated cost: $122,000.

P. Amphibian reproduction - Amphibian embryos are extremely sensitive to environmental conditions. Successful reproduction by amphibians depends on hydrology, water chemistry, and specific habitat requirements (U.S. EPA 2002a). Amphibians require fishless wetlands for successful reproduction and different species prefer different microhabitats for egg deposition. Counts of egg masses provide an indication of breeding effort and the proportion of viable egg masses indicates wetland health (U.S. EPA 2002a). Amphibian adults and embryos are sensitive to many of the same factors with embryos more sensitive than adults. Amphibian egg masses can be used to detect non-vocal species, including salamanders, not detected using call-based surveys.

To monitor amphibian reproduction, a random sub-sample of 15 of the selected amphibian monitoring sites in each sub-basin should be selected. Potential sample sites can be from any of the three habitat types (i.e., forest, grassland, wetland) where calling amphibians were detected. Data collected should include egg mass counts by species and proportion of viable eggs per egg mass. Two visits should be made to each site to detect all breeding species at a site.

Similar to frog and toad call counts, amphibian reproductive effort is expected to respond quickly to improving habitat conditions, particularly hydrology and water quality. Diversity of breeding amphibians provides an additional indicator of habitat complexity. Viability of amphibian eggs generally provides and indication of environmental conditions, potentially at a scale beyond the Illinois River basin.

Estimated cost: $16,000.

HYDROLOGIC AND SEDIMENT MONITORING

A list of monitoring sites that compose the proposed network that would provide data to achieve the objectives listed in the "Goals and Objectives" section (see Mainstem - Hydrologic and Sediment Monitoring section) is provided below. Following the name/location of each proposed discharge and sediment monitoring site are comments describing which actions need to be implemented at that location. At locations where discharge and sediment are currently being monitored a recommendation is made to "increase sampling frequency." For stations that currently have active streamflow gages, but need sediment monitoring, a recommendation to "monitor sediment" is made. At sites where neither discharge nor sediment is currently being monitored a recommendation is made to "activate" or "reactivate" discharge and sediment monitoring. To "activate" a station implies no prior data has been collected at that site, whereas to "reactivate" a station means previous discharge and/or sediment data was collected at that site. The locations of all of the proposed monitoring sites within the Illinois River Basin are shown in Figure 11.

Tributary Watershed Locations:

<u>Sites on major tributaries</u>

B01 Des Plaines River at Riverside (increase sediment sampling frequency)

B02 Fox River at Dayton (increase sediment sampling frequency)

B03 Iroquois River at Iroquois (monitor sediment)

B04 Iroquois River near Chebanse (monitor sediment)

B05 Kankakee River at Momence (increase sediment sampling frequency)

B06 Kankakee River near Wilmington (increase sediment sampling frequency)

B07 La Moine River at Colmar (increase sediment sampling frequency)

B08 La Moine River at Ripley (increase sediment sampling frequency)

B09 Mackinaw River near Congerville (increase sediment sampling frequency)

B10 Mackinaw River near Green Valley (monitor sediment)

B11 Macoupin Creek near Kane (monitor sediment)

B12 Mazon River near Coal City (increase sediment sampling frequency)

B13 Salt Creek near Greenview (monitor sediment)

B14 Sangamon River at Monticello (increase sediment sampling frequency)

B15 Sangamon River at Riverton (monitor sediment)

B16 Sangamon River near Oakford (increase sediment sampling frequency)

B17 South Fork Sangamon River near Rochester (monitor sediment)

B18 Spoon River at London Mills (increase sediment sampling frequency)

B19 Spoon River at Seville (increase sediment sampling frequency)

B20 Spoon River in Stark County (activate)

B21 Vermilion River at Pontiac (monitor sediment)

B22 Vermilion River near Leonore (increase sediment sampling frequency)

The IRB as reflected in Figures 4-6 and Figures 8-11 can be subdivided into 12 major sub-watersheds (as originally defined by McConkey and Brown, (2000)). In the previous section, the monitoring site A04 (Illinois River at Valley City) monitors the downstream end of the mainstem Illinois River sub-basin. Here monitoring sites B02, B04, B06, B08, B10, B11, B16, B19, and B22 were chosen to monitor the discharge and sediment loads at the downstream ends of nine of the remaining major sub-basins. B12 was selected to monitor the Mazon River, which is the largest stream contained within the mainstem Illinois River sub-basin. Monitoring sites B13, B15, and B17 were selected to monitor the major tributaries of the Sangamon River, which drains a large portion of the area within the IRB. B01 was selected to monitor flow and sediment conditions within the Des Plaines River. B05, B07, B09, B14, and B18 were chosen because substantial flow and sediment data already exists at these locations. B03, B20 and B21 would monitor sediment inputs from Indiana on the Iroquois River, at the upper portions of the Spoon and Vermilion Rivers, respectively.

Sites on small tributaries not in the mainstem Illinois River sub-basin.

C01 Big Ditch near Fisher (reactivate)
C02 Court Creek near Appleton (increase sediment sampling frequency)
C03 Cox Creek near Newmansville (increase sediment sampling frequency)
C04 Friends Creek near Argenta (monitor sediment)
C05 Haw Creek near Maquon (increase sediment sampling frequency)
C06 North Creek near Oak Run (increase sediment sampling frequency)
C07 Panther Creek at Site M (increase sediment sampling frequency)

The above sites are included in the proposed network for three reasons. First, these sites monitor streams draining less than 100 square miles. Second, these sites are currently collecting discharge and/or sediment data (except for C01 which recently became inactive). Sites C02, C03, C06, and C07 are located within CREP or Pilot Watersheds where the effects BMP implementation are being investigated.

Sites on small- to medium-sized streams in the mainstem Illinois River sub-basin.

D01 Apple Creek in Greene County (activate)
D02 Aux Sable Creek in Grundy & Kendall Counties (activate)
D03 Crow Creek (East) near Washburn (reactivate)
D04 Crow Creek (West) near Henry (reactivate)
D05 East Branch Bureau Creek near Bureau (reactivate)
D06 Indian Creek in Morgan & Cass Counties (activate)
D07 Kickapoo Creek at Peoria (reactivate)
D08 McKee Creek at Chambersburg (monitor sediment)
D09 North Fork Mauvaise Terre Creek near Jacksonville (reactivate)
D10 Quiver Creek-Main Ditch in Mason & Tazewell Counties (activate)
D11 Sugar Creek in Schuyler County (activate)

These sites were selected to be incorporated into the monitoring network because they drain areas < 400 square miles and lie within the Illinois River sub-basin. Currently there is little or no information on bluff streams of this size that flow directly into the Illinois River. Previous research on sediment loads within the mainstem of the Illinois and the presence of large delta formations at the confluences of these streams with the river indicate these streams are major contributors of sediment to the river.

Sites to represent different morphologic and physiographic regions.

E01 Coop Branch in Macoupin County (activate)
E02 Drowning Fork at Bushnell (reactivate)
E03 Flat Branch near Taylorville (reactivate)
E04 Horse Creek in Kankakee County (activate)
E05 Indian Creek in LaSalle County (activate)
E06 Indian Creek near Wyoming (monitor sediment)
E07 Kickapoo Creek near Waynesville (monitor sediment)
E08 Mackinaw River near Lexington (activate)
E09 Missouri Creek in Schuyler County (activate)
E10 North Fork Salt Creek near LeRoy (activate)
E11 North Fork Vermilion River near Charlotte (reactivate)
E12 Salt Fork Vermillion River at Forrest in Livingston County (activate)
E13 Spring Creek near Onarga (activate)
E14 Sugar Cr. at Auburn (Lake Springfield) (activate)

These sites are proposed for two reasons. First, they drain areas less than 400 square miles. Second, by including these sites in the network, at least one stream draining less than 400 square miles will be monitored in every major sub-basin (except in the Des Plaines and Chicago/Calumet sub-basins). Thus, the network as a whole will be monitoring the different physiographic areas within the IRB.

Critical Response Measures:

In summary, the critical network would support:

1) All four proposed sites on the Illinois River (A01-A04)

2) Fifteen of the twenty-two proposed sites on the Illinois River's major tributaries

3) Five of the seven proposed sites on small tributaries not in the Illinois River sub-basin

4) Ten of the eleven proposed sites on small- to medium-sized streams in the mainstem Illinois River sub-basin

5) Eleven of the fourteen proposed sites to represent different morphologic and physiographic regions

Estimated cost: $1,118,000 to implement and operate this hydrologic and sediment monitoring network during the first year and $634,000 per subsequent year. These costs reflect the combined cost of the mainstem and sub-basin hydrologic and sediment monitoring plan.

Desirable Response Measures:

In summary the Desirable Network would support:

1) Four sites on the mainstem of the Illinois River (A01-A04)
2) Twenty-two sites on the Illinois River's major tributaries (B01-B22)
3) Seven sites on small tributaries not in the Illinois River sub-basin (C01-C07)
4) Eleven sites on small- to medium-sized streams in the mainstem Illinois River sub-basin (D01-D11)
5) Fourteen proposed sites to represent different morphologic and physiographic regions (E01-E14)

Estimated cost: $1,423,000 to implement and operate this hydrologic and sediment monitoring network during the first year and $815,000 per subsequent year. These costs reflect the combined cost of the mainstem and sub-basin hydrologic and sediment monitoring plan.

GEOMORPHIC MONITORING PLAN

A baseline dataset for project monitoring would be largely developed during preliminary watershed assessment as is discussed elsewhere in this document. The assessments comprise syntheses of existing data and acquisition of data about the contemporary environment across each target watershed. Assessment identifies the existing static condition as well as establishes intrinsic rates of change (e.g., meander migration), and may reveal some long-term system responses to historical change. In addition, the assessment will identify critical data gaps, potential problems for remediation, sampling locations and appropriate techniques, and tune sampling protocols (c.f., Osterkamp and Schumm 1996). The data examined would include at least surficial geology, landscape history over 100 years or more, channel pattern, channel morphology, and climate or flow, though the exact form will be conditioned by data available for the target watershed.

A wide variety of potential projects are envisioned in the Restoration plan, ranging from stream bank stabilization to wetlands creation. The goals of these projects in turn range from protecting target natural areas to improving water quality to preventing channel incision. Indicators for these various projects must be directed at the specific project objectives. Nevertheless, in many instances a standard set of measurements could feed a range of geoindicators.

Table 9 lists monitoring studies that could be used as a basis for developing indicators once specific projects are identified. Wide varieties of qualitative and quantitative methods were used, and were applied over a range of temporal and spatial scales. The objectives of the monitoring programs ranged from generalized trend analysis (e.g., Swanson Hydrology & Geomorphology 2002) to the more desirable evaluation of integrated and linked indicators (e.g., Rhoads and Miller 1999).

Several temporal phases of monitoring may be necessary for each project, depending upon the nature of response of the target feature. Stream channels, for example, often respond to perturbation as a dampening wave. That is, channel conditions may change rapidly and complexly immediately following project implementation, but over time will change more slowly as a new equilibrium condition is reached. Phased monitoring would also allow survey crews to cycle project monitoring: the higher frequency monitoring of new projects could be picked up as less frequent monitoring is phased in on older projects.

Critical Response Measures:

Channel Geomorphology - White et al. (2004) have outlined a detailed method for measuring channel geomorphology (their Phase II, Reconnaissance Characterization). These are recommended as the fundamental measurement protocols for projects directed at affecting channel processes. Surveys should occur along three reaches, one each downstream, within, and upstream of the project reach.

The Phase II measurements are not a set of indicators, however. The development of indicators to gauge channel geomorphic evolution must, again, be specific to project goals and so must wait until specific projects are proposed. Several of the monitoring plans reviewed in Table 8 provide examples. White et al. (2004) have an indicator-oriented Phase I (Rapid Characterization) channel stability scoresheet that could be used to show evolution of a channel throughout an entire watershed by periodic mapping. Such trend analysis might be useful in gauging overall progress towards restoration goals because it would capture effects of channel restoration projects as well as the totality of watershed changes with time. It must be determined, however, whether the indicators are suitable for gauging response of specific projects (c.f., Doyle et al. 2000). Likewise, a project response indicator could be developed from the Relative Bed Stability index of Olsen et al. (1997) if project goals are appropriate.

Three periods of monitoring are suggested for projects directed at channel processes. Monitoring surveys should be conducted annually for several years after project implementation, followed by less frequent surveying (2-3 yr) until project success or failure is demonstrated. A third period of monitoring would be included in decadal sub-basin-wide mapping surveys using the Phase I methods of White et al. (2004).

Estimated cost: $5,000 per project for 10 year monitoring period (total of 6 surveys).

Wetlands - Specific plans must follow project proposals, but a range of standard techniques are currently used by ISGS, IDNR, and other agencies to monitor wetland functions. The basic measurements can be used to develop a variety of project-specific indicators such as sedimentation rate, frequency and duration of flooding, and water quality.

Estimated cost: Not identifiable at present time.

Desirable Response Measures:

Stream Channel Dynamics - The determination of historic rates of change in channel pattern using the air-photo analysis methods of Urban and Rhoads (2000) and Phillips et al. (2002) has been recommended as part of baseline watershed assessment. Stream channel dynamics are expected to be affected by restoration project implementation as well as non-controlled forcings like climate and landuse changes. Understanding the evolution of stream channel dynamics is essential to assessing whether measured sediment loads are "excessive" or not. Channel pattern and rates of change should be reassessed periodically to determine if channel dynamics are evolving across watersheds in the IRB. The analysis would show both project and non-point source responses.

Potential indicators metrics are meander migration rates and avulsion frequency. The air-photo analysis method shows statistically significant channel evolution only over several decades for very low power, low bedload streams, but shows shorter-term changes in other settings (Phillips et al. 2002; Landwehr and Rhoads 2003). The analysis could be applied at various watershed scales. Targeting selected paired subwatersheds (e.g., HUC12) from across the IRB would be an effective combination of scale and resources. Airphotos have been collected every 5-7 years historically by the NAPP. If this pattern continues, an approximately 20 yr period of reassessment is recommended to allow for acquisition of several sequential photos across each target watershed.

Estimated cost: $25,000 per watershed pair.

ECOLOGICAL MONITORING PLAN - AQUATIC

Critical Response Measures:

Use of restoration practices for reducing nonpoint source pollution are well known (Gale et al. 1993). Instream practices for stabilizing stream banks, increasing habitat diversity, etc., have received some study, mostly in coldwater streams (Edwards et al. 1984; NRC 1992; Hunt 1993). Little information is available on how various individual restoration projects affect lotic systems, particularly the biotic community. Therefore, it is important to assess a variety of individual projects at the local scale. In some cases, the effectiveness of specific restoration practices (e.g., riparian buffer strips, Muscutt et al. 1993; Osborne and Kovacic 1993; Hill 1996) has been well documented, but the vast majority of these studies were conducted over relatively short time frames (Edwards et al. 1984; Magette et al. 1989; Habersack and Nachtnebel 1995; Lee et al. 2001). Based on the few studies which have looked at individual practices (riffle structures, channel modification, and wetlands), changes in river morphology/habitat and improvements in fish and invertebrate communities were documented within 3 years of implementation (Carline and Klosiewski 1985; Fuselier and Edds 1995; Habersack and Nachtnebel 1995; Brown et al. 1997). Thus, abiotic and biotic parameters may respond quickly (within 1-5 years) to certain types of restoration practices although other projects (i.e., on-field practices) may take longer to produce a significant improvement in system integrity. How the performance of individual practices change over longer time periods is largely unknown (Muscutt et al. 1993; Osborne and Kovacic 1993). This monitoring framework extends previous investigations of stream restoration practices by evaluation of individual management practices in warmwater systems over a longer time period. By examining effects of individual practices combined with collectively monitoring practices at the sub-basin and basin scale, this monitoring protocol will help determine which practices have the greatest effect on abiotic and biotic indicators and potentially determine the amount needed to obtain the greatest improvement in system integrity.

To examine the effects of individual restoration practices, the Before-After-Impact-Control Pairs design (described in the Introduction - Study Design and Statistical Approaches section) will be used. When possible, reference or "control" sites in nearby watersheds not receiving extensive restoration practices should be used to account for temporal variability. However, sites immediately upstream of the reach being affected by restoration practices should also provide a suitable reference condition before and after implementation. Within a watershed, multiple sites where the same practice will be implemented should be monitored to determine how longitudinal changes along the stream gradient (i.e., discharge, drainage area, etc.) influences the effectiveness of individual practices. It is also important to sample as many years as possible before implementation of the practice to gain a more accurate picture of baseline conditions and to determine the effectiveness of each restoration practice. Since many of the techniques proposed for the Illinois River basin have not been extensively studied (instream structures, bank/channel stabilization, sediment removal, etc.), it is critical to sample many different practices for several years after implementation to evaluate different responses of stream parameters to various practices and establish at what point in time these practices improve stream conditions. To determine immediate and short-term responses in abiotic and biotic conditions, more frequent sampling (i.e., seasonal) directly after implementation of the practice is critical, while long-term effects can be assessed through annual monitoring over several years.

We propose a level of monitoring similar to that described for monitoring sub-basins in order to assess how individual restoration practices effect habitat and biotic communities and how these practices combined effect the entire basin. Both treated and reference sites should be no shorter than 35 times mean stream width such that at least one riffle-run-pool sequence is included in the site (Lyons 1992; IDNR 2001). Physical habitat data must be collected using site-scale and transect-scale levels of sampling (Tables 13 and 14) with site-scale parameters collected at one location in the site (e.g., water temperature, discharge) and transect-scale variables (e.g., width, depth, substrate, etc.) measured along equally spaced transects. These data requirements are not unique to those needed in the geomorphic monitoring section and are therefore not a redundant sampling effort. Depending on the type of practices implemented, more detailed monitoring of in-stream habitat (i.e., mapping of percent habitat types) or bank/riparian vegetation and condition (i.e., quantitative assessment using quadrats to obtain percent composition and dominance of plant taxa) is critical to determine shifts in physical habitat and provide a mechanistic understanding for changes in the biotic community.

Estimated cost: $10,000 - $30,000 per practice (depending on practice type and other biotic monitoring efforts in the sub-basin).

Desirable Response Measures:

To completely understand how restoration practices directly (e.g., creation of habitat by instream structures) and indirectly (e.g., improvements in water quality affecting prey availability) affect the biotic community, it is essential that fish and invertebrates are monitored in both the treated and reference site at the same time as habitat data collection. Quantitative collection of fish and macroinvertebrate data is necessary, and sampling protocols used to assess effects at the sub-basin scale is critical to assess individual practices. However, additional sampling either through more rigorous methods (i.e., multi-pass fish sampling) or increased frequency of sampling (i.e., seasonal sampling of fish and invertebrates) may be necessary depending on the type of practice implemented. As percent of various habitat types shift or types of habitats become more dominate in the reach due to implementation of a restoration technique (i.e., increase in riffles as a result of decreased sedimentation), this framework will allow us to better assess the changes in overall fish and invertebrate communities by sampling more often and by sampling at locations in the watershed where these habitats are newly formed. By including both abiotic and biotic parameters in the monitoring framework, we can better understand how changes in one parameter as a response to restoration practices interacts with and effects other parameters of the system.

Estimated cost: An additional $10,000 per practice (depending on practice type and other biotic monitoring efforts in the sub-basin).

ECOLOGICAL MONITORING PLAN - TERRESTRIAL

Monitoring should begin at least one year prior to project initiation. Monitoring should be done at randomly selected sites within the project area and an equal number of sites in similar "pre-treatment" habitat outside the project area according to the BACI approach (described in the Study Design - Statistical Approaches section in the Introduction). The number of monitoring and control sites for each project should be determined by project size. Specific monitoring components to be used at project sites depend on location and should match components used for the appropriate watershed unit and habitat type. Data collected at project sites should be included in summary analysis for appropriate watershed units.

HYDROLOGIC AND SEDIMENT MONITORING PLAN

The Illinois River Restoration Project proposes a comprehensive array of restoration measures designed to enhance and protect the ecological integrity of the Illinois River. Many of the proposed efforts are new to the Illinois River and never in Illinois has there been an attempt to integrate such diverse projects into a comprehensive plan with the goal of improving the ecological integrity of a system the size and complexity of the Illinois River Basin. For this effort to be successful it will be necessary to determine if specific projects are performing as envisioned, what the cumulative impact projects are having on both biotic and abiotic systems, and if restoration techniques are sustainable over their project lives. Consequently, as restoration projects are implemented, it will be necessary to begin monitoring specific projects in order to assess the impacts, performance, and sustainability of these techniques. In many cases hydrologic, sediment, and bathymetric data will be crucial to interpreting the biological and other forms of data collected by the various agencies participating in the Illinois River Restoration Project.

Specifically, hydrologic and sediment monitoring along with bathymetric surveys will provide managers with data that can be used in a multi-disciplinary setting to define and refine management strategies that enhances synergy between projects, improves efficiencies and unit costs, and allocates resources to those areas where benefits can be maximized. Moreover, such data will be critical in the adaptive management process, which will be a necessary component in the success of the Illinois River Restoration Project.

In addition to providing the information necessary for adaptive management of specific restoration strategies, hydrologic, sediment, and bathymetric data collected through project specific monitoring will expand and complement the data being collected for system monitoring. Thus, as projects are implemented our ability to refine discharge and sediment budgets for sub-watersheds and hence the entire Illinois River basin will be improved. In turn, this will improve our ability to site resources and specific projects in those areas where benefits can be maximized.

To better assess overall sedimentation rates, it is recommended that bathymetric surveys be performed prior to and periodically after the implementation of any dredging projects on the Illinois River mainstem. Likewise, to better assess how specific projects affect hydrologic and sediment regimes, it is also recommended that hydrologic and sediment monitoring be performed for tributary projects that incorporate best management practices designed to reduce sediment loads or control water levels.

Until specific projects have been proposed and sited only a general outline of the goals, needs and methods of project specific monitoring can be provided. However, it is envisioned that project specific monitoring will be conducted more frequently during the initial years of the Illinois River Restoration Project. Once design plans and techniques have been developed and refined for common scenarios the need to assess proven strategies and methodologies will diminish. It is also known that any future mix of project specific hydrologic and sediment monitoring efforts should share certain design elements. These elements include:

- All data must be collected following accepted practices and methodologies. Specifically, the measurement and computation of streamflow will follow guidelines established by Rantz (1982a, 1982b), while methods for measuring/sampling fluvial sediment will follow methods established by Edwards and Glysson (1999). Likewise, bathymetric surveys will be conducted following USACOE protocols (USACOE 2002).
- Data collection design, frequency, and duration are sufficient to meet defined goals for precision and uncertainty.
- Data formatting, identification, processing and archiving will be done so that compatibility with other Illinois River Restoration Project data as well as traditional and historical data sets is maximized.
- Lastly, a defined methodology should be developed that will ensure that all final monitoring data are available to other researchers, managers and the public in a timely manner.

A brief description of the types of monitoring efforts that are likely to be incorporated into the project specific monitoring component of this plan follows:

Discharge and Sediment Transport Monitoring - This monitoring would include traditional discharge and/or sediment monitoring stations, although bed load monitoring may at times be desirable, particularly for bluff streams draining directly to the Illinois River. Typically, two stations will be required to monitor a specific project site. This number may be reduced if projects are sited near existing gages. The types of information and samples collected would include stage/discharge data and suspended sediment samples utilizing both manual and automated pump samplers for concentration and manually collected samples for particle size analysis. In addition, channel cross section data, bed and bank materials and particle size distribution and channel slope would be defined for the stream reach where the gage(s) are located. Those projects requiring this type of monitoring could include bed/bank stabilization projects, sediment detention sites, channel grade control and projects utilizing buffer strips or wetlands to reduce sediment inputs. Also included in this type of monitoring are those projects implemented for water level management. The volumes actually stored for given runoff events and the time over which this volume is released and the subsequent downstream effects of those releases will be important data in the continued development and refining of the hydrologic models necessary to help attain the stated project goals for water level management.

Estimated cost: Assuming 5 active projects requiring hydrologic and sediment monitoring, the estimated annual budget would be $300,000.

Bathymetric and Sediment Characterization Monitoring - Significant amounts of dredging have been proposed as part of the Illinois River Restoration Project. Once sites have been identified and the desired use of dredge materials has been proposed, it will be necessary to sample existing sediments to ascertain their chemical and geotechnical properties to ensure that the dredge material is suitable for the intended use and to provide information relevant to designing the dredge cut. In addition to providing information necessary for project design, data on particle size distribution, unit weight and sedimentation rates provide insight into the sedimentation processes occurring within Illinois River backwaters which will allow for better more efficient design of dredge projects. The bathymetry of initial dredge projects will need to be determined so that “as built” plans can be developed. Through subsequent resurveys of the project site we can determine what locations and which areal extents, bank slopes and footprints can enhance the sustainability of these projects. Coincident with the bathymetric surveying for any project involving on site use of dredge materials would be the traditional land survey of all constructed landforms such as islands and floodplain ridges. Survey and topographic profiling of constructed land features will be necessary to determine which shapes, heights, orientations, construction sequencing and vegetative/protection schemes hasten and increase the use of these land forms by the biota and improve the longevity of these features.

Locations for bathymetric and sediment characteristic surveys will be identified with input from the agencies conducting ecological monitoring and implementing specific projects (e.g., dredging, water retention, and habitat restoration).

Estimated cost: $200,000 per year.

CONCLUSION

The final component to this framework is the incorporation of an appropriate reporting structure so that information is relayed to decision makers and the general public in a timely manner. In order for the information and data generated by this long term monitoring effort to be effectively utilized, it will be necessary to provide some means by which the various resource managers, researchers, and stakeholders involved in the IRER can access this information. This will be accomplished through a WEB-based data inventory and analysis systems containing collected monitoring data, analysis tools, and mapping products. This site will be designed and maintained to help ensure an efficient transfer or information between various user groups.

We anticipate differential responses within the Illinois River basin that may vary in both spatial and temporal aspects across disciplines. Therefore it is difficult to pinpoint a specific reporting frequency that would provide a meaningful synthesis. Clearly, much of the data will be used as soon as available to provide feedback into the restoration process and will be documented as this occurs. However, we feel it reasonable to have a reporting structure that consists of intermediate data compilation (summary) reports on a 5-year cycle with a much more intensive data analysis report analyzing cumulative status, trends, and goal-specific accomplishments on a 10-year cycle.

The monitoring, watershed assessment, and focused research topics discussed in this report are intended to be an integrated and iterative approach that will assist the Illinois River Ecosystem Restoration program. Generally, we expect to measure ecosystem responses to evaluate goal-specific accomplishments across disciplines by monitoring trends at the larger spatial scales or through more comparative analyses at the project-specific scale. Restoration practices will continually be revised as additional information is gained through this framework through the adaptive management process that has been incorporated into the entire program.

FOCUSED RESEARCH

Focused research is a critical element of the monitoring framework because it provides an avenue to gather issue-specific information and refine collection efforts specific to the assessment of restoration goal accomplishments. Therefore, the following focused research summaries highlight several projects that will provide immediate information that can be integrated into the IRER process. There are certainly many other projects that could and will be developed, but these highlight some immediate information needs beyond the scope of the monitoring framework. Each project has a cost and length of project estimate. These estimates are made under the premise that they could be "stand alone" projects. However, if concurrent monitoring or research efforts are occurring in the same general vicinity, cost sharing among the projects will likely reduce the focused research project costs.

Pilot Project for Estimating Bed Load

To determine total sediment yield at a gaging station it is necessary to measure or estimate the bed load in addition to the suspended sediment load Bed load measurements are very rare and limited in Illinois. There are no standard procedures and equipment to sample bed load accurately for different type streams. Graf used a bed load sampler developed by the USGS (Helley and Smith 1971) to measure bed load for nine streams in Illinois and identified many of the difficulties in measuring bed load (Graf 1983). She also recommended using those results with great caution. Nakato (1981) concluded that bed load of tributary streams in the Rock Island District's reach of the Mississippi River ranged from 6 to 26 percent with an average of 11 percent of the total suspended load. Water Survey researchers have generally used the 5 to 25 percent estimate given by Simons and Senturk for large and deep rivers (Simons and Senturk 1977). However, such a practice introduces undesirable uncertainty to sediment budgets. Several factors contribute to the difficulties in determining bed load. Bed load transport is not initiated to a significant degree until some critical shear velocity is reached with maximum bed load transport occurring during high flows. Data collection is complicated by the necessity of collecting samples during extreme flow conditions coupled with the transient nature of the flows being sampled. In addition, bed load transport is highly variable both temporally and spatially even at constant discharges. This variability requires a relatively intense sampling scheme to accurately quantify bed load.

In this plan we do not recommend a particular method, budget for, or plan to perform bed load sampling at proposed streamflow and suspended sediment monitoring sites. Instead, it is recommended that in the near future a separate pilot study be developed and funded to address bed load sampling and bed load transport processes in the IRB. This pilot study could investigate new techniques by comparing the results of an intensive sampling routine using standard techniques to the results gained from using new technologies such as Doppler instruments to determine the velocities of bed load particles coupled with scour chains to ascertain to what extent the bed became entrained. This information could then be applied to sediment budget estimates for other similar streams to refine our calculations of sediment loads. This pilot study would help narrow the 5 to 25 percent estimates we currently use thereby reducing the uncertainty of our estimate of total sediment load. Moreover, bed load transport rates are believed to be important to channel forming processes and are routinely estimated and incorporated into effective discharge computations (e.g. Andrews 1980; Pickup and Warner 1976).Once suitable methods for determining bed load in Illinois streams have been established, funding should be made available to expand the monitoring activities described in this plan to include bed load monitoring at selected sites.

Estimated cost: $300,000 for three year project.

Comparability of Results from Depth-Integrated and Automated Point Sampling for Suspended Sediment.

Traditionally suspended sediment data for larger rivers in Illinois have been collected using depth-integrating samplers following established USGS protocols. As a means of lowering the cost of sediment monitoring associated with the Illinois River Basin Project the use of automated pump samplers, which collect a sample from a single point, has been proposed. While this strategy may offer potential cost reductions at selected sites it is not known how this data would compare to data collected using traditional protocols. Data collected, processed, and analyzed using consistent protocols are comparable in time and space. Conversely data contained using different protocols may not be comparable (Grey et al. 2000).

Determining how data collected using pump samplers compares to data generated from traditional methods will be necessary before these data could be compiled for future assessment or used in conjunction with historical data to determine sediment transport trends in the Illinois River and its tributaries.

The proposed research would provide pump sampling at 3-5 sites where depth-integrated samples are currently being collected in order to assess the comparability of the resulting data sets. Sufficient particle size analyses would be conducted to determine how the differences in sampling protocols may be causing any persistent bias in results. Once the relationship between these sampling methodologies has been determined automated sampling could be employed to reduce costs or expand the number of sites where data is being collected.

Estimated cost: $365,000 for six year project. Data would be collected for five years to help ensure representative yearly precipitation and run-off during data collection.

What is effectiveness of BMPs in the Illinois River Basin?

In addition to reduction of sediment delivery of tributary streams by restoration projects implemented in the IRER plan, progress towards Goal 5 is expected to be helped through the reduction in sediment yield by implementation of BMPs across the IRB. Indeed, one of the selected indicators in the Geomorphology Mainstem/Sub-basin Monitoring Plan is the % area of crop land in BMP. The BMPs implemented are intended to have several and independent effects. These include reduction of soil erosion (e.g., no till), reduction of direct sediment input to streams (e.g., buffer strips, dry dams), mitigation of chemical inputs (e.g., buffer strips), improvement of riparian habitat (e.g., buffer strips). Further, individual BMPs are implemented in a variety of settings and may have different effects in each of those settings. However, the actual affect of each BMP is not often measured after implementation.

There should be research as to whether or not BMPs have the effect they are intended, and thus whether the recommended indicator of % area crop land in BMP is useful to this monitoring plan. Recent studies by Yang et al. (2003) and Khanna et al. (2003) concluded that the CREP program has been ineffective in Illinois. Several major flaws in their analysis have been pointed out, however (M. Demissie, pers. com. 2004). A confounding issue is that Richards and Grabow (2003) found that sediment yield had to be reduced by 7-9 % over 10 years in three Ohio watersheds in order for that reduction to be sensed in monitoring programs. Can that goal be met in Illinois? It is essential to determine what the actual effectiveness of BMP implementation is both to gauge its contribution towards reducing overall sediment delivery. If it is indeed shown to be effective and sensible at desired scales, then it is justified to use % area BMP as an indicator.

This research could be conducted in several ways. On a meso scale, several of the few existing watersheds with continuous discharge and sediment monitoring for several decades could be analyzed for correlation to time-series trends in % area in BMP. This analysis would be supported by air-photo interpretation of stream dynamics over the same period. The most suitable watersheds for study are those within the ISWS' WARM network of gauging stations. Data from the ISWS gauging stations directed at CREP program should be analyzed, but the period of record is relatively short. Because it may be difficult to identify control watersheds within the IRB, resolution of confounding affects may be also difficult. If a set of control-implemented watersheds can be found, the statistical analysis of Richards and Grabow (2003) would be a useful approach to follow.

Estimated cost: $150,000 total cost for two year project.

Monitoring selected individual or a small collection of CREP projects in a BACI sampling program could also demonstrate BMP effectiveness either as an independent study or in complement to trend analysis of historical data. Specific methods employed would depend upon the BMP (-s) selected for study, but would probably include stream gauging, suspended sediment sampling, and topographic mapping to measure gully and rill erosion. An abbreviated 5 yr monitoring program would follow protocols suggested for restoration projects in this document.

Estimated cost: $200,000 total cost for five year project.

A third approach would be to simulate impacts of BMPs on sediment yield using a computer model. M. Demissie (pers. com. 2004) has suggested several ways to improve upon the analysis of Yang et al. (2003), including use of data of appropriate scale (≥1:24,000) and use of an appropriate continuous simulation model.

Estimated costs: $200,000 total cost for four year project.

Pilot Project to Determine Impervious Cover from Digital Ortho Quarter Quads (DOQQs)

Impervious cover, including roads, sidewalks, rooftops and other built features, is a critical feature of the landscape, and is a recommended metric for monitoring landuse effects (Zielinski 2002). The impervious cover class from existing landcover maps, however, is valid only at small (regional, >1:100,000) scale. Because of the small scale, issues such as connectedness of impervious surfaces (e.g. isolated building within grassed area versus building connected to driveway-street-drainage network) or, conversely, the patchiness of non-impervious areas within generally built regions (e.g., yards, parks in urban areas) cannot be distinguished. Accurate impervious cover data are needed at much larger scale for reliable ecosystem monitoring, hydrological modeling, and watershed assessment. Such a dataset could be developed from DOQQs, which are currently the most complete, high resolution, remotely sensed dataset in Illinois.

Endreny et al. (2003) demonstrated the value of extracting impervious cover from color DOQQs with 0.3 m resolution for large scale work on ecosystem restoration activities in New York. Impervious features were recognized by reflectance and geometry. The Lake County (Illinois) Department of Information Technology created a similar dataset by analyzing color imagery and LIDAR data. A pilot project is recommended to create protocols and validate the methods of Endreny et al. (2003) for the grayscale, 1 m DOQQs available for all of the IRB, as well as for the color, sub-meter imagery available in limited regions of the IRB. The project would also estimate costs for basin-wide dataset development. A selection of DOQQs from high, medium, and low density urban, and rural areas from across the Illinois River Basin would be analyzed. Digital results would be compared to results from on-screen digitization of built areas.

Estimated cost: $25,000 for one year project.

Does high sediment load necessarily lead to ecosystem degradation?

A fundamental assumption in development of the ecosystem restoration plan for the Illinois River basin is that excessive sediment loads in tributary streams are degrading riparian ecosystems. Indeed, there is considerable research supporting this assumption, especially in wetlands along the mainstem of the Illinois River. By contrast, portions of McKee Creek in western Illinois are considered some of the highest quality riparian ecosystems in the state, yet recent research has shown that bedload has been actively transported at least through one reach in southeastern Brown County since the 1930's (Phillips et al. 2002), and very active mass wasting and gully development were recently mapped in tributary watersheds in the upper reaches (M. Barnhardt, pers. comm. 2002). How can these two conditions co-exist?

The research project is envisioned as a comprehensive study of channel dynamics since the 1930's in concert with an assessment of biotic change. Stream channel dynamics would be quantified following the methods of Urban (2000) and Phillips et al. (2002). A longer term record of sedimentation would be established through sedimentological analysis of a series short (~1 m) sediment cores obtain from the McKee Creek floodplain in upstream and downstream reaches. The results will show the variability in processes affecting channel pattern along the length of McKee Creek, and whether or not the location, modes, or rates of channel pattern evolution have changed with time. Observed channel evolution will be correlated to reconstructed land use practices and a synthetic discharge history tuned with data from the recently installed flow gauge at McKee Creek.

Characterizing biotic change is a more difficult task because there are few, if any, historical data sets available. It may be possible to construct pre-settlement ecosystems from work of Styles (1980) and others. The existing ecological condition will be obtained from assessment and monitoring activity undertaken for the IRER program. These data will then be interpreted as the cumulative response to changing environmental conditions.

Although McKee Creek will be the target of a watershed assessment over the next few years and is the assumed site of future ecosystem restoration projects, the envisioned research would be targeted to the goal of linking watershed sediment transport history to ecological condition. Considerable feedback is expected between this research and assessment activities and monitoring associated with project implementation under IRER.

Estimated cost: $100,000 for three year study.

Can a useful sediment yield computer model be developed?

Development of an upland sediment yield computer model is highly desirable because it has the potential to predict potential interactions between climate and landcover changes and estimate sediment storage. Sediment yield models appropriate to patches or small subwatersheds (<1 mi2) include the empirical RUSLE (Renard et al. 1997) and the process-based WEPP (USDA 2003). Empirical models have been successfully applied but also regularly misused (Wischmeier 1976). They have received important criticism in Illinois for overestimating sediment yields from gullies and rills with respect to in-channel sources. Nonetheless, Renschler (2003) suggested that these models could be scaled to larger areas.

By contrast, the SWAT model is a process-based model that has shown considerable promise and is part of the BASINS model that ISWS has implemented for its sediment budget. SWAT is a physically-based subwatershed to regional scale model (USDA-ARS 2003). It was developed for modeling long-term sediment yields and thus is appropriate for long-term monitoring applications. A feasibility study is proposed to implement the SWAT model on a small watershed or subwatershed (e.g. Ten Mile Creek, Woodford and Tazewell counties), demonstrate the extent of validation and tuning needed for successful implementation at a relatively large scale, and then estimate the work necessary to scale the model down to larger watersheds up to sub-basin size.

Estimated cost: $150,000 for five year study.

What is the effect of data scale on slope determinations?

Slope data are essential for many applications. They are particularly a concern for hydrological and sediment routing computer models because runoff and stream power are highly sensitive to slope. Slope data are available statewide as 10 m and 30 m DEMs, and as 0.6 m DEMs in the Desplaines watershed and Peoria County. There has also been success at ISGS the Indiana Geological Survey creating 5 m DEMs from USGS Digital Line Graphs (DLG); though that method does not change the vertical resolution from 10 m DEMs, slope determinations may be more or less accurate. Not only do the 10m, 30m, and custom 5 m data vary in resolution, but some of the source DLG data are decades old and thus their accuracy is suspect. There is anecdotal evidence from ongoing geological mapping at the ISGS that DEMs are significantly different from the current landscape because portions of Illinois are geomorphically active.

How do channel and valley slope determinations vary between those data sources and field measurements? A study is necessary to demonstrate the statistical uncertainty in slope determined from each data source and to show the potential value of acquiring new remotely sensed elevation data, possibly at higher resolution. The investigation should target three subwatersheds, one with relatively high relief on the west side of the Illinois River, another of relatively lower relief on the east side, and a third within the DesPlaines watershed to take advantage of LIDAR data there. Slope maps would be constructed from the available DEM and DLG data. These maps would be tested against field data collected using high-resolution GPS along channel slopes, valley slopes, and selected transects of upland sideslopes.

Estimated cost: $50,000 for two year study.

Analyze Data from Existing Sources

Compile and analyze data from existing sources and relate to watershed conditions over time. The Illinois Department of Natural Resources (IDNR), Illinois Natural History Survey (INHS), other agencies and individuals have collected wildlife and habitat data within the Illinois River watershed over time. Many of these existing resources could provide insights into current and historical conditions along the river and its tributaries, and throughout the watershed. Some existing monitoring programs have been incorporated into the recommended monitoring program but previously recorded data and other programs could aid in tracking wildlife species and habitat conditions. Sources could include:

- IDNR Hunter Harvest Surveys
- IDNR and INHS Waterfowl Surveys and Investigations
- IDNR Wildlife Surveys and Investigations
- IDNR and INHS Wildlife Harvest and Human Dimensions Research
- IDNR Fur-bearing and Non-game Mammal Investigations
- IDNR Mid-winter Eagle Survey
- IDNR heron rookery, shorebird migration, and eagle nest surveys
- IDNR frog and toad monitoring
- IDNR wood duck and Canada goose banding studies
- INHS intensive mallard studies
- National Audubon Society Christmas Bird Count
- USGS North American Breeding Bird Surveys
- US FWS Mourning Dove Call-count Survey
- US FWS Woodcock Singing-ground Survey

Estimated cost: $40,000 per year for three year project.

Intensive annual monitoring of marsh birds and vegetation

Habitat for marsh birds and shorebirds has declined significantly within the Illinois River basin with a resulting decline in bird distribution and abundance. Under the proposed monitoring program shorebirds will be monitored annually but marsh birds will only be monitored at selected sites once every 5 years. Similarly, intensive monitoring of wetland habitat for both species will occur only once very 5 years at selected sites. To assess annual variation in marsh birds and habitat conditions, intensive vegetation monitoring should occur annually at selected sites along the mainstem. Sites should be selected to capitalize on past monitoring of specific sites or in critical habitat areas.

Estimated cost: $50,000 per year for ten year project.

Illinois River Index of Biotic Integrity
Multimetric indices that incorporate aquatic organisms, are the most widely used approach for establishing biocriteria and measuring river health (Karr 1981; Barbour et al. 1995; Simon 1999, Jungwirth et al. 2000; Simon 2003). However, the transferability of IBIs among catchments without considerable modifications may be limited (Angermeier and Karr 1986). Furthermore, Suter (1993) listed 10 criticisms of the IBI approach, including ambiguity, eclipsing (low values of one metric can be dampened by high values of another metric), arbitrary variance, unreality, post hoc justification, and unitary response scales. Reactions to these and other criticisms have been vociferous (e.g., Simon and Lyons 1995; Karr and Chu 2000), but suitable alternatives have not been offered. Therefore, we propose to objectively develop and test an Index of Biotic Integrity for the Illinois River that can be used as one tool to monitor ecosystem responses. We will use both existing and new data as they become available to develop the metrics used to calculate such an index.

Estimated cost: Range from $35-50,000 per year for five year study.

Investigate scalability of Indices
Little is known about how sensitive multi-metric indices are to various spatial scales of an ecosystem. Many of the available indices are largely directed to a certain spatial scale and it is unknown how responsive these indices are at other spatial scales. Indices that are useful at several scales will likely provide a more representative characterization of the ecosystem being studied and will also likely provide cost efficiencies in data collection. We propose to evaluate how scalable existing and newly developed indices are when compared at the spatial scales identified in the monitoring framework (mainstem, sub-basin, project-specific).

Estimated cost: Range from $35-50,000 per year for five year study.

Walleye Habitat Use and Movements
Additional data on habitat utilization of important fish species throughout the Illinois watershed would provide valuable information to help guide restoration practices. We propose to conduct movement studies of walleye (an important sportfish species) using radio-telemetry. Efforts would be focused on determining movement and important spawning areas, summer, and overwintering habitats. Tracking would occur in the mainstem of the Illinois River and in an important tributary, such as the Kankakee River. Information collected in this study will increase our understanding of seasonal movement patterns and help guide development of management practices that will have the greatest benefit for fish populations.

Estimated cost: $100,000 per year for three year project.

Over-winter Fish Habitat Use
Habitat availability and use by fish during critical seasonal periods like winter have been a major concern on the Illinois River in recent years due to the loss of well oxygenated, deep water habitats that are not exposed to high water velocities. Many of the restoration efforts along the

mainstem Illinois River will focus on providing more of this type of habitat in backwaters and side channels through dredging and other physical modifications. We propose to evaluate fish use before and after project implementation of the first few projects to verify the newly created habitat is being used to its full potential.

Estimated cost: $100,000 per year with a project life that will cover 2-3 years before and 2-3 years after project construction.

Aquatic Organism Population Genetics
Defining management units in terms of characterizing the distributional extent of distinct populations can be a critical factor when making decisions about the basin. One means to quantify exactly what the distribution limits of unique populations are can be determined using common population genetic practices (allozyme and DNA analyses). This can be especially important for mobile species like fish. We propose to evaluate the population structure of selected fish species from the Illinois River in the context of an appropriate distributional range of the species in question. This approach will put the Illinois River populations into a useful geographical context. Ultimately, this information will be useful in providing guidance on inferences of Illinois River fishes. Likely candidate species for study could include, but are not limited to, *Sander* spp. complex, *Morone* spp. complex and other fish known to move relatively large distances. Cost estimates will vary depending on the number of samples needed.

Estimated cost: Range from $50-75,000 per year for each species and/or species complex for a 2-3 year study.

Limiting Factors for Aquatic Vegetation
Establishing and maintaining populations of aquatic vegetation has been a major issue in the mainstem portion of the lower Illinois River for several decades. We propose to study growth rates and establishment potential of select species of aquatic vegetation in the Illinois River using an experimental design that protects plants from biotic, physical and both forms of limitations for establishment. This information will be valuable to the restoration process in that it will provide insight into how to protect areas where aquatic vegetation is desired.

Estimated cost: $75,000 for year one and $50,000 for years two and three.

Establishing Backwater Structure and Function
A critical issue associated with floodplain and backwater connectivity is understanding the relation these habitats have in contributing to the structure and function of the Illinois River ecosystem. Therefore, we propose to study backwater and floodplain lakes to establish a range of variability in determining what aspects of each type of water body (e.g., connected or not connected, restored or not restored, etc.) contributes to the ecosystem. This information will provide meaningful information that can be used to assist in identifying restoration approaches for specific needs.

Estimated cost: $75,000 per year for three to five years.

Development of Habitat Metrics and Indices for Use in the Illinois River Basin
Metrics and indices to assess changes in habitat can be an important component of the Illinois River restoration monitoring program. Before these metrics can be usefully applied, there is a need to assess current quantitative habitat methods which are used to establish indicators of stream quality and to assess metrics for habitat indices that reflect improvements and deterioration in aquatic systems. In wadeable streams, Illinois EPA currently uses a point/transect method for quantitatively assessing physical habitat as well as the Stream Habitat Assessment Procedures (SHAP) index for qualitative assessment. Similarly, the Ohio EPA has developed a Qualitative Habitat Evaluation Index (QHEI) to assess wadeable streams. However, the accuracy of point/transect methods at describing habitat conditions and the applicability of habitat indices at different spatial scales (large rivers to small headwater streams) have not been extensively studied. We propose to address these two important questions through a multi-scale study to determine the accuracy and precision of various quantitative habitat methods and use this data to produce indicators of stream quality for development of an Illinois habitat index. We envision that the developed Illinois habitat index will be a macro-scale approach that measures processes influencing stream habitat (e.g., sinuosity, pool/riffle development) rather than the individual factors that shape these characters (e.g., depth, substrate size) and that a version of the index can be applied to larger rivers as well as wadeable streams. Additionally, the index 1) will allow sufficient resolution to separate high quality and low quality streams, 2) will comprise metrics that vary with stream conditions and biotic conditions (i.e. correlate to fish and invertebrate biotic metrics), 3) will have acceptable reproducibility among different field staff, and 4) can be completed with minimal time, personnel, equipment, and field measurements.

Estimated cost: $100,000 per year for three years.

Effects of Sediment Toxicity on Mussel Populations
The reestablishment of viable mussel populations along the Illinois River and its backwaters depends not only on physical habitat improvements (e.g., dredging) but also on the quality of the remaining bed sediments. Specifically, pore water concentrations of dissolved ammonia and possibly other toxicants including hydrogen sulfide may be high enough at certain times of the year and in certain locations to be toxic to mussels.

Sparks and Ross (1992) attempted to identify the toxic substances that may have been responsible for the rapid decline in several species of aquatic organisms in the upper Illinois River during the mid-1950. Toxicity tests with both the fingernail clam and water flea (*Ceriodaphnia dubia*) using pore waters from various locations between river miles 6 and 248 strongly implicated ammonia as the species primarily responsible for the observed acute toxic effects. The total ammonia concentrations in the pore waters used typically ranged between about 20 and 60 mg/L (as N). However, Sparks and Ross (1992) were unable to precisely characterize ammonia toxicity due to difficulties obtaining the accurate pH measurements required to determine the fraction of the total ammonia that exists in the highly toxic un-ionized form (i.e., NH_3).

Machesky et al. (2004) determined ammonia concentrations in the upper 30 cm of Peoria Lake pore waters (river miles 164 to 179) (Figure 1). These measurements were accompanied by accurate pH measurements determined in the field on separate cores. The primary source of this pore water NH_4-N is typically the solubilization and anoxic metabolism of particulate organic nitrogen (Berner, 1980, DiToro, 2001). Overlying water column values were usually less than the analytical detection limit of 0.07 mg/L as NH_4-N. Mean and median pore water concentrations, however, increased from about 1-2 mg/L NH_4-N at an average sediment depth of 3 cm, to about 10 to 20 mg/L NH_4-N at 27 cm average sediment depth. It is also apparent that average and median NH_4-N concentrations below 15 cm average sediment depth were significantly higher during our October sampling dates than those in April. Consequently, the higher October concentrations could reflect greater microbial activity during this period due to the warmer sediment temperatures.

Methods:
1) Pore water sampling for ammonia, hydrogen sulfide with in situ dialysis samplers and by sectioning sediment cores, followed by centrifugation-filtration to isolate pore water. Important ancillary parameters such as pH, and dissolved- and total organic carbon would also be measured.

2) Detailed, in situ microelectrode measurements of ammonia, pH, D.O., and hydrogen sulfide in the upper 1-2 cm of sediments.

These direct measurements would provide much higher vertical resolution ($\leq$ 100microns) than is attainable with either dialysis or centrifugation-filtration methods ($\leq$ 1 cm vertical resolution). Consequently, ammonia and hydrogen sulfide measurements would be most detailed in the zone most frequently inhabited by mussels.

3) Direct measurements of sediment-overlying water exchange of ammonia and other related constituents with benthic flux chambers.

These measurements would provide important information regarding the sources and sinks of pore water ammonia.

4) Development of diagenetic models for ammonia and hydrogen sulfide, as well as other predictive tools.

Developing these models would aid in forecasting where physical restoration efforts would be most successful.

Estimated cost: $250,000 for three year project. The initial two years will be directed towards sampling, laboratory analysis, and data collection.

Chapter II
WATERSHED ASSESSMENT

INTRODUCTION

Watershed assessments are essential for describing and documenting patterns, processes, and functions within a watershed system (Lessard et al. 1999). Further, watershed assessments will assist in understanding past and present conditions. Although a wide variety of information can and must be used in an integrated watershed assessment, choosing information that corresponds directly to the purpose and needs of the assessment is necessary to assure efficient use of resources and funding.

The information included in a watershed assessment depends on the issues addressed, agencies involved, targeted audience, etc (Lessard et al. 1999). Jensen et al. (2001) proposed three steps for ensuring that appropriate information is included in a watershed assessment. First, major policy questions or resource issues to be addressed in a program need to be clearly identified. The identification of specific resource issues to be addressed (e.g., decreased habitat function due to sedimentation) depends on posing appropriate questions. Through many discussions with state and federal partners, seven goals have been identified for the Illinois River Ecosystem Restoration Program (IRER). They are:

- Restore and maintain ecological integrity, including habitats, communities, and populations of native species, and the processes that sustain them,
- Reduce sediment delivery to the Illinois River from upland areas and tributary channels with the aim of eliminating excessive sediment load,
- Restore aquatic habitat diversity of side channels and backwaters, including Peoria Lakes, to provide adequate volume and depth for sustaining native fish and wildlife communities,
- Improve floodplain, riparian, and aquatic habitats and functions,
- Restore and maintain longitudinal connectivity on the Illinois River and its tributaries, where appropriate, to restore or maintain healthy populations of native Species,
- Restore Illinois River and tributary hydrologic regimes to reduce the incidence of water level conditions that degrade aquatic and riparian habitat, and
- Improve water and sediment quality in the Illinois River and its watershed.

Therefore, watershed assessments must identify resource status as it relates to the goals listed above.

Second, Jensen et al. (2001) propose selecting the appropriate scale of analysis. The appropriate scale depends on the resource, function or process being assessed in a watershed. Certain assessment tools such as the U.S. Environmental Protection Agency's (USEPA) Know Your Watershed or Index of Watershed Indicators are useful at national or regional scales (USEPA 2002). Similar tools applied to Illinois specifically, namely, the Illinois EPA Water-body Tracking System (IEPA 2004), provide more detailed information at the state level. These comparative assessments give insight into the relative condition of watersheds within their respective regions. Comparative assessments at small scales already have been conducted for the Illinois River Basin (IEPA 1998b) and can aid in focusing where best to scale-up to more detailed, comprehensive watershed assessment (watershed characterization). Therefore simultaneous discipline-specific watershed assessments focusing on integration and synthesis of information (hydrologic, geomorphic, and biologic) at site, sub-basin, and the Illinois River Basin scales are necessary.

Third, Jensen et al. (2001) suggest identifying a set of scale-specific, measurable, and mappable features that relate to the issues being addressed. Previous watershed assessment methodologies, such as the Watershed Implementation Plan (IEPA 1998a), require numerous types of information at many scales. However, some of the information required (e.g., air quality) was difficult for local planning groups to gather, and did not relate directly to the issues being addressed (e.g., flooding). Through this project, we intend to identify variables that best relate to the resource issues being addressed through IRER.

While restoration project identification involves many facets (e.g, policy, socio-economic, and scientific justifications), we feel the following may provide a suitable guide for assessing the existing biotic an abiotic conditions. Therefore, based on the steps suggested above and review of existing approaches and protocols, we recommend that the following goals be incorporated into Illinois River Basin watershed assessment:

1) identify defining physical limits of each watersheds or target area) in the Illinois River Basin (physiography, geology, climate, etc.),
2) identify the reference watersheds within targeted sub-basins or areas
3) document past and current conditions in priority watersheds and identify reference conditions in the reference watersheds,
4) identify practices and processes impacting priority watersheds,
5) recommend restoration projects based on identified cause-effect relationships.

Information resulting from meeting these goals will aid practitioners and policy-makers to make more informed, effective, and defensible resource management decisions.

Review of Watershed Assessment Approaches

Watershed assessments have taken place in Illinois through various programs prior to the Illinois River 2020 effort (IEPA 1998b; IDNR 2004). Additional assessments and innovations have recently been developed and/or applied in Illinois watersheds (Keefer and White 2004; White 2004; Locke et al. 2004; and others). While much effort has been focused on unifying and consolidating information for Illinois watersheds in recent years (IEPA 1998b), additional effort needs to be made toward integrating information from various disciplines to evaluate watersheds more effectively. This integration could lead toward a better understanding of the relationships between physical habitat (hydrology, hydraulic, sediment, geomorphology, etc.) and the biotic community (vegetation, fish, macroinvertebrates, etc.).

Several state, federal, and non-governmental organizations have developed watershed assessment procedures. For example, Oregon, Vermont, and Washington have extensive watershed assessment manuals that could serve as models for comprehensive and integrated watershed assessment in the Illinois River Basin. These protocols require varying levels of expertise, data collection, and analysis. Further, some assessment procedures were developed and applied in conditions specific to particular states and regions. Elements of the existing protocols adopted for watershed assessment in Illinois will need to be modified to address the range of conditions in Illinois watersheds.

Watershed Assessment Approaches in Illinois

<u>Illinois Geomorphic Watershed Assessment (IGWA), ISWS</u>

The Illinois State Water Survey (ISWS) is currently developing a geomorphic assessment approach for Illinois watersheds focusing on geomorphology of tributary streams and intended for rapid identification of restoration project sites. The underlying principles behind this effort include systematic assessment, uniform data collection, and quality assurance. Following these principles will aid in the accuracy of assessments. The Vermont Stream Geomorphic Assessment Protocol (VSGAP) serves as the initial foundation for this approach (Kline et al. 2003). The obvious differences in regional geography between Vermont and Illinois necessitated the adaptation of the Vermont protocol to Illinois geography utilizing other studies conducted in the Midwest (Barnard and Melhorn, 1982; Bryan et al., 1995; Kuhnle and Simon, 2000; Rhoads, 2003; Simon and Downs, 1995; Simon and Hupp, 1992; Simon and Rinaldi, 2000; and Rhoads and Urban 1997; Urban 2000). The key goals and principles in the Vermont protocol remain the same in the IGWA approach: determine the past and current physical nature of a stream and its watershed, assess the likely sequence of events that have contributed to initiate a set of stream responses, and assess potential future channel response given past and present conditions. Development of the IGWA approach is ongoing and will be implemented and further tested in 2004.

The purpose of IGWA approach is to provide meaningful guidance in the application of watershed and stream restoration practices (BMPs) that reduce upland, side slope and floodplain or channel erosion, and also address sedimentation or aggradation issues that may result, such as the burial of productive substrates.

The IGWA approach contains two phases 1) Rapid Characterization and 2) Reconnaissance Characterization. This phased approach will integrate progressively detailed levels of investigation at selected stream reaches throughout a watershed. Phase 1 involves gathering existing watershed and stream channel data/information (historical and recent); evaluating watershed characteristics based on geology, soils, hydrology, land cover, and climate; conducting aerial flyovers to quickly assess stream reaches; performing field-based rapid channel stability/physical habitat ranking of many sites distributed throughout a watershed. Based on preliminary evaluation of the Phase 1 information/data, the assessment may continue to Phase 2 when an entire stream system seems to be responding to changes within the watershed. Phase 2 involves a more detailed field reconnaissance of streams reaches at a subset of Phase 1 field sites (Rhoads 2003; Kuhnle and Simon 2000; and Thorne 1998). The data collected at Phase 2 sites is more comprehensive and, when compared and contrasted with historical or recent data (Trimble and Cooke 1991), improves the prediction of potential future channel adjustment. The comprehensive data includes surveyed channel geometries, bed/bank conditions, boundary material descriptions and size distributions, and riparian vegetation as fluvial geomorphic indicators (Hupp 1999; Hupp and Osterkamp 1996).

The IGWA integrates channel stability ranking with stream habitat conditions by collecting data as prescribed in USEPA protocols (Barbour et al. 1999). Over time, relationships and trends between stream channel geomorphology and biotic communities may be drawn from the surveys of biotic communities conducted at the Phase 1 (habitat assessment) sites.

Data included in the IGWA approach include topographic maps, historic aerial photography, GPS aerial video flyovers, geology, a land cover, etc. As the level of assessment increases (from Phase 1 to Phase 2) the scale of assessment remains constant (~1:24000), but stream reach data such as cross-section measurements are collected in greater detail.

<u>Stream Dynamic Assessment (SDA), ISGS and UIUC Dept. of Geography</u>

Phillips et al. (2002) assessed planform changes of representative stream reaches in the Illinois River Basin. Analysis of aerial photographs in time series from 1938 to present was performed to identify mechanisms and rates of planform change, assess the variability of these behaviors across the watershed, and determine the suitability of the method for watershed-scale assessments. The greatest value of SDA for initial watershed assessments is that it quantifies how a given stream changes in a historical perspective giving insight into the concept of stream channel “stability”, in particular. Further, the analysis identifies dominant processes and geological targets for more intensive field study, reveals the variability of stream planform dynamics, and demonstrates that total geomorphology of the system needs to be evaluated to understand stream behavior.
In this method, channel centerlines (threads) are traced, rectified, and corrected using GIS methods. Threads were then compared to distinguish “natural” and human-influenced change. These changes were evaluated in context of stream power calculations from gauge data, geology

and soils data, and observed changes in land use and land cover. From GIS analysis mode of stream planform changes (lateral migration, downstream translation, formation and avulsion, and channelization) were characterized and assessed. This assessment provided insight into the mode of planform change and the importance of evaluating the dynamic response of streams, particularly to channelization, for assessing the feasibility of restoration projects. SDA would also aid in evaluating the range extent and rate of planform change.
SDA gives a quantitative understanding of stream change over the past 60 years with limited investment of resources. For the initial study, GIS database for 16 km of reach was compiled and digitized, including calculation of change polygons occurring in less than 20 person-weeks. Analysis of the geological setting and interpretation of change is dependent upon data availability, planform complexity, and the amount of change. The geological setting for initial method testing was developed only generally because of limited data. In most cases geologic maps, are only available at scales of 1:100,000 or smaller. Soil surveys typically give reasonably detailed assessments (~1:16,000) of floodplain materials and their properties, but additional interpretation is required to assess the geological history of the floodplain. As well, only small scale soil surveys are available. The only bed substrate information available was from stream gauge records (USGS, writ. com.) and was mainly anecdotal. Most needed are geological maps at the 1:24,000 scale for establishing the geologic setting, especially the thickness of post-glacial valley fill and depths to older sediments or bedrock. Such maps should be supplemented by focused higher resolution field studies of floodplain and channel sedimentology and river geomorphology.

Channel incision cannot be directly assessed from airphotos. Trends of increasing channel width with time could possibly be surrogate for assessing incision following channel evolution models (Simon 1989), however. We found no such trends, but georeferencing error was quite high relative to channel width for many of the images in this study. Width analysis may be more definitive with expected error reduction through use of crisper source images and georeferencing methods.

Manual methods worked sufficiently well for the initial application of SDA. To examine an entire river or subwatershed would require compiling many more georeferenced digital images. Although our georeferencing method proved adequate for quantification of dominant evolutionary behaviors, more accurate quantification of change and improvement of interpretations are desirable for more precise results.

Methods for Estimating Groundwater Recharge Areas for Illinois Nature Preserves, ISWS and ISGS

The ISWS and ISGS have developed methods assessing and delineating ground-watersheds to determine Class III ground water protection areas for the Illinois Nature Preserves Commission (Locke et al. 2004). The methods for groundwater recharge area estimation have been applied for several nature preserves. Ten preserves were assessed within the Illinois River Basin. Because sufficient groundwater data are typically not available, other data were used to estimate recharge areas. This requires the integration of multiple data sets including best available hydrologic and geologic information, proxy data (e.g., surface watersheds), indicators (e.g., groundwater discharge), raw data when available, and best professional judgment.

Procedures outlined for Class III protection areas are particularly useful in estimating the extent of highly vulnerable (i.e., areas surrounding rare or high quality habitat) sub-watersheds or catchments. An adapted version of this method would be useful for assessing groundwater resources in watersheds.

Data required for this method include 7.5-minute topographic quadrangles, well boring records, local geologic maps information, and local groundwater models. Detailed local information is lacking in many cases where this method has been applied. Datasets should be supplemented by local hydrogeologic studies. This procedure is best applied at scales of 1:24000 or larger.

Ground water recharge areas interpreted from surface watersheds identified much of the estimated regional groundwater recharge area and generally captured the most hydrologically significant areas immediately up-gradient of the preserves were identified. A Class III groundwater area based on an adjusted surface watershed appears to provide significant protection for a preserve even though it will not directly correlate to the groundwater recharge area. Indirect methods are poor in identifying confined groundwater sources, such as where karst terrains exist or in areas influenced by significant groundwater withdrawals. The methods of Locke et al. (2004) allow protection of groundwater recharge areas based on current information, and when additional information is available, delineation of groundwater recharge areas may be amended.

Rapid Assessment Point-Method (RAP-M), Illinois USDA-NRCS

RAP-M (Windhorn 2001)was designed to produce estimates of average annual erosion and sedimentation rates in a watershed. The procedure entails generating initial inventories of physical features, practices, and processes in selected sample areas (e.g., gullying) from existing data. Field information is then collected to identify current practices and conditions within the selected sample areas. Various features identified in office and field inventories are assigned rating factors used in the calculation of sedimentation and erosion estimates. Equations used for the estimates are outlined in the RAP-M manual. In this method, after rate estimates are calculated, it is suggested that results may be summed and extrapolated to illustrate the condition of the larger watershed encompassing the investigation area. The ultimate goal of the RAP-M method is to make local BMP planning decisions based on the rate estimates of erosion and sedimentation.

Data required for RAP-M include topographic maps, aerial photos, and soils maps, land cover and DEMs. Most of these data are available statewide although currentness and scale varies. The suggested scale for RAP-M is not explicitly indicated, but it is recommended that maps are drawn at roughly 1:15000. As with any assessment procedure, results are limited by the smallest scale of data and confidence in results will be reduced at smaller scales and wider sampling distributions.

While interpretation of watershed processes may be inferred, conclusions about geomorphic processes cannot be made using this method. RAP-M is not intended for monitoring purposes. Consistent and uniform application of this method is essential thus workers are urged to be consistent in their field observations. Subjectivity in observation could be a significant source of error in calculations. GIS methods could make RAP-M more systematic but the results still rely heavily on the input from individuals collecting field data. This procedure does not include detailed inventories and evaluation of other environmental and hydraulic parameters and becomes less reliable in larger watersheds. Extrapolation of RAP-M results from larger to smaller scales (smaller watershed to larger watersheds) is tenuous given the likelihood of variability in geology, soils, land cover not captured by sampling. Aspects of RAP-M might be useful as the upland component of a comprehensive watershed assessment protocol in the Illinois River Basin if applied and interpreted at relatively large scales in smaller watersheds.

Rapid Watershed Assessment, USGS

Led by the U.S. Geological Survey, state and federal agencies in Illinois (e.g., USDA-NRCS, IDNR) have co-operated in applying GPS-integrated aerial video technology for rapid watershed assessment (Roseboom et al. 2002). Elements of Rapid Watershed Assessment are currently being incorporated into the Illinois Geomorphic Watershed Assessment approach (White 2004). The technique entails mapping streams with GPS-oriented aerial videotapes acquired during helicopter flyovers. The strongest features of GPS-video mapping are that is provides quick visual documentation of the static condition of long segments of a stream system, and it is useful for communicating with stakeholders. Abrupt changes in channel pattern or form as well as key features of the natural and built landscape can be interpreted from the images.

The weak points of the method are its high cost and a limited ability to distinguish geomorphic process and product. Flyovers are expensive and are most effective during in winter or early spring when canopy conditions are least dense. Interpretations of apparent stream instability would need to be verified by temporal and field studies.

The use of new surveying technology called Light Detection and Ranging (LiDAR) which can be recorded simultaneously with GPS video mapping has been investigated as well. LiDAR is used to obtain continuous channel morphology data (topography) along a particular stream channel. One-time LiDAR flights can provide baseline data, but multiple flights could be used to analyze and document changes in channel morphology from which sediment production and delivery can be estimated. To date, LiDAR has only been applied in a portion of Des Plaines River watershed. Several factors limit the utility of LiDAR, not the least of which is its high cost. Also, the current technology may not have the resolution to obtain accurate bed and bank geometry. Although the level of precision of LiDAR data may be 1-2 orders of magnitude greater than existing DEM data, lack of resolution within stream channels may not warrant the expenditure of monetary and human resources.

Process-based Watershed Assessment Protocol, Herricks et al. (2004)

Herricks et al. (2004) designed a protocol to meet specific reconnaissance study and feasibility study needs, and specifically to integrate these two activities so that reconnaissance study reporting provides direct input to feasibility studies. The objective of this protocol is to make maximum use of existing physical and chemical data while integrating any available biological assessment data into an analysis that will assess location-specific ecosystem vulnerability/impairment issues that will direct ecosystem restoration programs.

The process-based metrics within the protocol are under development. The metrics include formulations that establish source quality and potential, relate the source to the colonization site, identify pathway impediments to organism movement, assess colonization site potential, and provide scale based habitat needs measures for populations and communities. The analysis of performance metrics requires both spatial and temporal integration. Spatial analysis and integration can be as simple as plotting locations on a map, but temporal analysis would be more intensive.

Data requirements for this protocol are broadly defined by necessity. An objective of the protocol is to use existing data and information to characterize state or condition using water quality and biological/ecological quality assessments made as a part of normal water quality analysis under the Clean Water Act. This information is used to both assemble stakeholder groups and provide a focus for discussion at stakeholder meetings. A major objective of the reconnaissance is to identify the opportunities for ecosystem restoration, and provide a foundation for a feasibility assessment. The reconnaissance study is limited by resources, but the resource base may be variable depending on the overall scope of the proposed project. Thus the protocol reflects the need to provide information for initial project review, with a level of effort that reflects a reconnaissance effort and personnel time reflecting overall project size.

The reconnaissance study is intended to provide the foundation for the feasibility study, which is much more complex and comprehensive. It is assumed that the reconnaissance activity has consolidated data/information resources, has identified critical areas in the watershed that are impaired, and from a water quality and general land use perspective has identified general sources of impairment. The protocol is based on the following study objectives: The feasibility study is to develop more detailed data/information from existing data resources to meet the following study objectives: 1) identify specific needs for restoration projects, 2) suggest general design requirements for specific projects, 3) determine the feasibility of ecosystem restoration projects in relation to natural constraints and land use change potential, and 4) assess the long-term potential for project success. These study objectives are achieved by reviewing the basic information resources for the project watershed and making an initial determination as to whether or not new data should be collected. The protocol assumes that there will be sufficient existing data to conduct a general feasibility analysis and that the major need for new data will be associated with specific locations or problems. Development of specific quality assurance documentation before collecting new data is recommended. The basic structure of the feasibility structure protocol is designed to assemble physical, chemical/water quality, and biological/ecological data for use in a range of integrative analyses. The confidence level of assessment would depend on the quality, scale and availability of existing physical and chemical data.

National Guidance and Generalized Approaches

A Framework for Analyzing the Hydrologic Condition of Watershed, USDA-FS and BLM

The *Framework* was developed to provide national guidance for hydrologic assessment of watersheds. It consists of 6 steps: 1) Characterize the watershed, 2) identify rate factors, 3) identify important factors, 4) establish current levels, 5) establish reference levels, 6) identify changes and interpret results. A precursor to these six steps is development of a case file index. The case file index is a data gathering and assessment procedure that can indicate the level of confidence of analysis of a watershed.

Data categories required for watershed characterization are climate, surface water flow, groundwater (location of springs and wells, and aquifers), watershed morphometry (area, topography, etc.), wetlands and riparian areas (NWI-maps), soils, geology, vegetation cover, and human influence. The scale of assessment suggested in the Framework is 1:24000. Much of the required data for this approach are available Illinois although at varying scales and with varying coverage. Soils and topography are among the few data sets have complete statewide coverage. Topography is available at 1:24,000 scale and the scale of soil maps range from 1:63,000 to 1:15,000.

The limitations of the Framework include subjectivity in applying rating factors and treatment of data gaps. Watershed hydrology parameters are rated 1- high influence, 2-moderate influence or 3- low/slight influence. The rating procedure is highly arbitrary. It would be difficult to get uniform results, especially if people from different disciplines and varying levels of expertise are practicing this method. Data gaps are addressed by incorporating surrogate information into the assessment (e.g., road density as a surrogate for infiltration reduction) methodology for use of surrogates would have to be developed prior to implementation of watershed assessment prior to using this procedure. Further, adaptations such as a more detailed rating system are recommended prior to implementing this procedure to for the Illinois River Basin.

Stream Visual Assessment Protocol, USDA-NRCS

Stream Visual Assessment Protocol (SVAP, USDA-NRCS 1998) is not a watershed assessment procedure but rather a channel reach assessment procedure. This procedure is designed for use by conservationists to evaluate stream health. The method relies on ranking using comparator charts for various factors such as channel condition, hydrologic alterations, and barriers to fish movement. Ranking criteria are outlined, somewhat reducing the subjectivity of the assigned numerical values. Ratings are then averaged for a total score which is the index of overall condition of a particular stream reach.

No specific scale of assessment is given in the SVAP, however the protocol suggests assessed stream reaches be 12 times the active channel width. The only data required for this assessment procedure are rudimentary field observations and landowner input.

The crude characterization of channel condition limits the utility of SVAP in comprehensive geomorphic assessment. While guidance is given for the assigning numerical rating, the rationale of the numerical weighting is unclear.

Watershed Vulnerability Analysis

The Center for Watershed Protection (Zielinski 2002) developed Watershed Vulnerability Analysis (WVA) as a rapid planning tool for larger watersheds. It has been used in instances where it was necessary to group and prioritize up to 20 sub-watersheds for restoration and protection. Results of WVA as outlined by the Zielinski (2002) are A) a defensible rationale for classifying sub-watersheds, B) a framework to organize and integrate data, C) a rapid forecast of the most vulnerable watersheds, D) prioritization of watersheds that merit restoration action.

The compartmentalized WVA procedures include initial sub-watershed classification, final sub-watershed classification, watershed vulnerability ranking, and prioritization for implementation.

Suggested size of targeted sub-watersheds is 0.5 to 30 mi^2. The rationale for use of this scale is the relative influence of impervious cover. At smaller scales (larger watersheds) effects of impervious cover and other hydrologic influences may be damped out of the analysis. Of course, confidence of analysis would increase with the scale of data. Essential data include topography, hydrology, impervious cover, current land use (zoning), future land use (zoning master plan), and aerial photos. Auxiliary mapping layers include riparian cover, floodplains, wetlands, forest cover, soils, geology, stormwater management facilities, and others. Aerial photos (DOQQs), topography, soils, and land cover are all available statewide for Illinois at 1:24000 or greater scales. Data such as zoning, geology, and stormwater management are sporadic to non-existent in coverage and scale.

The major limitation of WVA is that is meant as a prioritization tool only. The results of analysis do not lend themselves to interpretation of processes or functions within a watershed. More comprehensive watershed assessment would have to take place in those watersheds that were prioritized for implementation.

Landscape Assessment of Geomorphic Sensitivity (LAGS), State of California

California Environmental Resources Evaluation System (CERES) developed the LAGS procedure to estimate the geomorphic sensitivity of the landscape (watersheds) to land use disturbances. This procedure operates much like WVA however it is more simplistic and incorporates fewer data layer into the analysis. Data used in LAGS are limited to slope, geology, landslide terrain, and unstable and erodible soils. The scale of analysis is limited by the smallest scale data used.

Like WVA, LAGS is design to identify areas that may need further evaluation and is not to be used in a prescriptive sense. An adapted LAGS procedure could be incorporated into a larger comparative assessment procedure for Illinois River Basin watershed assessment.

Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers, US EPA

The US Environmental Protection Agency (USEPA 1999) developed a rapid bioassessment protocol to determine physiochemical and habitat conditions along with assessing the quality of biotic communities (periphyton, macroinvertebrates, and fish). This protocol is designed to give a general picture of stream integrity or health with minimal field and laboratory efforts. Physiological data obtained from this protocol provides estimates of in-stream, riparian, and watershed features through observational assessment. Water chemistry parameters focus mostly on conditions that affect the biota (i.e., temperature, dissolved oxygen, etc.). For assessment of physical habitat (in-stream and riparian) and biota (periphyton, macroinvertebrates, and fish), a multi-metric index is used to score stream quality based on that particular indicator (habitat, fish, invertebrates, etc.). Collection of physical habitat data is observational and the index is based on a rating of habitat categories (substrate/cover, embeddedness, bank stability, etc.). Biotic data is collected with minimal sampling and course identification with rating of stream quality determined by composition of the assemblages (i.e. taxa richness, % tolerant taxa, etc.)

There are several limitations to the USEPA rapid bioassessment protocol. Assessment of water quality is a "snap shot" view of water conditions and does not include other parameters which may be limiting or affecting the biota (e.g., nutrients). The limitation of the physical habitat assessment stems from the subjectivity in rating individual physical habitat metrics. While biotic assessment under this protocol is time efficient and gives an overall indication of biotic integrity, it gives few details on processes affecting the biota.

Watershed Assessment Protocols from Other States

Oregon Watershed Assessment

The Oregon Watershed Assessment Manual (OWAM) is a comprehensive assessment guide with the aim of 1) identifying features and processes important to fish habitat and water quality, 2) determining how natural processes are influencing those resources, 3) understanding how human activities are affecting fish habitat and water quality, 4) evaluating the cumulative effects of land management practices over time (Watershed Professionals Network 1999). The OWAM was designed for a widely varying range of landscapes. The method employs ecoregions (large areas each with similar geology, flora, fauna, and landscape) at the broad scale and Channel Habitat Types (CHTs – stream channels with similar gradient, channel pattern and confinement) at the channel reach scale. The OWAM is divided into components that combined comprise "Watershed Characterization". Each component can be completed separately so different specialty teams may work on various assessment components simultaneously. Components are then brought together in the final "Watershed Assessment" phase.

Basic data requirements for OWAM watershed characterization are 7.5-minute topographic quadrangles, land cover maps, ecoregion maps, and aerial photography and topographic maps. Supplemental data for Watershed Characterization include mean annual precipitation maps, habitat assessment maps, street-level road maps, peak flow data, landslide inventories, National Wetlands Inventory maps, FEMA maps, soil surveys, etc. The suggested scale of assessment by the OWAM is at least 1:24000. In some cases (aerial photo interpretation) scales at large as 1:12000 are employed.

This manual would need to be adapted to conditions in the Illinois River Basin. Components of the OWAM could be adapted or replaced by assessment techniques developed specifically for Illinois. For example, the "Channel Modification" component which focuses on location, type, and magnitude of channel disturbance, could be replaced with the IGWA approach outlined above.

Vermont Stream Geomorphic Assessment (VSGAP)

The Vermont Agency of Natural Resources recently designed protocols to assess the geomorphic conditions in streams and watersheds (Kline et al. 2003). Focus on geomorphic principles and physical habitats are key elements in this approach. The VSGAP is divided into three handbooks, Watershed Assessment, Rapid Stream Assessment, and Survey Assessment. Like the OWAM, VSGAP outlines training, personnel, and material needs to conduct each phase of the protocol.

For the Watershed Assessment phase, VSGAP requires aerial photographs (the most recent and historical photos at least 20 years old), 7.5-minute quadrangles for the watershed. For GIS analysis digital layers such as streams, soils, and land cover at 1:5000 are needed. These GIS layers are available for most of Illinois at scale of 1:24000. Methodology for calculating various geomorphic variables from available map resources are given in the Phase 1 handbook.

Limitations of application of VSGAP in Illinois are currently being resolved within the IGWA approach (Keefer and White 2004).

Washington Watershed Analysis Manual (WWAM)

The Washington Watershed Analysis Manual objectives are to assessing resources, define problems, identify sensitivities, produce management prescriptions, and monitor the effectiveness of those prescriptions (Washington Forest Practices Board 1997). A helpful feature of this manual is the use of guidance questions to help keep focus on the objectives of the assessment.

The components of the Washington Manual include "Mass Wasting", "Surface Erosion", "Hydrology", "Riparian" and "Stream Channel". While each of these components is qualitative, guidance matrices give criteria for the assignment of ratings making the procedure somewhat systematic.

Basic data requirements for the geomorphological components of the Washington analysis are: aerial photography, geologic maps, watershed base maps, soils maps, precipitation maps, land use /land cover, vegetation type, streamflow (if available), field observation in stream channels.

As with the OWAM and VSGAP, components of the WWAM would have to be altered to assess the range conditions (climate, physiography, and dominant land use) and policy in the Illinois River Basin. For example, the surface erosion module focuses on assessment of forest practices and hill slope and road erosion and does not address erosion from agricultural or urban land uses in a manner that would be appropriate for the Illinois River Basin. Also, the riparian assessment module treats the supply of large woody debris (LWD) to streams as positive indicator. Policy regarding the treatment of LWD in the Illinois River Basin would need to be resolved prior to conducting watershed assessment.

The stream channel module is executed through classifying streams somewhat similar to the Rosgen (1994) method. The guiding questions in this module focus partially on the "likely responses" of channels to changes in the watershed and this procedure employs the use of "channel response types". Interpretation of "likely response" is not recommended for use as the basis of restoration design.

Proposed Watershed Assessment Framework

The watershed assessment manuals and other procedures reviewed above give valuable guidance for watershed assessment in the Illinois River Basin. The framework we recommend is based on our review of these existing strategies. Comparative techniques such as WVA and LAGS provide logical, systematic procedures using existing data sets (e.g., land cover, DEMs). Though the scale of existing datasets may limit the resolution of assessment, adapted versions of these types of GIS-driven assessment may be sufficient for general, rapid comparison of watersheds in the Illinois River Basin.

The watershed assessments produced by Oregon, Vermont, and Washington state governments are comprehensive assessments that focus on examining those factors that significantly impact a particular watershed. These assessment manuals were developed for regions with geographies that differ vastly from Illinois and would have to be adapted to assess conditions specific to the Illinois River Basin. Nevertheless, these manuals provide guidance for comprehensive watershed assessment (specifically, watershed characterization) for Illinois and are valuable references.

We recommend that watershed assessment in Illinois follow the comprehensive approaches developed by Oregon, Vermont and Washington. We outline the following framework base on synthesis of the reviewed materials:

1) Watershed comparison and prioritization
2) Establishment of reference watersheds
3) Rapid assessment of reference watersheds
4) Watershed characterization of prioritized watersheds

5) Integrated assessment and evaluation
6) Project recommendations

A crucial first step in addressing restoration needs for the Illinois River Basin is identifying watersheds where restoration efforts can be most effectively applied. This approach is aimed solely at scientific evaluation of the watershed. Many other criteria can and should also be involved in the prioritization process to ensure proper site selection. A comparative assessment considers many watersheds (e.g., within a sub-basin) rapidly and simultaneously to quickly identify relative sensitivity, value, or level of degradation. A watershed found to be highly degraded by comparison, might not warrant restoration action in that watershed if degradation is consider irrevocable. Alternatively, restoration may be focused outside of that watershed if functions or processes in other parts of the system are contributing to the degradation. In this case, restoration efforts (priority) would be best focused in a tributary watershed or catchment. Key elements of comparative watershed assessment include systematic assessment, uniform data interpretation, resolution and scale that will uncover contrasts among watersheds, and recognition of systematic impacts. The results of a comparative assessment aid prioritization of watersheds for characterization. Comparative assessments, such as the Unified Watershed Assessment (IEPA 1998), have already been conducted for Illinois. These could be used for the initial comparative assessment, but updates are recommended where significant datasets have been acquired.

After priority watersheds have been identified, we recommend establishing reference watersheds within the sub-basin. The reference watersheds should represent the least impacted, most impacted, and "typical" cases. The establishment of the references will give watershed assessors, contracting agencies, policy makers and local stakeholders a frame of reference for ensuing watershed assessments and future decision making. The purpose of establishing reference watersheds is to justify the prioritization, to document the range of conditions within a sub-basin, and to provide a context for allocating project effort. The reference watersheds would be assessed rapidly to identify basic characteristics in each. This phase is based mainly on GIS and office work rather than on fieldwork, but cursory fieldwork may have to be done to corroborate the office assessment. We suggest that the Unified Watershed Assessment (www.epa.state.is.us/ water/unified-watershed-assessment/) be used as a starting point helping to focus on reference watersheds.

Once reference watersheds are established, we recommend conducting watershed characterization in those watersheds that have been identified through the prioritization process. The purpose of watershed characterization would be to identify the processes (e.g. channel degradation) and impacts (e.g. prevalence of invasive species) that contribute to the actionable condition of the watershed. We suggest simultaneous watershed assessments per discipline (hydrology, geomorphology, biology).

After each component of the watershed characterization is complete, integrated assessment and evaluation of the priority watershed is recommended. The purpose of this step is for watershed assessment teams to compare notes, collaborate, and identify consensus issues. If consensus cannot be found then more rigorous and objective techniques may need to be applied before project recommendation.

Project recommendation is the overarching goal and result of the watershed assessment for the Illinois River Basin. Effective use of restoration project funding relies on accurate assessment of causes and effects of degradation in the watershed system. Therefore it is imperative that cause-effect relationships (i.e., processes) be identified prior to project recommendation.

A summary of our recommended watershed assessment framework is as follows. Framework goals are outlined under each step. The outlined tasks under respective headings cannot be considered exhaustive or comprehensive, but rather exemplify the nature of each step in the procedure.

Recommended Framework

1) Compare and prioritize watersheds

Based on existing information, identify priority watersheds largely through GIS and other remote sensing methods

- Suite of watersheds for rapid comparison should be manageable within allotted time frames and funding schedules.
- Existing comparative assessments may need to be updated a significant amount of new data was collected or assessments have been updated (It has been 6 years since the Unified Assessment by IEPA (1998)).

2) Establish a reference *watershed*

Identify a "best" watershed in the target area (e.g., sub-basin) based on the existing knowledge.

- The reference watershed may be derived from the previous step with local stakeholder input and some field corroboration.
- Establishing a reference watershed will aid in resolving questions about restoration priorities raise in Step 5 (below).
- NOTE: At this level of assessment, the reference watershed is a simple identification. Reference conditions cannot be inferred at this level. To obtain reference conditions watershed characterization is necessary.

3) Rapid watershed assessment

Establish initial estimates of the current condition of each of the three reference watersheds in the target area.

- Conduct separate, simultaneous rapid assessments according to discipline.
- GPS-video mapping from helicopter flyovers may be conducted during a rapid watershed assessment to obtain a "quick glance" at conditions in a watershed where data are limited. However watershed characterization is needed to establish inferences about the processes contributing to the conditions observed from

flyovers.

• The purpose of this step is to gather available data from various disciplines to become familiar with the watershed. Several data sources exist in Illinois. Some potentially useful datasets and sources include:

Water quality - The Illinois Environmental Protection Agency (IEPA) conducts a variety of stream monitoring including: a 213-station Ambient Water Quality Monitoring Network (AWQMN), an Intensive Basin Survey Program that covers all major watersheds on a five-year rotation basis, and a Facility-Related Stream Survey Program (FRSS) that conducts approximately 20-30 stream surveys each year (IEPA 2002). The AWQMN includes sampling water chemistry and core pesticides at each site nine times per year on a cycle of once every 6 weeks. Intensive Basin Surveys include sampling water chemistry, habitat quality, fish, macroinvertebrates, sediment chemistry, and fish tissue on a 5-year cycle. This program is a cooperative venture between the Illinois DNR and the IEPA. Each basin survey may consist of approximately 10 to 35 stations. Water Chemistry, effluent, habitat quality, macroinvertebrates, and occasionally fish are sampled as part of the FRSS. Each FRSS consists of sampling conducted upstream and downstream of wastewater treatment plants and the number of sites may vary from three to seven or more.

Aquatic biota - Stream habitat quality, fish, macroinvertebrates, and fish tissue are sampled on a 5-year cycle as part of cooperative Basin Survey Program, administered by the Illinois DNR and the IEPA (Table16, Figure12).

Streamflow Records - In Illinois there are currently 97 active continuous discharge gages in the Illinois River Basin (IRB) of which 89 are operated by the USGS (Figure 12) and 8 are operated by the ISWS. The names and locations of these active gaging stations are presented in Table 11. Also identified in Table 11 are the 80 discontinued gaging stations in the IRB, the number of years over which data have been collected at each station, and whether these data are a full 12-month record (F) or partial (P) record.

Suspended Sediment Records - In Illinois there are 21 active monitoring sites collecting suspended sediment data in the IRB. Figure 4 shows the locations of these sites.

Critical Trends Assessment Program (CTAP) - The CTAP program (Milano-Flores 2003) is designed to monitor the condition of forests, grasslands, wetlands, birds, insects, and streams in Illinois (Figure14). For each habitat type, 150 sites are monitored on a rotating, 5-year cycle. Site selection is based on randomly selected patches within randomly selected townships throughout the state.

Ecowatch - The Ecowatch program relies on trained volunteers to monitor Illinois' forests, rivers, and prairies. Location of existing Ecowatch sites located in the Illinois River Basin are shown in Figure 15.

Inventory of Other Datasets - There are a variety of digital databases available for use by project participants; these include scientific data, infrastructure data, and digital photography (Table 17, Appendix A). These data vary widely in scale, temporal and spatial completeness, quality, and availability.

Known information, specific to the Illinois River Basin, were inventoried to determine what spatial data are currently available to use for baseline watershed assessments as well as to assist with long-term monitoring protocols. This data identification exercise has been run for previous Illinois River-related projects and each effort has added to the accessible knowledge-base associated with the Illinois River Basin. The intention in this effort is not only to identify relevant digital data, but to track down sources of useful information that, as yet, may not be as readily available. There are a variety of potential sources of useful data, some of which may have previously been underutilized by IDNR watershed research. These potential sources include local Soil and Water Conservation Districts (SWCD), County Farm Bureaus (FB), Farm Service Associations (FSA), etc.. Another important objective is to evaluate the resolution of the data sets to determine if they are appropriately-scaled for main-stem, sub-basin, and project specific work discussed elsewhere in this document, so that when utilized for baseline assessment, scientific query, or planning task, will lead the data user to meaningful and defensible conclusions.

Preliminary searches revealed a wide variety of small-scale (ranging from1:15:000 to 1:3,000,000) remotely-sensed and mapped data available in a variety of digital formats that can be readily incorporated into a digital-based analysis (see Appendix A). These small-scale data are suitable for regional studies but are often out of date. Larger-scale data (ranging from sub-meter resolution to 1:10:000) are available in digital format but on a much more limited basis.

These data, and other information, would be used to develop a baseline dataset for monitoring during the preliminary watershed assessment. Assessments would minimally include surficial geology, landscape history (over 100 years or more including changes in land cover (c.f., IDNR et al. 2003; Szafoni et al. 2003)), land use (agricultural practices, modes of urban development, installation of drainage networks, occurrence of levees, channelization, etc.), channel pattern (e.g., Phillips et al. 2002; Collins and Knox 2003), and climate (precipitation or flow). The initial assessment identifies the existing static condition as well as establishes intrinsic rates of change (e.g., meander migration), and may reveal some long-term system responses to historical change. In addition, the assessment will identify additional data gaps that might be filled by monitoring, potential problems for remediation, sampling locations and appropriate techniques, and tune sampling protocols (c.f., Osterkamp and Schumm 1996).

The need for higher resolution data is evident. While high resolution (1:24,000 or greater) geologic mapping establishes a baseline configuration for small scale monitoring, it is insufficient for the large scale assessment and monitoring proposed in this plan. For example, much of the surficial geology on 1:24000 scale maps is derived from interpretation of parent materials from 1:15,000 scale soils maps. Variability in alluvial valley sediments is highly overgeneralized at these scales and, in particular, channel bed and sub-bed materials are not identified. Thus, larger scale (higher resolution) geologic mapping may be needed in sub-watershed and project scale assessment. The mapping is especially important where subsurface units are shallowly buried, and thus streams may tap significantly different geologic materials than occur at the surface of the adjacent floodplain or upland.

The question then becomes, "where will the higher resolution data come from". Some agencies conduct field-scale monitoring, but data are sparse and observations are not necessarily geared towards the indicators we have identified as most suitable for this plan. When it does exist, larger-scale information (ranging from sub-meter resolution to 1:10:000) that are not digital will have to be obtained, permissions granted, and processed before the actual value to assessment and/or monitoring tasks can be determined. Conversely, when a data gap has been identified, the information will have to be gathered in the field, or from high resolution imagery, and processed from scratch. This is where the garnering of distributive database design and compilation efforts will prove to be beneficial. An effort should be made to capitalize on the multi-disciplinary nature of this project to develop digital databases. An excellent example of this kind of opportunism involves the Illinois FSA.

Illinois FSA is in the process of implementing a geographic information system (GIS) in local field offices, where many years of field boundary, nutrient and pesticide application, land use practices influencing erosion, and crop management information (especially BMP lands) have been documented in paper form (IDA 2002). Illinois FSA intends to use the GIS technology to efficiently administer programs, monitor compliance, and respond to natural disasters while making FSA data more accessible to their constituents. Their first step in this implementation has been to establish a common land unit (CLU) data layer. A CLU is the smallest unit of land that has a permanent contiguous boundary, common land cover, and a common owner (i.e. a field containing row crop). To accomplish this, hard-copy aerial maps are being transferred to a digital orthophoto quadrangle (DOQQs) base; then reference lines such as field, track, and farm boundaries, roads, and waterways are being reconciled to the imagery. As the digital CLU layers are processed, the county FSA Offices that generated the common land unit inventory are checking the accuracy of the digital reference lines. Once the CLU data layer is certified by the originating FSA, it will supersede other aerial photos as the official USDA photography (see http://www.fsa.usda.gov/il/GIS.asp). In Illinois, it is anticipated that all county FSA Offices will be using the CLU layers by October of 2004. The spatial data will include an accurate inventory of fields, measure of acres, and land-use categories. The data will also contain areas of environmental concern, including easements, wetlands, and highly erodible land which helps identify and map environmentally sensitive acreage, as well as locate potential environmental hazards. All potentially relevant to watershed biotic (i.e., presence of invasive plant species) and abiotic (i.e., erosion estimates along waterways) metrics.

Access to new high resolution digital data will contribute to the implementation and success of purposed restoration in the Illinois River Basin as well as to future research/restoration activities.

4) Watershed characterization

Identify and assess specific habitats, processes, and functions at work in the priority watershed(s) and the sources of impact (i.e., linking cause and effect).

- Watershed characterization will be conducted for a small subset (2 or 3) of prioritized watersheds that require focused effort.
- A watershed characterization may be conducted due to vulnerability, restoration potential, or relatively high rates of change in habitats, functions or processes.

5) Integrated assessment and evaluation

Gather contracting agencies, stakeholders and scientists to establish consensus on factors affecting watershed habitats, processes and functions. If consensus is reached go on to recommending projects. If no consensus is reached then more evaluation is needed to identify causes of undesirable watershed symptoms.

- Technical personal meet to assess data gaps, supplement data with fieldwork or local data and integrate findings.
- Relate conditions in the priority watershed to reference conditions in the reference watershed.
- Describe factors that have created current conditions.
- Technical personnel and stakeholders should meet at this point to discuss results and determine consensus action base on findings.

6) Project recommendations.

Recommendations follow from the documented conditions of habitats, processes and functions and causes of those conditions identified in the preceding steps.

Recommended Watershed Assessment Approaches

Geomorphic component

- ISWS Illinois Geomorphic Watershed Assessment (White 2004; Keefer and White 2004), and Stream Dynamic Assessment (Phillips et al. 2002)

Hydrologic component

- Adapted guidelines and procedures set out by White (2004), Keefer and White (2004), Rhoads (2003), VSGAP (Kline et al. 2003), Locke et al. (2004), and McCammon et al. (1998).

Aquatic Ecology component

- LTRMP protocols for mainstem (Gutrueter et al. 1995), water quality and biota according to IEPA (1994) and IDNR (2001), macroinvertebrates (Dodd et. al 2003), and instream habitat (modified protocol from Stanfield et al. 1998).

Terrestrial Wildlife component

- Modified protocols set out by (Milano-Flores 2003).

LITERATURE CITED

Adolphson, D.L., T.L. Arnold, F.A. Fitzpatrick, M.A. Harris, K.D. Richards, B.C. Scudder, and J.S. Stewart. 2002. Physical, chemical, and biological methods and data from the urban land-use-gradient study, Des Plaines and Fox River Basins, Illinois, 1999-2001: U.S. Geological Survey Open-File Report 01-459, 20 p.

Allgire, R.L., and M. Demissie. 1995. Benchmark Sediment Monitoring Program for Illinois Streams: Program Summary and Site Descriptions. Illinois State Water Survey, C-181 NTIS#: pB96-135751, Champaign, IL.

Andrews, E.A. 1980. Effective and Bankfull Discharges of Streams in the Yampa River Basin, Colorado and Wyoming. Journal of Hydrology 46:311-330.

Angermeier, P. L. and J. R. Karr. 1986. Applying an index of biotic integrity based on stream fish communities: considerations in sampling and interpretation. North American Journal of Fisheries Management 6:418-429.

Arnett, E.B. 2003. Advancing science and partnerships for the conservation of bats and their habitats. Wildlife Society Bulletin 31:2-5.

Ashmore, P. 1999. What would we do without Rosgen?: Rational regime relations and natural channels. Proceedings of the 2nd International Conference on Natural Channel Systems, Niagara Falls, Ontario, CA.

Baker, J.A., J.K. Killgore, and R.L. Kasul. 1991. Aquatic habitats and fish communities in the Lower Mississippi River. Aquatic Sciences 3:313-356.

Barber, C. M. 1994. Environmental monitoring and assessment program indicator development strategy. EPA/620/R-94/022. U.S. Environmental Protection Agency, Office of Research and Development: Research Triangle Park, NC.

Bart, J., B. Andres, S. Brown, G. Donaldson, B. Harrington, H. Johnson, V. Johnston, S. Jones, R.I.G. Morrison, M. Sallaberry, S.K. Skagen, and N. Warnock. 2002. Program for regional and international shorebird monitoring (PRISM).

Benke, A.C. 1990. A perspective on America's vanishing streams. Journal of the North American Benthological Society. 9:77-88.

Barbour, M.T., J. Gerritsen, B.D. Snyder, and J.B. Stribling. 1999. Rapid bioassessment protocols for use in streams and wadeable rivers: periphyton, benthic macroinvertebrates and fish, second edition. EPA 841-B-99-02. U.S. Environmental Protection Agency; Office of Water; Washington, D.C.

Barbour, M., J. Stribling, and J. Karr. 1995. Multimetric approach for establishing biocriteria and measuring biological condition. Pages 63-80 in W. S. Davis and T. P. Simon (eds). Biological assessment and criteria. Lewis Publishers, Boca Raton, Florida.

Bell, H.E. 1981. Illinois wetlands – their value and management. Chicago Institute of Natural Resources. Chicago, IL, USA.

Bellrose, F.C., F.L. Paveglio, Jr., and D.W. Steffeck. 1979. Waterfowl populations and the changing environment of the Illinois River valley. Illinois Natural History Survey Bulletin 32:1-54.

Berger, A.R. 1996. Introduction to the Geoindicators checklist. In Berger, A.R. & W.J. Iams, eds., Geoindicators: Assessing Rapid Environmental Changes in Earth Systems. Rotterdam: A.A.Balkema.

Berger, A.R. & W.J. Iams. 1996. Geoindicators: Assessing Rapid Environmental Changes in Earth Systems. Rotterdam: A.A.Balkema.

Berglund, B.E. 1986. Handbook of Holocene palaeoecology and palaeohydrology. New York, John Wiley.

Bhowmik, N.G., A.P. Bonini, W.C. Bogner, and R.P. Byrne. 1980. Hydraulics of Flow and Sediment Transport in the Kankakee River in Illinois. Illinois State Water Survey, Report of Investigation 98, Champaign, IL.

Bhowmik, N.G. and M. Demissie. 2001. River Geometry, Bank Erosion, and Sand Bars within the Main Stem of the Kankakee River in Illinois and Indiana. Contract Report 2001-09, Illinois State Water Survey, Champaign, 77 p.

Biggs, J., A. Corfield, P. Green, H.O. Hansen, D. Walker, M. Whitfield, and P. Williams. 1998. Restoration of the Rivers Brede, Cole and Skerne. A Joint Danish and British EU-LIFE Demonstration project, V - Short-Term Impacts on the Conservation Value of Aquatic Macroinvertebrate and Macrophyte Assemblages. Aquatic Conservation. Marine and Freshwater Ecosystems 8(1):241-255.

Bisbal, G.A. 2001. Conceptual design of monitoring and evaluation plans for fish and wildlife in the Columbia River ecosystem. Environmental Management 28:433-453.

Bjorklund, R.G., and D.J. Holm. 1997. Impact of flooding on Illinois River wading bird colonies. Transactions of the Illinois State Academy of Science 90(3/4):123-133.

Bjorklund, R.G. 1998. Are breeding herons and egrets deserting the Central Illinois River floodplain? Meadowlark 7(2):42-43.

Bluett, R.D., G.F. Hubert Jr, and A. Woolf. 2001. Perspectives on bobcat management in Illinois. Pages 67-73 in A. Woolf, C.K. Nielsen, and R.D. Bluett, editors. Proceedings of a symposium on current bobcat research and implications for management. The Wildlife Society Conference, Nashville, TN, USA.

Bolda, K. S., and W. J. Meyers. 1997. Conducting a long-term water quality monitoring project: a case study on the McCloud River, California. Journal of Soil and Water Conservation 52:49-54.

British Columbia Ministry of Environment, Lands and Parks. 1998. Inventory methods for marsh birds: bitterns and rails. Resources Inventory Committee, British Columbia, Canada.

Brown, S.C., K. Smith, and D. Batser. 1997. Macroinvertebrate responses to wetland restoration in northern New York. Environmental Entomology. 26:1016-1024.

Bryce, S. A., and R. M. Hughes. 2003. Variable assemblage responses to multiple disturbance gradients: case studies in Oregon and Appalachia, USA. Pages 539-560 in T. P. Simon, editor. Biological response signatures. CRC Press, Boca Raton, Florida.

Cairns, J., Jr. 1988. Increasing diversity by restoring damaged ecosystems. Pages 333-343 *in* E.O. Wilson, editor. Biodiversity. National Academy Press, Washington, D.C.

California Resources Agency. 1998. Landscape Assessment of Geomorphic Sensitivity, Draft Habitat Conservation Plan/Sustained Yield Plan. Sacramento, CA. http://ceres.ca.gov/headwaters/hcp/v2/v2pd.pdf

Cals, M.J.R., R. Postma, A.D. Buijse, and E.C.L. Marteijn. 1998. Habitat restoration along the River Rhine in the Netherlands: putting ideas into practice. - Aquatic Conservation: Marine and Freshwater Ecosystems 1: 61-70.

Carline, R.F. and S.P. Klosiewski. 1985. Responses of fish populations to mitigation structures in two small channelized streams in Ohio. North American Journal of Fisheries Management. 5:1-11.

Center for Watershed Protection. 1998. Rapid Watershed Planning Handbook. Center for Watershed Protection, Ellicott City, MD.

Collins, M.J., and J.C. Knox. 2003. Historical changes in Upper Mississippi River water areas and islands, Journal of the American Water Resources Association 39(2): 487-500.

Cook, M. G., P. G. Hunt, K. C. Stone, and J. H. Canterberry. 1996. Reducing diffuse pollution through implementation of agricultural best management practices: a case study. Water Science and Technology 33:191-196.

Cook, R.B., S. K. Holladay, S. M. Adams, L. A. Hook, J. J. Beauchamp, D. A. Levine, M. S. Bevelhimer, R. C. Longman, B. G. Blaylock, C. W. McGinn, C. C. Brandt, J. L. Skiles, C. J. Ford, G. W. Suter, M. L. Frank, L. F. Williams, M. J. Gentry. 1992. Phase 1 Data Summary Report for the Clinch River Remedial Investigation: Health Risk and Ecological Risk Screening Assessment.

Crowder, D.W., and H.V. Knapp. 2002. Effective Discharges of Illinois Streams, Illinois State Water Survey, Contract Report 2002-10, Champaign, IL.

Cummings, K.S. 1991. Freshwater mussels of the Illinois River: past, present, and future. Pages 20-27 in Holly Korab, Ed. Proc. of the 1991 Governor's Conference on the Management of the Illinois River System, Peoria, IL.

DeAngelis, D. L., L. J. Gross, E. J. Comiskey, W. M. Mooij, and M. P. Nott. 2003. The Use of Models for a Multi-Scaled Ecological Monitoring System. In: David E. Busch and Joel C. Trexler (eds.), Interdisciplinary Approaches to Ecological Monitoring of Ecosystem Initiatives. Island Press.

Demissie, M., L. Keefer, J. Slowikowski, A. Russell, T. Snider, and K. Stevenson. 2001. Sediment and Nutrient Monitoring at Selected Watersheds within the Illinois River Watershed for Evaluating the Effectiveness of the Illinois River Conservation Reserve Enhancement Program (CREP), Illinois State Water Survey, Contract Report 2001-12, Champaign, IL.

Demissie, M., L.L. Keefer, and R. Xia. 1992. Erosion and Sedimentation in the Illinois River Basin. Illinois Department of Energy and Natural Resources, Water Resources Report ILENR/RE-WR-92/04, Springfield IL.

de Szalay, F., D. Helmers, D. Humburg, S.J. Lewis, B. Pardo, and M. Shieldcastle. 2000. Upper Mississippi Valley/Great Lakes Regional Shorebird Conservation Plan, Version 1.0.

DeVries, D. R. and R. V. Frie. 1996. Determination of age and growth. Pages 483-512 in B. R. Murphy and D. W. Willis, eds. Fisheries techniques, 2nd edition. American Fisheries Society, Bethesda, Maryland.

Dodd, H.R., J.W. Neisler, and D.H. Wahl. 2003. Evaluation of watershed management practices for improving stream quality in the Illinois Watershed Program. Annual Progress Report to Illinois Department of Natural Resources, Division of Fisheries, Springfield, IL.

Dodd, M.G., and T.M. Murphy. 1995. Accuracy and precision of techniques for counting great blue heron nests. Journal of Wildlife Management 59:667-673.

Downes, B.A., L.A. Barmuta, P.G. Fairweather, D.P. Faith, M.J. Keough, P.S. Lake, B.D.

Mapstone, and G.P. Quinn. 2002. Monitoring Ecological Impacts: Concepts and Practice in Flowing Waters. Cambridge University Press, 434 pp.
Doyle, M.J., J.M. Harbor, C.F. Rich, and A. Spacie. 2000. Examining the effects of urbanization on streams using indicators of geomorphic stability. Physical Geography 21(2): 155-181.
Dynesius, M, and C. Nilsson. 1994. Fragmentation and flow regulation of river systems in the northern third of the world. Science 266:753-762.
Edwards, C.J., B.L. Griswold, R.A. Tubb, and L.C. Woods. 1984. Mitigating effects of artificial riffles and pools on the fauna of a channelized warmwater stream. North American Journal of Fisheries Management. 4:194-203.
Edwards, D. R., T. C. Daniel, H. D. Scott, J. F. Murdoch, M. J. Habiger, and H. M. Burks. 1996. Stream quality impacts of best management practices in a northwestern Arkansas basin. Water Resources Bulletin 32:499-509.
Edwards, T.K., and D.G. Glysson. 1999. Field Methods for Measurement of Fluvial Sediment, U.S. Geological Survey Techniques of Water-Resources Investigations, Book 3, Chapter C2, Reston, VA, 89p.
Emge, W. P., H.H. Allen, G.H. Hughes, G.S. Wilhelm, and J.H. Zimmerman. 1974. Environmental inventory and assessment, Illinois waterway 12-foot channel navigation project. Miscellaneous Paper Y-74-1. U.S. Army Engineer District, Chicago, IL and U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.
Endreny, T.A., C. Somerlot, and J.M. Hassett. 2003. Hydrography sensitivity to estimates of map impervious cover; a WinHSPF BASINS case study. In Ritchie, J.C., Walling, D.E., Peters, N.E. (eds.), Application of geographic information systems and remote sensing for quantifying patterns of erosion and water quality. John Wiley & Sons, Inc., New York, pp. 1019-1034.
Erskine, W.D. 2001. Geomorphic evaluation of past river rehabilitation works on the Williams River, New South Wales. Ecological Management and Restoration 2:116-128.
ESRI. 2003. PAR Uses ArcGIS Feature Analyst to Extract Impervious Surfaces. Online document at www.featureanalyst.com/solutions/PAR_project.pdf
Federal Interagency Sedimentation Project. 1952. The Design of Improved Types of Suspended Sediment Samplers. St. Anthony Falls Hydraulics Laboratory, Interagency Report 6, Minneapolis, MN.
Fenton, M.B. 2003. Science and the conservation of bats: Where to next? Wildlife Society Bulletin 31:6-15.
Fitzpatrick, F.A., B.C. Scudder, B.N. Lenz, and D.J. Sullivan. 2001. Effects of multi-scale environmental characteristics on agricultural stream biota in eastern Wisconsin. Journal of the American Water Resources Association 37:1489-1507.
Fuselier, L. and D. Edds. 1995. An artificial riffle as restored habitat for threatened neosho madtom. North American Journal of Fisheries Management 15:499-503.
Gale, J. A., D. E. Line, D. L. Osmond, S. W. Coffey, J. Spooner, J. A. Arnold, T. J. Hoban, and R. C. Wimberly. 1993. Evaluation of the experimental rural clean water program. National Water Quality Evaluation Project, NCSU Water Quality Group, Biological and Agricultural Engineering Department, North Carolina State University, Raleigh, NC, USA.
Gammon, J. R., and T. P. Simon. 2000. Variation in a great river index of biotic integrity over a

20-year period. Hydrobiologia 422/423:291-304.
Gannon, W.L., R.E. Sherwin, and S. Haymond. 2003. On the importance of articulating assumptions when conducting acoustic studies of habitat use by bats. Wildlife Society Bulletin 31:45-61.
Gawlik, D.E., G. Crozier, and K.C. Tarboton. 2003. Wading bird habitat suitability index. http://www.sfwmd.gov/org/pld/hsm/reg_app/hsi/wading_birds/index.html
Gibbs, J.P., S. Woodward, M.L. Hunter, and A.E. Hutchinson. 1988. Comparison of techniques for censusing great blue heron nests. Journal of Field Ornithology 59:130-134.
Goodrich, J. 1999. Exploring zooplankton and larval fish dynamics within three habitats of the Illinois River. M.S. Thesis. University of Illinois, Urbana-Champaign.
Goudie, A. (ed). 1990. Geomorphological Techniques. 2nd edition, British Geomorphological Group, Unwin-Hyman, London, 570 p.
Gray, J.R., G. Douglas Glysson, L. M. Turcios, G.E. Schwarz. 2000. Comparability of Suspended-Sediment Concentration and Total Suspended Solids Data. U.S. Geological Survey, Water-Resources Investigation Report 00-4191, Reston, VA.
Graf, J.B. 1983. Measurement of Bedload Discharge in Nine Illinois Streams with the Helley-Smith Sampler. U.S. Geological Survey, Water-Resources Investigations Report 83-4136, Urbana, IL.
Gustafson, E.J. 1998. Quantifying landscape spatial pattern: What is the state of the art? Ecosystems 1:143-156.
Gutreuter, S., R. Burkhardt, and K. Lubinski. 1995. Long Term Monitoring Program Procedures: Fish Monitoring. Long Term Monitoring Program Report 95-P002-1.
Habersack, H. and H.P. Nachtnebel. 1995. Short-term effects of local river restoration on morphology, flow field, substrate, and biota. Regulated Rivers: Research and Management. 10:291-301.
Harvey, A.M.. 2001. Coupling between hillslopes and channels in upland fluvial systems: implications for landscape sensitivity, illustrated from the Howgill Fels, northwest England. Catena 42: 225-250.
Havera, S.P. 1999. Waterfowl of Illinois: Status and management. Illinois Natural History Survey Special Publication 21.
Havera, S.P., and G.W. Kruse. 1988. Distribution and abundance of winter populations of bald eagles in Illinois. Illinois Natural History Survey Biological Notes 129. 29 pp.
Helley, F.J., and W. Smith. 1971. Development and calibration of pressure-difference bed load sampler. U.S. Geological Survey Open-File Report 8037-01. Washington, D.C.
Herkert, J.R. 1994. The effects of habitat fragmentation on Midwestern grassland bird communities. Ecological Applications 4:461-471.
Herkert, J.R., editor. 1992. Endangered and threatened species of Illinois: status and distribution, volume 2 – animals. Illinois Endangered Species Protection Board, Springfield, IL, USA.
Herricks, E.E., P. Kumar, B.L. Rhoads, J.S. Schwartz, 2004. Developing a multi-scale assessment procedure to evaluate subwatersheds for ecosystem restoration for the Rock River Ecosystem Restoration feasibility study. Contract Report DACW25-03-P-0045, U.S. Army Corps of Engineers, Rock Island, 145 p.
Hession, W.C., J.E. Pizzuto, T.E. Johnson, and R.J. Horwitz. 2003. Influence of bank vegetation

on channel morphology in rural and urban watersheds. Geology 31(2): 147-150.
Hill, A.R. 1996. Nitrate removal in stream riparian zones. Journal of Environmental Quality 25:743-755.
Holtrop, A.M. and C.R. Dolan. 2003. Assessment of streams and watersheds in Illinois: Development of a stream classification system and fish sampling protocols. Final Report to Illinois Department of Natural Resources and Illinois Environmental Protection Agency, Springfield, IL.
Hooke, R.L., 2000. On the history of humans as geomorphic agents. Geology 28 (9): 843-846.
Horath, M.M., C.S. Hine, and S.P. Havera. 2002. Analyses of ground inventories of waterbirds and bald eagles at Chautauqua National Wildlife Refuge. Final report to U.S. Army Corps of Engineers, Rock Island District. 64 pp.
Horath, M.M, S.P. Havera, M.J. Bowyer, and P.W. Brown. 2003. Illinois waterfowl surveys and investigations. Annual Report for Federal Aid in Fish and Wildlife Restoration Project W-43-R-50.
Hughes, R.M., S.G. Paulsen, and J.L. Stoddard. 2000. EMAP-Surface Waters: a national, multiassemblage probability survey of ecological integrity. Hydrobiologia 423:429-443.
Hunt, R. L. 1993. Trout stream therapy. University of Wisconsin Press, Madison, Wisconsin, USA.
Hupp, C.R. 1999. Relations among riparian vegetation, channel incision processes and forms, and large woody debris. In S.E. Darby and A. Simon (eds.), Incised river channels; processes, forms, engineering and management. John Wiley & Sons, Chichester, United Kingdom. pp. 219-245.
Hupp, C.R., and W.R. Osterkamp. 1996. Riparian vegetation and fluvial geomorphic processes. Geomorphology (14)277-295.
Illinois Department of Agriculture. 2002. 2002 Illinois Soil Conservation Transect Survey Summary. 27 p.
Illinois Department of Natural Resources. 2001. Fisheries stream sampling guidelines. Division of Fisheries. 9 pages.
Illinois Department of Natural Resources. 2002. Protocol for surveying freshwater mussels in wadeable streams and wadeable portions of large rivers. Division of Natural Heritage. 11 pages.
Illinois Department of Natural Resources. 2003. 2003 Furbearer sign survey. Wildlife Diversity Program Note 03-1.
Illinois Department of Natural Resources. 2004. Regional watershed assessments. Online document: dnr.state.il.us/orep/c2000/assessments/
Illinois Department of Natural Resources, Illinois Natural History Survey, Illinois State Geological Survey, Illinois Department of Agriculture, and USDA-National Agriculture Statistics Service. 2003. 1:100,000 scale land cover of Illinois 1999-2000, raster digital data, version 2.0.
Illinois Environmental Protection Agency. 1987. Section C: Macroinvertebrate monitoring. In Quality Assurance and Field Methods Manual, Bureau of Water, Division of Water Pollution Control Planning Section. 5 pages.
Illinois Environmental Protection Agency. 1998a. Guidance for developing watershed

implementation plans in Illinois. Illinois EPA, Bureau of Water, Springfield, IL. IEPA/BOW/98-002. 43 pages.
Illinois Environmental Protection Agency. 1998b. Unified Watershed Assessment and Watershed Restoration Priorities for Illinois, IEPA/BOW/98-17, Springfield, IL.
Illinois Environmental Protection Agency. 1994. Section E: Stream habitat protocol and discharge monitoring. In Quality Assurance and Field Methods Manual, Bureau of Water, Division of Water Pollution Control Planning Section. 39 pages.
Illinois Environmental Protection Agency. 2002. Interim macroinvertebrate sampling methods for 2002. Draft Manual. Bureau of Water. 10 pages.
Illinois Environmental Protection Agency. 2002. Water Monitoring Strategy, 2002- 2006, Bureau of Water, Illinois Environmental Protection Agency, IEPA/BOW/02-005, 54 p + appendices.
Illinois Environmental Protection Agency. 2004. Targeted Watershed Approach, Data Driven Prioritization.www.epa.state.il.us/water/targeted-watershed/index.html
Illinois State Water Survey. 1996. One-hundred and five-hundred year floodzones for unincorporated areas in Illinois by county. http://www.isgs.uiuc.edu/nsdihome/webdocs /county. html.
Iverson, L.R., D.L. Szafoni, S.E. Baum, and E.A. Cook. 2001. A riparian wildlife habitat evaluation scheme developed using GIS. Environmental Management 28:639-654.
Jacques Whitford Environment Limited. 2000. Osprey long-term monitoring program year 1-1999. Environmental Mitigation Program Report, Interim Report No. 0005. Project 1278-1561.
Jensen, M.E., N.L. Christensen, Jr., and P.S. Bourgeron. 2001. An overview of ecological assessment principles and applications. In: Jensen, M.E., P.S. Bourgeron, eds. A guidebook for integrated ecological assessments. New York, NY: Springer-Verlag: 13-28.
Jungwirth, M. S. Muhar, and S. Schmutz. 2000. Assessing the ecological integrity of running waters. Kluwer Academic Publishers, Dordrecht. (Reprinted from Hydrobiologia 422/423).
Juracek, K.E., and F.A. Fitzpatrick. 2003. Limitations and implications of stream classification. Journal of the American Water Resouces Association 31(3): 659-670.
Khanna, M., W. Yang, R. Farnsworth, and H. Onah. 2003. Cost-effective targeting of land retirement to improve water quality with endogenous sediment deposition coefficients. American Journal of Agricultural Economics 85(3): 538-553.
Karr, J. R. 1981. Assessment of biotic integrity using fish communities. Fisheries 6:21-27.
Karr, J. R. 1991. Biological integrity: A long-neglected aspect of water resource management. Ecological Applications 1:66-84.
Karr, J. R., and E. W. Chu. 2000. Sustaining living rivers. Hydrobiologia 422/423:1-14.
Keddy, P.A., H.T. Lee, and I.C. Wisheu. Choosing indicators of ecosystem integrity: wetlands as a model system. Pages 61-82 in Woodley, S., J. Kay, and G. Francis, editors. Ecological Integrity and the Management of Ecosystems. St. Lucie Press.
Keefer, L.L. and M. Demissie. 1996. Watershed Monitoring for the Lake Decatur Watershed, Illinois State Water Survey, Contract Report 602, Champaign, IL.
Keefer, L. and W. White. 2004. Personal communication for Illinois Geomorphic Watershed Assessment.
Klein, R.D. 1995. Attainable objectives for long term channel monitoring programs. In Taylor,

R.N., ed., Using Stream Geomorphic Characteristics as a Long-term Monitoring Tool to Assess Watershed Function: A Workshop, Fish, Forests, and Farms Community, Humbolt State University, pp. 32-39.

Kline, M.C., C. Alexander, et al. 2003. Vermont Steam Geomorphic Assessment. Vermont Agency of Natural Resources.

Knapp, H.V., and M. Markus. 2003. Evaluation of the Illinois Streamflow Gaging Network, Illinois State Water Survey, Contract Report 2003-05, Champaign, IL.

Knutson, M.G., J.P. Hoover, and E.E. Klaas. 1996. The importance of floodplain forests in the conservation and management of neotropical migratory birds in the Midwest. Pages 168-188 in F. R. Thompson, ed. Management of Midwestern landscapes for the conservation of neotropical migratory birds. General Technical Report NC-187. USDA Forest Service, North Central Forest Experiment Station, St. Paul, MN.

Kofoid, C. A. 1899. Plankton studies III. On Platydodrina, a new genus of the family Volvocidae, from the plankton of the Illinois River. Illinois State Laboratory of Natural History 5:419-440.

Kuhnle, R.A. and A. Simon. 2000. Evaluation of sediment transport data for clean sediment TMDLs. Oxford, Mississippi, USDA-ARS National Sedimentation Laboratory, 60 p.

Kunz, T.H., and E.D. Pierson. 1994. Bats of the world: an introduction. Pages 1-46 in R.W. Nowak, editor. Walkers bats of the world. Johns Hopkins University Press, Baltimore, MD, USA.

Lake, P.S. 2001. On the maturing of restoration: Linking ecological research and restoration. Ecological Management & Restoration 2: 110-115.

Lamouroux, N, J. Olivier, H. Persat, M. Pouilly, Y. Souchon, B. Statzner. 1999. Predicting community characteristics from habitat conditionsfluvial fish and hydraulics. Freshwater Biology 42:275-299.

Landwehr, K., and B. Rhoads. 2003. Depositional response of a headwater stream to channelization, east central Illinois, USA. River Research Applications 19:77-100.

Laurent, E.J., and B.A. Kingsbury. 2003. Habitat separation among three species of water snakes in northwestern Kentucky. Journal of Herpetology 37:229-235.

Lee, K.E., R.M. Goldstein, and P.E. Hanson. 2001. Relation between fish communities and riparian zone conditions at two spatial scales. Journal of the American Water Resources Association 37:1465-1473.

Leighton, M.M., G.E. Ekblaw, and L. Horberg. 1948. Physiographic Divisions of Illinois. Illinois State Geological Survey, Report of Investigation 129, Urbana, IL.

Lemke, A.M., J.A. Stoeckel, and M.A. Pegg. 2003. Utilization of the exotic cladoceran, Daphnia lumholtzi, by young-of-year fishes in an Illinois River floodplain lake. Journal of Fish Biology 62:938-954.

Lessard, G., M.E. Jensen, M. Crespi, and P.S. Bourgeron. 1999. A general framework for integrated ecological assessments. In: Cordel, H.K., J.C. Bergstrom, eds. Integrating social sciences with ecosystem management: human dimensions in assessment policy and management. Champaign-Urbana, IL: Sanamore: 35-60.

Lisle, T. 1999. Channel Processes and Watershed Function. In Taylor, R.N., ed., Using Stream Geomorphic Characteristics as a Long-term Monitoring Tool to Assess Watershed Function:

A Workshop, Fish, Forests, and Farms Community, Humbolt State University, pp. 4-14.
Locke, R., J. Miner, S. Sinclair, M. Anliker, G. Pociask, and B. Robinson. 2004. Methods for Estimating Groundwater Recharge Areas for Illinois Nature Preserves, Contract Report for the Illinois Nature Preserves Commission, in review.
LTRMP. 1999. Ecological Status and Trends of the Upper Mississippi River System 1998, U.S. Geological Survey, Upper Midwest Environmental Science Center, La Crosse, Wisconsin, LTRMP99-T001, 236p.
Lubinski, K., R. Burkhardt, J. Sauer, D. Soballe, and Y. Yin. 2001. Initial analyses of change detection capabilities and data redundancies in the Long Term Resource Monitoring Program. Long Term Resource Monitoring Program Technical Report 2001-T001.
Jungwirth, M., S. Muhar, and S. Schmutz. Re-establishing and assessing ecological integrity in riverine landscapes. Freshwater Biology 47:867-887.
Lyons, J. 1992. The length of stream to sample with a towed electrofishing unit when fish species richness is estimated. North American Journal of Fisheries Management. 12:198-203.
Machesky, M.L., T.R. Holm, and D.B. Shackleford. 2004. Concentrations and potential toxicity of metals and ammonia in Peoria Lake sediments and pore waters. Illinois Waste Management and Research Center, in press.
Mack, J.J. 2001. Vegetation index of biotic integrity (VIBI) for wetlands: ecoregional, hydrogeomorphic, and plant community comparisons with preliminary wetland aquatic life use designations. Final Report to U.S. EPA Grant No. CD9855875-01, Testing biological metrics and development of wetland assessment techniques using reference sites, volume 1.
Magette, W. L., R. B. Brinsfield, R. E. Palmer, and J. D. Wood. 1989. Nutrient and sediment removal by vegetated filter strips. Transactions of the ASAE 32:663-667.
Manomet Center for Conservation Sciences. 2004. International Shorebird Survey. http://www.shorebirdworld.org/.
Mayfield, H.F. 1975. Suggestions for calculating nest success. Wilson Bulletin 87: 456-466.
McCammon, B., J. Rector, and K. Gebhardt. 1998. A Framework for Analyzing the Hydrologic Condition of Watersheds. BLM Technical Note 405. US Department of the Interior Bureau of Land Management, Denver, CO.
McCarthy, D. 2001. Identification and use of geoindicators in Glacier and Mount Revelstoke national parks. In Berger, A.R., and Liverman, D.G., Eds., Geoindicators for Ecosystem Monitoring in Parks and Protected Areas, Parks Canada -- Review Reports in Ecosystem Science, Report 018, pp. 38-42.
McConkey, S.A., and K.J. Brown. 2000. Major Watersheds of Illinois, Illinois State Water Survey, Map Series 2000-01, Champaign, IL.
Meals, D. W. 1996. Watershed-scale response to agricultural diffuse pollution control programs in Vermont, USA. Water Science and Technology 33:197-204.
Melquist, W.E., and A.E. Dronkert. 1987. River otter. Pages 625-641 in M. Novak, J.A. Baker, M.E. Obbard, and B. Malloch, editors. Wild furbearer management and conservation in North America. Ontario Trappers Association, North Bay, Ontario, Canada.
Micacchion, M. 2002. Amphibian index of biotic integrity (AmphIBI) for wetlands. Final Report, U.S. EPA Grant No. CD985875-01, Testing biological metrics and development of wetland assessment techniques using reference sites, Volume 3. Ohio Environmental

Protection Agency, Columbus, Ohio, USA.
Milano-Flores, B. 2003. Critical Trends Assessment Program Monitoring Protocols. Technical Report 2002-2. Illinois Department of Natural Resources, Office of Scientific Research and Analysis, Illinois Natural History Survey, Champaign, IL, USA.
Miller J.R. and Ritter J.B. 1996. An examination of the Rosgen classification of natural rivers. Catena 27: 295-299.
Muscutt, A. D., G. L. Harris, S. W. Bailey, and D. B. Davies. 1993. Buffer zones to improve water quality: a review of their potential use in UK agriculture. Agriculture, Ecosystems and Environment 45:59-77.
Nakato, T. 1981. Sediment Budget Study for the Upper Mississippi River, GREAT-II Reach. Iowa Institute of Hydraulic Research Report 227 Iowa City, IA.
Nelson, J.C., and R.E. Sparks. 1998. Forest compositional change at the confluence of the Illinois and Mississippi Rivers. Transactions of the Illinois State Academy of Science 91:33-46.
Newton, B., C. Pringle, and R. Bjorklund, R. 1998. Stream Visual Assessment Protocol. USDA-NWCC Tech. Note 99-1.
Niehoff, D., U. Fritsch, and A. Bronstert. 2002. Land-use impacts on storm-runoff generation; scenarios of land-use change and simulation of hydrological response in a meso-scale catchment in SW-Germany. Journal of Hydrology 267: 80-93.
NRC (National Research Council). 1992. Restoration of aquatic ecosystems: science, technology, and public policy. National Academy Press, Washington, D. C.
O'Connell, T.J., L.E. Jackson, and R.P. Brooks. 1998. A bird community index of biotic integrity for the Mid-Atlantic Highlands. Environmental Monitoring and Assessment 51:145-156.
Olsen, D.S., A.C. Whitaker, and D.F. Potts. 1997. Assessing stream channel stability thresholds using flow competence estimates at bankfull stage. Journal of the American Water Resources Association 33(6): 1197-1207.
Osborne, L. L., and D. A. Kovacic. 1993. Riparian vegetated buffer strips in water-quality restoration and stream management. Freshwater Biology 29:243-258.
Osenberg, C. W., R. J. Schmitt, S. J. Holbrook, K. E. Abu-Saba, and A. R. Flegal. 1994. Detection of environmental impacts: natural variability, effect size, and power analysis. Ecological Applications 4:16-30.
O'Shea, T.J., M.A. Bogan, and L.E. Ellison. 2003. Monitoring trends in bat populations of the United States and territories: status of the science and recommendations for the future. Wildlife Society Bulletin 31:16-29.
Osterkamp, W.R., and S.A. Schumm. 1996. Geoindicators for river and river-valley monitoring. In Berger, A.R. and W.J. Iams (eds.). Geoindicators: Assessing rapid environmental changes in earth systems. Rotterdam: A.A. Balkema, pp. 97-116.
Owens, P.N., and D.E. Walling. 2002. Changes in sediment sources and floodplain deposition rates in the catchment of the River Tweed, Scotland, over the last 100 years: The impact of climate and land use change. Earth Surface Processes and Landforms 27: 403-423.
Pajak, P. 2000. Sustainability, ecosystem management, and indicators: thinking globally and acting locally in the 21st century. Fisheries 25:16-30.
Park, S.W., S. Mostaghimi, R.A. Cooke, and P.W. McClellan. 1994. BMP impacts on watershed

runoff, sediment and nutrient yields. Water Resources Bulletin. 30(6): 1011-1023.
Pegg, M.A. and M.A. McClelland. In Press. Assessment of spatial and temporal fish community patterns in the Illinois River. Ecology of Freshwater Fish.
Phillips, A.C., Rhoads, B.L., McTighe, T.J., and Klaus, C.A. 2002. Stream Dynamics Assessment in the Illinois River Basin. Final Report, Contract Number DACW25-98-D-0017, U.S. Army Corps of Engineers, Rock Island District, 65 p.
Pickup, G., and R.F. Warner. 1976. Effects of Hydrologic Regime on Magnitude and Frequency of Dominant Discharge. Journal of Hydrology 29:51-75.
Prince, H. 1997. Wetlands of the American Midwest: A Historical Geography of Changing Attitudes, The University of Chicago Press, Chicago, Illinois, 395 p.
Rae, S.P. 1995. Pilot Monitoring Program: In-stream Component, Contract 8CA28103, Final Report, California State Board of Forestry, Sacramento, 49 p.
Randhir, T. 2003. Watershed-scale effects of urbanization on sediment export; assessment and policy. Water Resources Research 39: 6-19.
Rantz, S.E. 1982a. Measurement and Computation of Streamflow. Volume 1. Measurement of Stage and Discharge. U.S. Geological Survey Water-Supply Paper 2175, Government Printing Office, Washington, D.C.
Rantz, S.E. 1982b. Measurement and Computation of Streamflow. Volume 2. Computation of Discharge. U.S. Geological Survey Water-Supply Paper 2175, Government Printing Office, Washington, D.C.
Rasmussen, P.W., D.M. Heisey, E.V. Nordheim, and T.M. Frost. 1993. Time series intervention analysis: Unreplicated large scale experiments. In Design and Analysis of Ecological Experiments. eds., S.M. Scheiner and J. Gurevitch. Chapman and Hall, New York, NY. p.p. 138-158.
Reid, L. 1995. A brief overview of channel monitoring in land management: Case Study #1. In Taylor, R.N., ed., Using Stream Geomorphic Characteristics as a Long-term Monitoring Tool to Assess Watershed Function: A Workshop, Fish, Forests, and Farms Community, Humbolt State University, pp. 65-69.
Renard, K.G., G.R. Foster, G.A. Weesies, D.K. McCool, and D.C. Yoder. 1997. Predicting Soil Erosion by Water: A Guide to Conservation Planning with the Revised Soil Loss Equation (RUSLE). U.S. Dept. of Agriculture, Agric. Handbook No. 703, 404 pp.
Rhoads, B.L. 1995. Stream Power: A Unifying Theme for Urban Fluvial Geomorphology, In: Herricks, E.E. (ed.), Stormwater Runoff and Receiving Systems: Impact, Monitoring, and Assessment. Baca Raton, Lewis Publishers, pp. 65-75.
Rhoads B.L. 2003. Protocols for Geomorphic Characterization of Meander Bends in Illinois. Urbana, IL, University of Illinois at Urbana-Champaign, Department of Geography: 130.
Rhoads, B. L. and M. A. Urban. 1997. A human-induced geomorphic change in low-energy agricultural streams: An example from east-central Illinois. In Management of landscapes disturbed by channel incision. Wang, S. S. Y., E. J. Langendoen, F. D. Shields (eds.). University of Illinois dissertation, Champaign, IL 558 p.
Rhoads, B. L. and R. A. Cahill. 1999. Geomorphological assessment of sediment contamination in an urban stream system, Applied Geochemistry, Vol. 14, 459-483.
Richards, C., L. B. Johnson, and G. E. Host. 1996. Landscape-scale influences on stream habitats

and biota. Canadian Journal of Fisheries and Aquatic Sciences 53(Suppl. 1):295-311.
Richards, R.P. and G.L. Grabow. 2003. Detecting reductions in sediment loads associated with Ohio's Conservation Reserve Enhancement Program. Journal of the American Water Resources Association, paper no. 02037, Vol. 39, 1261-1268.
Riggs, S.R., and D. Ames. 2000. The 1999 'flood of the century'; were human impacts upon the riverine system significant flood factors? Abstracts with Programs -- Geological Society of America 32 (2): 69.
Robertson, D.M., and E.D. Roerish. 1999. Influence of different sampling strategies on load estimations for small streams, Water Resources Research, vol. 35, no. 12, p.3747-3759.
Rolley, R.E. 1987. Bobcat. Pages 672-681 in M. Novak, J.A. Baker, M.E. Obbard, and B. Malloch, editors. Wild furbearer management and conservation in North America. Ontario Trappers Association, North Bay, Ontario, Canada.
Roni, P., T.J. Beechie, R.E. Bilby, F.E. Leonetti, M.M. Pollock, and G.R. Pess. 2002. A review of stream restoration techniques and a hierarchical strategy for prioritizing restoration in pacific northwest watersheds. North American Journal of Fisheries Management 22:1-20.
Rosgen, D., 1994. A classification of natural rivers. Catena, 22:169-199.
Roseboom, D., T. Straub, W. Kinney, and R. Windhorn. 2002. Rapid Watershed and Stream Assessment Using Geo-Referenced Aerial Video Mapping, Abstract, USGS Stream Restoration Workshop, Urbana, IL February 20-22, 2002.
Roth, N. E., J. D. Allan, and D. E. Erickson. 1996. Landscape influences on stream biotic integrity assessed at multiple spatial scales. Landscape Ecology 11:141-156.
Sauer, J.R., W.A. Link, and J.D. Nichols. 2003. Estimation of change in populations and communities from monitoring survey data. Chapter 9 In D.E. Busch and J.C. Trexler editors. Monitoring ecosystems: interdisciplinary approaches for evaluating ecoregional initiatives. Island Press, Washington, D.C., USA.
Schiller, A., C. T. Hunsaker, M. A, Kane, A. K. Wolf, V. H. Dale, G. W. Suter, C. S. Russell, G. Pion, M. H. Jenson, and V. C. Konar. 2001. Communicating ecological indicators to decision makers and the public. Conservation Ecology 5: 19 [online] URL: http://www.consecol.org /vol5/iss1/art19.
Schlosser, I. J. 1995. Critical landscape attributes that influence fish population dynamics in headwater streams. Hydrobiologia 303:71-81.
Schumm, S.A., Harvey, M.D. and Watson, C.C., 1984. Incised Channels: Morphology Dynamics and Control. Water Resources Publications, Littleton, CO.
Simon, A. 1989. A model of channel response in disturbed alluvial channels. Earth Surface Processes and Landforms, 14:11-26.
Simon, A. 1994. Gradation processes and channel evolution in modified West Tennessee streams: process response and form. USGS Prof. Paper No. 1470.
Simon, A. and C. R. Hupp. 1992. Geomorphic and vegetative recovery processes along modified stream channels of west Tennessee. Nashville, Tennessee, U. S. Geological Survey: 91-502 142.
Simon, A. and M. Rinaldi. 2000. Channel instability in the loess area of the Midwestern United States. Journal American Water Resources Association 36(1): 133-150.
Simon, A. and P. Downs. 1995. An interdisciplinary approach to evaluation of potential

instability in alluvial channels. Geomorphology 12: 215-232.
Simon, T.P., editor. 2002. Biological response signatures: Indicating patterns using aquatic communities, CRC Press, New York, New York.
Simon, T. P. (ed). 2003. Biological response signatures. CRC Press, Boca Raton, Florida.
Simon, T. P. and J. Lyons. 1995. Application of the Index of Biotic Integrity to evaluate water resource integrity in freshwater ecosystems. Pages 245-262 in W. Davis and T. Simon (eds). Biological assessment and criteria. Lewis Publishers, Boca Raton, Florida.
Simons, D.B., and F. Senturk. 1977. Sediment Transport Technology, Water Resources Publications, Fort Collins, CO.
Simonson, T. D., and J. Lyons. 1995. Comparison of catch per effort and removal procedures for sampling stream fish assemblages. North American Journal of Fisheries Management 15:419-427.
Singh, A. 1993. Omnibus robust procedures for assessment of multivariate normality and detection of multivariate outliers. In: Patil, G.P and Rao, C.R. (Eds.), Multivariate Environmental Statistics. Amseterdam, Elsevier, pp. 445-488.
Singh, A., and J.M. Nocerino. 1995. Robust procedures for the identification of multiple outliers. In: Einax, J., (Ed.), Chemometrics in Environmental Applications, v. 2.G, Handbook of Environmental Chemistry, Statistical Methods, Heidelberg, Springer Verlag, pp. 229-277.
Singh, A., A.K. Singh, G. Flatman. 1994. Estimation of background levels of contaminants. Mathematical Geology 26, 361-388.
Snyder, C.D., J.A. Young, R. Villella, and D.P. Lemarié. 2003. Influences of upland and riparian land use patterns on stream biotic integrity. Landscape Ecology 18:647-664.
Sparks, R.E. 1995. Need for ecosystem management of large rivers and their floodplains. BioScience 45:168-182.
Sparks, R.E. and P.E. Ross. 1992. Identification of toxic substances in the Upper Illinois River, Final Report. Illinois Dept. of Energy and Natural Resources Report No. ILENR/RE-WR-92/07. Springfield, IL., 59 pp.
Spittler, T.E., 1995, Pilot Monitoring Program: Geologic input for the Hillslope Component, Monitoring Study Group, California State Board of Forestry, Sacramento, 16 p.
Spooner, J., and D. E. Line. 1993. Effective monitoring strategies for demonstrating water quality changes from nonpoint source controls on a watershed scale. Water Science and Technology 28:143-148.
Stanfield, L. W. and M. L. Jones. 1998. A comparison of full-station visual and transect-based methods of conducting habitat surveys in support of habitat suitability index models for southern Ontario. North American Journal of Fisheries Management. 18:657-675.
Stanfield, L. W., M. L. Jones, M. Stoneman, B. Kilgour, J. Parish, G. Wichert. 1998. Stream assessment protocol for Ontario. v. 2.1.
Starrett, W.C. 1971. Man and the Illinois River. Pages 131-169 in R.T. Oglesby, C.A. Carlson, and J.A. McCann, Editors. River Ecology and the Impact of Man. Proceedings of the University of Massachusetts, Amherst. Academic Press, New York.
Stewart, J.S., L. Wang, J. Lyons, J.A. Horwatich, and R. Bannerman. 2001. Influences of watershed, riparian-corridor, and reach-scale characteristics on aquatic biota in agricultural watersheds. Journal of the American Water Resources Association. 37:1475-1487.

Stewart-Oaten, A., J. R. Bence, and C. W. Osenberg. 1992. Assessing effects of unreplicated perturbations: no simple solutions. Ecology 73:1396-1404.

Stewart-Oaten, A., W. W. Murdoch, and K. R. Parker. 1986. Environmental impact assessment: "pseudoreplication" in time? Ecology 67:929-940.

Styles, B.W. 1980. Faunal exploitation and resource selection: Early Late Woodland subsistence in the lower Illinois valley. Scientific papers, Northwestern University Archeological Program, v. 3, Evanston, IL. 312 p.

Sullivan, D.J. 1999. Nutrients and Suspended Solids in Surface Waters of the Upper Illinois River Basin in Illinois, Indiana, and Wisconsin, 1978-97: U.S. Geological Survey Water-Resources Investigations Report 99-4275, 57 p.

Suloway, L., and M. Hubbell. 1994. Wetland resources of Illinois: An analysis and atlas. Illinois Natural History Survey Special Publication 15.

Suter, G. W. 1993. A critique of ecosystem health concepts and indices. Environmental Toxicology and Chemistry 12: 1533-1539.

Swanson Hydrology & Geomorphology. 2002. Lower San Lorenzo River and Lagoon Management Plan. City of Santa Cruz, California, http://www.ci.santa-cruz.ca.us/pw/ep/redevelopment.html.

Szafoni, D., D. Greer, D., and L. Suloway. 2003, Landcover of Illinois in the Early 1800's. Illinois Natural History Survey, Champaign, Illinois.

Texas Parks and Wildlife. 2003. Texas bat action plan: monitoring bat populations. http:// www.tpwd.state.tx.us/nature/wild/mammals/bats/monitor_pops.htm

Theil, P., and J. Sauer. 1999. Long Term Monitoring Program Procedures: Macroinvertebrate monitoring. Long Term Resources Monitoring Program Report 95

Thompson, J., 2002, Wetlands drainage river modification, and sectoral conflict in the lower Illinois Valley, 1890-1930, Southern Illinois University Press, Carbondale, 284 p.

Thompson, W.L., G.C. White, and C. Gowan. 1998. Amphibians and reptiles. Ch. 8 in Monitoring Vertebrate Populations. Academic Press, Inc., San Diego, California, USA.

Thorne, C. R. 1998. Stream Reconnaissance Handbook. New York, John Wiley & Sons, Ltd.

Toth, L.A., D. A. Arrington, and G. Begue. 1997. Headwater restoration and reestablishment of natural flow regimes: Kissimmee River of Florida. Pages 425-442 in Williams, J.E., C.A. Wood, and M.P. Dombeck editors. Watershed restoration principles and practices. American Fisheries Society, Bethesda, MD.

Trimble, S.W. and R.U. Cooke. 1991. Historical sources for geomorphological research in the United States. Professional Geographer 43(2): 212-228.

Trimble, S.W. and S.W. Lund. 1982. Soil Conservation and the reduction of erosion and sedimentation in the Coon Creek Basin, Wisconsin. US Geological Survey Professional Paper 1234. Washington, DC, US Printing Office.

Trush, B. Know your X's and Y's. 1995. In Taylor, R.N., ed., Using Stream Geomorphic Characteristics as a Long-term Monitoring Tool to Assess Watershed Function: A Workshop, Fish, Forests, and Farms Community, Humbolt State University, pp. 40-46.

Underwood, A. J. 1991. Beyond BACI: experimental designs for detecting human environmental impacts on temporal variations in natural populations. Australian Journal of Marine and Freshwater Research 42:569-587.

Underwood, A. J. 1994. On beyond BACI: sampling designs that might reliably detect environmental disturbances. Ecological Applications 4:3-15.

Urban, M.A. 2000. Conceptualizing anthropogenic change on the upper Embarras River. University of Illinois dissertation, Champaign, IL, 558 p.

USACOE. 2002. Engineering and Design- Hydrographic Surveying. US Army Corps of Engineers. Washington D.C.

USDA. 2003. Watershed Erosion Prediction Project, United States Department of Agriculture, National Soil Erosion Research Laboratory, http://topsoil.nserl.purdue.edu/nserlweb/weppmain/main.html.

USDA-ARS. 2003. SWAT2000. United States Department of Agriculture, Agricultural Research Station, online link at http://www.brc.tamus.edu/swat/swat2000.html.

U.S. Environmental Protection Agency. 2002a. Methods for evaluating wetland condition: using amphibians in bioassessments of wetlands. Office of Water, U.S. Environmental Protection Agency, Washington, DC, USA.

U.S. Environmental Protection Agency. 2002b. Methods for evaluating wetland condition: biological assessment methods for birds. Office of Water, U.S. Environmental Protection Agency, Washington, D.C., USA.

U.S. Environmental Protection Agency. 2002c. Index of Watershed Indicators: An Overview, Office of Wetlands, Oceans, and Watersheds. www.epa.gov/iwi/iwi-overview.pdf

U.S. Geological Survey. 1998. Instructions for conducting the North American Breeding Bird Survey. http://www.mp2-pwrc.usgs.gov/bbs/participate/instructions.html

U.S. Geological Survey. 2001. North American Amphibian Monitoring Program. http://www.mp2-pwrc.usgs.gov/NAAMP/protocol/.

U.S. Geological Survey. 2003. Vegetation response to a water-level drawdown of Pool 8 of the Upper Mississippi River. http://www.umesc.usgs.gov/aquatic/drawdown_p8_veg.html.

USNPS, 2000a, Geologic Resource Monitoring in the National Parks, online document at http://www.aqd.nps.gov/grd/geology/monitoring/.

USNPS, 2000b, Guidance on Geologic monitoring for vital indicators: United States National Park Service, Geological Resources Division, online document at http://www2.nature.nps.gov/grd/geology/monitoring/index.htm .

von Ende, C.N. 1993. Repeated measures analysis: growth and other time-dependent measures. In Design and Analysis of Ecological Experiments. eds., S.M. Scheiner and J. Gurevitch. Chapman and Hall, New York, NY. p.p. 113-137.

Walker, J. F., and D. J. Graczyk. 1993. Preliminary evaluation of effects of best management practices in the Black Earth Creek, Wisconsin, priority watershed. Water Science and Technology 28:539-548.

Wang, L., J. Lyons, and P. Kanehl. 1996. Evaluation of the Wisconsin priority watershed for improving stream habitat and fish communities. Progress Report , Aquatic Ecological Systems Section, Bureau of Integrated Science Services, Wisconsin Department of Natural Resources, Monona, Wisconsin, USA.

Wang, L., J. Lyons, P. Kanehl, and R. Gatti. 1997. Influences of watershed land use on habitat quality and biotic integrity in Wisconsin streams. Fisheries 22:6-12.

Wang, L., J. Lyons, P. Kanehl. 2002. Effects of watershed best management practices on habitat

and fishes in Wisconsin streams. Journal of the American Water Resources Association. 38:663-680.
Washington Forest Practices Board. 1997. Standard Methodology for Conducting Washington Watershed Analysis Manual. WA State Department of Natural Resources, Olympia, WA.
Water and Atmospheric Resources Monitoring Program. 2003. Illinois Climate Network. Illinois State Water Survey, 2204 Griffith Drive, Champaign, IL 61820.
Watershed Professionals Network. 1999. Oregon Watershed Assessment Manual. June 1999. Prepared for the Governor's Watershed Enhancement Board, Salem, Oregon. Online document at http://www.oweb.state.or.us/publications/wa_manual99.shtml
Water Resources Section. 2002. Long-term Index Site Monitoring project: 2001 Data Summary. Clarke County Public Works, Clarke County, Washington, 32 p.
Welch, D. 2003. Geoindicators in for monitoring the state of Canada's National Parks System. Geoscience Canada 30(1): 9-16.
Welch, D. 2001. Geoindicators in for monitoring the state of Canada's National Parks – a Proposal. In Berger, A.R., and Liverman, D.G., Eds., Geoindicators for Ecosystem Monitoring in Parks and Protected Areas, Parks Canada -- Review Reports in Ecosystem Science, Report 018, pp. 12-16.
White, W.P. 2004. First Annual Report for the IDNR/ORC Funded Project Entitled: Illinois River Basin Restoration: Watershed & Pool Assessments. in progress.
Wiley, M.J., P.W. Seelbach, K. Wehrly, and J.S. Martin. 2002. Regional ecological normalization using linear models: a meta-method for scaling stream assessment indicators. Pages 201-223 in T.P. Simon, editor. Biological Response Signatures: Indicating Patterns Using Aquatic Communities, CRC Press, New York, New York.
Williams, J.E., C.A. Wood, and M.P. Dombeck editors. 1997. Watershed restoration principles and practices. American Fisheries Society, Bethesda, MD.
Windhorn, R. 2001. Rapid assessment point method and bathymetric depth mapping. In Erosion and Sediment Inventory Procedures for Illinois, United States Department of Agriculture-Natural Resources Conservation Service, Champaign, Illinois, pp. 1-56.
Wischmeier, W.H. 1976. Use and misuse of the universal soil loss equation. Journal of Soil and Water Conservation 31(1): 5-9.
Wohl, E. 2002. Virtual rivers: Lessons from the mountain rivers of the Colorado front range. New Haven [Conn.] : Yale University Press, 210 p.
Wolf, A. T. 1995. Rural nonpoint source pollution control in Wisconsin: the limits of a voluntary program. Water Resources Bulletin 31:1009-1022.
Yang, W., M. Khanna, R. Farnsworth, and H. Onal. 2003. Is geographical targeting cost-effective? The case of the Conservation Reserve Enhancement Program in Illinois. Working paper, Program in Environmental Resource Economics, University of Illinois at Champaign-Urbana. Online document available at http://www.ace.uiuc.edu/pERE/papers.html
Yin, Y., J.S. Winkelman, and H.A. Langrehr. 2000. Long Term Monitoring Program Procedures: Aquatic vegetation monitoring. Long Term Resources Monitoring Program Report 95-P002-7.
Yoder, C.O., and J.E. Deshon. 2003. Using biological response signatures within a framework of multiple indicators to assess and diagnose causes and sources of impairments to aquatic

assemblages. Pages 23-82 in T.P. Simon, editor. Biological Response Signatures: Indicator Patterns Using Aquatic Communities. CRC Press, New York.

Zielinski, J. 2002. Watershed Vulnerability Analysis. Center for Watershed Protection, Ellicott City, MD, online document at http://www.cwp.org/Vulnerability_Analysis.pdf

Table 1. Ongoing restoration programs within the Illinois River Basin. Parenthesis surround the acres enrolled in the State - Conservation Reserve Enhancement Program (CREP) because these acres are also included in the Federal - CREP acres. The Cost column includes both annual allocations ([a]) and total funds spent over several years ([t]).

PROGRAM	ACRES	COST (mill)
Conservation Reserve Program	287,020	$36.46[a]
Conservation Reserve Enhancement Program (Federal)	109,557	$11.08[a]
Conservation Reserve Enhancement Program (State)	(67,110)	$ 6.49[a]
Wetland Reserve Program, Environmental Quality Incentive Program, Wildlife Habitat Incentive Program	296,906	$ 9.88[a]
IL Environmental Protection Agency - 319	variety of practices	$ 2.80[a]
IL Dept. of Agriculture Streambank Stabilization and Restoration Program, Conservation Practices Program	10 stream miles + others	$ 2.38[a]
IL Dept. of Natural Resources - C2000	variety of practices	$ 3.10[a]
U. S. Army Corps of Engineers		-------
Non-Government Organizations (e.g., The Nature Conservancy)	9,000+	$13.00[t]
Total		**$85.19**

Table 2 . Geomorphic monitoring measures for the Illinois River Basin.

Parameter	Ecological Relevance	Assessment Method	Assessment Frequency	Ability to Detect Change	Key References
Groundwater quality	Habit support and human consumption	Monitoring wells	Seasonal to annual	High	Appelo and Postma (1993)
Groundwater chemistry in the unsaturated zone	Reflects changing weathering rates by changing groundwater flow, inputs from human activities; influences habitat and human consumption	Coring or well sampling	5-10 yr	10-100 yr resolution of changing inputs	Appelo and Postma (1993); Geake and Foster (1989)
Karst activity	Affected by natural and human influences on groundwater flow and drift thickness; rapid pollutant transport in groundwater	Water chemistry in caves and springs; surficial mapping	Various, depending on target	Sub-annual to long-term changes in climate and human activity	Beck (1989); Ford and Wiliams (1989)
Sediment sequence and composition	Accumulation rate indicates sediment yield or storage potential; reflects physical, chemical, biological changes in environment from natural and human causes	Various coring techniques in lakes and floodplain sediment, depending on sediment thickness and character	Annually to 10 years, depending on accumulation rate	Potentially high resolution of environmental changes at project to regional scale	Berglund (1986); Goudie (1990)
Slope failure	Stream sediment source; changing frequency reflects changing groundwater flow, landuse, or stream undercutting	Mapping from airphotos, DEM data, or fixed-site photography	5-10 years or after extreme climatic events	Most active after flooding and especially after extreme events; May require detailed mapping. Project to subwatershed scale.	Brabb (1984); Forest Practices Code (1999); Sierra and Straub (in review)
Soil and sediment erosion	Soil productivity reduce if loss is greater than soil formation rate; sediment delivered to streams influences habitat	Soil profile surveys; repeated topographic profiling; modeling; airphoto interpretation of bluff recession; erosion pins	Seasonally to decadal, depending on target, setting, and specific parameters	Erosion occurs irregularly in time and space; high resolution of short- and long-term changes possible; Project to basin scale.	Renard et al. (1997); Commission on Applied Geomorphology (1967); OTHERS
Soil quality	Soils may be degraded by erosion, compaction, addition of pollutants	Soil surveys	1-25 years, depending on target	High variability in 3 spatial dimensions makes selection of representative sites difficult. Project to basin scale	Buol et al. (1997)

Stream channel morphology	Changes caused by direct human modification as well as intrinsic variability, climate, natural and human-induced landscape evolution. Progressive rates of change may indicate habitat instability	Airphoto analysis of stream pattern; repeated cross-sectional surveying and longitudinal profiling; flow and sediment gauging ; fixed-site photography	1-10 years, depending on target and scale of interest	Potentially high, but sampling must be highly targeted. May not be useful for adaptive management. Most useful at project scale.	Osterkamp and Hedman (1982); Phillips et al. (2002); Rhoads and Miller (1991); Rhoads (1995); Schumm et al. (1984); Simon (1989)
Stream flow	Reflects climatic and landscape variability	Gauging stations; regional modeling for ungauged streams	Daily to monthly, depending on target and scale of interest	High, given sufficient understanding of climatic and landscape evolution. Project to basin scale.	Edwards and Glysson (1999); Wolman and Riggs (1990)
Sediment storage and load	Sediment load is a function of stream power, sediment yield, and carrying capacity; Affects channel morphology; stored sediment may be future sediment load or contaminant trap; load ultimately delivered to Illinois River mainstem	Suspended sediment sampling at gauging stations; bedload sampling probably prohibitive except for large-scale, short-term monitoring; supported by direct observations of channel morphology and sediment sequence on floodplains	Daily to monthly, depending on target and scale of interest. Sediment storage observations at least every 5 years	When combined with historical analysis of watershed, potential to distinguish natural and human-induced effects. Project to basin scale	Edwards and Glysson (1999); Robertson and Roerish (1999); Wolman and Riggs (1990)
Surface water quality	Determined by interaction with groundwater, soils, and direct inputs; degraded water quality has direct effect on ecosystems	Testing for targeted physical, chemical, and biological parameters at gauging stations,	Sub-annually	Can indicate both short and long-term changes at project to basin scales	Adolphson et al. (2002); Hirsch et al. (1988); Robertson and Roerish (1999); Sullivan (1999)
Wetlands extent, structure, hydrology	Key ecosystem component, geohydrologic and geochemical buffer; sensitive to landscape evolution and archive of ecological change	Mapping of distribution and extent; intensive monitoring of individual wetlands.	5-10 yr for distribution, extent, and structure; continuously for preliminary observation of hydrology and chemistry	Seasonality must be distinguished from long-term change; Project to basin scale	

Table 3. General aquatic monitoring parameters for the mainstem Illinois River Basin.

Parameter	Ecological Relevance	Assessment Method	Frequency	Ability to Detect Change
Water Quality	Indicates immediate changes in nutrients and other water quality parameters to base other biotic responses.	Standardized USGS water quality sampling protocols	weekly to seasonal	Immediate changes and long term trends
Planktonic Algae	Predictable and quick response to changes in nutrients, habitat alteration, etc.	Chlorophyll a	weekly to seasonal	Rapid biotic response to environmental changes
Aquatic Plants	Provide habitat for several aquatic taxa and can reflect localized improvements in water quality	Remote sensing and field-based assessments	annual	High in local areas but may also reflect systemic changes over longer periods of time.
Zooplankton	Food resource for many aquatic organisms.	Filtered water sample	weekly to seasonal	May be good for systemic responses, but may not integrate local mainstem changes.
Macroinvertebrates	Important food resource for higher trophic levels. Respond to stressors well.	Ponar dredge, emergence traps, kick nets	seasonal	Response may be limited to smaller scales
Fish	Consolidate responses from the lower trophic levels.	Standard fish collection techniques (Electrofishing, fyke nets, gill nets, etc.)	seasonal	Can reflect localized changes relatively rapidly and also systemic changes on longer temporal scales
Amphibians/Reptiles	Can indicate degraded local environmental conditions	Calling surveys, drift nets, funnel traps	seasonal to annual	Assemblages are not as distinctly tied to aquatic areas, but may reflect a composite aquatic-riparian response.

Table 4. Physical habitat and biotic parameters used as environmental indicators in sub-basins and tributaries.

Parameter	Ecological Relevance	Assessment Method	Assessment Frequency	Ability to Detect Change	Key References
Channel morphology	Reflects changes in sedimentation or stream bed degradation as a result of landscape changes from natural or anthropogenic causes; can indicate potential changes in fish and invertebrates communities	Surveying at permanent transects along stream gradient; Point transect method along equally spaced transects	Seasonal to annual	High at project sites; moderate at the sub-basin scale	Platts et al. 1983; Rosgen 1996; Stanfield et al. 1998
Percent Substrate types	Indicates changes in sedimentation and flow resulting from changes in landuse; links improvement in habitat with changes in fish and invertebrate communities	Point transect method along equally spaced transects; qualitative observations along extensive reaches of stream	Seasonal to annual	High at project sites; moderate to low at sub-basin scale	Platts et al. 1983; Rosgen 1996; Simonson et al. 1994; Wang et al. 1996; Stanfield and Jones 1998; Stanfield et al. 1998; Wang et al. 1998
Percent Habitat Types (i.e. riffle, run, pool, etc.)	Gives indication of habitat diversity and shifts in habitat types as a result of changes in sedimentation and peak flows; potenital mechanism for shifts in fish and invertebrates as diversity in habitat types change.	Point transect method along equally spaced transects; measuring and mapping individual habitats within stream	Seasonal to annual	High at project sites; high to moderate at the sub-basin scale	Platts et al. 1983; Simonson et al. 1994; Wang et al. 1996; Stanfield et al. 1998; Wang et al. 1998

Bank Stability	Reflects changes in stream stability and potential for bank erosion as a result of changes in peak flows and riparian landuse; indicates overall channel stability needed for fish and invertebrates.	Surveying at permanent transects; Point transect method at specific locations in watershed; assessment of percent bank/riparian cover types	Frequently at individual practice sites which potentially change riparian vegetation; Annual at permanent transects	Dependant on types of practices; High at project sites; moderate to low at the sub-basin scale	Platts et al. 1983; Simonson et al. 1994; Stanfield et al. 1998;
Fish composition, diversity, and abundance	Indicates shifts in fish assemblages as a result of improved water quality and habitat conditions	Electrofishing - single or multi-pass	Seasonal to annual	High at project sites; moderate at sub-basin scale	Bayley et al. 1989; Simonson and Lyons 1995; Barbour et al. 1999; Attrill 2002
Index of Biotic Intgrity	Gives an overall stream quality rating based on fish assemblage composition, abundance, and health	Based on electrofishing data	Seasonal to annual	High at project sites; moderate at sub-basin scale	Karr et al. 1986; Hite and Bertrand 1989; Attrill 2002
Fish size structure	Indicates habitat quality/conditions, degree of competition, size selective mortality (fishing pressure), and age at maturation	Based on electrofishing data	Seasonal to annual	High at project sites; moderate to low at sub-basin scale	Atrill 2002
Fish age and growth	Changes reflect shifts in habitat suitablilty/quality and prey availability (competition for food) and indicates overall health of fish assemblages	Use of boney structures (scales, fin rays, spines, or otoliths) to count and measure growth rings; backcalculation of growth rates through Fraser-Lee method	At least once before and once after restoration practices; annual for more	Moderate depending on sampling frequency, number of fish analyzed and species of fish	Macina 1992; Putnam et al. 1995; Devries and Frie 1996; Power 2002

Invertebrate composition, diversity, and abundance	Shifts reflect changes in habitat/water quality (sedimentation and nutrients) and stability of the system; gives information on life cycle/life history requirements	Stratified Random sampling using Hess and core samplers (quantitative) and dipnets (semi-quantitative)	Seasonal to annual	High to moderate at the site and sub-basin scale	Rosenburg and Resh 1996; Barbour et al. 1999; Atrill 2002
Invertebrate indices	Indicates stream quality based on invertebrates as indicator taxa; reflects shifts in habitat and water quality	Stratified Random sampling using quantitative and semi-quantitative sampling devices	Seasonal to annual	High at the sub-basin scale and project sites	Hilsenhoff 1982; Rosenburg and Resh 1993; Rosenburg and Resh 1996; Resh et al. 1996; Atrill 2002
Intolerate Invertebrate Taxa	Reflects changes in non-point source pollution (sedimentation; nutrients) as a result of landuse changes	Stratified Random sampling using quantitative and semi-quantitative sampling devices	Seasonal to annual depending on objectives	High to moderate at the site and sub-basin scale	Rosenburg and Resh 1993; Rosenburg and Resh 1996;Barbour et al. 1999; Resh et al. 1996; Atrill 2002

Table 5. Wildlife and terrestrial habitat monitoring parameters for the Illinois River basin.

Parameter / Species Group	Critical Measures	Indicator Species, Measures	Ecological Relevance	Assessment Method	Assessment Frequency	Ability to Detect Change	References
Critical Response Measures							
A. Landscape habitat composition and metrics	Amount of natural vegetation, patch size, connectivity, width of riparian habitat	Positive - wetland, forest, grassland Negative - urban, roads, cropland	Watershed protection and wildlife habitat suitability	GIS analysis of classified satellite imagery	3-5 year intervals	Depends on rate and scale of changes relative to classification accuracy	Illinois Department of Natural Resources et al. 2003
B. Wetland habitat communities in floodplain	Declining communities	Submergent, floating-leaved, emergent, and moist-soil communities	Amounts reflect hydrologic change and wildlife habitat	Photointerpretation and ground truthing	5-10 year intervals	Good, depending on classification accuracy and photographic data	Upper Midwest Environmental Sciences Center – LTRMP High Resolution Land Cover/Use Data, Bellrose et al. 1979, Havera 1999
C. Site specific habitat/vegetation monitoring	Species composition, habitat structure, and presence of exotic species	Positive – mast producing trees, species richness Negative – exotic and/or invasive species	Combined with landscape and community habitat evaluation, provides a multiscale assessment of habitat quality and system function	Transects	Monitoring sites revisited once each 5 years on a rotation	Good for measuring structure and detecting indicators	Rogers and Owens 1995, Mack 2001, Milano-Flores 2003
D. Waterfowl	Waterfowl use days	Dabbling and diving ducks	Trends reflect habitat conditions including hydrology and water quality	Aerial and ground surveys	Weekly during fall and spring migration	Good using trends and comparing to historical data	Havera 1999, Horath et al. 2003
E. Wading birds and cormorants	Rookeries, number of active nests	Black-crowned night heron, great egret, snowy egret, little blue heron, double-crested cormorant	Sensitive to wetland hydrologic conditions, undisturbed nest sites, and drydown fishing opportunities	Aerial and ground complete counts	Annually	Good combining aerial counts and monitoring of rookeries	Gibbs et al. 1988, Dodd and Murphy 1995, Bjorklund and Holm 1997, Bjorklund 1998, Gawlik et al. 2003
F. Marsh birds	Presence and abundance of rare species, breeding species	Marsh – American and least bittern, common moorhen Large marsh - pied-billed grebe Wet meadow - black rail	Wetland obligates requiring declining emergent communities	Point call counts using taped play-back surveys	Monitoring sites revisited once each 5 years on a rotation	Presence/absence during breeding season is a good indicator of habitat suitability	British Columbia Ministry of Environment, Lands and Parks 1998
G. Shorebirds	Seasonal abundance, migration use days	Rare species, breeding species, and those intolerant of disturbance	Utilize unique and rare habitats such as predator free islands and moist soil areas; sensitive to disturbance	Ground counts from vantage points	3 times per month during spring and fall migration	Good with regular monitoring at known and potential habitat areas	de Szalay et al. 2000, Bart et al. 2002, Horath et al. 2002
H. Bald eagles and ospreys H. Cont.	Number of nests, active nests, and mid-winter abundance	Breeding activity	Dependent on large floodplain trees for nesting, sensitive to human disturbance, fish abundance, water quality (clarity)	Documentation and monitoring of nests, winter aerial and ground surveys	Annually	Good with widespread reporting and monitoring of nests; good for winter surveys	Havera and Kruse 1988, Jacques Whitford Environment Limited 2000, IDNR midwinter eagle survey
I. Terrestrial mammals	Wetland/riparian	Otter, beaver,	High on the food chain,	Transects,	Annually	Good for long	Bluett et al. 2001, Illinois

	obligates, mesopredators	muskrat, mink, gray fox, bobcat, coyotes, raccoons, possums, skunks	indicators of system "health" and function, some require large habitat areas	nightlighting, trapper data, archer index, etc.		term programs and utilizing multiple data sources	Department of Natural Resources 2003
J. Bats	Riparian roosting and nesting species	Presence/absence; foraging species richness; Indiana bat, red bat, hoary bat, silver-haired bat	Indicators of riparian system integrity in small watersheds, disturbance, organochlorine contamination	Night trapping and acoustic surveys	Annually	Good; further refinement of methods may provide similar information at less cost	Gannon et al. 2003, O'Shea et al. 2003, Texas Parks and Wildlife 2003
K. Bottomland/riparian forest birds	Presence and abundance of breeding species, obligates and area sensitives	Brown creeper, red-shouldered hawk, prothonotary warbler, cerulean warbler, red-eyed vireo	Indicators of bottomland forest extent, composition, and function	Point call counts	Monitoring sites revisited once each 5 years on a rotation	Best for abundant and widespread species	US Geological Survey 1998, Milano-Flores 2003, Sauer et al. 2003
L. Grassland birds	Presence and abundance of breeding species, obligates and area sensitives	Upland sandpiper, Henslow's sparrow, northern harrier	Grassland habitat quality indicators including patch size and fragmentation	Point call counts	Monitoring sites revisited once each 5 years on a rotation	Best for abundant and widespread species	Herkert 1994, US Geological Survey 1998, Milano-Flores 2003, Sauer et al. 2003
M. Amphibians	Species richness and abundance	Frogs and toads	Good indicators of water and overall habitat quality for fishless wetlands	Point call counts	Monitoring sites revisited once each 5 years on a rotation	Good using long-term programs	Thompson et al. 1998, US EPA 2002, Micacchion 2002
N. Aquatic reptiles	Abundance of snakes, turtles, and basking sites; aquatic turtles sensitive to water quality	Illinois mud turtle, alligator snapping turtle, map turtles, smooth softshell, water snakes (Nerodia spp.)	Sensitive to availability of basking sites; water snakes and some aquatic turtles are sensitive to water quality, dredging, and dam construction	Basking transects, aquatic turtle trapping	Two or more searches and trapping sessions during active months of year	Potentially good in appropriate habitats but methods largely untested	Thompson et al. 1998
Desirable Response Measures							
O. Avian reproduction	Reproductive effort and success, nest parasitism, patch size	All species with emphasis on rare, habitat obligates, and area sensitive species	Incorporates and synthesizes many complex factors to indicate ecosystem habitat quality and function	Nest searches and monitoring	Nest searching and monitoring every 3 days during the nesting season	Requires large sample sizes for accurate assessment	Knutson et al. 1996
P. Amphibian reproduction	Reproductive effort and success	Egg mass counts, viable eggs	Good indicators of water and overall habitat quality for fishless wetlands; highly sensitive to environmental factors like pollution, water temperature, etc.	Egg mass counts, drift fence surveys	Annually	Trends can be detected in areas of concentration	Micacchion 2002, US EPA 2002

Table 6. Estimated costs for the proposed long-term monitoring plan at critical and desirable levels. Desirable costs are additional dollars. The costs estimates for each discipline encompass all spatial scales of monitoring (i.e., mainstem, sub-basin, project). For more detailed cost estimates at each spatial scale, please refer to the text.

	Critical Level		**Desirable Level**	
	Year One	**Subsequent Years**	**Year One**	**Subsequent Years**
Geomorphological Features	$192,000	$192,000	$184,000	$184,000
Hydrological Features	$1,618,000	$1,134,000	$305,000	$181,000
Ecological Features				
Aquatic	$655,000	$605,000	$105,000	$105,000
Terrestrial	$1,486,000	$1,486,000	$185,000	$185,000
Total Estimated Costs:	$3,951,000	$3,417,000	$779,000	$655,000

Table 7. Data needs and objectives for river inventories (Rosgen 1994)

Level of detail	Inventory description	Information required	Objectives
I	Broad morphological characterization	Landform, lithology, soils, climate, depositional history, basin relief, valley morphology, river profile morphology, general river pattern	To describe generalized fluvial features using remote sensing and existing inventories of geology, landform evolution, valley morphology, depositional history and associated river slopes, relief and patterns utilized for generalized categories of major stream types and associated interpretations.
II	Morphological description (stream types)	Channel patterns, entrenchment ratio, width/depth ratio, sinuosity, channel material, slope	This level delineates homogeneous stream types that describe specific slopes, channel materials, dimensions and patterns from "reference reach" measurements. Provides a more detailed level of interpretation and extrapolation than Level 1.
III	Stream "state" or condition	Riparian vegetation, depositional patterns, meander patterns, confinement features, fish habitat indices, flow regime, river size category, debris occurrence, channel stability index, bank erodibility.	The "state" of streams further describes existing conditions that influence the response of channels to imposed change and provide specific information for prediction methodologies (such as stream bank erosion calculations, etc.). Provides for very detailed descriptions and associated prediction/interpretation.
IV	Verification	Involves direct measurements and observations of sediment transport, bank erosion rates, aggradation/degradation processes, hydraulic geometry, biological data such as fish biomass, aquatic insects, reparian vegetation evaluations, etc.	Provides reach-specific information on channel processes. Used to evaluate prediction methodologies; to provide sediment, hydraulic and biological information related to specific stream types and to evaluate effectiveness of mitigation and impact assessments for activities by stream type.

Table 8. Channel morphometrics in channel evolution model of Schumm et al. (1984).

Stage	Location	Top Width (ft)	Depth (ft)	Width Depth Ration (ft)	Thalweg Slope (ft/ft)	Depth of Sediment (ft)	Dominant Process
I	Upstream of headcut (580+00)	82	17.3	4.7	0.0020	0	Transport of sediment
II	Immediately down-stream of headcut (560+00)	82	21,6	3.8	0.0018	variable 0-2	Degradation
III	Downstream of II (520+00)	100	20.1	4.9	0.0018	1.5	Rapid widening
IV	Downstream of III (450+00)	115	19.2	6.0	0.0016	2.5	Aggradation and development of meandering thalweg
V	Downstream of IV (435+00)	119	15.3	7.8	0.0010	6.3	Aggradation and stabilization of alternate bars

Table 9. Elements of selected ecosystem monitoring and baseline investigations.

Reference	Practice Evaluated	Setting	Target Area or Length	Data Types	Spatial Scale	Temporal Scale
Simon (1989)	channel response to dredging, straightening, clearing, & snagging	Western TN	1.3 km to 75.1 km reaches	channel morpology data (width, slope, depth, gradient, stage, soil mechanics variables (cohesion, friction angle, field density of stream banks	Western 1/4 of TN	2 years of current monitoring data compared to 19 years of surveys for channel modifications
Collins and Knox (2003)	Long term modification of land use, climate fluctuation, channel navigation improve - ments to quantify mag- - nitude, direction, and rates of floodplain change	Upper Mississippi River Pool 10	52.8 km	GIS coverage of scanned USGS reports, stage data, climate data, floodplain, water &geomorphic features	205,567 km^2 drainage basin	1866 - 1989
Adolphson et al. (2002)	Landuse affects on stream habitats	rural to urban settings along Fox, DesPlaines Rivers, Illinois	12-36 km^2 subwatersheds	GIS watershed morphology, geology, landcover; channel morphology, bed material, habitat inventory	28K km^2	3 year (1999-2001) baseline investigation for long term monitoring
Erskine (2001)	Clearing, Channel Shaping, diking, bank armoring	relatively steep, large capacity, gravel bed channel with in channel benches, gravel and bedrock bars	Individual sites = 0.1 to 7.8 km	Plans, tabular, Photographic, theoretical models	+1000 km^2	30 years
Harvey (2001)	Coupling between hill-slopes & channels in upland fluvial systems	Pleistocene glacial and periglacial sediments over folded Silurian mudrocks Northwest England	mainstream length approx 4 km, valley was appox. 3.5 km long by 1-2 km wide	1948 photos 1:30K, 1960 photos 1:10K, rainfall, dating, various large scale sediment and geomorphic studies	1:10K to 1:30K with large scale studies probably larger scale then 1:10K	30 year monitoring program
Owens and Walling (2002)	Landuse, climate effects on sediment yield	River Tweed watershed, gravel bed river in Scotland	160 km river; 4390 km^2 watershed	sediment cores, flow, precipitation, landuse, geochemistry	1:20K to 1:100K, with larger scale supporting studies	85-140 yr of records
Hession et al. (2003)	Urbanization of forested watersheds	26 paired stream reaches (urban vs. forest) alluvial channels, gravelly beds & cohesive banks of sandy silt	0.34 - 50 km^2	tabular stream characteristics 9width, slope, xsec, etc) land cover from aerial photos, Landsat	sample reach approx = 100-200 meters	2 years
Spittler (1995)	Monitoring hillslope processes following logging activity	CA Coastal Range watersheds	40-170 km^2 (sub-) watersheds	Geology, geomorphology features, climate types, logging activity	1:24K, 1:12K maps of wtrsheds from aerial photos, slope stability maps	2 year pilot watershed study

Reference	Practice Evaluated	Setting	Target Area or Length	Data Types	Spatial Scale	Temporal Scale
Rae (1995)	test of in-stream monitoring techniques	CA Coastal Range watersheds	40-170 km^2 (sub-) watersheds	habitat inventory, channel morphology, bed material, floodplain/hillslope landcover and landuse	1000 m reaches	2 year pilot watershed study
Rhoads (2003)	Bendway weirs	Illinois	project reaches	channel morphology, bed material	1:24K to reach scale (topographic maps, airphotos, soil surveys, site photographs, field measurements	Manual for site assessment; indefinite temporal scale
Rhoads and Miller (1991)	River Channel response to various short-term flow variability including 100yr flood, multiple bankfull floods and 1 extreme low flow event	River channel in glacial sediments in NE IL	7.2 km of stream channel	Flow, discharge, Width & depth at 26 cross sections, gradient, calculated stream power, bed and bank sediment particle size.	7.2 km of channel	2 years, 1986-1988.
Swanson Hydrology and Geomorphology (2002)	evaluation of management and restoration actions in a watershed	freshwater stream to estuary, California	3.5km stream segment	Historic vegetation, wildlife, birds, reptiles, aquatic macro-invert, Water Quality, flow, bed material, monumented cross sections		15 years in 5 year increments with annual monitoring of baseline data set information
Landwehr and Rhoads (2003)	depositional response of headwater Ag Stream to Channelization with oversized channel bottoms	100 meter reach of Spoon River near Gifford IL	100 meter length with 19 km^2 drainage basin	series of historical air photos. Field surveys of micro topography, soil core description	1:20K & 1:40K photos converted to digital form by scanning	1940 - 1998
Stewardson (1999)	Channel stabilization with addition of Large woody debris and boulders with rip-rap banks and rock-riffle construction	NE Victoria, Australia	2 stream reaches, a 300 m sand and gravel bed stream and a 350 m cobble bedded stream	X-sections, profiles, modeling	300 and 350 meter reach of stream channel	2 years (1996 - 1998)
Aust et al. (2003)	Evaluation of various vegetation management methods on Civil War Earthworks by USLE modification by Dissmeyer and Foster 1984	Civil War Battlefields on Atlantic Coastal Plain	Plots for all treatments were 5 meters wide with variable length slopes. Plots extended top to bottom of slope.	Rainfall, runoff, soil erodibility, slope length, slope steepness, cover management, support practices	plots were 10s of meters square	1 year, March 2000 through February 2001

Table 10. Spatial structure for high resolution monitoring framework by Hydrologic Catalog Unit. Critical response measures shaded white and desirable response measures shaded gray.

Monitoring (HUC) Unit	Catalog Number	Land Area (sq. mi.)	Subregion	Monitoring Parameters															
				A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Project Areas	-			Monitoring components determined by project location and habitat type.															
Kankakee	07120001	3,010	Upper Illinois	X		X			X			X	X	X	X	X		X	X
Iroquois	07120002	2,110		X		X			X			X	X	X	X	X		X	X
Chicago	07120003	622		X		X			X			X	X	X	X	X		X	X
Des Plaines	07120004	1,440		X		X			X			X	X	X	X	X		X	X
Upper Illinois	07120005	1,010		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Upper Fox	07120006	1,570		X		X			X			X	X	X	X	X		X	X
Lower Fox	07120007	1,090		X		X			X			X	X	X	X	X		X	X
Lower Illinois – Senachwine Lake	07130001	1,950	Lower Illinois	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
Vermilion	07130002	1,290		X		X			X			X	X	X	X	X		X	X
Lower Illinois – Lake Chautauqua	07130003	1,520		X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
Mackinaw	07130004	1,130		X		X			X			X	X	X	X	X		X	X
Spoon	07130005	1,860		X		X			X			X	X	X	X	X		X	X
Upper Sangamon	07130006	1,420		X		X			X			X	X	X	X	X		X	X
South Fork Sangamon	07130007	1,130		X		X			X			X	X	X	X	X		X	X
Lower Sangamon	07130008	928		X		X			X			X	X	X	X	X		X	X
Salt	07130009	1,890		X		X			X			X	X	X	X	X		X	X
La Moine	07130010	1,340		X		X			X			X	X	X	X	X		X	X
Lower Illinois	07130011	2,280		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Macoupin	07130012	966		X		X			X			X	X	X	X	X		X	X

Table 11. Gaging Stations in the Illinois River Watershed including the periods of record.

Station ID	Station name	Major river basin (sub-basin)	Primary monitoring agency	Years of record	Drainage area (sq. miles)	Records (F)ull (P)artial	Period of record
Active gages							
5536290	Little Calumet River at South Holland	Chicago/Calumet	USGS	54	208	F	1948-2003
5536105	Nb Chicago River at Albany Avenue at Chicago	Chicago/Calumet	USGS	11	113	F	1990-1998,2000-2003
5536275	Thorn Creek at Thornton	Chicago/Calumet	USGS	54	104	F	1948-2003
5536000	North Branch Chicago River at Niles	Chicago/Calumet	USGS	51	100	F	1951-2003
5536215	Thorn Creek at Glenwood	Chicago/Calumet	USGS	53	24.7	F	1949-2003
5536255	Butterfield Creek at Flossmoor	Chicago/Calumet	USGS	54	23.5	F	1948-2003
5536235	Deer Creek near Chicago Heights	Chicago/Calumet	USGS	54	23.1	F	1948-2003
5535070	Skokie River near Highland Park	Chicago/Calumet	USGS	35	21.1	F	1967-2003
5534500	North Branch Chicago River at Deerfield	Chicago/Calumet	USGS	50	19.7	F	1952-2003
5535000	Skokie River at Lake Forest	Chicago/Calumet	USGS	50	13	F	1952-2003
5536340	Midlothian Creek at Oak Forest	Chicago/Calumet	USGS	51	12.6	F	1951-2003
5535500	West Fork of North Branch Chicago River at Northbrook	Chicago/Calumet	USGS	50	11.5	F	1952-2003
5536500	Tinley Creek near Palos Park	Chicago/Calumet	USGS	51	11.2	F	1951-2003
5536265	Lansing Ditch near Lansing	Chicago/Calumet	USGS	54	8.84	F	1948-2003
5536995	Chicago Sanitary and Ship Canal at Romeoville	Des Plaines	USGS	18	739	F	1984-2003
5532500	Des Plaines River at Riverside	Des Plaines	USGS	58	630	F	1944-2003
5529000	Des Plaines River near Des Plaines	Des Plaines	USGS	61	360	F	1941-2003
5540500	Du Page River at Shorewood	Des Plaines	USGS	61	324	F	1941-2003
5528000	Des Plaines River near Gurnee	Des Plaines	USGS	46	232	F	1946-1958,1969-2003
5527800	Des Plaines River at Russell	Des Plaines	USGS	35	123	F	1967-2003
5531500	Salt Creek at Western Springs	Des Plaines	USGS	56	115	F	1946-2003
5539000	Hickory Creek at Joliet	Des Plaines	USGS	57	107	F	1945-2003
5531300	Salt Creek at Elmhurst, IL	Des Plaines	USGS	13	91.5	F	1989-2003
5540095	West Branch Du Page River near Warrenville	Des Plaines	USGS	33	90.4	F	1969-2003
5540250	East Branch Du Page River at Bolingbrook, IL	Des Plaines	USGS	13	75.8	F	1989-2003
5527950	Mill Creek at Old Mill Creek	Des Plaines	USGS	12	61	F	1990-2003
5530990	Salt Creek at Rolling Meadows	Des Plaines	USGS	29	30.5	F	1973-2003

Table 11. (continued)

Station ID	Station name	Major river basin (sub-basin)	Primary monitoring agency	Years of record	Drainage area (sq. miles)	Records (F)ull (P)artial	Period of record
Active gages							
5539900	West Branch Du Page River near West Chicago	Des Plaines	USGS	41	28.5	F	1961-2003
5540160	East Branch Du Page River near Downers Grove, IL	Des Plaines	USGS	12	26.6	F	1990-2003
5537500	Long Run near Lemont	Des Plaines	USGS	51	20.9	F	1951-2003
5528500	Buffalo Creek near Wheeling	Des Plaines	USGS	50	19.6	F	1952-2003
5540060	Kress Creek at West Chicago	Des Plaines	USGS	16	18.1	F	1986-2003
5532000	Addison Creek at Bellwood	Des Plaines	USGS	51	17.9	F	1951-2003
5533000	Flag Creek near Willow Springs	Des Plaines	USGS	51	16.5	F	1951-2003
5530000	Weller Creek at Des Plaines	Des Plaines	USGS	51	13.2	F	1951-2003
5533400	Sawmill Creek near Lemont	Des Plaines	USGS	16	13	F	1986-2003
5540195	St. Joseph Creek at Route 34 at Lisle, IL	Des Plaines	USGS	13	11.1	F	1989-2003
5540275	Spring Brook at 87th Street near Naperville, IL	Des Plaines	USGS	14	9.9	F	1988-2003
5529500	McDonald Creek near Mount Prospect	Des Plaines	USGS	50	7.93	F	1952-2003
5540091	Spring Brook at Forest Preserve near Warrenville, IL	Des Plaines	USGS	10	6.83	F	1992-2003
5552500	Fox River at Dayton	Fox	USGS	87	2642.24	F	1915-2003
5551540	Fox River at Montgomery	Fox	USGS	0	1732	F	2003
5550000	Fox River at Algonquin	Fox	USGS	86	1403	F	1916-2003
5548280	Nippersink Creek near Spring Grove	Fox	USGS	35	192	F	1967-2003
5551700	Blackberry Creek near Yorkville	Fox	USGS	41	70.2	F	1961-2003
5551675	Blackberry Creek near Montgomery, IL	Fox	USGS	4	55	F	1998-2003
5551200	Ferson Creek near St. Charles	Fox	USGS	41	51.7	F	1961-2003
5550300	Tyler Creek at Elgin, IL	Fox	USGS	4	38.9	F	1998-2003
5550500	Poplar Creek at Elgin	Fox	USGS	51	35.2	F	1951-2003
5551330	Mill Creek near Batavia	Fox	USGS	4	27.6	F	1998-2003
5547755	Squaw Creek at Round Lake, IL	Fox	USGS	12	17.2	F	1990-2003
5550130	Brewster Creek at Valley View	Fox	USGS	0	14	F	2003
5587060	Illinois River at Hardin	Illinois	USGS	0	28690	F	2003
5586100	Illinois River at Valley City	Illinois	USGS	63	26744	F	1939-2003

Table 11. (continued)

Station ID	Station name	Major river basin (sub-basin)	Primary monitoring agency	Years of record	Drainage area (sq. miles)	Records (F)ull (P)artial	Period of record
Active gages							
5568500	Illinois River at Kingston Mines	Illinois	USGS	62	15818	F	1940-2003
5558300	Illinois River at Henry	Illinois	USGS	21	13543	F	1981-2003
5543500	Illinois River at Marseilles	Illinois	USGS	82	8259	F	1920-2003
5542000	Mazon River near Coal City	Illinois	USGS	30	455	F	1940-1966,1999-2003
5585830	McKee Creek at Chambersburg	Illinois	USGS	0	341	F	2003
5556500	Big Bureau Creek at Princeton	Illinois	USGS	66	196	F	1936-2003
5560500	Farm Creek at Farmdale	Illinois	USGS	53	27.4	P	1949-2003
5561500	Fondulac Creek near East Peoria	Illinois	USGS	54	5.54	P	1948-2003
5526000	Iroquois River near Chebanse	Iroquois	USGS	79	2091	F	1923-2003
5525000	Iroquois River at Iroquois	Iroquois	USGS	57	686	F	1945-2003
5525500	Sugar Creek at Milford	Iroquois	USGS	54	446	F	1948-2003
5527500	Kankakee River near Wilmington	Kankakee	USGS	86	5150	F	1915-1933,1935-2003
5520500	Kankakee River at Momence	Kankakee	USGS	89	2294	F	1905-1906,1915-2003
5585000	La Moine River at Ripley	La Moine	USGS	81	1293	F	1921-2003
5584500	La Moine River at Colmar	La Moine	USGS	57	655	F	1945-2003
5568000	Mackinaw River near Green Valley	Mackinaw	USGS	50	1073	F	1921-1956,1988-2003
5567500	Mackinaw River near Congerville	Mackinaw	USGS	57	767	F	1945-2003
5587000	Macoupin Creek near Kane	Macoupin	USGS	74	868	F	1921-1933,1941-2003
5583000	Sangamon River near Oakford	Sangamon	USGS	75	5093	F	1910-1911,1915-1919, 1922,1929-1933, 1940-2003
5576500	Sangamon River at Riverton	Sangamon	USGS	62	2618	F	1909-1912,1915-1956,1986-2003
5582000	Salt Creek near Greenview	Sangamon	USGS	60	1804	F	1942-2003
5573540	Sangamon River at Rt. 48 at Decatur	Sangamon	USGS	19	938	F	1983-2003
5576000	South Fork Sangamon River near Rochester	Sangamon	USGS	53	867	F	1949-2003
5572000	Sangamon River at Monticello	Sangamon	USGS	93	550	F	1908-1912,1914-2003
105*	Sangamon River near Mahomet (Shiverly Bridge)	Sangamon	ISWS	11	368	P	1993-2003
5578500	Salt Creek near Rowell	Sangamon	USGS	59	335	F	1943-2003
5570910	Sangamon River at Fisher	Sangamon	USGS	23	240	F	1979-2003

Table 11. (continued)

Station ID	Station name	Major river basin (sub-basin)	Primary monitoring agency	Years of record	Drainage area (sq. miles)	Records (F)ull (P)artial	Period of record
Active gages							
5580000	Kickapoo Creek at Waynesville	Sangamon	USGS	54	227	F	1948-2003
5579500	Lake Fork near Cornland	Sangamon	USGS	54	214	F	1948-2003
5572450/102*	Friends Creek at Argenta	Sangamon	ISWS	28	112	F	
5577500	Spring Creek at Springfield	Sangamon	USGS	54	107	F	1948-2003
101*	Long Creek near Decatur (Twin Bridge Road)	Sangamon	ISWS	11	46	P	1993-2003
5580950	Sugar Creek near Bloomington	Sangamon	USGS	27	34.4	F	1975-2003
201*	Panther Creek at Site M	Sangamon	ISWS	5	15	F	1999-2003
202*	Cox Creek near Newmansville (CR 2830N)	Sangamon	ISWS	5	9	F	1999-2003
5570000	Spoon River at Seville	Spoon	USGS	88	1635.8	F	1914-2003
5569500	Spoon River at London Mills	Spoon	USGS	59	1072	F	1943-2003
5568800	Indian Creek near Wyoming	Spoon	USGS	42	62.7	F	1960-2003
303*	Haw Creek near Maquon (CR 550N)	Spoon	ISWS	5	55	F	1999-2003
301*	Court Creek near Appleton (CR 1500E)	Spoon	ISWS	5	44	F	1999-2003
302*	North Creek near Oak Run (CR 1700N)	Spoon	ISWS	5	26	F	1999-2003
5555300	Vermilion River near Leonore	Vermilion	USGS	31	1251	F	1931-1931,1972-2003
5554500	Vermilion River at Pontiac	Vermilion	USGS	59	579	F	1943-2003
Inactive Gages							
5536325	Little Calumet River at Harvey	Chicago/Calumet	USGS	17	252	F	1917-1933
5536210	Thorn Creek near Chicago Heights	Chicago/Calumet	USGS	17	17.2	F	1964-1980
5536270	North Creek near Lansing	Chicago/Calumet	USGS	32	16.8	F	1948-1979
5539660	Des Plaines River Ab Kankakee R. nr Channahon, IL	Des Plaines	USGS	1	2093	F	1903-1903
5538000	Des Plaines River at Joliet	Des Plaines	USGS	18	1503	F	1915-1932
5533500	Des Plaines River at Lemont	Des Plaines	USGS	30	684	F	1915-1944
5528230	Indian Creek at Prairie View, IL	Des Plaines	USGS	7	36	F	1990-1996
5531000	Salt Creek near Arlington Heights	Des Plaines	USGS	23	32.1	F	1950-1971,1973-1973
5530500	Willow Creek near Park Ridge	Des Plaines	USGS	8	19.7	F	1951-1958
5538500	Spring Creek at Joliet	Des Plaines	USGS	10	19.6	F	1925-1934

Table 11. (continued)

Station ID	Station name	Major river basin (sub-basin)	Primary monitoring agency	Years of record	Drainage area (sq. miles)	Records (F)ull (P)artial	Period of record
Inactive gages							
5540200	St. Joseph Creek at Lisle	Des Plaines	USGS	4	11.8	F	1986-1989
5528030	Bull Creek near Libertyville, IL	Des Plaines	USGS	7	6.3	F	1990-1996
5551000	Fox River at South Elgin	Fox	USGS	9	1556	F	1990-1998
5548500	Fox River at Johnsburg	Fox	USGS	2	1205	F	1998-1999
5547350	Grass Lake Outlet at Lotus Woods, IL	Fox	USGS	2	919	F	1998-1999
5548110	Nippersink Creek below Wonder Lake	Fox	USGS	4	97.3	F	1994-1997
5548105	Nippersink Creek above Wonder Lake	Fox	USGS	7	84.5	F	1994-1997,1999-2001
5549850	Flint Creek near Fox River Grove, IL	Fox	USGS	7	37	F	1990-1996
5549000	Boone Creek near McHenry	Fox	USGS	36	15.5	F	1948-1983
5584000	Illinois River at Beardstown	Illinois	USGS	18	24229	F	1921-1938
5570500	Illinois River at Havana	Illinois	USGS	11	18299	F	1922-1927,1985-1989
5560000	Illinois River at Peoria	Illinois	USGS	32	14165	F	1904-1906,1910-1938
5553500	Illinois River at Ottawa	Illinois	USGS	1	10949	F	1903-1903
5558000	Big Bureau Creek at Bureau	Illinois	USGS	11	485	F	1941-1951
5563500	Kickapoo Creek at Peoria	Illinois	USGS	30	297	F	1942-1971
5563000	Kickapoo Creek near Kickapoo	Illinois	USGS	18	119	F	1945-1962
5559500	Crow Creek near Washburn	Illinois	USGS	28	115	F	1945-1972
5557500	East Bureau Creek near Bureau	Illinois	USGS	31	99	F	1936-1966
5557000	West Bureau Creek at Wyanet	Illinois	USGS	31	86.7	F	1936-1966
5562000	Farm Creek at East Peoria	Illinois	USGS	39	61.2	F	1943-1981
5558500	Crow Creek (West) near Henry	Illinois	USGS	24	56.2	F	1949-1972
5586000	N Fk Mauvaise Terre Creek near Jacksonville	Illinois	USGS	26	29.1	F	1950-1975
5568660	Duck Creek near Liverpool	Illinois	USGS	4	20	F	1972-1975
5561000	Ackerman Creek at Farmdale	Illinois	USGS	27	11.2	F	1954-1980
5559000	Gimlet Creek at Sparland	Illinois	USGS	24	5.66	F	1946-1947,1950-1971
5586500	Hurricane Creek near Roodhouse	Illinois	USGS	26	2.3	F	1950-1975
5527000	Kankakee River at Custer Park	Kankakee	USGS	20	4810	F	1915-1934

Table 11. (continued)

Station ID	Station name	Major river basin (sub-basin)	Primary monitoring agency	Years of record	Drainage area (sq. miles)	Records (F)ull (P)artial	Period of record
Inactive gages							
5526500	Terry Creek near Custer Park	Kankakee	USGS	27	12.1	F	1950-1976
5584685	Grindstone Creek near Birmingham	La Moine	USGS	1	46.5	F	1981-1981
5584680	Grindstone Creek near Industry	La Moine	USGS	1	35.5	F	1981-1981
5584400	Drowning Fork at Bushnell	La Moine	USGS	24	26.3	F	1960-1983
5584683	Grindstone Creek Trib. near Doddsville	La Moine	USGS	3	0.22	F	1980-1982
5584682	Grindstone Creek Trib. NO. 2 near Doddsville	La Moine	USGS	3	0.17	F	1981-1983
5567510	Mackinaw River below Congerville	Mackinaw	USGS	3	776	F	1984-1986
5567000	Panther Creek near El Paso	Mackinaw	USGS	13	93.9	F	1950-1960,1997-1998
5565500	Money Creek at Lake Bloomington	Mackinaw	USGS	2	69.1	F	1957-1958
5564500	Money Creek above Lake Bloomington	Mackinaw	USGS	26	53.1	F	1933-1958
5564400	Money Creek near Towanda	Mackinaw	USGS	26	49	F	1958-1983
5566500	East Branch Panther Creek at El Paso	Mackinaw	USGS	34	30.5	F	1950-1983
5565000	Hickory Creek Above Lake Bloomington, IL	Mackinaw	USGS	20	10.1	F	1939-1958
5566000	East Branch Panther Creek near Gridley	Mackinaw	USGS	11	6.3	F	1950-1960
5586800	Otter Creek near Palmyra	Macoupin	USGS	22	61.1	F	1960-1981
5578000	Sangamon River at Petersburg	Sangamon	USGS	2	3063	F	1948-1949
5573500	Sangamon River at Decatur	Sangamon	USGS	3	925	F	1949-1951
5572500	Sangamon River near Oakley	Sangamon	USGS	16	774	F	1952-1962,1964-1964,1974-1977
5575500	South Fork Sangamon River at Kincaid	Sangamon	USGS	29	562	F	1917-1927
5575000	South Fork Sangamon River near Taylorville	Sangamon	USGS	10	434	F	1908-1917
5579000	Salt Creek near Kenney	Sangamon	USGS	5	390	F	1908-1912
5571000	Sangamon River at Mahomet	Sangamon	USGS	32	362	F	1948-1979
5581500	Sugar Creek near Hartsburg	Sangamon	USGS	28	333	F	1945-1972
5581000	Sugar Creek near Armington	Sangamon	USGS	2	314	F	1948-1949
5580500	Kickapoo Creek near Lincoln	Sangamon	USGS	28	306	F	1945-1972
5574500	Flat Branch near Taylorville	Sangamon	USGS	35	276	F	1949-1983
5575800	Horse Creek at Pawnee	Sangamon	USGS	18	52.2	F	1968-1985

Table 11. (concluded)

Station ID	Station name	Major river basin (sub-basin)	Primary monitoring agency	Years of record	Drainage area (sq. miles)	Records (F)ull (P)artial	Period of record
Inactive gages							
5571500	Goose Creek near De Land	Sangamon	USGS	9	47.9	F	1951-1959
104*	Camp Creek near White Heath	Sangamon	ISWS	10	47	F	1993-2002
103*	Goose Creek near Deland	Sangamon	ISWS	8	45	F	1993-2000
106*	Big Ditch near Fisher	Sangamon	ISWS	11	38	P	1993-2003
5575830	Brush Creek near Divernon	Sangamon	USGS	10	32.4	F	1974-1983
5582500	Crane Creek near Easton	Sangamon	USGS	26	26.5	F	1950-1975
5574000	South Fork Sangamon River near Nokomis	Sangamon	USGS	26	11	F	1951-1976
5570370	Big Creek near Bryant	Spoon	USGS	21	41.2	F	1972-1992
5570350	Big Creek at St. David	Spoon	USGS	15	28	F	1972-1986
5569968	Turkey Creek near Fiatt	Spoon	USGS	3	11.5	F	1978-1980
5570380	Slug Run near Bryant	Spoon	USGS	18	7.12	F	1975-1992
5570360	Evelyn Branch near Bryant	Spoon	USGS	21	5.78	F	1972-1992
5570330	West Branch Big Creek near Canton	Spoon	USGS	3	4.31	F	1978-1980
5555500	Vermilion River at Lowell	Vermilion	USGS	40	1278	F	1932-1971
5555000	Vermilion River at Streator	Vermilion	USGS	17	1084	F	1914-1920,1922-1931
5554000	N Fork Vermilion River near Charlotte	Vermilion	USGS	20	186	F	1943-1962

Table 12. Suspended sediment monitoring sites in the Illinois River Watershed.

Station ID	Station name	Major river basin (sub-basin)	Primary monitoring agency	Years of record	Currently monitoring Sediment (Y)es, (N)o	Currently monitoring Discharge (Y)es, (N)o	Drainage area (sq. mi)	Combined Periods (USGS, USACOE & ISWS) of sediments sampling
Active Suspended Sediment Monitoring Sites within the Illinois River Watershed								
5532500	Des Plaines River at Riverside	Des Plaines	USGS	4	Y	Y	630	1979-82,2003
5552500	Fox River at Dayton	Fox	USGS	1	Y	Y	2642	1981,2003
5586100	Illinois River at Valley City	Illinois	USGS	22	Y	Y	26743	1980-2003
5559600	Illinois River at Chillicothe	Illinois	USGS	9	Y	Y	13543	1993-2003
5543500	Illinois River at Marseilles	Illinois	USGS	1	Y	Y	8259	2003
5542000	Mazon River near Coal City	Illinois	ISWS	21	Y	Y	455	1981-2003
5527500	Kankakee River near Wilmington	Kankakee	ISWS	27	Y	Y	5150	1979-2003
5520500	Kankakee River at Momence	Kankakee	ISWS	23	Y	Y	2294	1979-85, 88-90, 93-2003
5585000	LaMoine River at Ripley	La Moine	ISWS	21	Y	Y	1293	1981, 83-90, 93-2003
5584500	LaMoine River at Colmar	La Moine	ISWS	17	Y	Y	655	1981-88, 93-2003
5567500	Mackinaw River near Congerville	Mackinaw	USACOE	1	Y	Y	767	1983, 97-2003
5583000	Sangamon River near Oakford	Sangamon	USACOE	8	Y	Y	5093	1981, 83-86, 95-97
5572000	Sangamon River at Monticello	Sangamon	ISWS	21	Y	Y	550	1981-2003
201*	Panther Creek at Site M	Sangamon	ISWS	3	Y	Y	15	1999-2003
202*	Cox Creek near Newmansville (CR 2830N)	Sangamon	ISWS	3	Y	Y	9	1999-2003
5570000	Spoon River at Seville	Spoon	USGS	4	Y	Y	1636	1981, 95-97,2003
5569500	Spoon River at London Mills	Spoon	ISWS	15	Y	Y	1072	1981-87, 94-2003
303	Haw Creek near Maquon (CR 550N)	Spoon	ISWS	3	Y	Y	55	1999-2003
301*	Court Creek near Appleton (CR 1500E)	Spoon	ISWS	3	Y	Y	44	1999-2003
302*	North Creek near Oak Run (CR 1700N)	Spoon	ISWS	3	Y	Y	26	1999-2003
5555300	Vermilion River near Lenore	Vermilion	ISWS	21	Y	Y	1251	1980-81, 84-2003
Inactive Suspended Sediment Monitoring Sites within the Illinois River Watershed								
5536000	North Branch Chicago River at Niles	Chicago/Calumet	USGS	2	N	Y	100	1985-86
5529000	Des Plaines River near Des Plaines	Des Plaines	ISWS	1	N	Y	360	1981
5539000	Hickory Creek at Joliet	Des Plaines	ISWS	1	N	Y	107	1981

Table 12. (continued)

Station ID	Station name	Major river basin (sub-basin)	Primary monitoring agency	Years of record	Currently monitoring Sediment (Y)es, (N)o	area (sq. mi)	Drainage area (sq. mi)	Combined periods (USGS, USACOE & ISWS) of sediment sampling
5540500	DuPage River at Shorewood	Des Plaines	ISWS	1	N	Y	324	1981
5551540	Fox River at Montgomery	Fox	ISWS	3	N	N	1732	1981-83
5550000	Fox River at Algonquin	Fox	ISWS	2	N	Y	1403	1981-82
5548500	Fox River at Johnsburg	Fox	USGS	2	N	N	1205	1998-99
5547350	Grass Lake Outlet at Lotus Woods	Fox	USGS	2	N	N	919	1998-1999
5546500	Fox River at Wilmot, WI	Fox	USGS	2	N	N	868	1998-1999
5548280	Nippersink Creek near Spring Grove	Fox	USGS	2	N	Y	192	1998-99
5548110	Nippersink below Wonder Lake	Fox	USGS	4	N	N	97.3	1994-97
5548105	Nippersink above Wonder Lake	Fox	USGS	7	N	N	84.5	1994-97; 1999-2001
5551200	Ferson Creek near St. Charles	Fox	ISWS	2	N	Y	51.7	1981-82
5563800	Illinois River at Pekin	Illinois	USGS	3	N	N	14585	1995-97
5558300	Illinois River at Henry	Illinois	USGS	5	N	Y	13543	1984-1986: 1999
5556500	Big Bureau Creek at Princeton	Illinois	ISWS	10	N	Y	196	1981-90
5526000	Iroquois River near Chebanse	Iroquois	ISWS	9	N	Y	2091	1979-83, 93-96
5525000	Iroquois River at Iroquois	Iroquois	ISWS	8	N	Y	686	1979-82, 93-96
5525500	Sugar Creek at Milford	Iroquois	ISWS	3	N	Y	446	1981-83
5584685	Grindstone Creek near Birmingham	La Moine	USGS	1	N	N	45.4	1981
5584680	Grindstone Creek near Industry	La Moine	USGS	1	N	N	35.5	1981
5568000	Mackinaw River near Green Valley	Mackinaw	ISWS	4	N	Y	1073	1981, 1995-1997
5567510	Mackinaw River below Congerville	Mackinaw	ISWS	6	N	N	776	1981-86
5564400	Money Creek near Towanda	Mackinaw	ISWS	1	N	N	49	1981
5566500	East Branch Panther Creek at El Paso	Mackinaw	ISWS	2	N	N	30.5	1981-82
5587000	Macoupin Creek near Kane	Macoupin	ISWS	1	N	Y	868	1981
5576500	Sangamon River at Riverton	Sangamon	ISWS	3	N	Y	2618	1981-83
5582000	Salt Creek near Greenview	Sangamon	ISWS	3	N	Y	1804	1981-83
5576022	South Fork Sangamon River below Rochester	Sangamon	ISWS	2	N	Y	870	1981-82

Table 12. (concluded)

Station ID	Station name	Major river basin (sub-basin)	Primary monitoring agency	Years of record	Currently monitoring Sediment (Y)es, (N)o	Sediment (Y)es, (N)o	Drainage area (sq. mi)	Combined periods (USGS, USACOE & ISWS) of sediment sampling
5578500	Salt Creek near Rowell	Sangamon	ISWS	3	N	Y	335	1981-83
104*	Camp Creek near White Heath	Sangamon	ISWS	3	N	N	47.2	1999-2002
106*	Big Ditch near Fisher	Sangamon	ISWS	3	Y	Y	38.2	2000-2003
5568800	Indian Creek near Wyoming	Spoon	USGS	1	N	Y	62.7	1981
5570370	Big Creek near Bryant	Spoon	USGS	15	N	N	41.2	1972-86
5570350	Big Creek at St. David	Spoon	USGS	9	N	N	28	1972-80
5570380	Slug Run near Bryant	Spoon	USGS	5	N	N	7.1	1976-80
5554490	Vermilion River at McDowell	Vermilion	ISWS	2	N	N	551	1981-82

Table 13. Summary of active suspended sediment and discharge monitoring sites by major river basins.

Major sub-basins	***Sediment sites***	***Stream-gages***	***Major physiographic region(s) of the sub-basin***
Chicago/Calumet	0	14	Chicago Lake Plain
Des Plaines	1	26	Wheaton Morainal Country
Fox	1	12	Bloomington Ridged Plain & Wheaton Morainal Country
Illinois	4	10	Bloomington Ridged Plain, Galesburg Plain, & Springfield Plain
Iroquois	0	3	Kankakee Plain
Kankakee	2	2	Kankakee Plain
La Moine	2	2	Galesburg Plain
Mackinaw	1	2	Bloomington Ridged Plain
Macoupin	0	1	Springfield Plain
Sangamon	4	17	Bloomington Ridged Plain & Springfield Plain
Spoon	5	6	Galesburg Plain
Vermillion	1	2	Bloomington Ridged Plain
Total	21	97	

Table 14. Summary of site-scale habitat variables. Each site is approximately 35 times mean stream width to sample at least one riffle-run-pool sequence (Lyons 1992; IDNR 2001).

Variable	Sample Frequency	Method
1) Drainage area (km^2)	1 time only	1:24,000 topographic maps; GIS
2) Stream order	1 time only	1:24,000 topographic maps
3) Site length (m)	annual	Site length = 35 times mean stream width
4) Water temperature (ºC), Dissolved Oxygen, pH, conductivity, turbidity	Critical: annually during biotic sampling Desirable: continuous	Hand held meters for temperature & DO, pH, conductivity, and turbidity (INHS) YSI Hydrolabs (INHS/ISWS)
5) Nutrients and sediment	Critical: biweekly Desirable: continuous	Water samples taken manually (ISWS) Gaging Stations (ISWS)
6) Discharge (m^3/s)	Critical: annual Desirable: continuous	Ten-transect method (INHS) Gaging Stations (ISWS)
7) Periphyton (m2)	Critical: annual Desirable: seasonal	Artificial substrates for algae colonization; chlorophyll a content of sampled substrates

Table 15. Summary of transect-scale habitat variables. Variables must be sampled once/year using the ten transect method and should be completed when fish and invertebrate sampling is conducted.

Variable	Description
Width of Top of Bank (m)	Horizontal distance along transect, measured perpendicular to stream flow, from top of left to top of right bank. Measured at three transects at a site.
Stream width (m)	Horizontal distance along each of 10 transects, measured perpendicular to stream flow from bank to bank at existing water surface
Depth (mm)	Vertical distance from water surface to stream bottom, measured at 6 equally spaced points along each of 10 transects
Velocity (m/s)	Measurement of stream velocity at 6 points along each of 10 transects using a flow meter
Bottom substrate type (mm)	Composition of stream bed measured at each point (point particle) and in a 30 cm circle around each point (maximum particle) where stream depth & velocity is measured; particle diameters in each category are: Clay: 0.004 mm Silt: 0.004 – 0.062 mm Sand: >0.062 – 2 mm Gravel: >2 – 64 mm Cobble: >64 – 256 mm Small boulder: >256 – 512 mm Large boulder: >512 mm
Cover (%)	Object(s) that are 10 cm wide along median axis and blocks greater than 75% of sunlight; the largest object which is partially or wholly within a 30 cm circle around each point along the transect are measured. Cover types: wood, flat rock, round rock, bank, other
Shading (%)	Proportion of densiometer grid squares covered at the center of each transect to indicate amount of canopy cover over the stream.
Bank vegetation cover (%)	Proportion of bank which is covered with live vegetation; based on number of 5 X 6.25cm grids out of 16 grids that contain live vegetation.
Undercut bank (mm)	Distance at each side of transect between maximum extent that streamside overhangs channel to furthest point under the bank, to nearest 5 millimeters.
Bank height (m)	Height from bottom to top of bank; measured using a rangefinder and an Abney level at 3 transects
Riparian land use (left and right bank)	Composition of riparian zone at distances of 1.5-10 m, 10-30 m, and 30-100 m along each transect: largest land use category is recorded and is estimated visually; categories are: Cultivated, Herbaceous, Woody, Mature Trees, Tree roots.

Table 16. List of agencies and projects collecting physical habitat and biotic information in sub-basins and tributaries of the Illinois River basin. Ceratin agencies collect data once every five or ten years (i.e., five to ten year rotation).

Agency	Project	Data Collected	Frequency
Illinois Environmental Protection Agency	Basin Surveys (Quantitative and Qualitative data)	water quality, habitat and invertebrates	1981-1995; 10 yr rotation 1995-present; 5yr. rotation
Illinois Department of Natural Resources	Basin Surveys (Quantitative and semi-quantitative data)	fish community mussels (recently added)	1952 – present; 1981-1995 10 yr. rotation; 1995-present 5 yr. rotation
	Jim Edger - Panther Creek Fish & Wildlife (Quantitative data)	habitat and fish	1995-1998, 2001, 2003 habitat, fish - each year
	Ecowatch - Riverwatch (Qualitative data)	habitat; invertebrates	1995-present; annually
	Harvest Surveys (Quantitative data for indices)	harvest by species; sightings of other species by hunters	long term data, varies depending on species; annually
	Riparian Mammal Survey	riparian mammals, habitat	annually
	Upland Wildlife Survey	upland wildlife	annually
Illinois Natural History Survey	Pilot Watershed Program Spoon River – Court and Haw Creeks (Quantitative data)	habitat; invertebrates; fish water quality (ISWS gauging)	1998 - present habitat, fish - annually invertebrates - seasonal
	Evaluation of Dam Removal on Fox River (Quantitative and qualitative data)	water quality; habitat; invertebrates; mussels; fish	2002 – present water quality – biweekly in summer habitat, fish – annually fish movement - seasonal invertebrates - summer & fall

Table 16. (Continued)

	Critical Trends Assessment Program (CTAP)	habitat; birds; invertebrates	1997-present; 5 yr rotation
Nature Conservancy (in cooperation with IDNR and INHS)	Mackinaw River Restoration (Quantitative and semi-quantitative data)	invertebrates; mussels; fish	1998-2000; 2002-2003 mussels - annually 1999-2003 fish - annually invertebrates - seasonal
U.S. Geological Survey	Breeding Bird Survey	birds	1966-present; annually
National Audubon Society	Christmas Bird Count	birds	1900-present; annually
U.S. Fish and Wildlife Service	Mourning Dove Call-count Survey	mourning doves	1966-present; annually

Table 17. Inventory of available data sets and agencies involved in watershed related research.

Database Parameter and Title for the IL River Basin	Resolution	Format	Access	Original Source or Current Accessible Location
Land Cover:				
Land Cover - Early European Settlement (1804 - 1843)		digital	open	*INHS data - will be available from open source*
Land Use and Land Cover 1970s & 1980s (LULC)	1:100,000	hdcpy/digital	open	http://edcwww.cr.usgs.gov/products/landcover/lulc.html
Illinois Land Cover Data Set - 1992	30 M		open	http://edcsgs9.cr.usgs.gov/pub/data/landcover/states/
Land Cover of Illinois 1991 - 1995		digital	open	http://www.agr.state.il.us/gis/landcover91-95.html
Land Cover of Illinois 1999-2000		digital	open	http://www.agr.state.il.us/gis/landcov99-00.html
NASS Cropland Data Layer		digital		http://www.nass.usda.gov/research/Cropland/
Illinois Common Land Units (CLU) 2004		digital	restricted	*under construction*
Bank-side Land Cover		dig/photo	open	*ISIS Project Data - will be available from open source*
Pre-settlement Vegetation				*INHS data - will be available from open source*
Photography:				
Illinois Historical Aerial Photography 1036 -1941	1:20,000	hdcpy/digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/ilhap
Digital Ortho-Quarter Quads 1998 - 1999	1:12,000	digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/doqs/
Large Scale Photos from Local Governments	1:100-400	hdcpy/digital	restricted	*census bureau is gathering this data*
Des Plaines River Watershed High Resolution Orthophotography	1 x 1 ft	digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/desplaines/
Color Infrared Aerial Photos				USGS
B&W 1973 IL River Bank Photos		9in photos		IL State Water Survey - bogner@sparc.sws.uiuc.ed
B&W 1938 - 1973 County Photos		9in photos		Water Resources - vrichardson@dnrmail.state.il.us
NAPP Panchromatic Photographs	1:40,000	hdcpy	open	ISGS Library, U of I Map &Geography Library
NAPP and other aerial photos from 1940's	1:20-40,000	hdcpy	open	http://mapping.usgs.gov/digitalbackyard/
Visualizations/Video:				
Illinois River Videos -Sediment handling and Use.		digital	open	http://www.wmrc.uiuc.edu/special_projects/il_river/videos.cfm
3-D animation IL River Basin - Emiquon Series		digital	open	http://ilrdss.sws.uiuc.edu/maps/gis_anim.asp
3-D animation IL River Basin - Lower Peoria Lake		digital	open	http://ilrdss.sws.uiuc.edu/maps/gis_anim.asp
3-D animation IL River Basin - IL River Basin Series		digital	open	http://ilrdss.sws.uiuc.edu/maps/gis_anim.asp
3-D animation IL River Basin - Kankakee River Series		digital	open	http://ilrdss.sws.uiuc.edu/maps/gis_anim.asp
Raster Graphics:				
Digital Raster Graphics - USGS 7.5 Minute Quadrangles		digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/drgs/
Land Ownership by Plat Map		hdcpy/digital	restricted	*can be purchased from NRCS and vendors*
Related to Digital Elevations:				
Digital Elevation Model - 30M	30 meter	digital	open	*ISGS derivative data - not available on-line as yet*
Digital Elevation Model - 60 M	60 meter	digital	open	*ISGS derivative data - not available on-line as yet*
Digital Elevation Model - 90 M	90 meter	digital	open	*ISGS derivative data - not available on-line as yet*
Color Shaded Relief of the Illinois River Basin	30 meter	hdcpy/digital	open	*ISGS derivative data - not available on-line as yet*
Terrain Slope Map of the Illinois River Basin	30 meter	digital	limited	*ISGS derivative data - not available on-line as yet*

Local Relief from 30 Meter DEM of the Illinois River Basin	30 meter	digital	limited	*ISGS derivative data - not available on-line as yet*
Terrain Aspect from 30 Meter DEM of the Illinois River Basin	30 meter	digital	limited	*ISGS derivative data - not available on-line as yet*
Landslide Inventory	1:500,000	hdcpy/digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-geolq.html
Elevation Changes Along Streams	NA	digital	NA	*under construction*
Streams in Bedrock	NA	digital	NA	*under construction*
Surface and Groundwater Related Data Sets:				
Hydrologic Model of Illinois River Basin		digital	NA	*under construction*
Hydrographic Model of IL River Basin (Stream Order)		digital	NA	*under construction*
Gauging Station Locations		hdcpy/digital	open	*will be extracted from available data*
One-hundred and Five-hundred Year Floodzones		hdcpy/digital	limited	*will be extracted from available data*
Wetlands in the Illinois River Basin		digital	open	http://www.nwi.fws.gov/
Drainage and Levee Districts		digital	open	*will be extracted from available data*
Channelized River Segments		digital	open	*will be extracted from available data*
Reservoirs in IL River Basin		digital	open	*will be extracted from available data*
Levees		digital	open	*will be extracted from available data*
Locks, Dams, and Bridges in the Illinois River Basin		digital	open	*will be extracted from available data*
Field Drainage Tiling Data		hdcpy/digital	limited	*under construction*
Sub-watershed USGS Hydrologic Unit Code - 8		digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-hydro.html
Sub-watershed USGS Hydrologic Unit Code - 10		digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-hydro.html
Sub-watershed USGS Hydrologic Unit Code - 12		digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-hydro.html
Hydrography - 1:100,000 in IL River Basin		digital	open	*will be extracted from available data*
Hydrography - 1:24,000 or better (DLG) in the IL River Basin		digital	open	*will be extracted from available data*
Tributaries of the Illinois River		digital	open	*will be extracted from available data*
Tributaries of the Major Rivers in the IL River Basin		digital	open	*will be extracted from available data*
IL River Pools		digital	open	*will be extracted from available data*
IL River Mileage with Pools		digital	open	*will be extracted from available data*
Surface Impoundments		hdcpy/digital	restricted	*will be extracted from available data*
USEPA Historical Water Quality Data (STORET)		hdcpy/digital	open	http://oaspub.epa.gov/storpubl/warehousemenu
USGS Watershed Contamination from Agri-chemicals		hdcpy/digital	restricted	http://toxics.usgs.gov
USGS Groundwater Data		hdcpy/digital	open	http://tocics.usgs.gov
USGS Surfacewater Data		hdcpy/digital	open	http://www.water.usgs.gov/nsip
IEPA 305(b) Assessed Lakes (Last updated: Mar 5, 2003)		hdcpy/digital	open	http://www.maps.epa.state.il.us/website/wqinfo/layers/
IEPA 305(b) Assessed Streams (Last updated: May 20, 2002)		hdcpy/digital	open	http://www.maps.epa.state.il.us/website/wqinfo/layers/
IEPA 305(b) Stream Monitoring Sites (Last updated: Sept 24, 2001)		hdcpy/digital	open	http://www.maps.epa.state.il.us/website/wqinfo/layers/
IEPA 305(b) Watersheds (Last updated: Apr 16, 2001		hdcpy/digital	open	http://www.maps.epa.state.il.us/website/wqinfo/layers/
IEPA 305(b) Monitored Basins (Last updated: Sept 25, 2001)		hdcpy/digital	open	http://www.maps.epa.state.il.us/website/wqinfo/layers/
IEPA 303(d) Streams (Last updated: Sept 11, 2002		hdcpy/digital	open	http://www.maps.epa.state.il.us/website/wqinfo/layers/

IEPA 303(d) Lakes (Last updated: Mar 5, 2003)		hdcpy/digital	open	http://www.maps.epa.state.il.us/website/wqinfo/layers/
Public Waterwells and Surface Water Intakes		hdcpy/digital	restricted	IEPA, ISWS, ISGS
ISGS Wells Database		hdcpy/digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-hydro.html
Bedrock Aquifers in the IL River Basin		hdcpy/digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-hydro.html
Coarse-grained Materials within 50ft of Ground Surface		hdcpy/digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-hydro.html
Sources of Potential Water Flow Impairments		photo	limited	under construction
Nitrate Leaching Classes of Soils		digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-hydro.html
Aquifer Sensitivity to Contamination by Nitrate Leaching		digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-hydro.html
Pesticide Leaching Classes of Soils		digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-hydro.html
Aquifer Sensitivity to Contamination by Pesticide Leaching		digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-hydro.html
Related to Biologic Resources:				
IL Biological Stream Characterization		digital	open	*INHS data - when extracted from available data*
IL Natural Areas Inventory		digital	restricted	INHS
Threatened and Endangered Species		digital	restricted	IDNR, INHS, US Fish and Wildlife Service
USGS Bird Survey Data		hdcpy/digital		http://www.mbr-pwrc.usgs.gov/bbs/bbs.html
IDNR Bird Survey Data		hdcpy/digital		http://www.inhs.uiuc.edu/chf/pub/ifwis/birds/
IL Autobahn Bird Survey Data		hdcpy/digital		Illinois Autobahn
Inventory of Research Rich Areas		digital		INHS
IL Gap Analysis Project Data		digital		INHS
Distribution of Amphibians and Reptiles in the IL River Basin		hdcpy/digital		INHS
Related to Geologic Resources:				
Quaternary Deposits of Illinois, 1996		hdcpy/digital		http://www.isgs.uiuc.edu/nsdihome/webdocs/st-geolq.html
Quaternary Deposits of Illinois, 1979		digital		http://www.isgs.uiuc.edu/nsdihome/webdocs/st-geolq.html
Surficial Geology 1:24,000		hdcpy/digital		ISGS
Surficial Geology 1:63,360		hdcpy/digital		ISGS
Drift Thickness		digital		http://www.isgs.uiuc.edu/nsdihome/webdocs/st-geolq.html
Glacial Boundaries		digital		http://www.isgs.uiuc.edu/nsdihome/webdocs/st-geolq.html
Bedrock Geology Map of Illinois		hdcpy/digital		*ISGS under construction*
Bedrock Surface Topography of Illinois		hdcpy/digital		http://www.isgs.uiuc.edu/nsdihome/webdocs/st-geolb.html
Bedrock Outcrop (near where streams lay in bedrock)		hdcpy/digital		*ISGS under construction*
Earthquake Potential		hdcpy/digital		http://www.isgs.uiuc.edu/nsdihome/webdocs/st-geolb.html
Bedrock Valleys in the IL River Basin		hdcpy/digital		http://www.isgs.uiuc.edu/nsdihome/webdocs/st-geolb.html
Soils:				
STATSGO Soil Database			open	http://www.il.nrcs.usda.gov/technical/soils/index.html
SSURGO Soil Database			open	http://www.il.nrcs.usda.gov/technical/soils/index.html
Highly Erodible Land (HEL)				http://www.il.nrcs.usda.gov/technical/soils/index.html
Mineral Extraction:				
Gas Storage Fields in the IL River Basin		digital	restricted	ISGS

Surface Coal Mines in the Illinois River Basin		digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-geolb.html
Coal Reserves in the IL river Basin		digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-geolb.html
Non-coal Underground Mines in the IL River Basin		digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-geolb.html
Non-coal Pits and Quarries in the Illinois River Basin		hdcpy/digital	restricted	ISGS
Public Holdings:				
Federal Conservation Areas/Parks/Preserves				http://www.isgs.uiuc.edu/nsdihome/webdocs/st-naths.html
Archeological Resource Potential				IL State Museum - will be extracted from available data
County Conservations Areas/Parks/Preserves				*will be extracted from available data*
State Forest				http://www.isgs.uiuc.edu/nsdihome/webdocs/st-naths.html
State Parks				http://www.isgs.uiuc.edu/nsdihome/webdocs/st-naths.html
State Fish and Wildlife Preserves				http://www.isgs.uiuc.edu/nsdihome/webdocs/st-naths.html
State Conservation Areas				http://www.isgs.uiuc.edu/nsdihome/webdocs/st-naths.html
Administrative Units:				
State Boundary		digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-basem.html
County Boundaries		digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-basem.html
Township Boundaries		digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-admin.html
Municipal Boundaries		digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-admin.html
Towns - point location with names		digital	open	*US Census Bureau - will be extracted from available data*
Census Data		digital	open	*US Census Bureau - will be extracted from available data*
US Congressional Districts		digital	open	*US Census Bureau - will be extracted from available data*
IL State Senate Districts		digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-admin.html
IL State House of Representatives Districts		digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-admin.html
USGS 7.5 Minute Quadrangle Boundaries (1:24,000)		digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-basem.html
USGS 30 x 60 Minute Quadrangle Boundaries (1:100,000)		digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-basem.html
Public Land Survey (PLSS)		digital	open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-basem.html
C2000 Watershed Partnerships boundaries		digital	open	*will be available from ISGS - extracted from available data*
SWCD jurisdictional boundaries		digital	open	*will be available from ISGS - extracted from available data*
EPA jurisdictional boundaries		digital	open	*will be available from ISGS - extracted from available data*
Industry & Household Related Data Sets:				
Wastewater Treatment Plants		hdcpy/digital	restricted	village, city, county government
Landfills (active and abandoned)		hdcpy/digital	restricted	under construction
Power Plants Along the Illinois River		hdcpy/digital	restricted	USCOE, IEPA, village, city, county government
Commercial Docks Along the Illinois River		hdcpy/digital	restricted	USCOE, IEPA, village, city, county government
Dairy and Animal Confinement Locations		hdcpy/digital	restricted	NRCS, IFS, CSWD, village, city, county govt.
Septic Systems Proximity to Streams		paper	restricted	IFS, CSWD, IEPA, village, city, county govt
Related to Potentially Harmful Materials:				
National Pollutant discharge elimination System (NPDES)		digital	restricted	http://www.epa.state.il.us/fees/npdes.html

Biennial Reporting System (BRS)		digital	restricted	http://www.epa.state.il.us/
CERCLA Information System (CERCLAIS)		digital	restricted	http://www.epa.state.il.us/
Permit Compliance System (PCS)		digital	restricted	http://www.epa.state.il.us/
Toxic Release Inventory System (TRI)		digital	restricted	http://www.epa.state.il.us/
Superfund National Priorities List (NPL)		digital	restricted	http://www.epa.state.il.us/
Climate Related Data:				
Rainfall Intensity - current and historical back to 1895		hdcpy/digital	open	http://www.crh.noaa.gov/fldof.html
Temperature Data - current and historical back to 1895		hdcpy/digital	open	http://www.crh.noaa.gov/fldof.html
Evaporation Data - Pan evaporation (limited)		hdcpy/digital	open	http://www.sws.uiuc.edu/atmos/statecli/index.htm
Modeled Soil Moisture back to 1949			open	http://www.sws.uiuc.edu/atmos/statecli/index.htm
National Atmospheric Deposition Program (NADP)		digital	open	http://www.sws.uiuc.edu/atmos/statecli/General/available.htm
Midwestern Climate Information System (MICIS)		digital	open	http://mrcc.sws.uiuc.edu/html/prodserv.htm#
Related to Agricultural Practices:				
Cropping Practices (NRCS, CSWD, FS)		hdcpy/digital	restricted	
NASS Cropland Data Layer		digital	open	
Illinois Common Land Units (by County) 2004		digital	restricted	Farm Service data - under construction
Erosion/Productivity Impact Calculator (EPIC)			open	
Agricultural Non-Point Source Pollution Model (AGNPS)			open	http://pasture.ecn.purdue.edu/~aggrass/models/agnps/intro.html
Nitrate Leaching and Economic Analysis Package (NLEAP)			open	http://www.wcc.nrcs.usda.gov/nutrient/nutrient-nitrogen.html
Transportation Infrastructure:				
Interstates			open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-admin.html
Roads and Streets			open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-admin.html
State Routes			open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-admin.html
US Routes			open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-admin.html
Railroads			open	http://www.isgs.uiuc.edu/nsdihome/webdocs/st-admin.html
Oil and Gas Pipelines			restricted	USDOT Office of Pipeline Safety
Natural Boundaries				
Illinois River Basin Boundary in State of Illinois				
Natural Divisions in IL River Basin				
Physiographic Divisions in Il River Basin				http://www.isgs.uiuc.edu/nsdihome/ISGSindex.html
Watershed Assessment Related Programs:				
Illinois Stream Information System (ISIS)				available from IDNR ORC, Springfield, IL
IL River Restoration Needs Assessment GIS (RNA-GIS)				available from USCOE CERL, Champaign, IL
Biological Stream Characterization (BSC)				IDNR INHS
Toxic Substance Hydrology Program				http://toxics.usgs.gov
Environmental Monitoring and Assessment Program				EPA
Agricultural Research Service (ARS)				USDA

Illinois Rivers Decision Support System (ILRDSS)				IDNR
Illinois Streamflow Assessment Model (ILSAM)				http://gismaps.sws.uiuc.edu/ILSAM/
Critical Trends Assessment Program (CTAP)				IDNR
Illinois Conservation Reserve Enhancement Program (CREP)				http://www.fsa.usda.gov/dafp/cepd/crep.htm
Water and Atmospheric Resources Monitoring (WARM)				http://www.sws.uiuc.edu/warm/warmdb/WarmList.asp
Benchmark Sediment Monitoring Program				http://www.sws.uiuc.edu/warm/sediment/
IL River Ecosystem Restoration				http://www.mvr.usace.army.mil/ILRiverEco/default.htm
Agencies Participating in Watershed Related Research:				
National Oceanic and Atmospheric Administration (NOAA)				
Great Lakes Commission (GLC)				
US Department of Agriculture (USDA)				
US National Park Service (NPR)				
Upper Midwest Environmental Sciences Center (UMESC)				
Upper Mississippi River Basin Association (UMRBA)				
US Forest Service (USFS)				
US Fish and Wildlife Service (USFWS)				
US Army Corps of Engineers (USACE)				
US Geological Survey (USGS)				
US Environmental Protection Agency (US EPA)				
IL Department of Natural Resources (IDNR)				
IL State Geological Survey (ISGS)				
IL State Water Survey (ISWS)				
IL Natural History Survey (INHS)				
IL Waste Management and Research Center (WMRC)				
IL Pollution Control Board				
IL Historic Preservation Agency				
IL Department of Agriculture (IDOA)				
IL Environmental Protection Agency (IEPA)				
Association of Illinois Soil and Water Conservation Districts				
IL Farm Service Agency (IFSA)				
IL Natural Resources Conservation Service (INRCS)				
University of Illinois Extension				
IL Department of Transportation (IDOT)				
Il Department of Public Health (IDPH)				
USDA National Agricultural Statistics Service				http://www.usda.gov/nass/

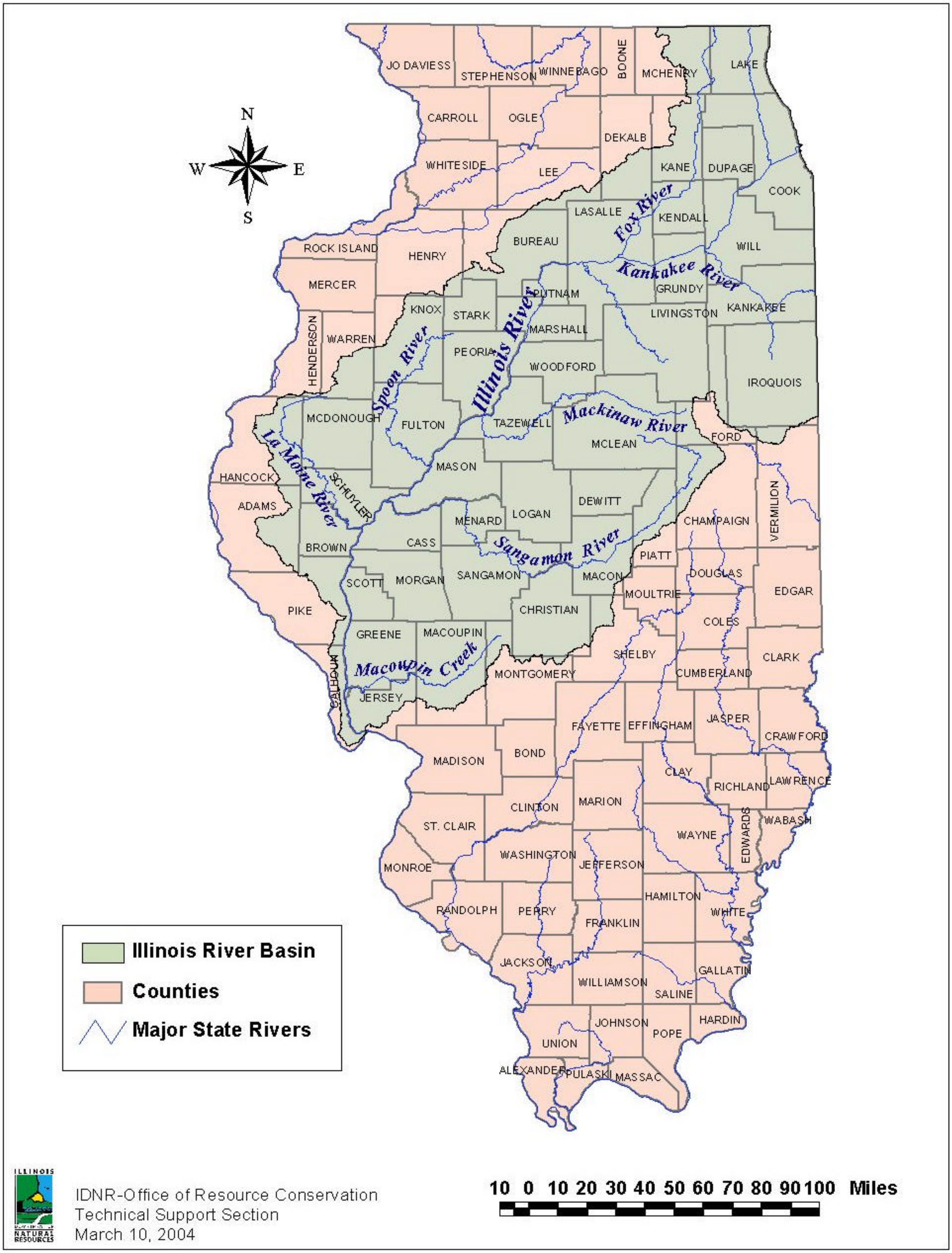


Figure 1. Map of the Illinois River Basin.

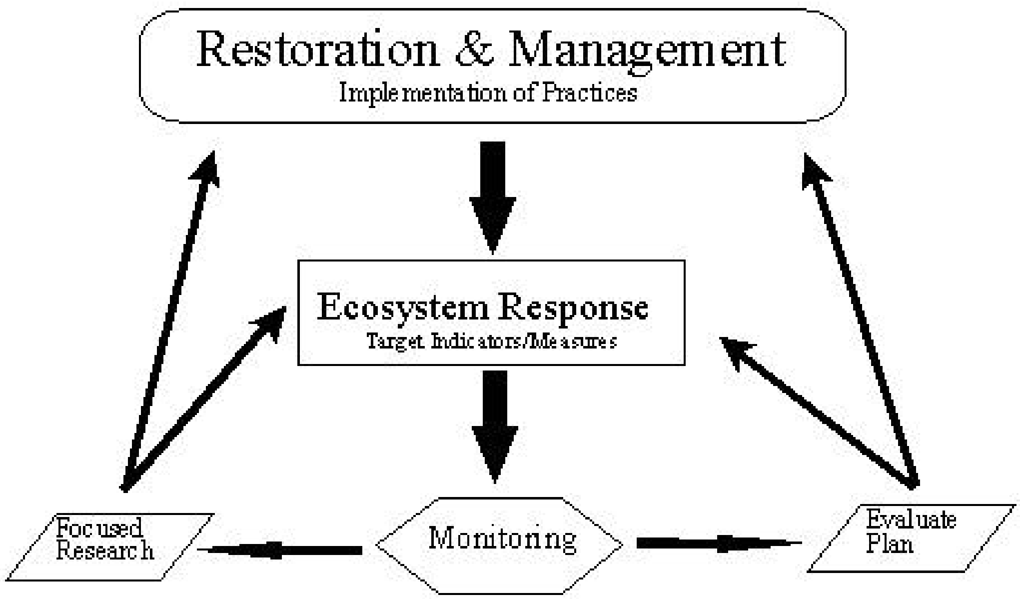


Figure 2. Iterative framework for ecosystem response measures (Modified from Keddy et al. 1993).

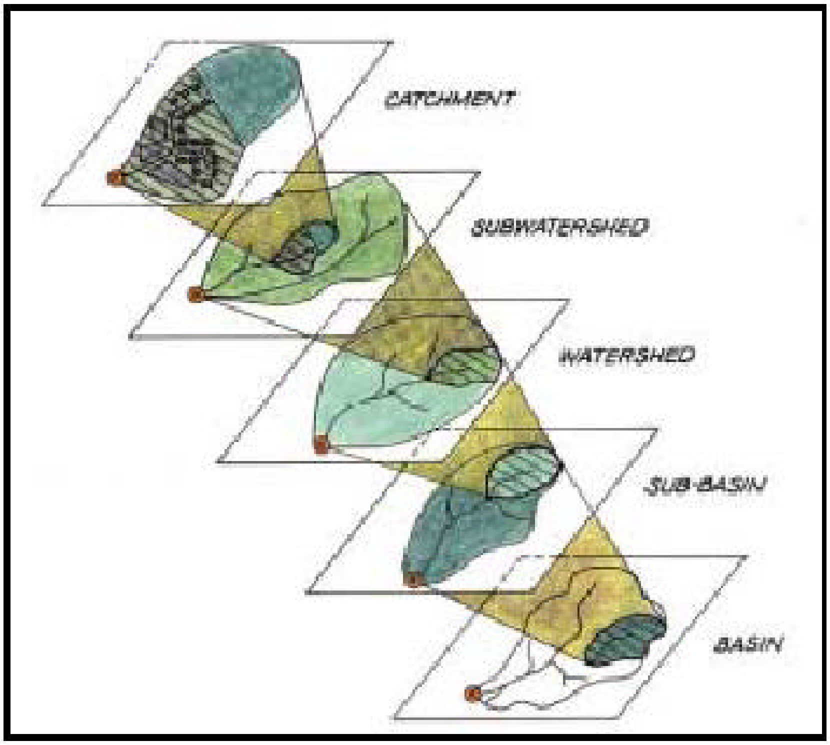


Figure 3. Units for watershed assessment and management. For this proposed monitoring plan, we define sub-basin = HUC 8, watershed = HUC 10, subwatershed = HUC12, and catchment = project. This figure is from the Center for Watershed Protection (1998), Watershed Vulnerability Analysis, www.cwp.org, Ellicott City, MD.

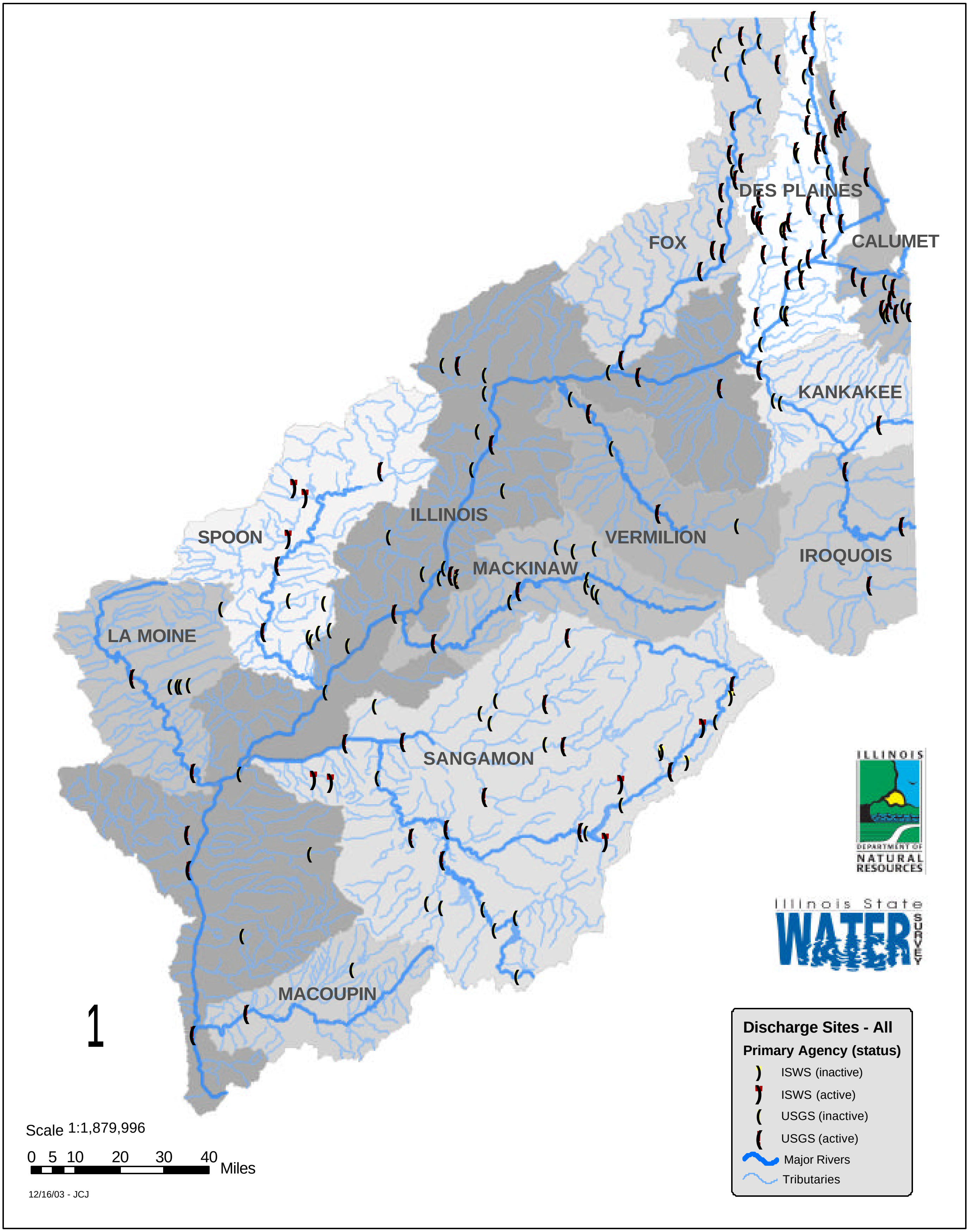


Figure 4. Discharge monitoring sites in the Illinois River watershed.

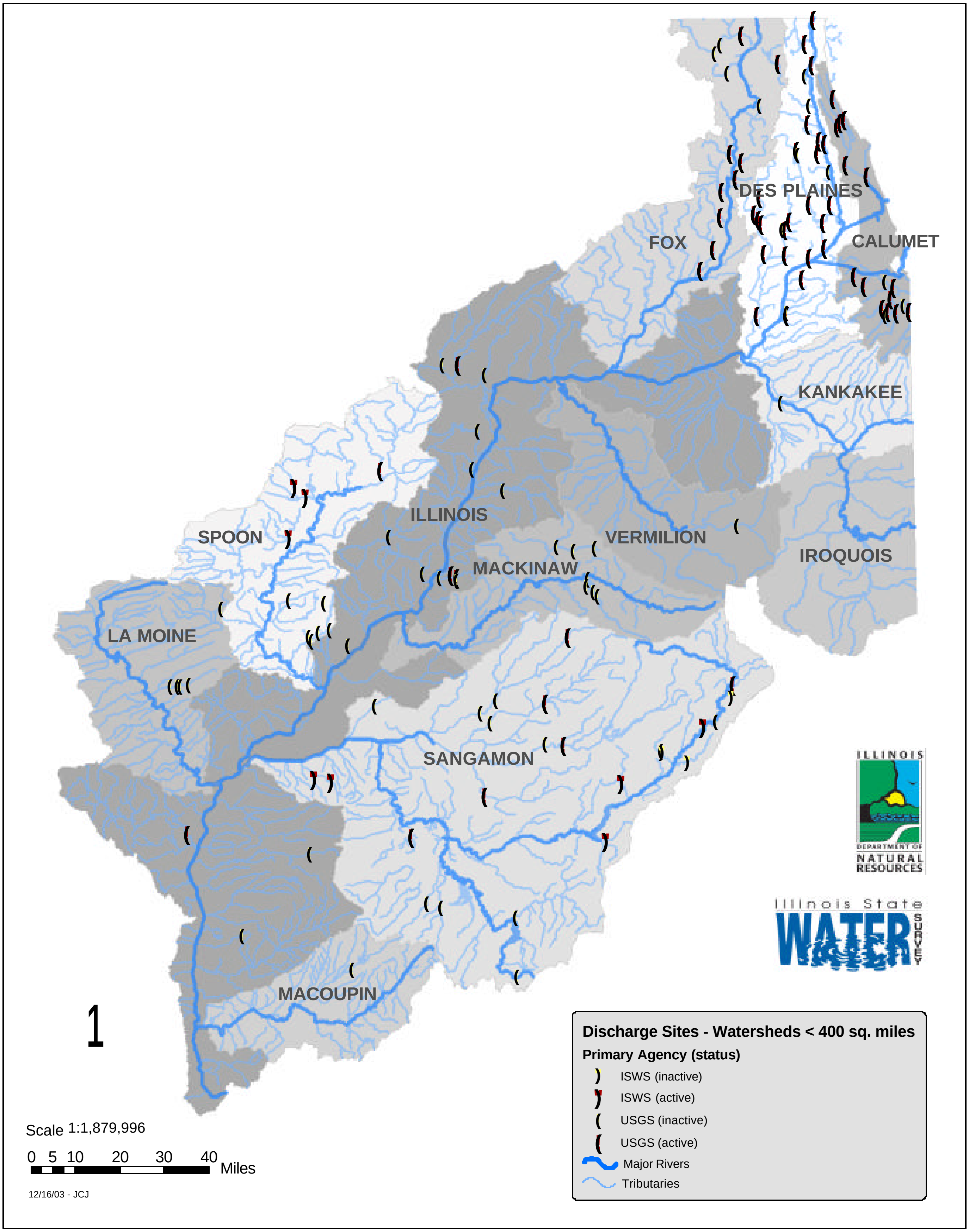


Figure 5. Discharge monitoring sites in Illinois River sub-basins with drainage areas less than 400 square miles.

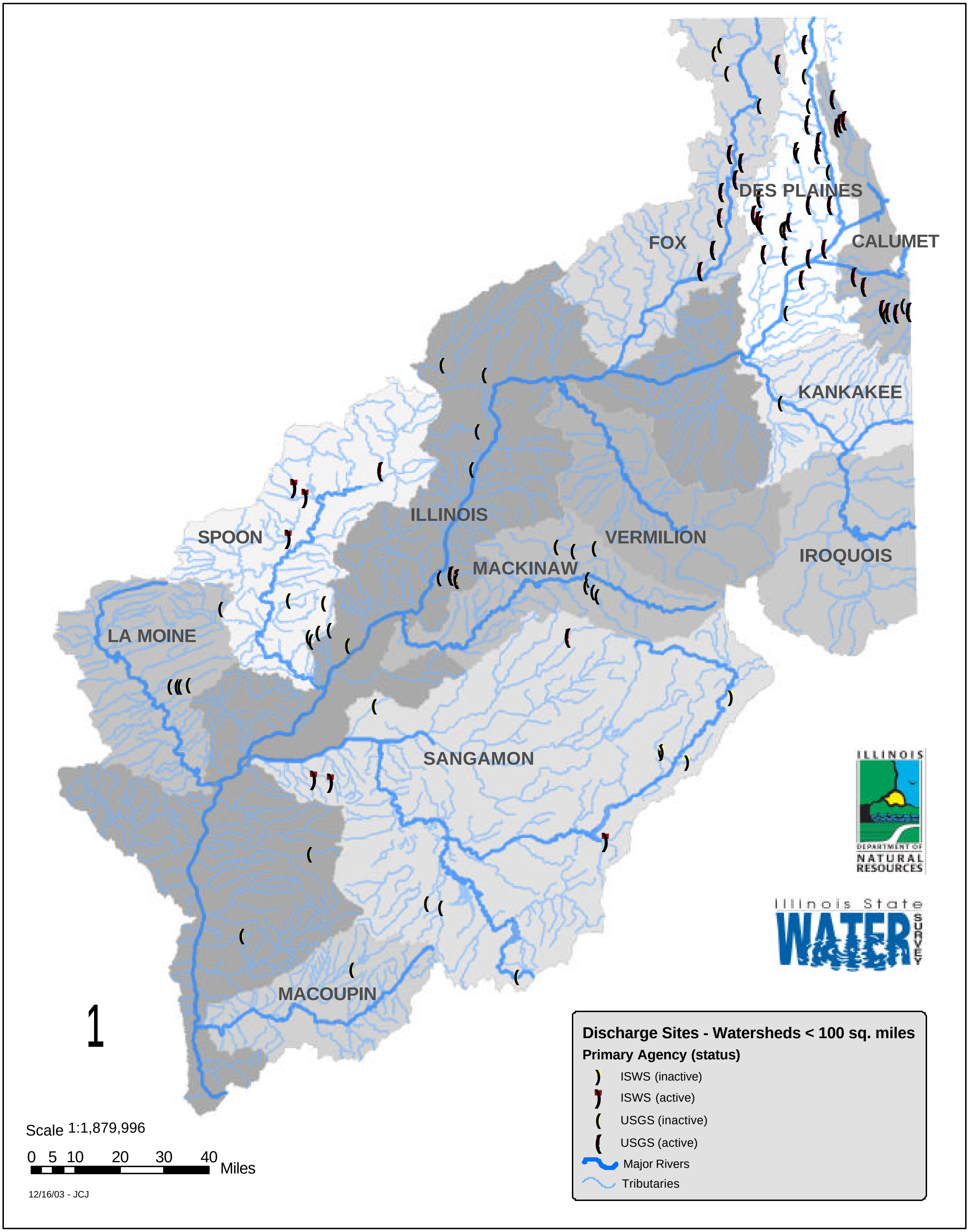
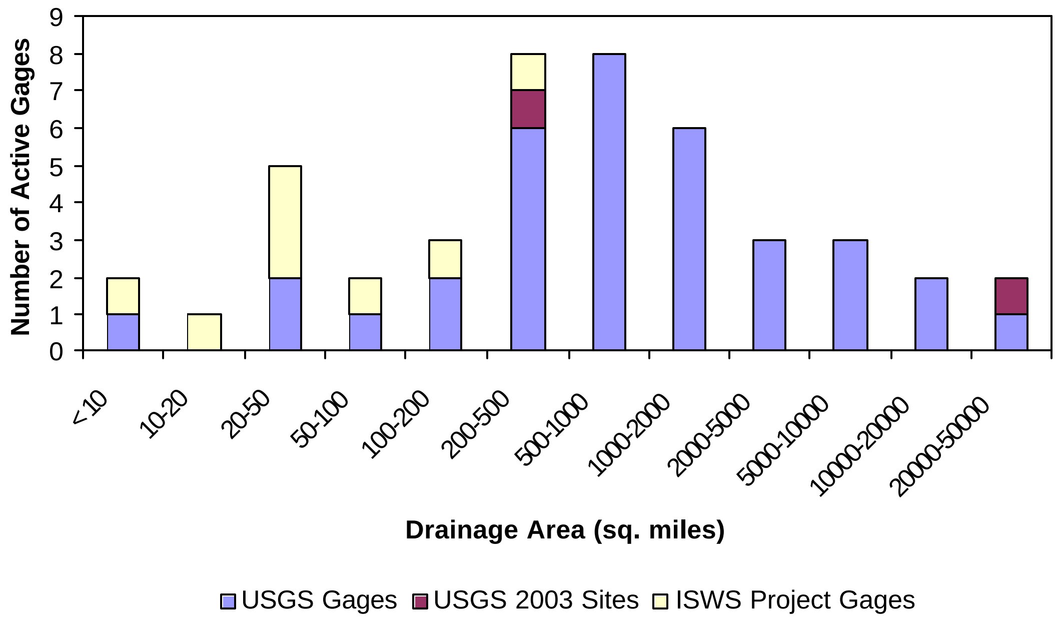
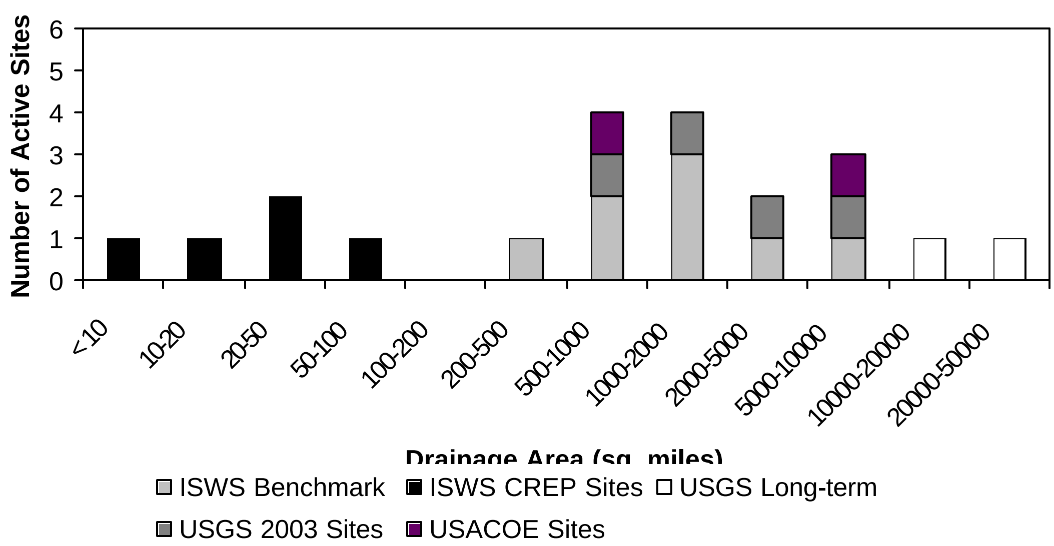


Figure 6. Discharge monitoring sites in Illinois River sub-basins with drainage areas less than 100 square miles.



(a)



(b)

Figure 7. Drainage areas being monitored in the Illinois River Basin: a) discharge monitoring sites (excluding gages in the Chicago/Calumet, Des Plaines and Fox Sub-basins), and b) suspended sediment monitoring sites

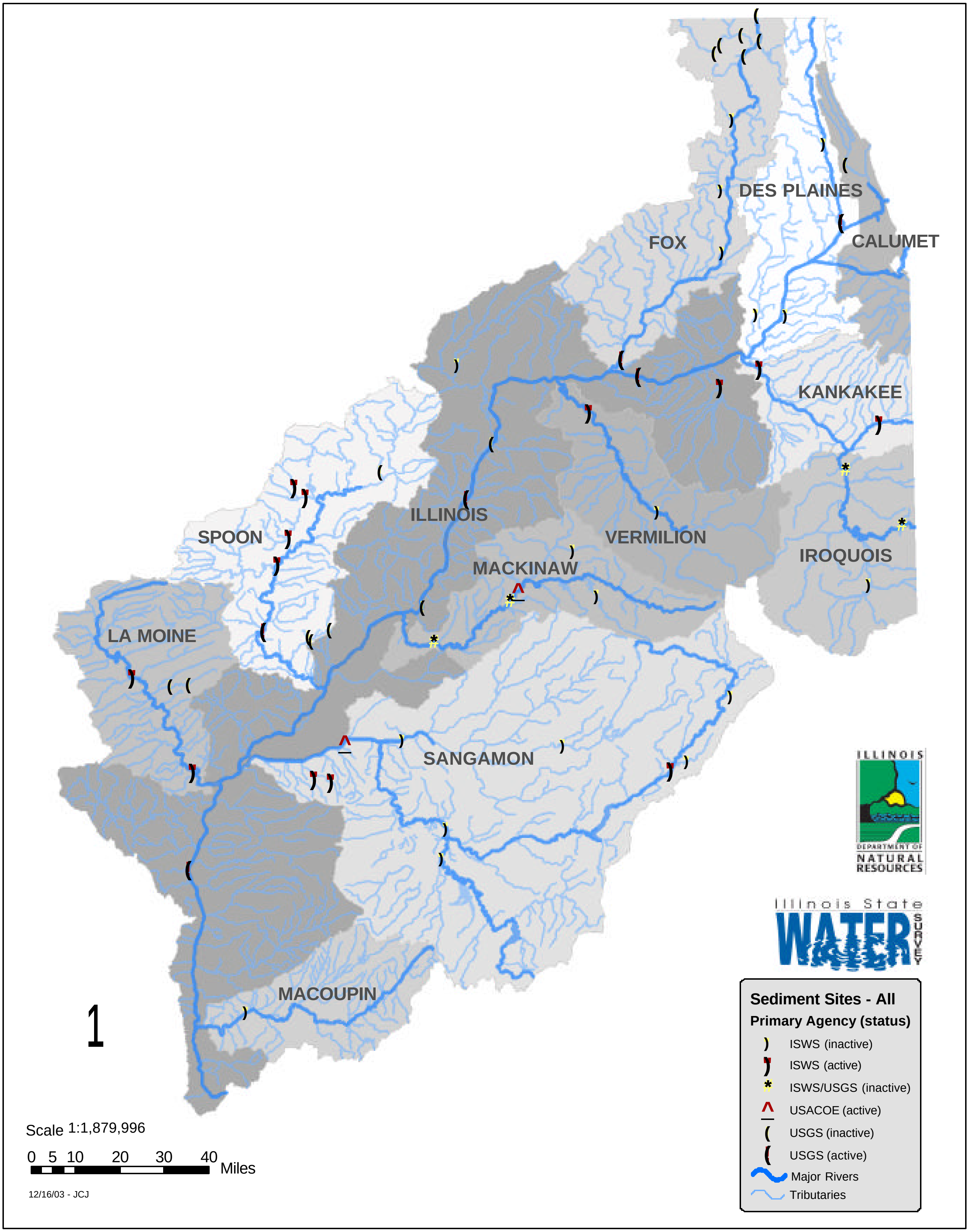


Figure 8. Suspended sediment monitoring sites in the Illinois River watershed.

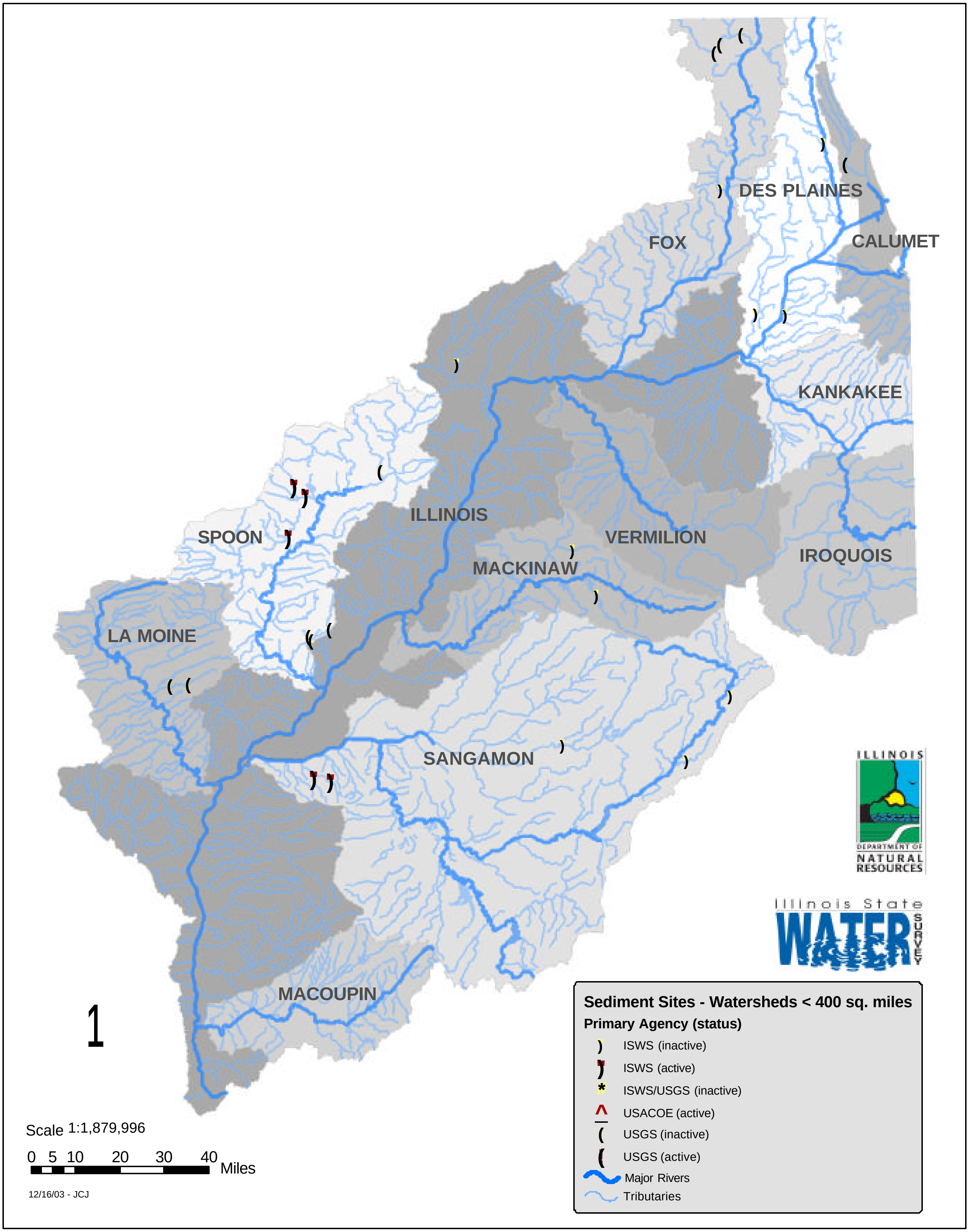


Figure 9. Suspended sediment monitoring sites in Illinois River sub-basins with drainage areas less than 400 square miles.

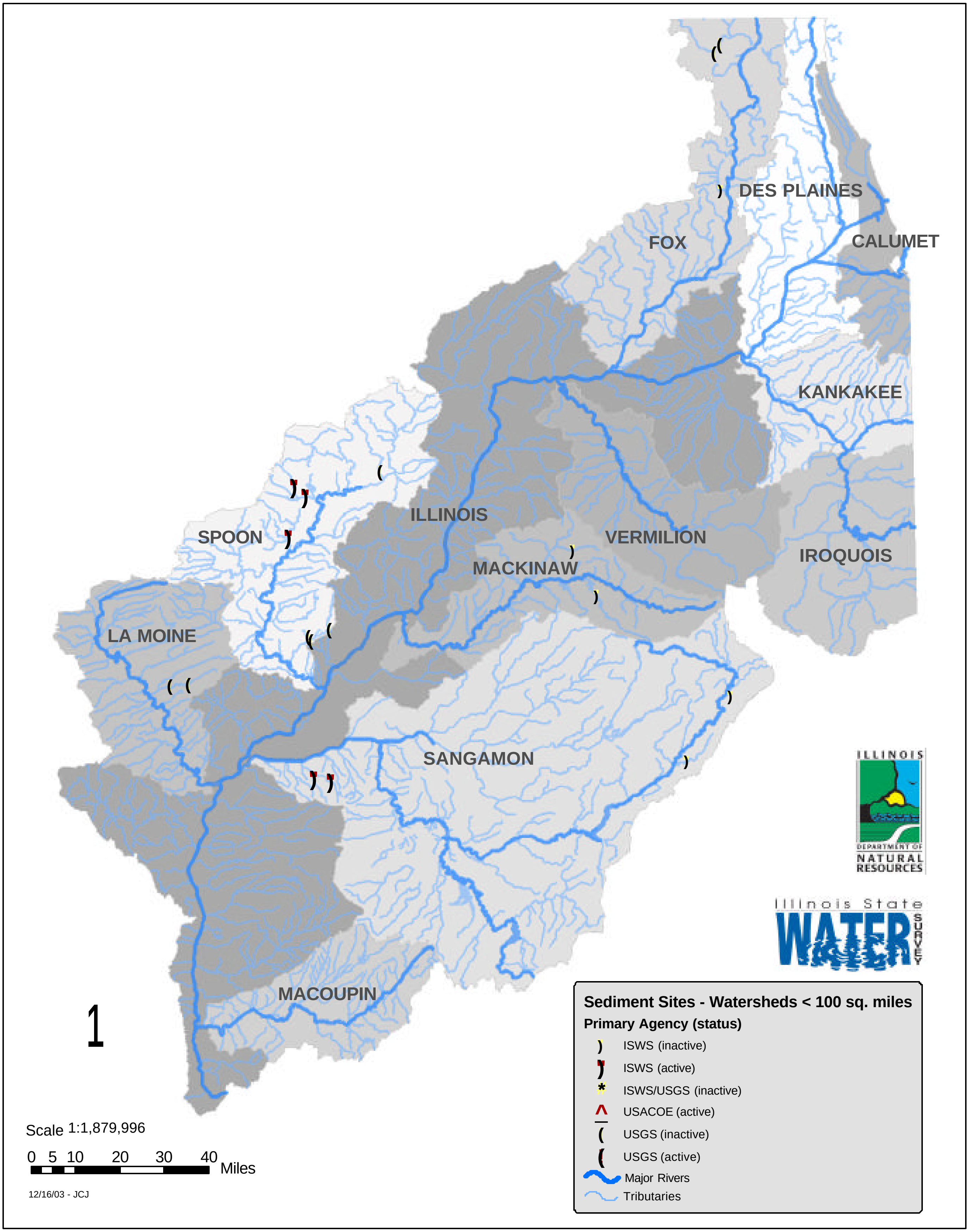


Figure 10. Suspended sediment monitoring sites in Illinois River sub-basins with drainage areas less than 100 square miles.

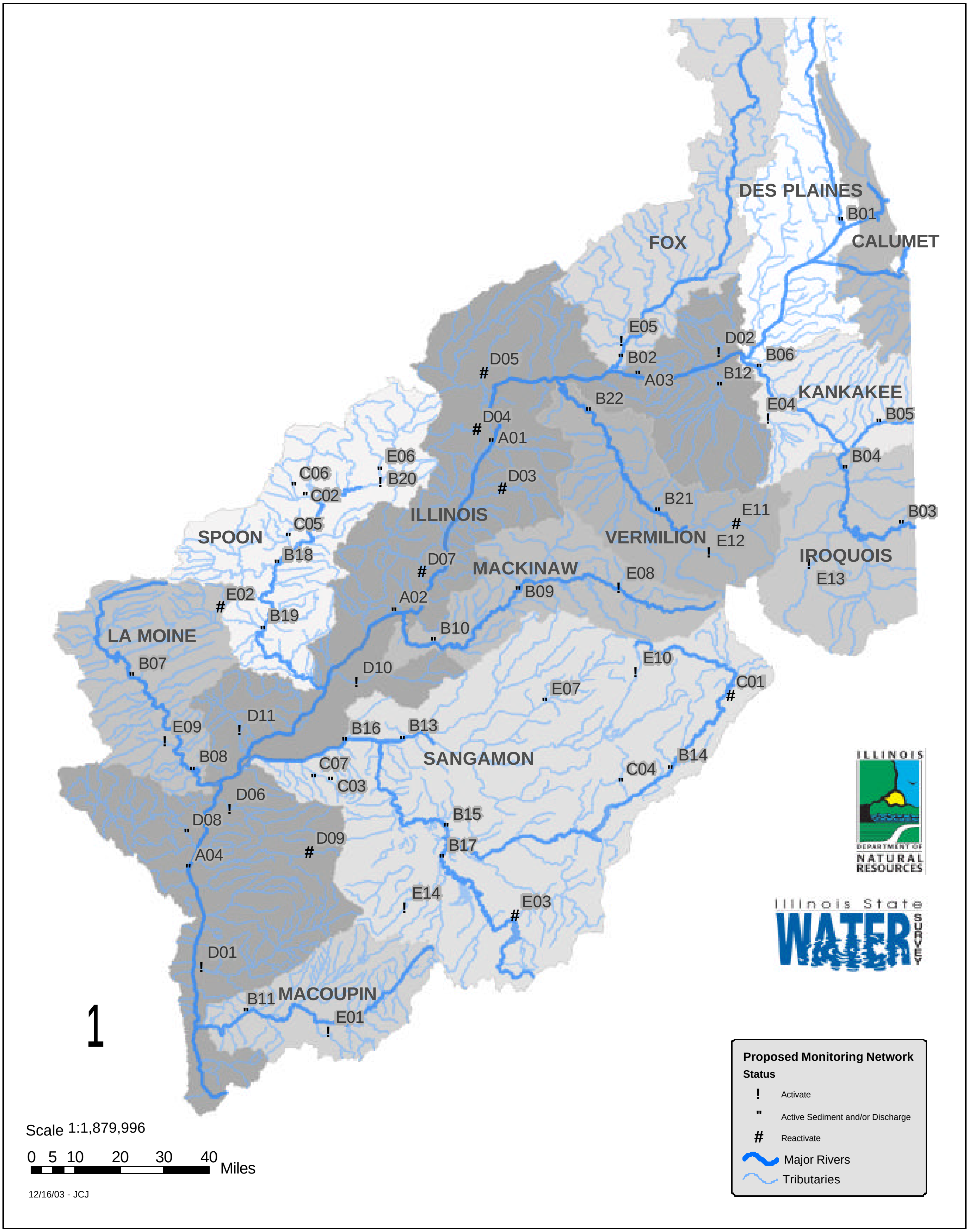


Figure 11. Proposed Monitoring Network in the Illinois River Basin.

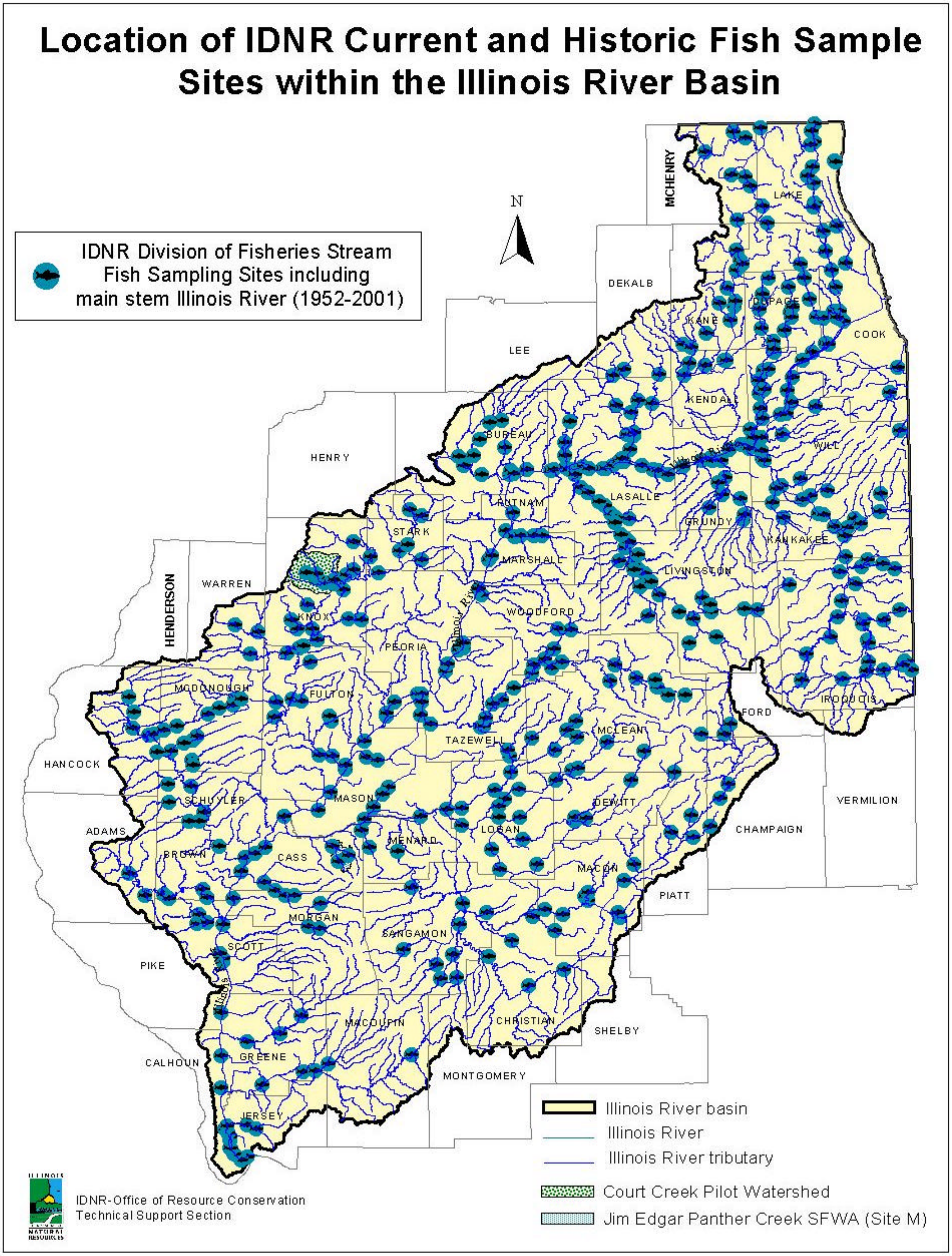


Figure 12. Location of current and historic fish samples within the Illinois River Basin.

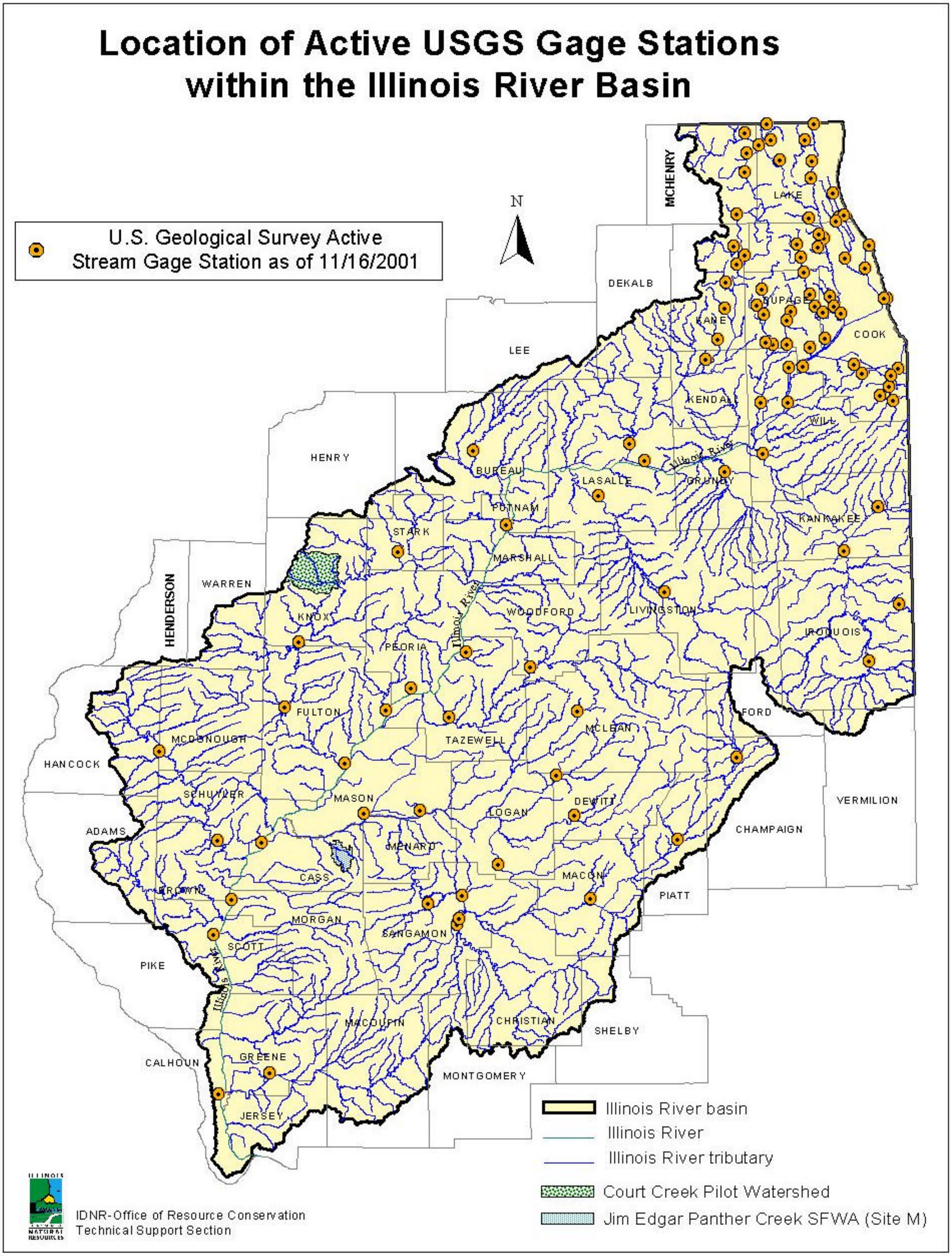


Figure 13. Location of active USGS gages within the Illinois River Basin.

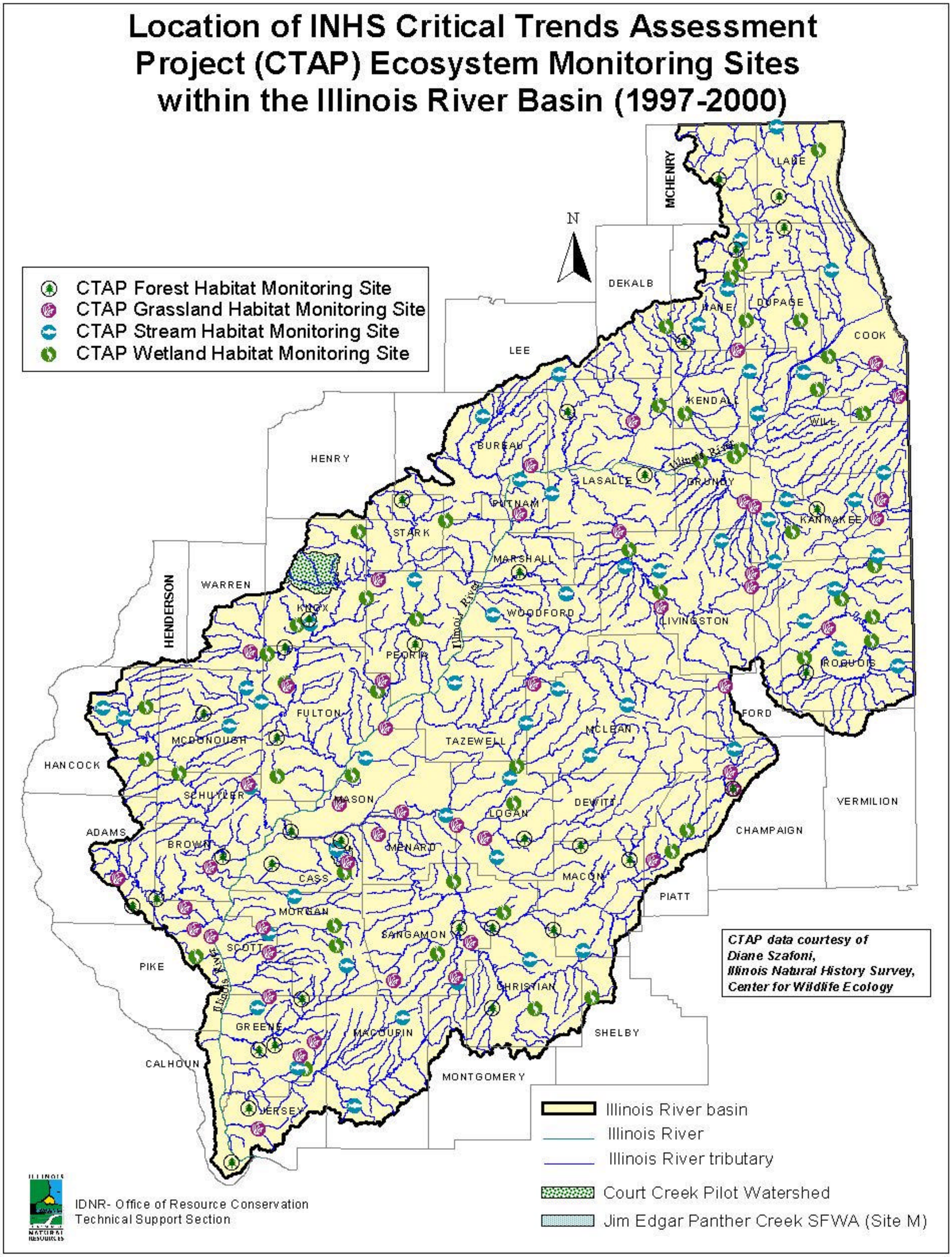


Figure 14. Location of Critical Trends Assessment Program (CTAP) monitoring sites within the Illinois River Basin.

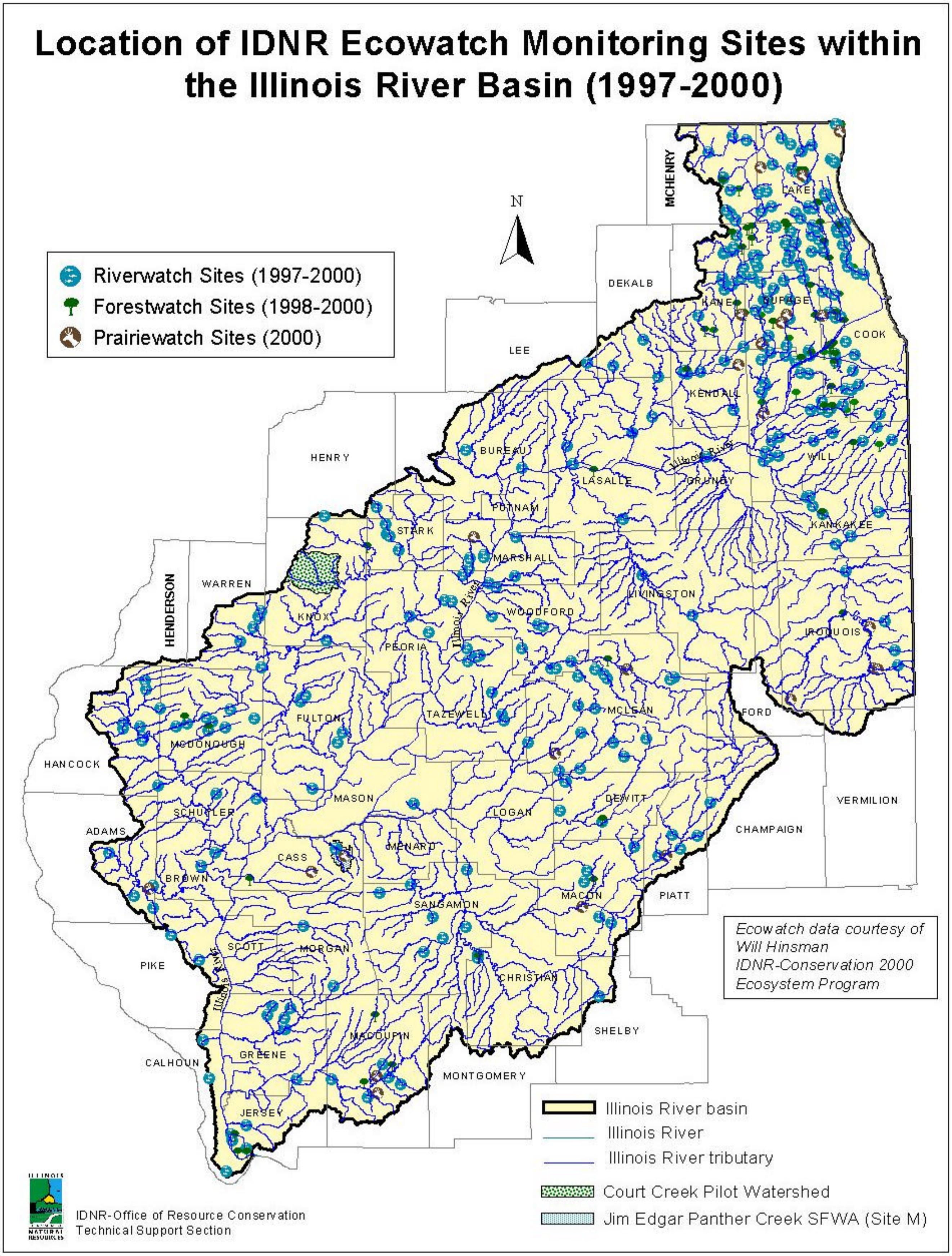


Figure 15. Location of IDNR Ecowatch monitoring sites within the Illinois River Basin.

ILLINOIS RIVER BASIN RESTORATION
COMPREHENSIVE PLAN
WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX I

CULTURAL HISTORY

ILLINOIS RIVER BASIN RESTORATION
COMPREHENSIVE PLAN
WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX I

CULTURAL HISTORY

I. INTRODUCTION

This cultural history was primarily obtained from Hajic et al (1999). A general overview of the prehistoric inhabitants of the Illinois Waterway and the surrounding region can be assimilated with reference to four major cultural traditions: Paleo-Indian, Archaic, Woodland and Mississippian. These traditions, defined on the basis of chronology, material culture, and lifeways, are commonly recognized and referred to throughout the mid-continent and the northeastern United States and Canada (e.g., Willey 1966; Jennings 1974). These traditions are further subdivided into more specific cultural complexes as warranted by differences in chronologies, artifacts (i.e., different artifact types and stylistic variations), and living patterns within a given region. The historic period begins with the introduction of writing and other forms of documentation and includes the Native American, European and American settlement. The following discussion includes broad definitions of the major cultural traditions.

II. Major Cultural/Temporal Periods

A. Paleo-Indian Tradition (12,500-9,500 B.P.). The earliest period during which strong evidence exists for prehistoric occupations in the American Midwest is the Paleo-Indian period. The Paleo-Indian Tradition has been divided into two stages: Early Paleo-Indian (Fluted Projectile Point Pattern; ca. 12,500-10,500 B.P.) and Late Paleo-Indian (Plano/Lanceolate Projectile Point Pattern; 10,500-9,500 B.P.). Early Paleo-Indian artifact assemblages include fluted Clovis and Folsom style projectile points as well as small endscrapers, gravers or “spurred” flakes, hammerstones, pitted stones, bifacial knives, and other flake tools. The Late Paleo-Indian Lanceolate Point Pattern represents a continuation and elaboration of the technological tradition of the Fluted Point Pattern of the Early Paleo-Indian period. The period is characterized by an increasing regionalization of tool styles and adaptive strategies. Late Paleo-Indian artifact assemblages include unfluted lanceolate points, typically with collateral flaking and basal/shoulder grinding. The latter assemblage also includes adzes and specialized tools made from resharpening projectile point blades. These materials are often found in association with extinct Pleistocene megafauna or bison remains (Frison 1974, 1978; Frison and Stanford 1982).

Paleo-Indian people are commonly characterized as small groups of highly mobile hunters and foragers who specialized in stalking the megafauna of the Late Wisconsinan glacial age (Frison 1978), but evidence from Kimmswick, Missouri (Graham, et al. 1981) reveals a more varied subsistence base for its Clovis inhabitants, one which utilized mammals ranging from squirrels to mastodons. Similar subsistence strategies have been noted for Paleo-Indian inhabitants of the upper Midwest. Harrison (1985:15) has suggested that the Paleo-Indian inhabitants of the western Great Lakes region adapted to forested environments and subsisted on less specialized hunting as well as fishing.

Due to the low population density and nomadic lifestyle of Paleo-Indian groups, archaeological evidence for the tradition is extremely rare. Within the Illinois Waterway, evidence of Paleo-Indian occupations is represented primarily by surface finds of diagnostic fluted spear points on high river terraces. Nonetheless, based primarily on the Lincoln Hills site in the central Mississippi River Valley, Winters (Wiant and Winters 1991:11) has defined a *Lincoln Hills Tradition* for the Early Paleo-Indian period in the lower Illinois River Valley and surrounding region. Artifact assemblages of this tradition include Lincoln Hills bifaces, steeply retouched, spurred end scrapers, side scrapers and disk cores.

Lincoln Hills bifaces are fluted from a nipple striking platform, beveled along basal edges, frequently unifacially fluted and of unusually large size. These points are found as far north as Pike County, Illinois, about 31 miles north of the confluence of the Illinois and Mississippi Rivers. Winters has suggested an age range of 11,000-10,000 B.P. for this tradition.

B. Archaic Tradition (9,500-2,750 B.P.). The Archaic Tradition is commonly characterized as Early (ca. 9,500-8,000 B.P); Middle (8,000-4,500 B.P.); or Late Archaic (4,500-2,400 B.P.), based at least in part on changes in socio-economic, technological, and religious trends. The Early Archaic population, though small, appears to have been on the increase. Interacting social groups remained small and relatively mobile and may have been linked by familial bonds, such as patrilineages (Griffin 1952; Brose 1975; Warren and O'Brien 1982a). Most Early Archaic sites seem to represent low density, temporary encampments occurring in a variety of ecological settings. This pattern reflects a subsistence strategy of seasonal hunting and gathering of resources dispersed throughout a number of different ecological zones (Brose 1975).

Based on research at the Koster site (J. Brown and Vierra 1983:175,181-183), two Early Archaic phases have been proposed for the lower Illinois River Valley, including *Early Archaic 1* (est. 9,000 B.P.) and *Early Archaic 2* (8,450-8,700 B.P.). Various projectile point styles were recovered from the Early Archaic component of the Koster site, including Graham Cave Side-Notched, Kirk Notched, Rice Stemmed, and LeCroy. Other patterned chipped stone tools included end scrapers, gravers and burins on various artifacts, drill tips and chert hammers. Ground stone tools included hammerstones/manos, cylindrical pestles, adzes, axes, choppers and grinding slabs. Bone and antler tools included socketed antler points, socketed bone tool-hafts, split-bone awls and bird-bone awls (J. Brown and Vierra 1983:181-183). Well-defined Early Archaic phases have not been developed for the middle and upper Illinois Waterway.

During the Middle Archaic, a noticeable shift occurred in the economic orientation toward circumscribed forest and riverine resources. During the Hypsithermal, a time of generally warming temperatures and drier climates, mesic river valleys provided human inhabitants with forested enclaves that were sheltered from the encroaching prairies (Cook 1976:118-119; D. Anderson, et al. 1980:266; Joyer and Roper 1980:19; Warren and O'Brien 1982,:392). Occupation of upland areas would have been limited to temporary resource procurement sites. The *Helton* phase has been well-defined for the Middle Archaic in the lower Illinois River Valley (Houart 1971; Cook 1976:69-108; J. Brown and Vierra 1983:185). This phase dates between 5,800-4,900 B.P. and is characterized by small- to medium-sized side notched projectile points in the Matanzas cluster with lesser numbers of Helton, Brannon and Apple Blossom Stemmed points (cf. Conrad 1981:125). Winged T-drills, grooved axes, large scrapers and other bifaces, and ground stone plummets and other ornaments are also found in Helton phase artifact assemblages. Two additional Middle Archaic phases, *Middle Archaic 1* (8,300-7,600 B.P.) and *Middle Archaic 2* (7,300-6,850 B.P.), are not as well defined as the Helton phase, but have been reported for sites in the lower Illinois River Valley (J. Brown and Vierra 1983:175). A wide range of projectile points characterize these phases, including unnamed corner-notched forms,

Table Rock, Jakie Stemmed, Godar, Karnak and Mantanzas points (Stafford, ed. 1985:10). Although not considered a phase, a Middle Archaic *Napoleon* component was identified at the Napoleon Hollow site in the lower Illinois River Valley. This component dates from 6,000-6,800 B.P. (Wiant, et al. 1983:160). Well-defined Middle Archaic phases have not been developed for the middle and upper Illinois Waterway.

By the Late Archaic, ecological conditions in the Midwest appear to have become stabilized to conditions similar to the historic era. Culturally, a trend toward sedentism begins to appear across much of the Midwest in the form of semi-permanent settlements and seasonal return to specific resource procurement locations (Warren and O'Brien 1982a). In the Illinois River Valley, Late Archaic inhabitants were beginning to mix intensive exploitation of floodplain resources with cultivation of plants. Bender (1985) has suggested that this was a time of "social closure," a time when corporate groups (i.e., bands or tribes) were becoming socially bonded so that family groups had fewer choices about moving or changing allegiance. Despite this social closure, extensive interregional trade networks developed in which copper from the Great Lakes, marine shells from the Gulf Coast, and high quality lithic materials from a number of areas were traded.

Cole and Deuel (1937) defined a *Red Ochre* mortuary complex for the Late Archaic period in much of Illinois (including the central and upper segments of the Illinois Waterway) and adjacent states. As summarized by Hall (1974:68), the Red Ochre Culture dates to about 3,200-2,800 B.P. and can be recognized by distinctive "Turkey Tail" points of bluish chert from southern Illinois and Indiana. Large quantities of oval preforms and occasional copper tools are often associated with these points. Powdered hematite is sprinkled over burials and grave furnishings.

Two different Late Archaic mortuary complexes have been defined for the lower Illinois River Valley. The Titterington mortuary complex, which dates between ca. 4,200-3,800 B.P. (Cook 1976), is characterized by Wadlow, Karnak, Sedalia, Nebo Hill and Etley/Atalissa projectile point types. The lithic assemblages of these sites are further comprised of gouges, drills, heavy scrapers, axes and various ground stone implements, including hammerstones/manos, three-quarter-grooved axes, hematite beads, hematite rubstones and sandstone abraders (J. Brown and Vierra 1983:186). The Kampsville mortuary complex has been described by Farnsworth and D. Asch (1986:348) as the regional counterpart of the Red Ochre mortuary complex to the north. Kampsville style projectile points (Farnsworth and D. Asch 1986:347) are diagnostic of the Kampsville mortuary complex.

In general, the stone assemblages of the previous Paleo-Indian Tradition evolved to more varied styles and forms during the Archaic period. Other artifacts associated with Archaic occupations include a variety of polished and ground stone woodworking tools, including axes, adzes and wedges; plant processing equipment such as manos and metates; masses of fire-cracked rock used in pit-roasting and stone boiling; and other types of specialized artifacts such as drills, awls, needles and gouges (Frankforter 1961; Jennings 1974; Cook 1976). Grooved stone axes are somewhat diagnostic for the Middle and Late Archaic periods, shifting from a full-grooved form in the Middle Archaic to a three-quarter grooved form in the Late Archaic.

C. Woodland Tradition (2,750-1,000 B.P.). The Woodland Tradition is an archaeological complex of the eastern woodlands that is marked by the consistent manufacture of pottery, use of some cultigens, and the regular use of earthen mounds for burial of the dead. The tradition, which is divided into the Early, Middle and Late Woodland periods, developed within a climatic and vegetational setting relatively similar to recent times.

During the Early Woodland period, the Illinois River Valley was hydrologically similar to that encountered by early 19th century Euro-American settlers (Farnsworth and D. Asch 1986:327). Broad similarities exist between Late Archaic and Early Woodland occupations in the Illinois River Valley. Faunal remains indicate exploitation of a wide variety of aquatic and terrestrial species, while floral remains indicate the use of upland and bottomland plant species as well as domesticated squash, barley, and goosefoot. Nut collecting was also an important contributor to the Early Woodland diet.

Marion Thick pottery is the first pottery to appear within the Illinois River Valley. The thick, coarse, flat-based pottery was first identified at the Oliver Farm site in Marion County, Indiana (Helman 1951). This pottery is often associated with Kramer projectile points and hearths which contain an abundance of fire-cracked rock. Munson (1966) has termed these associations the "Marion Culture." The Marion Culture is particularly well known from sites in Fulton and La Salle counties in Illinois (Hall 1974:70; A. Harn 1986:244-279; Santure, et al. 1990:15), but Marion Thick pottery has also been reported in the northern part of the lower Illinois River Valley (Farnsworth and D. Asch 1986:406; Wiant and McGimsey, eds. 1986:372-374), Starved Rock (Ferguson, ed. 1995:357), Bowmanville (Markman 1991:62) and elsewhere in the state. Farnsworth and D. Asch (1986:356) have defined three geographically segregated phases for the Marion Culture, including the *Marion* phase in the central Illinois River Valley and the northern part of the lower Illinois valley, the *Carr Creek* phase in the American Bottom, and the *Seehorn* phase in the Mississippi River Valley near Quincy, Illinois. Munson (1986:291-292) has proposed the addition of a *Late Marion/Early Morton* phase (2,400-2,250 B.P.) to the central Illinois River Valley. Munson has also suggested that the Marion phase continues into the early Middle Woodland period in the central valley (Munson 1986:291).

Another Early Woodland culture, the Black Sand Culture, is distinguished by Florence or Liverpool series pottery (Griffin 1952:98; Fowler 1955; Farnsworth and D. Asch 1986:356-370). Although this culture is perhaps better known in the lower reaches of the Illinois River Valley (Farnsworth and D. Asch 1986:406), Black Sand material also occurs in northern Illinois and well into Wisconsin (Hall 1974:71). Farnsworth and D. Asch (1986:364-419) have defined a *Cypress* phase, *Liverpool* phase and *Schultze* phase for the Black Sand Culture in the lower Illinois River Valley. Munson suggests a *Late Morton/Caldwell* phase (2,250-2,150 B.P.) for the central Illinois valley.

The Middle Woodland period in Illinois is probably best known from village sites in the Illinois River Valley, including the Havana, Pool and Dickison sites, the mounds at Ogden-Fettie and Liverpool, Illinois (McGregor 1952, 1958; Deuel, ed. 1952) and others. These sites occur in a variety of physical settings, including natural levees, alluvial and colluvial fans, adjacent to backwater lakes, in tributary valleys, along the bluff base and in the floodplain (Titus, et al. 1995:17). Middle Woodland floodplain settlements include extractive camps located adjacent to backwater lakes and possible mortuary sites (Farnsworth 1976; McGimsey and Wiant 1986; Stafford and Sant 1985). Subsistence data indicate intensive utilization of backwater fauna, collection of hickory and hazel nuts, and cultivation of starchy seed annuals including maygrass, little barley, and goosefoot (Stafford and Sant 1985:453).

Distant Middle Woodland groups were connected by a highly developed socioreligious organization referred to as the Hopewellian Interaction Sphere (Struever 1964). Large Middle Woodland sites with groups of conical shaped burial mounds served as ceremonial centers. The inhumation of individuals with status probably included a great deal of ceremony. Various grave offerings, including carved

stone pipes, copper axe blades, necklaces of river pearls, pottery vessels, spear points, ear ornaments of sheet copper and other objects often accompany these burials. Dentate stamped pottery and Snyders Corner-Notched projectile points are diagnostic of Middle Woodland sites within the Illinois River Valley (Hall 1974:72-73).
The *Havana-Hopewell* or *Ogden* phase of the Middle Woodland period in the central Illinois River Valley spans a period of about 2,000 B.P. to 1,800 B.P. (Hall 1974:74; Munson 1986:293-294). Within the central Illinois valley, the Havana-Hopewell phase is preceded by the *Late Morton/Caldwell* (2,250-2,150 B.P.) and *Fulton* (2,150-2,000) phases. It is succeeded in the central Illinois valley by the *Frazier phase* which dates from 1,900 B.P. to 1,650 B.P. The Frazier Phase marks the beginning of the breakdown of Hopewell and is characterized by the appearance of Baehr and Weaver series pottery. The Middle Woodland period in the lower Illinois River is defined by the *Marion* (2,600-2,400 B. P.), *Cypress* (2,600-2,200 B.P.) and *Mound House* (2,050-1,750 B.P.) phases. No phase chronology for the Middle Woodland period has been established for the upper Illinois River Valley.

A reduction in interregional trade, a decrease in the complexity of ceremonial/mortuary practices, and a reduction in the elaborateness of pottery decoration mark the end of the Middle Woodland period. The Late Woodland period was a time of markedly uneven sociocultural development. There was considerable variation in social relations, ideology, subsistence, technology and other realms (Nassaney and Cobb 1991:1,6). Late Woodland culture persisted in northern Illinois after the appearance of Mississippian culture to the south. The *Weaver phase* (1,650-1,500 B.P.) is the earliest defined Late Woodland phase in the middle and upper Illinois River Valley. During this time, the first arrowpoints make their appearance in this part of the valley. The Weaver Phase is succeeded in the central Illinois valley by the *Myer-Dickson* (1,400-1,200 B.P.), *Sepo* (1,300-900 B.P.), *Bauer Branch* (1,300-1,000 B.P.) and *Maples Mills* phases (1,200-900 B.P.) and the *Mossville* complex (ca. 1,000 B.P.) (D. Esarey 1997). These phases survived into the early Mississippian period and probably helped form the Spoon River Mississippian complex (Hall 1974:76).

The *White Hall* phase (1550 - 1350 B.P.) is the earliest Late Woodland phase in the lower Illinois River Valley (Styles 1981). This phase represents a continuation of the Middle Woodland period, as reflected in a subsistence strategy that involved the utilization of terrestrial and riverine species, nuts and cultivated plants. Settlements tended to be small and located in a variety of ecological zones (Connor 1985:2). The following *Early Bluff* phase (1,400 - 1,200 B.P.) in the lower Illinois valley is typified by an apparent population increase as indicated by an increase in the number, size and complexity of sites. The appearance of arrowpoints during this time indicates the adoption of the bow and arrow in the lower Illinois valley. The addition of maize to the Late Woodland diet marks the beginning of the *Late Bluff* phase (1,200-1,000 B.P.). The subsistence strategies and pottery styles associated with the Late Bluff phase gradually changed to those of the following Mississippian Tradition (Connor 1985:3). The term *Jersey Bluff* phase has been used by some researchers to refer to the final Bluff-culture occupants in the southernmost portion of the lower Illinois River Valley (Maxwell 1959:27; Perino 1971:65, 1972:310, 335-347). Again, a phase chronology for the Late Woodland period in the upper Illinois Waterway has not been established.

D. Mississippian Tradition (1,000-500 B.P.). The Mississippian Tradition represents a culmination of social, economic, political, and technological trends which began in the Late Woodland period (Titus, et al. 1995:18). Although this period is generally characterized as a time of increased reliance on agriculture as a subsistence base and increased social stratification and complexity, there were major differences which distinguished the Mississippians of present-day southern Illinois (Middle Mississippian) and those which inhabited the northern part of the state (Upper Mississippian).

The Mississippian cultures of the Central Mississippi River Valley and its major tributary valleys are characterized by numerous elements that reflect the achievement of new levels of social complexity. Large villages and towns with flat-topped temple mounds, such as the Cahokia site in the American Bottom, served as economic, political and ceremonial centers for surrounding homesteads and hamlets. Status differences within the society are indicated by variations in the treatment of burials. A diverse subsistence economy with increased reliance on the cultivation of maize sustained large sedentary communities (Markman 1991:73).

In the lower Illinois River Valley, *Stirling* phase pottery is restricted to the southern half of the lower valley and is found primarily in a grouped cluster along twelve miles of eastern bluffline bracketed by Apple and Macoupin creeks. *Sand Prairie* phase pottery occurs only in approximately the northern half of the lower Illinois River Valley. Within the central Illinois River Valley, the Spoon River Mississippian complex is divided into *Eveland* (950 - 850 B.P.), *Orendorf* (850 - 750 B.P.), and *Larson* (750 - 700 B.P.) phases (Smith 1951; A. Harn 1970, 1971; Conrad and A. Harn 1972; Conrad 1973, 1991:119-156).

As discussed by Markman (1991:73-74), those cultural markers which show an affinity between Upper and Middle Mississippian cultures consist primarily of small, portable artifacts that were used daily in most households. The elaborate ceremonial objects that often accompanied the Middle Mississippian elite to the grave are rare at Upper Mississippian sites and large temple mounds are absent. In addition, Upper Mississippian hunter-farmers relied less on cultivated plants than Middle Mississippians. Upper Mississippians were more mobile and were prone to moving whole villages to take advantage of seasonally available wild food resources. While Hall (1974:78) has suggested that Upper Mississippians were probably Late Woodland peoples who were changing in the direction of the Mississippian Tradition, others refer to Upper Mississippian sites as part of the *Oneota* tradition or the *Huber* phase of the Oneota tradition (Michalik 1982; J. Brown, ed. 1985, 1990). Gibbon (1972) defines the Oneota tradition as an Upper Mississippian development that was concentrated on the Prairie Peninsula. Markman (1991:77) suggests that Upper Mississippian actually encompassed a number of ethnically distinct tribal groups.

The Langford (Upper Mississippian; Jeske 1989, 1990) and Fisher-Huber (Oneota) (Emerson and Brown 1992:86-89) pottery series are diagnostic of late prehistoric sites in northern Illinois (Markman 1991:87-93). Oneota manifestations further south include the *Bold Counselor* phase (700-650 B.P.) in the central Illinois River Valley and the *Vulcan* phase (including the *Groves* complex) in the lower valley (Milner, et al. 1984:182; Jackson 1992:389-391). Milner, et al. (1984:182) have suggested a date of 600-400 B.P. for the Vulcan phase.

Artifacts diagnostic of both the Middle and Upper Mississippian cultures include distinctive short-necked jars and other pottery forms tempered with shell. These vessels have plain or smoothed surfaces with trailed designs. Small triangular projectile points with side-notches, known as Cahokia points, are present in both Middle and Upper Mississippian artifact assemblages (Markman 1991: 74-75).

E. Historic Native American Occupation (1673 - 1830). In any discussion of the historic Native American occupation of Illinois, two caveats are necessary. First, the territories or ranges of early historic peoples are not precise. Unlike their European contemporaries, 17th and 18th century Native Americans did not draw lines on maps indicating distinct territories for specific groups of people. Furthermore, while most of the Great Lakes people were not nomadic, they did move seasonally. Most maintained large, relatively permanent, farming villages in the summer, and broke up into smaller hunting villages in the winter. The region over which these villages and camps were established varied over the years. With increasing pressures of European colonization, the territory occupied by any given tribe shifted more and more rapidly. To say that the Illinois River Valley was within the range of the Potawatomi in the 1790s, is to say that one might well have found Potawatomi villages or camps along the Illinois in those years. It is not to say that the Potawatomi could be found there every year, or that villages of other tribes might not have been present.

The second caveat regards tribal attribution. Europeans made most of the familiar tribal designations, but tribal identity was far more fluid for Native Americans than it was in the minds of Europeans. Although the Iroquois, Sioux, Miami and Illini are referred to as if they were tribes, they were actually confederations of tribes. Bands are sometimes mistaken for separate tribes. Also, a village in which a third of the inhabitants are Mascouten might BE described as Miami. This tendency for portions of two or more tribes to live together seems to have increased through the 18th and early 19th centuries as the pressures of war, trade, and colonization grew. Also, as Tanner points out, a village might have any number of people with various ethnic backgrounds: African traders, servants, and runaway slaves; Scottish, Irish and French traders and blacksmiths; French missionaries; European travelers or dignitaries; and spouses, relatives, captives, couriers, and traders from other tribes (Tanner 1987:4).

All of the tribes living in the Illinois Country in historic times had similar cultures. They spoke languages of the Algonquian family and they relied on diverse subsistence practices. The Illini, Miami, Kickapoo, Mascouten, and Potawatomi all lived in large, relatively permanent villages in the summer. The Illini, like the Iroquois, favored large multiple family lodges. The houses consisted of a pole structure covered with rush mats. Late in the 18th century, prominent leaders and métis would adopt the log cabin.

The summer villages were agricultural towns. Situated on streams or near springs, the villages often faced extensive fields on the opposite bank (Tanner 1987:5). The French reported that the Indians grew corn, beans, squash, pumpkin, gourds, and melons (Kinietz 1972:172). After the fall harvest, with seeds and surplus food cached, most of the people left for the winter hunt. A few of the elderly might stay behind to watch over the village. Antoine Raudot described the hunt in 1710:

> These Ilinois [*sic*] savages leave their village in winter; there remain only a few women and some old men who absolutely cannot march. They go to hunt buffalo, deer, wapiti, beaver, and bear. They camp always in the prairies far from the woods, . . . and use mats of rushes tied together to cover their cabins (Kinietz 1972:407).

Winter hunting camps were smaller and usually confined to family groups. Where maples grew, the people came together in sugar camps in the early spring. Spring and fall might also mean extensive fishing. Later in the spring, the people returned to the summer village and planted their crops. Once the crops were started, some might leave on a summer hunt.
Europeans, as well as modern American historians and archaeologists, tended to view the winter hunting villages as relatively insignificant camps. However, as Esarey (M. Esarey, 1997:182-183) has

pointed out, the contact-era Native Americans of the Illinois country spent about equal amounts of the year in their winter and summer villages.

The presence of the Europeans changed the nature of both hunting and agriculture. As the French and English moved westward, hunting became important for the fur trade as well as for food. Native Americans in the Illinois Country now needed to produce enough food to sustain more extensive hunting and to feed the French. The Illini began to grow wheat as early as 1700, and in 1711 or 1712 the French introduced draft animals and built windmills for the use of the Kaskaskia on the Mississippi (Zitomersky 1994:9, 40-41). Much of the wheat flour produced was shipped south to French military installations on the coast of the Gulf of Mexico. Nevertheless, corn remained the staple crop throughout the French colonial period.

Natural resources of game, soil and fuel wore out more rapidly. This contributed to the accelerating mobility of both the French and the Indians throughout the colonial period. The move from Le Rocher to Peoria in 1691, for example, is thought to have been largely due to the depletion of resources around the Rock. As a result of the fur trade, small, fur-bearing animals, particularly beaver and the mustelids, all but disappeared from the Illinois country. By the late 18th century the focus of the fur trade shifted to raccoons and deer. At the turn of the 19th century, the demands of the fur trade, the introduction of the horse, and the wholesale slaughter of large game animals by American settlers seriously depleted the deer, bear, elk and bison in the Illinois Country (White1991:489-490).

When the French explorer Louis Jolliet and Jesuit missionary Jacques Marquette came to the Illinois Country in 1673, they found villages of the Illini tribes along the Illinois River. The Illini spoke an Algonquian language similar to that of the Miami (Temple 1977:11). Although not so highly organized as the Iroquois, they are usually referred to as a confederacy. The Illini are thought to have included the Cahokia, Kaskaskia, Michigamea, Moingwena, Peoria, Tamaroa, Korakoenitanon, Chinko, Tapouro, Omouahoas, and Chepoussa. Virtually nothing is known about the last five of these. Other groups presumably absorbed them early in the Contact Period.

Shortly before the French began to push into the Illinois Country from the north, the Iroquois had begun raiding Illini villages from the east. For a time the Illini retreated west of the Mississippi, but by the arrival of Marquette and Jolliet in 1673, they had returned to Illinois and established as their central town the Kaskaskia village near Le Rocher, now known as Starved Rock.

Most scholars have assumed that the permanent town of the Peoria was probably already at Lake Peoria by 1673, although the earliest sources on the Marquette and Jolliet expedition are vague. Marquette and Jolliet visited an “Ilinois” town on their descent down the Mississippi River in June. Marquette refers to these people as being “divided into many villages, some of which are quite distant from that of which we speak, which is called peouarea.” This village was located in Iowa or Missouri (M. Esarey 1997:166; Franke 1995:10). Temple (1977:17) believes it was a summer hunt in Iowa, and that the permanent village was already located on Lake Peoria.

The Mississippi expedition turned around on July 17, and began to “reascend” the Mississippi:

> It is true that we leave it [the Mississippi], at about the 38th degree, to enter another river, which greatly shortens our road, and takes us with but little effort to the lake of the Ilinois [Lake Michigan].We have seen nothing like this river that we enter, as regards its fertility of soil, its prairies and woods; its cattle, elk, deer, wildcats, bustards, swans, ducks, parroquets, and even beaver. There

> are many small lakes and rivers. That on which we sailed is wide, deep, and still, for 65 leagues. In the spring and during part of The summer there is only one portage of half a league. We found on it a village of Ilinois [*sic*] called Kaskasia [*sic*], consisting of 74 Cabins (Thwaites 1900:161).

Marquette concludes his narrative with the report that he had saved a single soul, that of a dying infant, on this voyage. Here he makes an incidental reference that has confused scholars ever since: "For, when I was returning, we passed through the Ilinois of Peouarea, and during three days I preached the faith in all their Cabins...."

It will never be clear whether this was the same Peoria village visited on the descent of the Mississippi, whether "of Peouarea" refers to the people or the place, or whether this was the same village (in population or location) as the Kaskaskia. Nor will it ever be known whether Marquette and Jolliet saw more villages on the Illinois River than the single Kaskaskia village and the possible Peoria village mentioned. In fact, Marquette does not even state that he found the Kaskaskia at Le Rocher, as scholars have always assumed (Howard 1972:28; Franke 1995:11; Temple 1977:18)

Marquette returned to the Kaskaskia in 1675 to establish his Mission of the Immaculate Conception. By 1679 the village had grown to 460 lodges, each housing five or six families (Temple 1977:14-21). Tanner (1987:5) estimates the Grand Village of the Kaskaskia had 7,000 to 8,000 inhabitants in 1680.

The La Salle expedition of 1679 found the Peoria living thirty leagues down river from the Kaskaskia, in a village on the southern end of Lake Peoria. Esarey (M. Esarey 1997:187) maintains that, in fact, this was the winter village, of about 80 cabins, of the same group which maintained the large summer village at Le Rocher. Indeed, La Salle and his men, passing through the village at Le Rocher in December, had found it deserted and raided its corn caches. Esarey points out that the Lake Peoria inhabitants moved to Le Rocher in April of 1680, and that some of the people from the Grand Village are known to have wintered at Lake Peoria in 1681-82 and 1686-87 (1997:87). However, historians have generally considered the April, 1680 removal to Le Rocher to have been prompted by a pending Iroquois attack (Temple 1977:22-23).

La Salle and Tonti built the ill-fated Fort Crèvecoeur across the river from the Peoria, in April Tonti moved with the Illini to Le Rocher, and the Iroquois attacked in September. Following ill-fated negotiations with the Iroquois, Tonti returned to Green Bay. The Kaskaskia and Cahokia fled up the Mississippi, the Peoria across it, and the Moingwena down it. The Tamaroa remained in Illinois and lost 1,200 of their people to the Iroquois (Temple 1977:23-24).

La Salle and Tonti found both the Le Rocher and Peoria villages deserted when they returned in 1682 (Temple 1977:26). On Le Rocher, they proceeded to construct Fort St. Louis. In the absence of the Illini, La Salle gathered Miami, Mascouten and Shawnee around the fort for trade and protection, and by 1684 the Kaskaskia, Peoria, Moingwena, Tamaroa, and Cahokia had returned (Temple 1977:27). The population around Le Rocher rose to an estimated 18,000 (Tanner 1987:29). Tonti held the alliance together throughout the 1680s, but in 1691 the French and Indians abandoned Le Rocher and re-established Fort St. Louis at Peoria. Six villages of Illini settled on the west bank of southern Lake Peoria (Temple 1977:21-31; Tanner 1987:30-31).

The Illini settlements at Lake Peoria continued through the end of the 17th century, but in 1700 the Kaskaskia moved down river to the present site of St. Louis, and the Illini presence in the Illinois

Country began to lessen. When one faction of the Peoria drove their Jesuit missionary away in 1706, the Christian faction moved south to join the Kaskaskia. By 1712 the Peoria had apparently split again, for another group had started a new village at Le Rocher. Because of the absence of a missionary in these years, there is no extant documentation of the location of the Illini between 1706 and 1711 (M. Esarey 1997:189, 191).

By the early 1700s the Kickapoo and Mascouten had extended their hunting ranges into the northern reaches of the Illinois River watershed, and the Potawatomi were rounding the tip of Lake Michigan. The Le Rocher Peoria allied with the Potawatomi in an attempt to push back the Kickapoo and Mascouten.

The Peoria and Potawatomi also assisted the French in their wars against the Mesquakie (Fox). Throughout the 1710s and early 1720s the Le Rocher Peoria engaged in almost constant warfare with the Kickapoo, Mascouten and Mesquakie. In the fall of 1721, the Mesquakie besieged both the Le Rocher and Peoria Illini, and the following year the two groups combined at Le Rocher. After surrendering 80 women and children to the Mesquakie, the Peoria left Le Rocher for the down river settlements. Although internal disagreements and attacks by the Iroquois and Mesquakie weakened the Illini, the French continued to rely on them as allies.

As late as 1728 the Peoria raided the Kickapoo upriver. In 1730 they were still at Le Rocher when the Mesquakie, pursued by the French-allied Kickapoo, Mascouten and Potawatomi, attacked. The Peoria appealed for reinforcements from Kaskaskia, and the Mesquakie retreated to the south, where they were all but annihilated by the French allies. By 1733 the Peoria had returned to both Le Rocher and Lake Peoria. However, the Illini continued to fight with the Mesquakie, and by the end of the decade they had also become embroiled in a feud with the Sioux. By the 1750s the Illini had incurred the wrath of most of their northern neighbors, and when the French and Indian War reached the Illinois Country, the Illini chose the losing side. Along the Illinois River their numbers dwindled throughout the 1760s and 1770s. They ceded their Illinois lands to the United States in 1818 (Temple 1977:40-56; Tanner 1987:40, 93).

As the La Salle confederacy deteriorated, hostility grew between the Miami and Illini, and the Miami eventually moved to the region around the Wabash River. The Miami (including the Wea, Piankashaw, Atchatchakangouen, Kilatika, Pepicokia, and Menagakonkia) were similar in language and culture to the Illini. When the French first heard of them, the Miami were beginning to move eastward from Sioux territory into what is now Wisconsin. Subject to Iroquois attacks throughout the 1670s, the Miami agreed to join the confederacy at Le Rocher in 1683. According to Charlevoix (cited in Temple 1977:59), some of the Miami built their own fort on Buffalo Rock. They left Le Rocher in 1688 and eventually settled in the regions around Chicago and the Wabash River.

About 1700 the Miami villages ranged from the St. Joseph to the Mississippi, with Chicago as their central town. A village of about 100 families was situated at the junction of the Des Plaines and Kankakee Rivers. Temple (1977:60) mentions that this village, which would be in the vicinity of the Dresden Island Lock and Dam, was known to exist in 1700, 1702 and 1705. By 1710 the Miami became friendly with the British and began to move eastward and down the Wabash. For the most part, the Miami had left Illinois, although during the War of 1812 a group including 120 to 150 warriors settled near the Kickapoo about one half mile from Peoria (Temple 1977:63). The Wea and Piankashaw established council fires separate from the Miami in 1818, and were eventually absorbed by the Peoria (Valley and Lembke 1991:3, 8, 11).

The Mascouten have proved elusive to historians and ethnographers due to their tendency to live with other tribes. During the time they lived in the Illinois Country, they often dwelt with the Miami, the Mesquakie, or the Kickapoo. Their language, about which little is known, was apparently mutually intelligible with Kickapoo, which is similar to the language of the Sauk and Mesquakie.

The Kickapoo and Mascouten lived in what is now Wisconsin when the French first encountered them in the 1630s. Warfare and hunting lured them into the Illinois Country by 1680. In the fall of that year Jesuit priest Father Gabriel was killed by Kickapoo below the confluence of the Kankakee and Des Plaines, and La Salle found that about 200 Kickapoo had rebuilt the Illini village at Le Rocher. Iroquois had destroyed this village in September and by December the Kickapoo had built houses of their own style on the site. Also in 1680, the Mascouten were reported to be living along the Chicago River. Throughout the 1680s the Kickapoo and Mascouten continued to migrate into the Illinois Country, possibly in order to elude the Iroquois (Temple 1977:158-159). As the Illini moved southward in the early 1700s, the Kickapoo and Mascouten moved into the Illinois River Valley. Temple (1977:159) suggests that Wisconsin remained their permanent residence in these years and that their villages in the Illinois Country were hunting encampments.

In 1720 the Kickapoo and Mascouten lands lay between the Fox and Illinois Rivers, although by that time some Kickapoo and Mascouten lived near the Potawatomi on the St. Joseph River, saying they could no longer live in peace with the Mesquakie. By 1730 the Kickapoo and Mascouten lived between the Rock and Illinois Rivers, but by mid-decade another split sent some to the Wabash River. These Wabash Kickapoo and Mascouten began to come back into the Illinois Country in the years following the American Revolution. By the 1790s the Kickapoo were on the Des Plaines, Sangamon and Vermilion Rivers (Temple 1977:160, 163-164).

About half of the Kickapoo supported Tecumseh and the Shawnee Prophet. After the Battle of Tippecanoe in 1811, the Sangamon Kickapoo moved to a village 24 miles north of Peoria, and the remainder stayed with the Prophet. Trouble erupted between the Lake Peoria Kickapoo and the American settlers in the area, and in the fall of 1812, the Americans attacked and burned the Kickapoo towns on Lake Peoria. The survivors fled to the Rock River (Temple 1977:165; Tanner 1987:105-110).

By the end of the War of 1812, the Mascoutens had apparently been absorbed by the Kickapoo and they do not appear again in the literature as a distinct tribe. Throughout the mid-1810s, the Kickapoo drifted back into the Illinois Country, settling by themselves or with the Potawatomi along the Sangamon, Illinois, and Vermilion Rivers. They ceded these lands in 1819, but some Kickapoo remained in Illinois into the 1830s.

Like the other Native American groups who occupied Illinois in historic times, the Potawatomi were an Algonquian-speaking people. Closely related to the Ottawa and Chippewa (Ojibwa), they had lived east of Lake Michigan until the Iroquois pushed them westward in the 17^{th} century. The Potawatomi, with a few Ottawa and Chippewa, appeared in the Chicago area in the early 1740s. By the 1760s their hunting lands encompassed the Illinois, Kankakee and Des Plaines Rivers. As they encroached on Illini lands, hostilities increased, escalating after the murder of the Ottawa leader Pontiac by a Peoria in 1769. By the 1790s, the Potawatomi had villages at the confluence of the Des Plaines and Kankakee and along Lake Peoria.

In the 1810s, Potawatomis under the leadership of Gomo, Shequenebec, Black Partridge, Pepper, and

Main Poche, had numerous villages at the north end of Lake Peoria, about 20-25 miles north of Peoria, and along the Kankakee. Their population was substantial enough to muster several hundred warriors (Temple 1977:137-139; Tanner 1987:119). A series of conflicts arose between the Americans and Potawatomi up and down the Illinois River, with charges of theft and murder on both sides. These hostilities culminated in the Potawatomi attack on Fort Dearborn (Chicago) in August of 1812. The Americans burned three Potawatomi, Kickapoo and Piankeshaw villages at Peoria in 1812 and burned Gomo's deserted village in 1813. In October of 1813, the Americans built Fort Clark at Peoria to curtail Potawatomi raids (Tanner 1987:110-119).

At the close of the War of 1812, the Potawatomi began bringing their families back into the Illinois Country. Between 600 and 700 hunters passed Fort Clark (Peoria) on the way to their winter hunt in the fall of 1815. The Potawatomi continued to live around Chicago and along the Illinois River throughout the 1820s. Over 1,000 lived near Chicago. Another large village was located on the Illinois just west of the confluence of the Des Plaines and Kankakee, and a Potawatomi and Chippewa village was situated at the confluence of the Little Calumet and Grand Calumet Rivers south of Chicago. The villages around Lake Peoria continued until the end of the 1820s (Temple 1977:145-7).

For the most part, the Potawatomi sided against the Sauks in the Black Hawk War, but the Americans were suspicious of all Indians, and the Illinois and Kankakee Potawatomi were forced to cede their lands in 1832. The Prairie Band, those living on the Illinois, left immediately for Indiana to await removal further west. The Lake Michigan, Des Plaines and Kankakee Potawatomi remained until they were forced to leave in the late 1830s.

The Miami were in the region around the T. J. O'Brien Lock in the 1670s and the Iroquois attacked a Miami village in the area in 1687. The Potawatomi may have been in the area as early as 1700. They had a village at the confluence of the Little Calumet and Grand Calumet in 1793 (Tanner 1987:32, 93). The Joliet/Lockport area was home to the Miami by the mid-1680s and the Potawatomi by the mid-1700s. Tanner (1987:93) indicates a Potawatomi village at the approximate location of Joliet in 1790.

Dresden Island was probably in the eastern part of the Kaskaskia range at the time of first European contact in the 1670s. The confluence of the Des Plaines and Kankakee Rivers created a desirable area. The Miami settled there in 1683 and were known to still be there in 1705. The Potawatomi had built a village by 1768 (Tanner 1987:32, 58). The Potawatomi remained, sometimes with Ottawa, Chippewa, Kickapoo and Mascouten, until the 1830s.

Kaskaskia occupied the bank of the Illinois River opposite Starved Rock in 1673, at first European contact. The Kaskaskia fled the Iroquois in 1680 and their town was briefly inhabited by the Kickapoo (Temple 1977:158). The Kaskaskia returned to join the La Salle confederacy based at Starved Rock. La Salle also attracted the Miami and Shawnee to the area in the 1680s.

The French and Indians abandoned the area for Peoria in 1691, but by 1712 a faction of Peoria had taken up residence at Starved Rock. These Peoria engaged in warfare with the Kickapoo, Mascouten and Mesquakie throughout the 1710s and 1720s. These people would have been represented at Starved Rock by invaders and captives. The Illini had left Starved Rock by 1780 (Tanner 1987:63). The Potawatomi reached the area by 1763 and remained until forced out by American settlement.

The archaeological remains of the Grand Village of the Kaskaskia are known as the Zimmerman Site (11Ls13) and are located east of the Starved Rock Lock and Dam. The Peoria Illini inhabited Peoria from early European contact through the 1760s or 1770s (Temple 1977:58; Tanner 1987:51). The Kaskaskia moved their central village there from Starved Rock in 1691 and remained until 1700. The French had a licensed fur trade post at Fort Pimitoui in 1720 (Tanner 1987:39).

The Kickapoo came briefly in 1812, and were probably present in Potawatomi towns after that date. Peoria was included in the Potawatomi hunting range by the late 1740s and several Potawatomi towns could be found around Lake Peoria through the end of the 1820s. The peak of Potawatomi occupation was probably the 1810s, when the southernmost Potawatomi summer villages were located at Peoria (Tanner 1987:100).

The location of the La Grange Lock and Dam would have been in the heart of Illini territory at the time of European contact, and probably remained within their hunting range at least through the 1760s. By the 1790s, La Grange was within the southernmost reaches of the Potawatomi hunting lands and on the western edge of the Kickapoo territory. Tanner (1987:93) indicates a Kickapoo and Mascouten village nearby from 1776 to 1781. The first American settlers in Brown County encountered numerous Kickapoo in the 1820s:

> This Indian camp was down on the river at the old mouth of Camp Creek where they would stay through the summer and when cold weather came or the river commenced to rise they would move back to the ravines along the bluff (Bond 1959).

On the Cass County side of the river, J. F. Snyder's 1906 map shows an " 'Old Indian Trail' that ran along the foot of the Sangamon bluffs" leading to the site of Beardstown, where he indicates a Mascouten village could be found in 1698 and a Kickapoo village from 1794-1812.

Native American tribes living in the Illinois Country in historic times, including the Illini, Miami, Kickapoo, Mascouten and Potawatomi, had similar cultures and made use of the land in similar ways. In the summer, band members lived in large, relatively permanent villages and grew a variety of crops, including maize, beans, squash, pumpkins, gourds and melons (Kinietz 1972:172). After the fall harvest, seeds and surplus food were cached and most of the inhabitants left for the winter hunt. Winter hunting camps were small and usually confined to family groups. In the spring, when food resources were again plentiful, bands reunited. Fishing and maple sugar processing were important spring activities. In late spring, groups returned to their summer villages, planted crops, and participated in summer hunts. As the French and English moved westward, hunting became important for the fur trade as well as for food (Hajic, et al. 1996:12).

Europeans arrived in the region in 1673, when Frenchmen Louis de Joliet and Father Pere Jacques Marquette explored the Illinois River Valley. The character of the landscape along the Illinois River Valley quickly changed. The French immediately began to establish several forts and missions in the valley (Hajic, et al. 1996:9). Small settlements began to spring up. By 1723, the French were extensively clearing timber and cultivating lands, particularly along the Illinois and its tributaries (M. Walker 1992:2).

As American settlers moved westward, European dominance in the Illinois River Valley began to wane. By 1778, the French and British relinquished all claim to the region (M. Walker 1992:2). Forty years later Illinois had a sufficient number of residents to apply for statehood (Larson 1979:6). Businessmen and politicians soon realized the commercial and transportation value of a canal linking

Lake Michigan with the Illinois River. In the spring of 1848, the first canal linking the two bodies of water was opened (Larson 1979:6-7,185). Over the years, the waterway has been modified and improved to create the Illinois Waterway System. Today, large cargo-bearing barges, as well as fishing boats and other recreational craft, are a common site along the Illinois Waterway.

As in the past, farming continues to be an important activity across much of the floodplain adjacent to the Illinois Waterway (M. Walker 1992:2). Sand, gravel, clay and shale quarries are common along portions of the waterway. Some areas of timber are logged. Urban development, highway and railroad construction, dredging and levee construction have changed the natural landscape along much of the Illinois Waterway.

French explorers produced the earliest written documentation of the plants, animals and environment which they encountered along the Illinois River Valley (Franke 1995:56). These early accounts note the abundance of resources in the valley. As indicated by Marquette (Marquette Journal 1673) and Joutel (Joutel Journal 1684), the region had a plentitude of all things necessary to support human life:

> We have seen nothing like this river [the Illinois] ... for the fertility of the land, its prairies, woods, wild cattle, elk, deer, wildcats, bustards, swans, ducks, parrots, and even beaver; its many small lakes and rivers (Marquette Journal 1673).
>
> The country of the Illinois enjoys all advantages - not only beauty, but also a plentitude of all things needed to support human life.... The plain, which is watered by the river, is beautified by... small hills... covered with groves of oaks and walnut trees.... The fields are full of grass, growing very tall. That country is one of the most temperate in the world, so that whatever is grown there - whether herbs, roots, Indian corn or even wheat - thrives very well (Joutel Journal 1684).

The areas around Starved Rock and Lake Peoria have long been of interest to historians and archaeologists concerned with the study of the early Contact period in the Illinois Country. The Newell and Zimmerman sites in particular have produced substantial data. The Peoria region has been less yielding. The location of Fort Crèvecour has been puckishly elusive; at least seven possible sites have disappointed scholars to date (Franke 1995:76-citing unpublished report of Jelks and Unsicker, 1981). Detection of contact period sites on Lake Peoria has been hampered by the almost continuous occupation of the region since the earliest European contact.

Until recently, these two locations have been the focus of nearly all scholarly interest in the historic Illini. Attention has begun to turn now toward the lower Illinois River Valley, and, specifically toward the winter hunting villages. Walthall, Norris, and Stafford (1992:149) report that the Naples site in Scott County, long known for its Middle Woodland component, includes an historic component dating to the late 17th century. They further suggest that this was the village of "the woman chief" visited by French priest Jean-Francois Buisson de St. Cosme and his companions in late November of 1698 (Walthall, et al. 1992:146-147). St. Cosme estimated the village as having about 20 cabins and reported that a woman chief led it with many sons and sons-in-law. Also living in the village was a French soldier and his "savage" wife (148).

Esarey (M. 1997:188) points out that "Woman Chief's Village" is not specifically identified as Kaskaskia by St. Cosme, and generally finds the association of the Naples site to Woman Chief's Village to be tenuous. Nevertheless, he presents a compelling case for further investigation of the lower Illinois River Valley and of winter hunting villages. Esarey provides an extensive list of early references to Illini villages along the Illinois River and its tributaries. Most of these are typically elusive when an exact location is attempted. Four villages appear to have enough information to merit further investigation, and certainly to merit closer scrutiny by archaeologists. They are Pierre a' la Fleche, the Peorias' winter hunting grounds, Mauvaise Terre, and Grand Pass. Esarey suggests that these villages were probably located, respectively, near Flint Creek, La Moine River, Mauvaise Terre or McKee Creek, and Apple Creek (M. Esarey 1997:180-181).

The first American settlers along the Illinois River frequently encountered villages of Kickapoo and Potawatomi. Occasionally, the immigrants used recently vacated Native American houses for their first dwellings. Several river towns are located on the sites of prehistoric and historic villages. Reference is made to these simultaneous habitations in the following portions of this report which discuss early American settlement of the Illinois River Valley.

F. Early European Presence (1673-1826). The French occupation of the Illinois River Valley has been outlined previously in the context of the Historic Native American occupation. It is difficult to distinguish the history of the French in Illinois from that of the Native Americans of the period. The same may often be said of the culture and life ways of the two. Once the French came, the lives of the Indians and the course of their history changed. Conversely, the presence of Native Americans along the Illinois drew the French to the region. The French came to trade for furs and to convert “savages” to Christianity. Both endeavors required close association with the indigenous people.

French trader Louis Jolliet and Jesuit priest Jacques Marquette left St. Ignace in the spring of 1673 to explore the Mississippi. They ventured far enough down the river to know that it led, not to the Pacific and the riches of the East, but to the Gulf of Mexico and the regions claimed by Spain. On their return trip, they paddled up the Illinois and Des Plaines Rivers to Lake Michigan. This was the first recorded European exploration of the Illinois Country.

Marquette returned briefly to Le Rocher in 1675. He established the Jesuit mission of the Immaculate Conception, but left almost immediately and died before he reached Mackinac. Father Claude Jean Allouez took Marquette's place at the Kaskaskia village in the spring of 1677 (Temple 1977:19-20). For the next thirty years the focus of European and aboriginal interaction in the Illinois Country would shift between Le Rocher and the shores of Lake Peoria.

René Robert Cavalier, Sieur de La Salle, came down the Illinois River late in 1679. When he reached the Grand Village at Starved Rock, he found its inhabitants away on their winter hunt. La Salle and his party raided the Kaskaskia's corn caches and proceeded down the river. Early in January of 1680, thirty leagues below the Kaskaskia village, La Salle and his party came to a Peoria village on the southern end of Lake Peoria.

La Salle and his men stayed briefly with the Peoria and then moved across the river where they built Fort Crèvecoeur. In March La Salle left Henri Tonti in charge of the unfinished fort and returned to Canada. In La Salle's absence, the men destroyed and deserted the fort. Avery (1988:89-101) summarizes the various locations believed to be the possible site of Fort Crèvecour. None of these have produced archaeological evidence of a French occupation.

La Salle continued his explorations to their tragic end and Tonti remained at the Rock until the winter of 1691-92. By that time the French and Indian village had exhausted the game and timber surrounding the Rock. Tonti built a larger Fort St. Louis, also called Fort Pimitoui, on the west bank of the river, a mile and a half above the outlet of Lake Peoria. This was said to be the site of the Kaskaskia's favorite winter camp. The Jesuit mission to the Kaskaskia also moved to Peoria. French, métis, Shawnee, Wea, Piankashaw, Miami, Ouabona, Kilatika, Pepikokia, Kickapoo, and Mascouten gathered around Tonti's forts for trade, conversion, and protection (Burns 1968:3; Howard 1972:34; Hall 1991:14-15). The precise location of Fort Pimitoui has also eluded historians and archaeologists (Barr et al. 1988).

In the early 18th century, the population around Lake Peoria began to decline. Howard (1972:36) attributes this to the increasing strength of the Mesquakie, the instability of the Illini, and the weakening of the French. The Kaskaskia moved down river in 1700, where they were followed by the traders and missionaries. Tonti left for New Orleans, the traders settled at Cahokia, and the Kaskaskia and Jesuits founded the town of Kaskaskia (Howard 1972:36).

For most of the 18th century, Peoria was a distant outpost of the French, then British, then American frontier. It may have been completely deserted in 1722 and 1723 during the Fox (Mesquakie) Wars. By 1730 there was a French village along the lake, and in 1756 the French built a stockade to protect the settlement from the Mesquakie. The Peoria had left by 1763 and were replaced by the Potawatomi, Miami and Kickapoo. The French stockade was burned by Indians in 1773, but there were one hundred French fur traders still living at Peoria in 1800.

Trader Jean Baptiste Maillet may have instigated the removal downstream of the French village in the late 1700s. Maillet's stockaded fort burned in 1788, but it was in his village that Thomas Forsythe built an American Fur Company post in 1806 (Barr et al. 1988:97; Emerson and Mansberger 1991:152; Gray 1940:78; Howard 1972:91). Secondary sources vary wildly on the dates of all of these events. For example, Gray (1940:78) says Maillet and his followers settled at Peoria in 1761, Howard (1972:70, 91) says 1778, and Emerson and Mansberger (1991:152) give a date of 1788.

In 1812, an expedition led by Governor Edwards killed twenty or thirty fleeing Miami and Kickapoo and burned several villages at Lake Peoria. This was followed by another attack by Captain Thomas E. Craig. Craig's men looted and burned the town and captured forty of its inhabitants. Craig led his captives downstream until ordered to release them. He abandoned the prisoners at Alton. The descendants of these captives would later try to re-establish their “French claims” in Peoria. Charles Ballance, an American settler and attorney in Peoria, whose life’s work was a crusade to overturn the French claims, originally wrote much of the history of the French in Peoria. Consequently, the written histories of Peoria have tended to belittle the French and métis presence in early Peoria (Ballance 1870).

The Americans replaced the French village at Peoria with Fort Clark, which they abandoned at the end of the War of 1812. Within five years the first American settlers arrived and the town of Peoria was platted in 1826. Under the French regime, the Illinois Country was a frontier within a frontier. It lay at the farthest reaches of both New France and Louisiana. Here the French and the Native Americans established their “middle ground,” a place were the representatives of indigenous and European cultures adjusted their values, their practices, and their understanding of one another (White 1991:ix-xi).

G. American Settlement. Due to the limits of this project, the discussion of the American occupation of the Illinois Waterway has been confined to the 19th century. It should not be forgotten, however, that another century of habitation has occurred since, and that the events and human behaviors of the 20th century are as much a part of the history of the valley and the waterway as those of any previous century.

For the purpose of this study, "American" settlers are defined as those people who came from the United States, or by way of the United States, to make their homes in Illinois in the 19th century. They were not the first "white" settlers, for the French had been here since the late 17th century. They were not necessarily Caucasian, for they included slaves, indentured servants and freedmen of African descent. They were by no means all "Anglo-American," and, strictly speaking, they were not all Americans, as many had emigrated from Europe.

American settlement of the Illinois River Valley began in the late 1810s, with the close of the War of 1812, the opening of the Military Tract to veterans, and achievement of Illinois statehood. When Illinois entered the Union in 1818, nearly all of its American settlers resided in the southern quarter of the state. Most of these people had come from Kentucky and Tennessee, and were "of the hunter type, desirous of finding a home in the woods, from which they could carve out little farming plots sufficient for their household needs" (Conger 1932:129). Recognized by scholars today as backwoodsmen of the Upland South culture, they subsisted on free-ranging hogs, corn grown in fields hewn from the forest, and wild game, fruit and honey. Prior to the invention of the self-scouring plow in the 1830s, farmers found it impossible to till the prairie soil, with its deep, gummy snarl of grass roots. They established their farms along the edge of the prairies, where they could clear and till the forest, using the wood for building and fuel. The Ohio, Mississippi and Illinois Rivers, and their tributaries, provided the easiest, quickest, and safest means of transportation until the advent of the railroads.

The first generation of American settlers came into Illinois by way of the Ohio River, and congregated around Kaskaskia and Shawneetown. The second generation began to move northward along the Illinois River and its tributaries. Along the Sangamon River in the central part of the state, the Upland Southerners began to meet New Englanders. As one scholar expressed this cultural intersection, "These two human streams of settlers . . . proved very irritating to each other in many respects" (Conger 1932:130).

With the completion of the Erie Canal in 1825, immigrants from New England and the North Atlantic states found their way into Illinois by way of the Great Lakes. In 1833 only four boats dropped anchor in Chicago harbor. The following year, there were 180, and by 1836 the number had reached 450. Some of the New Englanders came in colonies, occasionally using one large common dwelling in the first years of settlement. The Connecticut colony at Rockwell, east of La Salle, was one of these (Conger 1932:144; Baldwin 1877:375).

Not all of the Eastern immigrants were farmers. The financial depressions of 1819 and 1837 brought wage-earners westward, seeking personal and financial independence from the more rigid society of the Northeast. The construction of the Illinois and Michigan Canal provided work for untold numbers of laborers.

The agricultural and labor opportunities also attracted large numbers of Irish, English and German immigrants beginning in the 1830s and 1840s. By 1850, foreign immigrants comprised one third of the population of Chicago. Most of these people dispersed throughout the state, finding work on canals and railroads, eventually buying land and taking up farming.

The earliest settlers along the Illinois River used canoes and pirogues. Even some of the first ferries consisted of a canoe, or two canoes lashed together. The first boats of European design were flatboats. Farmers, millers, and entrepreneurs built their flatboats of native timber, loaded them with products for trade, floated them down the Illinois to St. Louis, or on down the Mississippi to New Orleans. Most carried about fifteen tons and cost about $100.00 to build. Because flatboats could not reascend the river, their owners sold them for lumber or fire wood. The dismantled boats brought from $30.00 to $200.00 in New Orleans. The boatmen who desired to return home to Illinois either walked or, in later years, booked passage on a keelboat or steamboat. Flatboating continued on the Mississippi until the Civil War (Conger 1932:147).

Keelboats had the advantage of being able, with considerable effort, to return up the river. A trip up river from New Orleans to St. Louis took four backbreaking months of poling. Only one trip a year could be made by those wishing to sell goods in the Illinois Country. Keelboats gave rise to the legendary "half-horse, half-alligator" boatmen like Mike Fink.

Steamboats appeared on the Ohio River as early as 1811, and by the late 1810s, they were common on the Mississippi. The first steamboats ascended the Illinois in 1828. That year saw nine arrivals and departures at Naples. Three steamboats ran from St. Louis to Peoria in 1833. By 1852, the number of boats passing the Peoria Bridge reached 1,800. The average tonnage of Illinois River steamboats in 1851 was 275. The early boats required one cord of wood every twenty-four hours for each twelve tons (Conger 1932:156, 160, 163).

The steamboating season lasted from eight to 10 months of the year. For at least two months each winter, the boats could not move through the ice.

Two men from St. Louis and three from Springfield organized the Naples Packet Company in 1848. Until this time, the steamboats had been individually owned. The Naples Packet boats ran weekly from St. Louis to Naples, where they connected with the Sangamon and Morgan Railroad.

The Five Day Line, organized in 1852, accelerated the competition to provide speedy service. However, the railroads eventually spelled the demise of the Five Day Line, while the Naples packets survived because of their connection with the railroad. The strongest of the steamboat companies was the Illinois River Packet Company. Organized in 1858, it "largely controlled the commerce of the Illinois until it sold out in 1867" (Conger 1932:159). The railroad and "increasing hazards of navigation" (locks and dams) also spelled the end of this company (Conger 1932:159).

Traveling by steamboat could be dangerous. Snags, fires, collisions, and explosions are responsible for most of the 48 submerged boat sites on the Illinois Waterway. Although in later years the steamboats might be luxurious, the earlier boats were often very uncomfortable. As many as 500 or 600 passengers might be crowded on to the lower deck. A steamboat plying the river in 1838 provided one candle and one towel for the use of all of the women in its four ladies' staterooms (Conger 1932:163-164).

The 19^{th} century keelboats and steamboats brought new residents to the country, delivered goods for sale or trade, and hauled produce to market. The inhabitants of the Illinois River Valley sent down stream corn, hogs, wheat and other grains, honey and beeswax, wool, hides, cattle, whiskey, and coal. By mid-century towns like Peoria also shipped manufactured goods, especially agricultural implements and woven woolens.

Each successive mode of transportation affected the settlements along the Illinois River. Grain dealers built warehouses at the landings. Country taverns became hotels. Pork-packing became an important industry.

The construction of the Illinois and Michigan Canal opened the upper river to trade all the way to Chicago. It also caused a frenzy of land speculation and an influx of new settlers from the East and Europe.

The appearance of the railroads brought doom for some river towns and greater prosperity for those lucky enough to provide the junction between the rail and the river. River traffic continued throughout the 20th century in the form of barges pushed by tugboats. The simple necessity of getting people, goods, and livestock across the river caused ferries to be established with the earliest settlement of the river valley. Some of the first ferries were merely canoes in which people and goods could be paddled across, while the livestock swam alongside. The more daring ferryman sometimes lashed two or more canoes together in order to get larger loads across. Something more like a flatboat soon replaced the canoe, and later in the century the better ferries would be steam-powered.

The owner of the ferry was not necessarily the operator. Often the owners purchased the land, obtained the license from the county, and proceeded to found a village around the ferry landing. A series of interesting people would serve as ferry men, while the owner kept the store, the warehouse, or the tavern.

A ferry connected the people on two sides of the river. Sometimes this meant that a town grew up on both sides. In other cases, one side grew a town, while the other had no more than a wagon track leading down to the bank. Because ferries were often the only settlement along the bank of the river, and located at good natural landings, the ferry landing nearly always became a steamboat landing as well. It was not uncommon, as the century wore on, for a bridge to be built at the site of the ferry crossing. At the close of the 20th century, a few ferries still crossed the Illinois River.

Not every cargo brought by the steamboats was beneficial to the people who lived along the Illinois Waterway. Epidemic diseases traveled up and down the river on a regular basis. The most frightening of these was Asiatic Cholera, which had only appeared in the United States in the late 1700s. Cholera was most alarming because of the speed with which it could strike, killing healthy people in less than twenty-four hours, and whole families in a few days. Other forms of dysentery, as well as smallpox, measles, and scarlet fever stepped off the steamboats from time to time.

Most of the 19th century industry along the Illinois River was related to agriculture. The first essential industry were grist, saw, and flouring mills, usually built on tributary streams. As farm production increased, millers often expanded their operations. Grist mills became breweries, saw mills added carding and fulling mills, and flouring mills expanded to include distilleries. When farmers brought their grain and livestock to the steamboat landings, they often had to wait days or weeks before the boat arrived to take their cargo to market. Grain dealers and meat-packers soon discovered a profitable business opportunity.

Many of the first American settlers in Illinois were of the Upland South culture. They based their subsistence and their economy on corn, hogs, and wild game. Hogs were "cheap to raise, easy to produce, looked after themselves, and provided the household with meat for most of the year" (Walsh 1982:18-19). In the early years of settlement, the preferred breed was the razorback, a half wild hog that could been turned loose in the woods to forage for itself on nuts and fruit. Local legends said that these hogs had been left by the French, or escaped from early settlers during the winter of the Deep Snow. As the weather grew cold, owners would either hunt their stock as any other wild game, or round them up and fatten them on corn for a few weeks before slaughter. With increased settlement and markets, farmers began to bring in pure-bred stock.

River towns like La Grange, Beardstown, Pekin and Peoria became crucial centers for packing and shipping meat from the late 1820s until the prevalence of the railroads. At first, farmers drove their hogs to the landing, loaded them on flatboats and shipped them down river to St. Louis. Merchants at the landings began to butcher and salt the meat for shipping. The market, the supply, and the means of transportation grew almost simultaneously on the Illinois River. As the St. Louis market expanded, the numbers of settlers and their livestock burgeoned, and the steamboat made its appearance on the Illinois.

The Illinois towns had an advantage over the large pork-packing towns of the Ohio River, in that their packing season was longer. There were more cool, but not bitterly cold, days suitable for slaughtering and packing. Even on the Illinois River, the business could be risky:

> A mild spell was the most frequent hazard. . . Then hogs accumulated at the pens with delay and loss to the owner, or carcasses were spoiled. Rains and floods were another seasonal hazard; occasionally the rivers would rise high enough to flood the pork houses otherwise conveniently located on the bank. A bitterly cold spell or snowstorms could also retard slaughtering by making working conditions impossible (Walsh 1982:25).

Most of the mid-19th century packers along the Illinois were merchants who engaged in the meat packing business as a sideline:

> In the early fall they advertised their willingness to put up hogs or dressed pork or to supply packing materials. Once the weather turned cold enough, they started slaughtering and packing and continued to work at high speed for about six weeks. They stored the salted and cured meat ready for shipment down river in the spring. During the rest of the year they conducted a western produce and dry goods trade (Walsh 1982:41).

By the 1840s, Chicago nearly matched the river towns as a meat-packing center. The opening of the Illinois and Michigan Canal in 1848 made it easier for farmers to ship their hogs directly to Chicago, by-passing the merchants along the river. However, it was only with the advent of the railroads, with Chicago as the hub, that meat processing shifted dramatically to the "Hog Butcher to the World." In the last quarter of the 19th century, packers continued to operate along the river, but usually only for local or specialized markets. While meat-packing became a year-round industry in the large centers like Chicago, it remained largely seasonal along the river (Walsh 1982:51, 67).

From the beginning of the American occupation of the Illinois Country, settlement has not always been what it seemed. Veterans who claimed their warrants in the Military Tract between the Illinois and Mississippi Rivers often never set foot in Illinois. They sold their rights to speculators, or allowed their claims to lapse.

In wave after wave of speculative frenzies, ambitious entrepreneurs bought vast acres of farmland that would never sell at the high prices asked for them. They laid off towns that never saw a building erected or, in some cases, never even saw a lot sold. Some of the ventures, such as the proposed canal in Calhoun County, may not have been unreasonable investments, except for the succession of panics and depressions which periodically brought all economic growth to a standstill.

People bought lots and built houses in some of the towns, only to have the ferry or steamboat landing move, the railroad reach a rival town, or the founders not live up to their bargains. When they abandoned their town, the residents occasionally took their houses with them. More often, the buildings rotted into the soil, and within a generation the town site was part of a farmer's field, and the existence of the town all but forgotten.

The heart of 19th century settlement along the Illinois River is the river landing. Here farmers brought their produce to be sold and shipped to market, and they bought their supplies, necessary and frivolous, for the coming weeks, months or year. The settlers' port of entry to Illinois was the landing, and it was their way out, whether to trade, visit, or leave. Food, tools, news, wealth, disease, entertainment, rascals, and heroes came off the boats at the landings. At the landings could be found ferryboats and bridges, warehouses, stockyards, packing houses, hotels, stores, homes, offices, smithies, mills, and factories. At the site of a former river landing, extant buildings, foundations, substantial deposits of animal bone, and assemblages of 19th century artifacts related to boating, butchering, milling, brewing, distilling, milling, blacksmiths and the manufacture of plows and other farm implements, and tavern-keeping might be found.

Back from the river, on the bottoms there may be indications of the less affluent residents of the century, those who made their way into history books only as colorful characters of the valley. Their activities as farmers, boatmen, shellers, fishermen, and hunters would be reflected in the remains of their homes.

In some parts of the valley, farmers built their farmsteads at the base of the bluffs, even at a relatively early date (the text of this section of the report was taken wholly or in part from the *Illinois River Ecosystem Restoration Feasibility Study Restoration Needs Assessment Native Ecotype and Historic Change Assessment*. (Post and Wiant 2004:55-88). These structures range from log cabins to frame houses to substantial limestone buildings, some of which are still standing. A sharp rise in population in the early part of the 19th century signaled a change in human ecology and a transformation of the Illinois River Basin landscape. The wave of human migration moved from the south to the north along the Mississippi and Illinois Rivers, inland along Illinois River tributaries, and overland across the rolling prairie landscape.

People settled in areas where there were few traces of civilization, setting off a synergism measured by increases in cultivated land, the construction and maintenance of roads and trails, farms and communities that dotted the landscape, and the development of marketplaces. Farm and community-based landscape development and management soon gave way to public works projects, the first of which perhaps was the design and construction of the Illinois and Michigan Canal. At the same time, the invention of the steel plow enabled farms to expand land under cultivation with unprecedented efficiency. The demand for timber needed for construction and fuel increased accordingly, and prairie groves shrunk at a rate far greater than their ability to regenerate. By 1840 the insatiable appetite for energy shifted to coal, which was transported by wagon and barge to communities near and far alike.

By the middle of the 19th century, farmers began to secure more land for production by draining wetlands. Using horse drawn slips, they cut ditches, but soon turned to the use of drainage tile. By 1880, 1,140 factories in the Midwest, such as White and Company's Pottery and Tile Works located on the Illinois River floodplain south of Morris, manufactured drainage tile. In the Kankakee Marsh alone, more than 500,000 acres were drained, and between 1884 and 1886, steam excavators drained approximately 50,000 acres of the North Quiver Swamp near Forest City and Delavan. By the end of the century, in a period of 50 short years, most of Illinois' prairie and much of its wetlands disappeared. Meanwhile, sediment eroded from the uplands made its way into streams and rivers. In 1852, dredging began to keep certain parts of the river open for navigation. Shortly thereafter, several low dams were constructed to manage river level ii selected locations such as Henry, Illinois (1872); Copperas Creek (1877); LaGrange (1889); and Kampsville (1893) (Thompson 2002:63).

Despite changes in the river, it remained an extraordinary fishery. In 1894, there were 1,653 active fishermen on the river, and in 1899 they harvested 241,000 pounds of catfish. In 1908, 2,500 commercial fishermen took nearly 24 million pounds of fish from the Illinois (Forbes and Richardson 1908), and in 1910, over 2,600 mussel-fishing boats plied the river. Abundant waterfowl in the fall made the valley a mecca for commercial and sport hunters. Facing over-exploitation of its resources, the river soon faced a new challenge; one which would change the fundamental character of its ecosystem.

On January 1, 1900, the Chicago Sanitary and Ship Canal opened. This canal connected the Des Plaines and Illinois Rivers to Lake Michigan and as a result gave the City of Chicago a means of flushing untreated domestic sewage and industrial wastes away from Lake Michigan into the Illinois River system. At first the diverted water enhanced the aquatic habitats of the Illinois River Valley-habitats available to fishes increased as the diverted water doubled the surface area and extended and deepened the bottomland lakes and marshes. As a result of all the water, thousands of hectares of bottomland timber were inundated and eventually died as many small lakes, sloughs and marshes were united into larger bodies of water. As late as 1940, "dead snags from this 'drowned forest' were still in evidence".

The opening of the Chicago Sanitary and Ship Canal increased the sewage load in the Illinois River, and by 1923 the oxygen content of the river from below Chicago to Peoria was negligible. Stephen Forbes (1911) noted that "Immediately below the mouth of the canal we have in the Des Plaines a mingling of these waters, and the Illinois River itself, below the junction of the Des Plaines and the Kankakee, the septic contributions of the former stream are largely diluted by the comparatively clean waters of the latter. Nevertheless, we had in July and August what may be called septic conditions for twenty-six miles of the course of the Illinois from its origin to the Marseilles dam. At Morris, which is on the middle part of this section, the water, July 15, was grayish and sloppy, with foul, privy odors distinguishable in hot weather."

Although levee construction had begun in the late 1890s, between 1902 and 1923, drainage districts greatly modified the landscape, removing for agricultural purposes floodplain terrestrial and aquatic habitats. By 1929, 38 organized drainage and levee districts and three private levees enclosed roughly 200,000 acres of the Illinois River Valley. Spring and Thompson Lakes, long known for their fisheries and their concentrations of waterfowl, were eliminated as were a host of smaller lakes and sloughs. These districts transformed 39 percent of the total floodplain by allowing conversion of wet and mesic floodplain prairies to crops. The levees affected the hydrology and sediment transport processes of the river. They increased floodstages by reducing the space available for water flow, storage, and sediment deposition. The levees effectively constricted the floodplain right to the edge of the river.

In 1920, construction began on the Illinois Waterway (Sackett 1921). Prior to the construction of the Waterway, river traffic between Lockport and Utica was periodically interrupted due to low water. By the end of the 1930s, a series of dams and locks at Lockport (1933); Brandon Road (1933); Dresden (1933); Marseilles (1933); Starved Rock (1933); Peoria (1939); and LaGrange (1939) ensured navigation on the Illinois River (Hajic et al. 1996).

III. SUMMARY AND CONCLUSIONS

Natural processes alone shaped the character of the Illinois River Basin from its from its formation during the waning stages of the Pleistocene until the arrival of settlers in the early 19th century. Native Americans occupied the basin throughout this period, but neither their number nor technology substantially affected the long-term character of the basin, with the possible exception of using fire to maintain prairie habitat, though the scale of this enterprise is not well known. At first they depended on hunting and gathering, a procurement economy that is subject to the vagaries of seasonal and geographic variability in resources. With the cultivation first of native plants then exotic species, Native American economy coupled procurement strategies with those of production, which naturally changed their relationship with the landscape.

First the French, then American settlers brought new means of production. Though they also relied on traditional practices such as hunting and fishing, settlers had access to distant marketplaces for goods and relied in part on livestock for food. They soon developed new means of cultivation that harnessed draft animals to steel plows that substantially increased settlers' productivity, their numbers, and their influence on the landscape.

Within little more than a century, beginning in the 1830s, forest groves had been cleared, vast expanses of prairie drained and cultivated, the rural population reached its zenith, towns were established along streams and railroads, waterways had been dammed to energize mills and ensure navigation, and the Illinois River was engineered to transport resources to Chicago and waste water away.

The heart of 19th century settlement along the Illinois River is the river landing. Here farmers brought their produce to be sold and shipped to market, and they bought their supplies, necessary and frivolous, for the coming weeks, months or year. The settlers' port of entry to Illinois was the landing, and it was their way out, whether to trade, visit, or leave. Food, tools, news, wealth, disease, entertainment, rascals, and heroes came off the boats at the landings. At the landings could be found ferryboats and bridges, warehouses, stockyards, packinghouses, hotels, stores, homes, offices, smithies, mills, and factories. At the site of a former river landing, extant buildings, foundations, substantial deposits of animal bone, and assemblages of 19th century artifacts related to boating, butchering, milling, brewing, distilling, milling, blacksmiths and the manufacture of plows and other farm implements, and tavern-keeping might be found.

Back from the river, on the bottoms there may be indications of the less affluent residents of the century, those who made their way into history books only as colorful characters of the valley. Their activities as farmers, boatmen, shellers, fishermen, and hunters would be reflected in the remains of their homes. In some parts of the valley, farmers built their farmsteads at the base of the bluffs, even at a relatively early date. These structures range from log cabins to frame houses to substantial limestone buildings, some of which are still standing.

BIBLIOGRAPHY

Anderson, D. C., R. Shutler, Jr., and W. M. Wendland
1980 The Cherokee Sewer Site. In *The Cherokee Excavations*, edited by D. C. Anderson and H. A. Semken, Jr., pp. 257- 274. Academic Press, New York.

Avery, K. W.
1988 Early French Sites in Peoria. In *Intensive Archaeological Explorations for Peoria's 18th Century Village*, edited by Keith L. Barr, Jerry Moore, and Charles L. Rohrbaugh, pp.87-113. Illinois State University, Midwestern Archaeological Research Center, Research Report No. 7.

Baldwin, E. T.
1877 *History of La Salle County, Illinois.* Rand, McNally, Chicago. Reprinted 1988.

Ballance, C.
1870 *A History of Peoria, Illinois.* N. C. Nason, Peoria, Illinois.

Barr, K. L., J. J. Moore, and C. L. Rohrbaugh
1988 *Intensive Archaeological Explorations for Peoria's 18th Century French Village.* Illinois State University, Midwestern Archaeological Research Center, Research Report 7.

Bond, B. F.
1959 The History of the First White Settlers in Versailles Township. Mt. Sterling *Democrat-Message* August 15, 1959 [Reprinted from Versailles *Sentinel,* 1922].

Brose, D. S.
1975 *The Early Archaic Occupations of the Squaw Rockshelter Site*, 33CO34, Cuyahoga County, Ohio. Paper presented at the 42nd Annual Meeting of the Eastern States Archaeological Federation, Columbus, Ohio.

Brown, J. A. (editor)
1961 *The Zimmerman Site: A Report on Excavations at the Grand Village of Kaskaskia, La Salle County, Illinois.* Illinois State Museum, Reports of Investigations No. 9.

1985 *Preliminary Report of Archaeological Investigations at the Oak Forest Site (11Ck53) Cook County Illinois.* Northwestern University Archaeological Center Contributions No. 3. Evanston, Illinois.

Brown, J. A., and R. K. Vierra
1983 What Happened in the Middle Archaic? Introduction to an Ecological Approach to Koster Site Archaeology. In *Archaic Hunters and Gatherers in the American Midwest,* edited by J. L. Phillips, and J. A. Brown, pp. 165-195. Academic Press, New York.

Burns, R. T.
1968 *A Link to the Past: The Saga of La Salle County.* La Salle County Board of Supervisors, Mendota, Illinois.

Cole, F. C. amd T. Duel
1937 Rediscovering Illinois: Archaeological Explorations In and Around Fulton County. Archaeological Series, University of Chicago Press, Chicago, Illinois.

Conger, J. L., and W. E. Hull
1932 *History of the Illinois River Valley*. 3 vols. Clarke, Chicago.

Connor, M. D.
1985 Site Structure and Function. In *The Hill Creek Homestead and the Late Mississippian Settlement in the Lower Illinois Valley*, edited by M. Connor, pp. 198-221. Center for American Archeology, Kampsville, Illinois.

Conrad, L. A.
1973 T*he Nature of the Relationships Between Cahokia and the Central Illinois River Valley.* Paper presented at the 52nd Annual Meeting of the Central States Anthropological Society, St. Louis, Missouri.

1981 *An Introduction to the Archaeology of Upland West Central Illinois: A Preliminary Archaeological Survey of the Canton to Quincy Corridor for the Proposed FAP-407 Highway Project.* Western Illinois University, Archaeological Research Laboratory, Reports of Investigations No. 2. Macomb.

1991 The Middle Mississippian Cultures of the Central Illinois River Valley. In *Cahokia and the Hinterlands: Middle Mississippian Cultures of the Midwest*, edited by T. E. Emerson, and R. B. Lewis, pp. 119-156. University of Illinois Press, Urbana.

Conrad, L. A., and A. D. Harn
1972 *The Spoon River Culture in the Central Illinois River Valley.* Ms. on file, Dickson Mounds Museum, Lewistown, Illinois.

Cook, T. G.
1976 *Koster: An Artifact Analysis of Two Archaic Phases in West-Central Illinois.* Northwestern University Archaeological Program, Prehistoric Records No. 1. Evanston, Illinois.

Deuel, T. (editor)
1952 *Hopewellian Communities in Illinois.* Illinois State Museum, Scientific Papers No. 5.

Emerson, T. E., and J. A. Brown
1992 The Late Prehistory and Protohistory of Illinois. In *Calumet & Fleur-de-Lys*, edited by J. A. Walthall, and T. E. Emerson, pp. 77-128. Smithsonian Institution Press, Washington, D.C.

Emerson, T. E., and F. Mansberger
1991 The Search for French Peoria. In *French Colonial Archaeology: The Illinois Country and the Western Great Lakes,* edited by J. A. Walthall, pp. 149-164. University of Illinois Press, Urbana.

Esarey, D.
1997b *The Late Woodland Maples Mills and Mossville Phase Sequences in the Central Illinois River Valley.* Paper presented at the Urbana Late Woodland Conference, Urbana, Illinois.

Esarey, M.
1997 August 20, 1997 letter from Illinois Historic Preservation Agency, Springfield, to Dr. Erich Schroeder, Illinois State Museum Society, Springfield, regarding draft eligibility criteria for non-reviewed archaeological sites. On file, Illinois State Museum Society, Springfield.

Farnsworth, K. B.
1976 *An Archaeological Survey of the Lower Illinois River Shoreline (Miles 1-80).* Northwestern University Archaeological Program. Submitted to U.S. Army Corps of Engineers, St. Louis District.

Farnsworth, K. B., and D. L. Asch
1986 Early Woodland Chronology, Artifact Styles, and Settlement Distribution in the Lower Illinois Valley Region. In *Early Woodland Archeology,* edited by K. B. Farnsworth, and T. E. Emerson, pp. 326-457. Center for American Archeology Press, Kampsville, Illinois.

Ferguson, J. A. (editor)
1995 *Upper Illinois Valley Archaeology: The Cultural Resources of Starved Rock State Park.* Illinois State Museum Society, Quaternary Studies Program, Technical Report No. 94-866-14. Submitted to Illinois Department of Conservation.

Fowler, M. L.
1955 Ware Groupings and Decorations of Woodland Ceramics in Illinois. *American Antiquity* 20(3):213-225.

Franke, J. A.
1995 *French Peoria and the Illinois Country 1673-1746*. Illinois State Museum Popular Science Series No. 12. Illinois State Museum Society, Springfield.

Frankforter, W. D.
1961 Meaning of the Archaic and Possible Relationships. *Journal of the Iowa Archaeological Society* 10(4):26-31.

Frison, G. C.
1974 *The Casper Site*. Academic Press, New York.

1978 *Prehistoric Hunters of the High Plains.* Academic Press, New York.

Frison, G. C., and D. J. Stanford
1982 *The Agate Basin Site.* Academic Press, New York.

Gibbon, G. E.
1972 Cultural Dynamics in the Development of the Oneota Lifeway in Wisconsin. *American Antiquity* 37:166-185.

Graham, R., C. V. Haynes, D. L. Johnson, and M. Kay
1981 Kimmswick: A Clovis-Mastodon Association in Eastern Missouri. *Science* 2113:1115-1117.

Gray, J.
1940 *The Illinois.* Rinehart, New York.

Griffin, J. B.
1952 Culture Periods in Eastern United States Archaeology. In *Archaeology of the Eastern United States*, edited by J. B. Griffin, pp. 352-364. University of Chicago Press, Chicago.

Hajic, E. R., C. F. Martin, J.S. Oliver, C.S. Rickers, T.E. Roberts, E.K. Schroeder and M. D. Wiant
1999 *The Historic Properties Management Plan for the Illinois Waterway System*, Volumes I and II. Illinois State Museum Quaternary Studies Program Technical Report No. 98-1182-7. Submitted to U.S. Army Corps of Engineers, Rock Island District.

Hajic, E. R., C. F. Martin, and M. D. Wiant
1996 *Historic Property Potential and Geomorphological Assessment along the Illinois Waterway for the Rock Island District of the United States Army Corps of Engineers.* Illinois State Museum Society, Quaternary Studies Program, Technical Report No. 95-939-20. Submitted to U.S. Army Corps of Engineers, Rock Island District.

Hall, R. L.
1974 *The Impact on Archaeology of Dredge Spoil Disposal Resulting from Nine-Foot Channel Maintenance Operations in the Illinois Waterway from Beardstown to the Des Plaines-Kankakee Confluence.* University of Chicago. Submitted to USACE-Chicago District.

1991 The Archaeology of La Salle's Fort St. Louis on Starved Rock and Problem of the Newell Fort. In *French Colonial Archaeology: The Illinois Country and the Western Great Lakes,* edited by J. A. Walthall, pp. 14-28. University of Illinois Press, Urbana, Illinois.

Harn, A. D.
1970 *Notes on the Mississippian Occupation of the Central Illinois River Valley.* Paper presented at the 69th Annual Meeting of the American Anthropological Association, San Diego.

1971 *The Prehistory of Dickson Mounds: A Preliminary Report.* Dickson Mounds Museum Anthropological Studies No. 1. Illinois State Museum, Springfield.

1986 The Marion Phase Occupation of the Larson Site in the Central Illinois River Valley. In *Early Woodland Archeology*, edited by K. B. Farnsworth, and T. E. Emerson, pp. 244279. Center for American Archeology Press, Kampsville, Illinois.

Harrison, C.
1985 *The Archaeology of Two Lakes in Minnesota.* Cultural Resource Series No. 2. Archaeological Research Services. Submitted to U.S. Department of the Interior, Bureau of Land Management, St. Paul, Minnesota.

Howard, R. P.
1972 *Illinois: A History of the State.* Eerdmans, Grand Rapids, Michigan.

Jackson, D. K.
1992 Oneota in the American Bottom. In *The Sponemann Site 2: The Mississippian and Oneota Occupations,* edited by C. J. Bareis, and J. A. Walthall, pp. 383-391. University of Illinois Press, Urbana.

Jelks, E., and J. Unsicker
1981 *Archeological Assessment of Seven Sites Purported to be the Location of LaSalle's Fort Crevecoeur.* Midwestern Archeological Research Center, Illinois State University. Submitted to Illinois Department of Conservation.

Jennings, J. D.
1974 *Prehistory of North America.* McGraw-Hill, New York.

Jeske, R. J.
1989 *Horticultural Technology and Social Interaction at the Edge of the Prairie Peninsula.* Illinois Archaeology 1(2): 103-120.

1990 Langford Tradition Subsistence, Settlement, and Technology. *Midcontinental Journal of Archaeology* 15(2): 221-249.

Joyer, J. E., and D. C. Roper
1980 Archaic Adaptations in the Central Osage River Basin: A Preliminary Assessment. In *Archaic Prehistory on the Prairie-Plains Border,* edited by A. E. Johnson, pp. 12- 23. University of Kansas, Publications in Anthropology No. 12. Lawrence.

Kinietz, W. V.
1972 *The Indians of the Western Great Lakes: 1615-1760*. University of Michigan Press, Ann Arbor.

Larson, J. W.
1979 *Those Army Engineers: A History of the Chicago District U. S. Army Corps of Engineers.* The U. S. Army Corps of Engineers, Chicago District.

Markman, C. W.
1991 *Chicago Before History: The Prehistoric Archaeology of a Modern Metropolitan Area.* Illinois Historic Preservation Agency, Studies in Illinois Archaeology No. 7.

Maxwell, M. S.
1959 The Late Woodland Period. In *Illinois Archaeology,* ed. by E. A. Bluhm. Illinois Archaeological Survey Bulletin 1: 27-32.

McGimsey, C. R., and M. D. Wiant
1986 The Woodland Occupations: Summary and Conclusions. In *Woodland Period Occupations of the Napoleon Hollow Site in the Lower Illinois Valley*, edited by M. D. Wiant, and C. R. McGimsey, pp. 527-541. Center for American Archeology, Kampsville Archeological Center, Research Series No. 6. Kampsville, Illinois.

McGregor, J. C.
1952 The Havana Site. In *Hopewellian Communities in Illinois,* edited by T. Deuel, pp. 43-91. Illinois State Museum, Scientific Papers No. 5. Springfield.

1958 *The Pool and Irving Villages*. University of Illinois Press, Urbana.

Michalik, L. K.
1982 An Ecological Perspective on the Huber Phase Subsistence-Settlement System. In *Oneota Studies,* edited by G. E. Gibbon, pp. 29-53. University of Minnesota, Publications in Anthropology No. 1. Minneapolis.

Milner, G. R., T. E. Emerson, M. W. Mehrer, J. A. Williams, and D. Esarey
1984 Mississippian and Oneota Period. In *American Bottom Archaeology*, edited by C. J. Bareis, and J. W. Porter, pp. 158-186. University of Illinois Press, Urbana.

Munson, P. J.
1966 *The Sheets Site: A Late Archaic-Early Woodland Occupation in West-Central Illinois.* The Michigan Archaeologist 12: 111-120.

1986 Black Sand and Havana Tradition Ceramic Assemblages and Culture History in the Central Illinois River Valley. In *Early Woodland Archeology*, edited by K. B. Farnsworth, and T. E. Emerson, pp. 280-300. Center for American Archeology Press, Kampsville, Illinois.

Nassaney, M. S., and C. R. Cobb (editors)
1991 *Stability, Transformation, and Variation: The Late Woodland Southeast*. Plenum, NY.

Perino, G.
1971 The Yokem Site, Pike County, Illinois. In *Mississippian Site Archaeology in Illinois: I. Site Reports from the St. Louis and Chicago Areas*, ed. by J. A. Brown. Illinois Archaeological Survey Bulletin 8:149-186.

Post, Susan L. and Michael D. Wiant
2004 *Illinois River Ecosystem Restoration Feasibility Study Restoration Needs Assessment Native Ecotype and Historic Change Assessment.* (ISM Technical Report No, 2004-15430-00, August). The report was prepared by Illinois State Museum Society, Springfield, Illinois, under Corps Indefinite Deliveries Contract Number DACW25-93-D-0017, Delivery Order No. 0018.

Santure, S. K., A. D. Harn, and D. Esarey
1990 *Archaeological Investigations at the Morton Village and Norris Farms 36 Cemetery.* Illinois State Museum, Reports of Investigations No. 45. Springfield.

Smith, H. G.
1951 *The Crable Site, Fulton County, Illinois.* University of Michigan, Museum of Anthropology, Anthropology Papers No. 7.

Stafford, B. D., and M. B. Sant
1985 *Smiling Dan: Structure and Function at a Middle Woodland Settlement in the Illinois Valley.* Center for American Archeology, Kampsville Archeological Center, Research Series No. 2. Kampsville, Illinois.

Stafford, C. R. (editor)
1985 *The Campbell Hollow Archaic Occupations: A Study of Intrasite Spatial Structure in the Lower Illinois Valley.* Center for American Archeology, Kampsville Archeological Center, Research Series No. 4. Kampsville, Illinois.

Struever, S.
1964 The Hopewellian Interaction Sphere in Riverine-Western Great Lakes Culture History. In *Hopewellian Studies*, edited by J. R. Caldwell, and R. L. Hall, pp. 87-106. Illinois State Museum, Scientific Papers No. 12. Springfield.

Styles, B. W.
1981 *Faunal Exploitation and Resource Selection.* Northwestern University Archaeological Program, Evanston.

Tanner, H. H. (editor)
1987 *Atlas of Great Lakes Indian History.* University of Oklahoma Press, Norman.

Temple, W. C.
1977 *Indian Villages of the Illinois Country: Historic Tribes.* Illinois State Museum, Scientific Papers No. 2, Pt. 2. Illinois State Museum, Springfield, Illinois.

Titus, S., W. G. Howe, W. Neal, and J. D. Anderson
1995 *Final Report: A Phase I Archaeological Survey for Historic Properties within the Swan Lake Habitat Rehabilitation Enhancement Project (HREP), Environmental Management Program (EMP), Pool 26, Illinois River, Calhoun County, Illinois.* St. Louis Historic Properties Report No. 42. American Resources Group, Ltd., Carbondale, Illinois. Submitted to U.S. Army Corps of Engineers, St. Louis District and Harland Bartholomew and Associates, Inc.

Valley, D., and M. M. Lembcke (editors)
1991 *The Peorias: A History of the Peoria Indian Tribe of Oklahoma*. Peoria Indian Tribe of Oklahoma, Miami, Oklahoma.

Walker, M. B.
1992 *Soil Survey of Peoria County, Illinois.* U.S. Department of Agriculture, Soil Conservation Service, Washington, D. C.

Walsh, M.
1982 *The Rise of the Midwestern Meat Packing Industry*. University of Kentucky, Lexington.

Walthall, J. A., F. T. Norris, and B. D. Stafford
1992 Woman Chief's Village: An Illini Winter Hunting Camp. In *Calumet and Fleur-de-Lys: Archaeology of Indian and French Contact in the Midcontinent,* edited by J. A. Walthall and T. E. Emerson, pp. 129-153. Smithsonian Institution Press, Washington, D. C.

Warren, R. E., and M. J. O'Brien
1982 Models of Adaptation and Change. In *The Cannon Reservoir Human Ecology Project: An Archaeological Study of Cultural Adaptations in the Southern Prairie Peninsula,* edited by M. J. O'Brien, R. E. Warren, and D. E. Lewarch, pp. 85-95. Academic Press, New York.

White, R.
1991 *The Middle Ground: Indians, Empires, and Republics in the Great Lakes Region, 1650-1815.* Cambridge University Press, Cambridge.

Wiant, M. D., E. R. Hajic, and T. R. Styles
1983 Napoleon Hollow and Koster Site Stratigraphy: Implications for Holocene Landscape Evolution and Studies of Archaic Period Settlement Patterns in the Lower Illinois River Valley. In *Hunters and Gatherers in the American Midwest,* edited by J. L. Phillips and J. A. Brown, pp. 147-164. Academic Press, New York.

Wiant, M. D., and C. R. McGimsey (editors)
1986 *Woodland Period Occupations of the Napoleon Hollow Site in the Lower Illinois Valley.* Center for American Archeology, Kampsville Archeological Center, Research Series No. 6. Kampsville, Illinois.

Wiant, M. D., and H. D. Winters
1991 *The Lincoln Hills Site: A Paleoindian Workshop in the Central Mississippi River Valley.* Paper presented at the 56th Annual Meeting of the Society for American Archaeology, New Orleans.

Willey, G. R.
1966 *An Introduction to American Archaeology,* vol. I, North and Middle America. Prentice-Hall, Inc.

Zitomersky, J.
1994 *French Americans-Native Americans in Eighteenth-Century French Colonial Louisiana: The Population Geography of the Illinois Indians, 1670s-1760s.* Lund University Press, Lund, Sweden.

ILLINOIS RIVER BASIN RESTORATION
COMPREHENSIVE PLAN
WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX J

DISTRIBUTION LIST

HONORABLE RUSSELL FEINGOLD
UNITED STATES SENATOR
517 E WISCONSIN AVE RM 408
MILWAUKEE WI 26202

HONORABLE HERBERT KOHL
UNITED STATES SENATOR
310 W WISCONSIN AVE STE 950
MILWAUKEE WI 53203-2000

HONORABLE EVAN BAYH
UNITED STATES SENATOR
UNITED STATES SENATE
463 RUSSELL OFFICE BLDG
WASHINGTON DC 20510

HONORABLE EVAN BAYH
UNITED STATES SENATOR
UNITED STATES SENATE
5400 FEDERAL PLAZA STE 3200
HAMMOND IN 46320

HONORABLE EVAN BAYH
UNITED STATES SENATOR
UNITED STATES SENATE
LEIGHTON PLAZA 130 S MAIN ST STE 110
SOUTH BEND IN 46601

HONORABLE RICHARD DURBIN
UNITED STATES SENATOR
UNITED STATES SENATE
230 S DEARBORN KLUCZYNSKI BLDG FL 38
CHICAGO IL 60604

HONORABLE RICHARD DURBIN
UNITED STATES SENATOR
UNITED STATES SENATE
525 S 8TH ST
SPRINGFIELD IL 62703

HONORABLE RUSSELL FEINGOLD
UNITED STATES SENATOR
UNITED STATES SENATE
506 HART SENATE OFFICE BLDG
WASHINGTON DC 20510-4904

HONORABLE HERBERT KOHL
UNITED STATES SENATOR
UNITED STATES SENATE
330 HART SENATE OFC BLDG
WASHINGTON DC 20510-4903

HONORABLE RICHARD LUGAR
UNITED STATES SENATOR
UNITED STATES SENATE
306 HART SENATE OFFICE BLDG
WASHINGTON DC 20510-1401

HONORABLE RICHARD LUGAR
UNITED STATES SENATOR
UNITED STATES SENATE
175 W LINCOLN WAY STE G-1
VALPARAISO IN 46204

HONORABLE BARACK OBAMA
UNITED STATES SENATOR
UNITED STATES SENATE
230 S DEARBORN ST STE 3900 (39TH FLR)
CHICAGO IL 60604

HONORABLE BARACK OBAMA
UNITED STATES SENATOR
UNITED STATES SENATE
713 HART SENATE OFFICE BLDG
WASHINGTON DC 20510

HONORABLE BARACK OBAMA
UNITED STATES SENATOR
UNITED STATES SENATE
607 E ADAMS ST
SPRINGFIELD IL 62701

IL RIVER BASIN RESTORATION DIST LIST 60X 13 FEBRUARY 2006

HONORABLE BARACK OBAMA
UNITED STATES SENATOR
UNITED STATES SENATE
701 N CT ST
MARION IL 62959

HONORABLE JUDY BIGGERT
REPRESENTATIVE IN CONGRESS-13TH DIST
115 W 55TH ST STE 100
CLARENDON HILLS IL 60514

HONORABLE PAUL RYAN
REPRESENTATIVE IN CONGRESS-1ST DIST
5712 7TH AVE
KENOSHA WI 53140-4129

HONORABLE ROBERT MICHEL
US CONGRESSMAN RETIRED
55 13TH ST
WASHINGTON DC 20004

HONORABLE MELISSA BEAN
REPRESENTATIVE IN CONGRESS-8TH DIST
US HOUSE OF REPRESENTATIVES
1430 MEACHAM RD
SCHAUMBURG IL 60173

HONORABLE MELISSA BEAN
REPRESENTATIVE IN CONGRESS-8TH DIST
US HOUSE OF REPRESENTATIVES
512 CANNON HOUSE OFFICE BLDG
WASHINGTON DC 20515

HONORABLE CHRIS CHOCOLA
REPRESENTATIVE IN CONGRESS-2ND DIST
US HOUSE OF REPRESENTATIVES
510 CANNON HOUSE OFFICE BLDG
WASHINGTON DC 20515

HONORABLE CHRIS CHOCOLA
REPRESENTATIVE IN CONGRESS-2ND DIST
US HOUSE OF REPRESENTATIVES
100 E WAYNE ST
SOUTH BEND IN 46601

HONORABLE DANNY DAVIS
REPRESENTATIVE IN CONGRESS-7TH DIST
US HOUSE OF REPRESENTATIVES
2301 ROOSEVELT RD
BROADVIEW IL 60155

HONORABLE DANNY DAVIS
REPRESENTATIVE IN CONGRESS-7TH DIST
US HOUSE OF REPRESENTATIVES
1526 LONGWORTH HOUSE OFFICE BLDG
WASHINGTON DC 20515

HONORABLE LANE EVANS
REPRESENTATIVE IN CONGRESS-17TH DIST
US HOUSE OF REPRESENTATIVES
2211 RAYBURN HOUSE OFFICE BLDG
WASHINGTON DC 20515

HONORABLE LANE EVANS
REPRESENTATIVE IN CONGRESS-17TH DIST
US HOUSE OF REPRESENTATIVES
261 N BROAD ST STE 5
GALESBURG IL 61401-1319

HONORABLE LANE EVANS
REPRESENTATIVE IN CONGRESS-17TH DIST
US HOUSE OF REPRESENTATIVES
1535 47TH AVE #5
MOLINE IL 61265-7217

HONORABLE LUIS GUTIERREZ
REPRESENTATIVE IN CONGRESS-4TH DIST
US HOUSE OF REPRESENTATIVES
3455 W NORTH AVE
CHICAGO IL 60647

HONORABLE LUIS GUTIERREZ
REPRESENTATIVE IN CONGRESS-4TH DIST
US HOUSE OF REPRESENTATIVES
2367 RAYBURN HOUSE OFFICE BLDG
WASHINGTON DC 20515

HONORABLE J DENNIS HASTERT
REPRESENTATIVE IN CONGRESS-14TH DIST
US HOUSE OF REPRESENTATIVES
235 CANNON HOUSE OFFICE BLDG
WASHINGTON DC 20515-1314

HONORABLE J DENNIS HASTERT
REPRESENTATIVE IN CONGRESS-14TH DIST
US HOUSE OF REPRESENTATIVES
27 N RIVER ST
BATAVIA IL 60510

HONORABLE HENRY HYDE
REPRESENTATIVE IN CONGRESS-6TH DIST
US HOUSE OF REPRESENTATIVES
2110 RAYBURN HOUSE OFFICE BLDG
WASHINGTON DC 20515

HONORABLE HENRY HYDE
REPRESENTATIVE IN CONGRESS-6TH DIST
US HOUSE OF REPRESENTATIVES
50 E OAK ST STE 200
ADDISON IL 60101

HONORABLE JESSE JACKSON JR
REPRESENTATIVE IN CONGRESS-2ND DIST
US HOUSE OF REPRESENTATIVES
17926 S HALSTED
HOMEWOOD IL 60430

HONORABLE JESSE JACKSON JR
REPRESENTATIVE IN CONGRESS-2ND DIST
US HOUSE OF REPRESENTATIVES
2419 RAYBURN HOUSE OFFICE BLDG
WASHINGTON DC 20515

HONORABLE TIM JOHNSON
REPRESENTATIVE IN CONGRESS-15TH DIST
US HOUSE OF REPRESENTATIVES
1229 LONGWORTH HOUSE OFFICE BLDG
WASHINGTON DC 20515-1315

HONORABLE MARK STEVEN KIRK
REPRESENTATIVE IN CONGRESS-10TH DIST
US HOUSE OF REPRESENTATIVES
707 SKOKIE BLVD STE 350
NORTHBROOK IL 60062

HONORABLE MARK STEVEN KIRK
REPRESENTATIVE IN CONGRESS-10TH DIST
US HOUSE OF REPRESENTATIVES
1717 LONGWORTH HOUSE OFFICE BLDG
WASHINGTON DC 20515

HONORABLE RAY LAHOOD
REPRESENTATIVE IN CONGRESS-18TH DIST
US HOUSE OF REPRESENTATIVES
1424 LONGWORTH HOUSE OFFICE BLDG
WASHINGTON DC 20515-1318

HONORABLE RAY LAHOOD
REPRESENTATIVE IN CONGRESS-18TH DIST
US HOUSE OF REPRESENTATIVES
209 W STATE ST
JACKSONVILLE IL 62650

HONORABLE RAY LAHOOD
REPRESENTATIVE IN CONGRESS-18TH DIST
US HOUSE OF REPRESENTATIVES
100 NE MONROE STE 100
PEORIA IL 61602-1003

HONORABLE RAY LAHOOD
REPRESENTATIVE IN CONGRESS-18TH DIST
US HOUSE OF REPRESENTATIVES
3050 MONTVALE DR STE D
SPRINGFIELD IL 62704

HONORABLE DANIEL LIPINSKI
REPRESENTATIVE IN CONGRESS-3RD DIST
US HOUSE OF REPRESENTATIVES
6245 S ARCHER DR
CHICAGO IL 60638

HONORABLE DONALD MANZULLO
REPRESENTATIVE IN CONGRESS-16TH DIST
US HOUSE OF REPRESENTATIVES
5186 NORTHWEST HWY STE 130
CRYSTAL LAKE IL 60014-8001

HONORABLE DONALD MANZULLO
REPRESENTATIVE IN CONGRESS-16TH DIST
US HOUSE OF REPRESENTATIVES
415 S MULFORD RD
ROCKFORD IL 61108

HONORABLE EMANUEL RAHM
REPRESENTATIVE IN CONGRESS-5TH DIST
US HOUSE OF REPRESENTATIVES
3742 W IRVING PARK RD
CHICAGO IL 60618

HONORABLE EMANUEL RAHM
REPRESENTATIVE IN CONGRESS-5TH DIST
US HOUSE OF REPRESENTATIVES
1319 LONGWORTH HOUSE OFFICE BLDG
WASHINGTON DC 20515

HONORABLE BOBBY RUSH
REPRESENTATIVE IN CONGRESS-1ST DIST
US HOUSE OF REPRESENTATIVES
3235 W 147TH ST
MIDLOTHIAN IL 60445

HONORABLE BOBBY RUSH
REPRESENTATIVE IN CONGRESS-1ST DIST
US HOUSE OF REPRESENTATIVES
2416 RAYBURN HOUSE OFFICE BLDG
WASHINGTON DC 20515

HONORABLE PAUL RYAN
REPRESENTATIVE IN CONGRESS-1ST DIST
US HOUSE OF REPRESENTATIVES
1217 LONGWORTH HOUSE OFFICE BLDG
WASHINGTON DC 20515-4901

HONORABLE JAN SCHAKOWSKY
REPRESENTATIVE IN CONGRESS-9TH DIST
US HOUSE OF REPRESENTATIVES
1420 RENAISSANCE DR STE 102
PARK RIDGE IL 60068

HONORABLE JAN SCHAKOWSKY
REPRESENTATIVE IN CONGRESS-9TH DIST
US HOUSE OF REPRESENTATIVES
1027 LONGWORTH HOUSE OFFICE BLDG
WASHINGTON DC 20515

HONORABLE F JAMES SENSENBRENNER
REPRESENTATIVE IN CONGRESS-5TH DIST
US HOUSE OF REPRESENTATIVES
2449 RAYBURN HOUSE OFFICE BLDG
WASHINGTON DC 20515-4905

HONORABLE F JAMES SENSENBRENNER
REPRESENTATIVE IN CONGRESS-5TH DIST
US HOUSE OF REPRESENTATIVES
120 BISHOPS WAY RM 154
BROOKFIELD WI 53005-6294

HONORABLE JOHN SHIMKUS
REPRESENTATIVE IN CONGRESS-19TH DIST
US HOUSE OF REPRESENTATIVES
513 CANNON HOUSE OFFICE BLDG
WASHINGTON DC 20515-1320

HONORABLE JOHN SHIMKUS
REPRESENTATIVE IN CONGRESS-19TH DIST
US HOUSE OF REPRESENTATIVES
3130 CHATHAM RD STE C
SPRINGFIELD IL 62704

HONORABLE MARK SOUDER
REPRESENTATIVE IN CONGRESS-3RD DIST
US HOUSE OF REPRESENTATIVES
2231 RAYBURN HOUSE OFFICE BLDG
WASHINGTON DC 20515

HONORABLE MARK SOUDER
REPRESENTATIVE IN CONGRESS-3RD DIST
US HOUSE OF REPRESENTATIVES
1ST SORCE BLDG STE 250 102 W LINCOLN AVE
GOSHEN IN 46526

HONORABLE PETER VISCLOSKY
REPRESENTATIVE IN CONGRESS-1ST DIST
US HOUSE OF REPRESENTATIVES
2256 RAYBURN HOUSE OFFICE BLDG
WASHINGTON DC 20515-1401

HONORABLE PETER VISCLOSKY
REPRESENTATIVE IN CONGRESS-1ST DIST
US HOUSE OF REPRESENTATIVES
701 E 83RD AVE STE 9
MERRILLVILLE IN 46410

HONORABLE GERALD WELLER
REPRESENTATIVE IN CONGRESS-11TH DIST
US HOUSE OF REPRESENTATIVES
1210 LONGWORTH HOUSE OFFICE BLDG
WASHINGTON DC 20515-1311

HONORABLE GERALD WELLER
REPRESENTATIVE IN CONGRESS-11TH DIST
US HOUSE OF REPRESENTATIVES
2701 BLACK RD STE 201
JOLIET IL 60435

RYAN TATE
CONGRESSMAN HASTERT
27 N RIVER ST
BATAVIA IL 60510

MARC MILLER
SENIOR POLICY ADVISOR
OFC OF LT GOVERNOR PAT QUINN
RM 214 STATE HOUSE
SPRINGFIELD IL 62706-4700

PHIL KAIM
DEPUTY CHIEF OF STAFF
OFFICE OF CONGRESSMAN DENNIS HASTERT
27 N RIVER ST
BATAVIA IL 60510

MICHELLE GRUNDON
DISTRICT EXECUTIVE ASST
OFFICE OF CONGRESSMAN GERALD WELLER
2701 BLACK RD #201
JOLIET IL 60435-2926

BRAD MC MILLAN
DISTRICT CHIEF OF STAFF
OFFICE OF CONGRESSMAN RAY LA HOOD
100 NE MONROE ST ROOM 100
PEORIA IL 61602

TIM BUTLER
REPRESENTATIVE LAHOOD'S OFFICE
100 NE MONROE ST ROOM 100
PEORIA IL 61602

DENNIS R COLL
CIVILIAN AIDE - SEC OF THE ARMY
FIRST US ARMY - IL NORTH
3 SUN VALLEY CT
LAKE IN THE HILLS IL 60156-4473

BROWN COUNTY ASCS OFFICE
P O BOX 111
MT STERLING IL 62353

STEVE TURNER
BRANCH MANAGER
CASS COUNTY ASCS OFFICE
652 S MAIN
VIRGINIA IL 62691-1541

ERIC BERMAN
FEDERAL EMERGENCY MGMT AGENCY - REG V
536 S CLARK ST 6TH FLOOR
CHICAGO IL 60605-1509

EDWARD BUIKEMA
DIRECTOR
FEDERAL EMERGENCY MGMT AGENCY - REG V
536 S CLARK ST 6TH FLR
CHICAGO IL 60605-1509

KEN HINTERLONG
SENIOR CIVIL ENG FOR MITIGATION DIV
FEDERAL EMERGENCY MGMT AGENCY - REG V
536 S CLARK ST 6TH FLOOR
CHICAGO IL 60605-1509

JANET ODESHOO
DEPUTY REGIONAL DIRECTOR
FEDERAL EMERGENCY MGMT AGENCY - REG V
536 S CLARK ST 6TH FLOOR
CHICAGO IL 60605-1509

VINCENT PARISI
FEDERAL EMERGENCY MGMT AGENCY - REG V
536 S CLARK ST 6TH FLOOR
CHICAGO IL 60605-1509

KIRK FAUVER
FEDERAL HIGHWAY ADMINISTRATION
3250 EXECUTIVE PARK DR
SPRINGFIELD IL 62703

RONALD LESNIAK
REGIONAL ENGINEER
FERC REGIONAL OFFICE
230 S DEARBORN ST - FED BLDG - RM 3130
CHICAGO IL 60604

USDA NATURAL RESOURCES CONSERVATION
TAZEWELL COUNTY SWCD
1440 VALLE VISTA BLVD
PEKIN IL 61554-6224

SHARON HARTZOLD
SOIL CONSERVATION SERVICE
NATURAL RESOURCES CONSERVATION SVC
TAZEWELL COUNTY SWCD
1440 VALLE VISTA BLVD
PEKIN IL 61554-6224

TIM MALONE
TAZEWELL COUNTY SWCD
1440 VALLE VISTA BLVD
PEKIN IL 61554-6224

JAMES RASMUS
US COAST GUARD
1300 W WASHINGTON
EAST PEORIA IL 61611

COMMANDING OFFICER
US COAST GUARD - MSO CHICAGO
215 W 83RD ST STE D
BURR RIDGE IL 60521-7059

RANDY EDWARDS
DIST CONSERVATIONIST
NATURAL RESOURCES CONSERVATION SVC
US DEPT OF AGRICULTURE
RR 1 BOX 213 RTE 29 S
HENRY IL 61537

PAUL KRONE
NATURAL RESOURCES CONSERVATION SVC
US DEPT OF AGRICULTURE
2118 W PARK CT
CHAMPAIGN IL 61821-7220

BILL LEWIS
NATURAL RESOURCES CONSERVATION SVC
US DEPT OF AGRICULTURE
2118 W PARK CT
CHAMPAIGN IL 61821-

HERMAN WISSLEAD
AREA DIRECTOR
RURAL DEVELOPMENT
US DEPT OF AGRICULTURE
3605 N STATE RTE 47 STE D
MORRIS IL 60450-8218

JOHN SCHULER
DIST CONSERVATIONIST
EROSION CONTROL TASK FORCE
US DEPT OF AGRICULTURE-NAT RES CONSV SRV
937 W CENTER ST
EUREKA IL 61530

ECONOMIC DEVELOPMENT ADMINISTRATION
US DEPT OF COMMERCE
111 N CANAL ST - STE 855
CHICAGO IL 60606-7204

DIRECTOR
US DEPT OF HUD - REG V
77 W JACKSON BLVD
CHICAGO IL 60604

ROBERT HOLMES
DISTRICT CHIEF
US DEPT OF INTERIOR-US GEOLOGICAL SURVEY
1201 W UNIVERSITY AVE STE 100
URBANA IL 61801

DON ROSEBOOM
US DEPT OF INTERIOR-US GEOLOGICAL SURVEY
1201 W UNIVERSITY AVE STE 100
URBANA IL 61801

PHYLLIS ELLIN
EXECUTIVE DIRECTOR
I&M CANAL NATL HERITAGE CORR COMM
US DEPT OF THE INTERIOR
201 W TENTH ST #1-SE
LOCKPORT IL 60441

RONALD BABB
BRANCH MANAGER
FEDERAL AVIATION ADMIN
US DEPT OF TRANSPORTATION
GREATER PRIA APARATMENTS 6TH FL
PEORIA IL 61607

MILO ANDERSON
US ENVIRONMENTAL PROTECTION AGENCY - REG 5
77 W JACKSON BLVD
CHICAGO IL 60604

JANICE CHENG
WQW-16J
US ENVIRONMENTAL PROTECTION AGENCY - REG 5
77 W JACKSON BLVD
CHICAGO IL 60604

AL FENEDICK
PLANNING & ASSESSMENT BR ME-19J
US ENVIRONMENTAL PROTECTION AGENCY - REG 5
77 W JACKSON BLVD
CHICAGO IL 60604

WILLIAM FRANZ
CHIEF
US ENVIRONMENTAL PROTECTION AGENCY - REG 5
77 W JACKSON BLVD
CHICAGO IL 60604-3590

TIM HENRY
ASSOCIATE DIRECTOR
WATER DIVISION
US ENVIRONMENTAL PROTECTION AGENCY - REG 5
77 W JACKSON BLVD
CHICAGO IL 60604-3590

MIKE MAC MILLEN
FEDERAL ACTIVITIES PROGRAM B-19J
US ENVIRONMENTAL PROTECTION AGENCY - REG 5
77 W JACKSON BLVD
CHICAGO IL 60604-3590

CHRISTINE URBAN
US ENVIRONMENTAL PROTECTION AGENCY - REG 5
77 W JACKSON BLVD
CHICAGO IL 60604

KEN WESTLAKE
CHIEF
ENVIRON, PLNG, & EVALUATION BR
US ENVIRONMENTAL PROTECTION AGENCY - REG 5
77 W JACKSON BLVD
CHICAGO IL 60604

JO LYNN TRAUB
DIRECTOR
WATER DIVISION
US ENVIRONMENTAL PROTECTION AGENCY - REG 5
77 W JACKSON BLVD
CHICAGO IL 60604-3590

REGIONAL DIRECTOR
US FISH AND WILDLIFE SERVICE
77 W JACKSON BLVD
CHICAGO IL 60604

BOB CLEVENSTINE
FWIC REPRESENTATIVE
RI ECOLOGICAL SVCS FIELD OFC
US FISH AND WILDLIFE SERVICE
4469 48TH AVE CT
ROCK ISLAND IL 61201

RON FISHER
REFUGE OPERATIONS SPECIALIST
US FISH AND WILDLIFE SERVICE
19031 EC 2110N
HAVANA IL 62644

GWEN KOLB
PRIVATE LANDS BIOLOGIST
US FISH AND WILDLIFE SERVICE
19031 EC 2110N
HAVANA IL 62644

KRAIG MC PEEK
IWW OSIT REP
US FISH AND WILDLIFE SERVICE
4469 48TH AVE CT
ROCK ISLAND IL 61201

JEFF MENGLER
COORDINATOR/BOTANIST
CHICAGO ILLINOIS FIELD OFC
US FISH AND WILDLIFE SERVICE
1250 S GROVE AVE SUITE 103
BARRINGTON IL 60010

RICHARD NELSON
FIELD SUPERVISOR
US FISH AND WILDLIFE SERVICE
4469 48TH AVE CT
ROCK ISLAND IL 61201

JOHN ROGNER
FIELD SUPERVISOR
CHICAGO ILLINOIS FIELD OFC
US FISH AND WILDLIFE SERVICE
1250 S GROVE AVE SUITE 103
BARRINGTON IL 60010

MATT SPRENGER
REFUGE MANAGER
US FISH AND WILDLIFE SERVICE
19031E CR 2110N
HAVANA IL 62644

DON ROSEBOOM
US GEOLOGICAL SERVEY
8709 W JOHNSON FARM RD
PEORIA IL 61607

STEPHEN J SCATES
STATE EXECUTIVE DIRECTOR
USDA - FARM SERVICE AGENCY
PO BOX 19273
SPRINGFIELD IL 62794-9273

JIM APPELL
SERVICE
STATE DIRECTOR
USDA - RURAL DEVELOPMENT
2118 W PARK CT
CHAMPAIGN IL 61821-2986

USDA NATURAL RESOURCES CONSERVATION

6715 N SMITH RD
EDWARDS IL 61528-9588

USDA NATURAL RESOURCES CONSERVATION SERVICE
937 W CENTER ST
SERVICE
EUREKA IL 61530

JEREMY BECK
USDA NATURAL RESOURCES CONSERVATION

685 LARRY POWER RD
BOURBONNAIS IL 60914

BOB GOTHOWSKI
USDA NATURAL RESOURCES CONSERVATION SERVICE
SERVICE
685 LARRY POWER RD
BOURBONNAIS IL 60914

CATHERINE HADLEY
USDA NATURAL RESOURCES CONSERVATION

7775A ROUTE 47
YORKVILLE IL 60560

JON HUBBERT
EROSION CONTROL TASK FORCE
USDA NATURAL RESOURCES CONSERVATION SERVICE
SERVICE
307 HILLCREST DR
WASHINGTON IL 61571

JOSH JOSEPH
EROSION CONTROL TASK FORCE
USDA NATURAL RESOURCES CONSERVATION

6715 N SMITH RD
EDWARDS IL 61528

JILL KEETON
USDA NATURAL RESOURCES CONSERVATION SERVICE
SERVICE
7775A ROUTE 47
YORKVILLE IL 60560

STEVE ZWICKER
USDA NATURAL RESOURCES CONSERVATION

312 E BACKBONE RD STE A
PRINCETON IL 61356

THOMAS SKINNER
REG ADMIN
USEPA REGION V
77 W JACKSON BLVD
CHICAGO IL 60604

DIRECTOR
UNIVERSITY OF ILLINOIS
WATER RESOURCES CENTER
1101 W PEABODY DR
URBANA IL 61801

POSTMASTER
POST OFFICE
PO BOX 9998
MT STERLING IL 62573-9998

POSTMASTER
POST OFFICE
PO BOX 9998
SPRING VALLEY IL 61362-9998

POSTMASTER
POST OFFICE
PO BOX 9998
DALZELL IL 61320-9998

POSTMASTER
POST OFFICE
PO BOX 9998
PRINCETON IL 61356-9998

POSTMASTER
POST OFFICE
PO BOX 9998
BEARDSTOWN IL 62618-9998

POSTMASTER
POST OFFICE
PO BOX 9998
ARENZVILLE IL 62611-9998

POSTMASTER
POST OFFICE
PO BOX 9998
CHANDLERVILLE IL 62627-9998

POSTMASTER
POST OFFICE
PO BOX 9998
VIRGINIA IL 62691-9998

POSTMASTER
POST OFFICE
301 N MAIN ST
LEWISTOWN IL 61542-9998

POSTMASTER
POST OFFICE
PO BOX 9998
LOMAX IL 61454

POSTMASTER
POST OFFICE
PO BOX 9998
GRAFTON IL 62037-9998

POSTMASTER
POST OFFICE
PO BOX 9998
KANKAKEE IL 60902-9998

POSTMASTER
POST OFFICE
PO BOX 9998
OSWEGO IL 60543-9998

POSTMASTER
POST OFFICE
PO BOX 9998
YORKVILLE IL 60560-9998

POSTMASTER
POST OFFICE
PO BOX 9998
GALESBURG IL 61401-9998

POSTMASTER
POST OFFICE
PO BOX 9998
RANSON IL 60470-9998

POSTMASTER
POST OFFICE
PO BOX 9998
LA SALLE IL 61301

POSTMASTER
POST OFFICE
PO BOX 9998
OTTAWA IL 61350

POST MASTER
POST OFFICE
310 MILL ST
UTICA IL 61373

POSTMASTER
POST OFFICE
PO BOX 9998
PERU IL 61354

POSTMASTER
POST OFFICE
PO BOX 9998
DANA IL 61321-9998

POSTMASTER
POST OFFICE
221 E HICKORY ST
STREATOR IL 61364-9998

POSTMASTER
POST OFFICE
PO BOX 9998
TONICA IL 61370-9998

POSTMASTER
POST OFFICE
PO BOX 9998
TOPEKA IL 61567-9998

POSTMASTER
POST OFFICE
PO BOX 9998
GRAND RIDGE IL 61325-9998

POSTMASTER
POST OFFICE
PO BOX 9998
UTICA IL 61373-9998

POSTMASTER
POST OFFICE
PO BOX 9998
RUTLAND IL 61358-9998

POSTMASTER
POST OFFICE
PO BOX 9998
OGLESBY IL 61348-9998

POSTMASTER
POST OFFICE
PO BOX 9998
LEONORE IL 61332-9998

POSTMASTER
POST OFFICE
PO BOX 9998
SENECA IL 61360-9998

POSTMASTER
POST OFFICE
PO BOX 9998
MANITO IL 61546-9998

POSTMASTER
POST OFFICE
PO BOX 9998
BATH IL 62617-9998

POSTMASTER
POST OFFICE
PO BOX 9998
LACON IL 61540-9998

POSTMASTER
POST OFFICE
505 MAIN ST
HENRY IL 61537-1400

POSTMASTER
POST OFFICE
PO BOX 9998
SPARLAND IL 61565-9998

POSTMASTER
POST OFFICE
PO BOX 9998
HAVANA IL 62644-9998

POSTMASTER
POST OFFICE
PO BOX 9998
NORMAL IL 61761-9998

POSTMASTER
POST OFFICE
PO BOX 9998
BLOOMINGTON IL 61701-9998

POSTMASTER
POST OFFICE
PO BOX 9998
MEREDOSIA IL 62665-9998

POSTMASTER
POST OFFICE
PO BOX 9998
PEORIA IL 61601-9998

POSTMASTER
POST OFFICE
PO BOX 9998
HENNEPIN IL 62644-9998

POSTMASTER
POST OFFICE
PO BOX 9998
EAST PEORIA IL 61611-9998

POSTMASTER
POST OFFICE
401 E WASHINGTON ST
EAST PEORIA IL 61611-2663

POSTMASTER
POST OFFICE
2000 MCDONOUGH ST
JOLIET IL 60436-9998

POSTMASTER
POST OFFICE MORRIS
202 E WASHINGTON ST
MORRIS IL 60450-2275

ATTN: CELRC-TS-HH-HH
US ARMY ENGR DIST - CHICAGO
111 N CANAL ST - 6TH FL STE 600
CHICAGO IL 60606-7205

SHAMEL ABOU-El-SEOUD
CHIEF
ATTN: CELRC-TS-C
US AMRY ENGR DIST - CHICAGO
111 N CANAL ST - 6TH FL STE 600
CHICAGO IL 60606-7206

SHERRIE BARHAM
CHIEF - PROGRAMS MGMT OFC
ATTN: CELRC-PM-PM
US AMRY ENGR DIST - CHICAGO
111 N CANAL ST - 6TH FL STE 600
CHICAGO IL 60606

SUSANNE DAVIS
ATTN: CELRC-PM-PL
US AMRY ENGR DIST - CHICAGO
111 N CANAL ST - 6TH FL STE 600
CHICAGO IL 60606-7206

ROY DEDA
DEPUTY DIST ENGR FOR PROJ MGMT
ATTN: CELRC-DPM
US AMRY ENGR DIST - CHICAGO
111 N CANAL ST - 6TH FL STE 600
CHICAGO IL 60606

GENE FLEMING
ATTN: CELRC-PM-PL-E
US AMRY ENGR DIST - CHICAGO
111 N CANAL ST - 6TH FL STE 600
CHICAGO IL 60606-7206

COL GARY JOHNSTON
COMMANDER
US AMRY ENGR DIST - CHICAGO
111 N CANAL ST - 6TH FL STE 600
CHICAGO IL 60606

TIM KROLL
ATTN: CELRC-TS-C-T
US AMRY ENGR DIST - CHICAGO
111 N CANAL ST - 6TH FL STE 600
CHICAGO IL 60606-7205

KEITH RYDER
ATTN: CELRC-PL-V
US AMRY ENGR DIST - CHICAGO
111 N CANAL ST - 6TH FL STE 600
CHICAGO IL 60606

CHARLES SHEA
ATTN: CELRC-PM-PM
US AMRY ENGR DIST - CHICAGO
111 N CANAL ST - 6TH FL STE 600
CHICAGO IL 60606-7205

LINDA SORN
CHIEF - TECHNICAL SERVICES DIV
ATTN: CELRC-TS
US AMRY ENGR DIST - CHICAGO
111 N CANAL ST - 6TH FL STE 600
CHICAGO IL 60606-7205

FRANK VERALDI
ATTN: CELRC-PM-PL-E
US AMRY ENGR DIST - CHICAGO
111 N CANAL ST - 6TH FL STE 600
CHICAGO IL 60606-7205

GARY WICKBOLDT
ATTN: CELRC-PM-PL-F
US AMRY ENGR DIST - CHICAGO
111 N CANAL ST - 6TH FL STE 600
CHICAGO IL 60606-7205

TODD ERNENPUTSCH
US ARMY CORPS OF ENGINEERS - PEORIA
257 GRANT ST
PEORIA IL 61603

RICK GRANADOS
IL RIV PROJECT OFFICE
US ARMY CORPS OF ENGINEERS - PEORIA
257 GRANT ST
PEORIA IL 61603

MIKE ZERBONIA
IL RIV PROJECT OFFICE
US ARMY CORPS OF ENGINEERS - PEORIA
257 GRANT ST
PEORIA IL 61603

TAMARA ATCHLEY
COMMANDER
ATTN: CEMVS-PM-F
US ARMY CORPS OF ENGINEERS - ST LOUIS
1222 SPRUCE ST
ST LOUIS MO 63103

COMMANDER
ATTN: CELRD-DE
US ARMY CORPS OF ENGRS-GR LAKES AND OHIO
111 N CANAL ST - 6TH FL STE 600
CHICAGO IL 60606-7205

JAN MILLER
ATTN: CELRD-GL-E-EW-Q
US ARMY CORPS OF ENGRS-GR LAKES AND OHIO
111 N CANAL ST - 6TH FL STE 600
CHICAGO IL 60606-7205

DAVID MC KAY
CIVIL ENGINEER
FACILITIES TECH LAB CECER-FL-P
US ARMY ENGINEER DISTRICT
CIVIL ENGR RESEARCH LAB PO BOX 9005
CHAMPAIGN IL 61826-9005

THIXTON MILLER
ATTN: CEMVS-PM-E
US ARMY ENGR DIST - ST LOUIS
1222 SPRUCE ST
ST LOUIS MO 63103

RICHARD DICKSON
ATTN: CELRE-PM
US ARMY ENGR DIST - DETROIT
477 MICHIGAN AVE 6TH FL
DETROIT MI 48226

GARY O'KEEFE
ATTN: CELRE-PL
US ARMY ENGR DIST - DETROIT
477 MICHIGAN AVE 6TH FL
DETROIT MI 48226

CARL PLATZ
ATTN: CELRE-ET-GH
US ARMY ENGR DIST - DETROIT
477 MICHIGAN AVE 6TH FL
DETROIT MI 48226

COMMANDER
US ARMY ENGR DIST - ST LOUIS
1222 SPRUCE ST
ST LOUIS MO 63103-2833

TERRY NORRIS
ATTN: CEMVS-PM-EA
DIV
US ARMY ENGR DIST - ST LOUIS
1222 SPRUCE ST
ST LOUIS MO 63101-2833

COMMANDER
US ARMY ENGR DIV - GREAT LAKES & OHIO RIVER

PO BOX 1159
CINCINNATI OH 45201-1159

TAB BROWN
ATTN: CELRD-CMP-P
US ARMY ENGR DIV - GREAT LAKES & OHIO RIVER DIV
DIV
PO BOX 1159
CINCINNATI OH 45201-1159

RICH FURMAN
ATTN: CELRD-PDS-P
US ARMY ENGR DIV - GREAT LAKES & OHIO RIVER

PO BOX 1159
CINCINNATI OH 45201-1159

CHARLES BARTON
ATTN: CEMVD-PD-SP
US ARMY ENGR DIV - MISSISSIPPI VALLEY
PO BOX 80
VICKSBURG MS 39180

MIKE HARDEN
ATTN: CEMVD-PD-SP
US ARMY ENGR DIV - MISSISSIPPI VALLEY
PO BOX 80
VICKSBURG MS 39180

CARROLL JOHNSON
ATTN: CEMVD-RB-T
US ARMY ENGR DIV - MISSISSIPPI VALLEY
1400 WALNUT ST PO BOX 80
VICKSBURG MS 39180-0080

SUSAN SMITH
ATTN: CEMVD-PD-RP
US ARMY ENGR DIV - MISSISSIPPI VALLEY
PO BOX 80 1400 WALNUT ST
VICKSBURG MS 39181-0080

STEVE KOENIG
LOCKMASTER
BRANDON RD LOCK AND DAM
1100 BRANDON RD
JOLIET IL 60436-8538

ROY CHAPMAN
LOCKMASTER
DRESDEN ISLAND LOCK AND DAM
7521 N LOCK RD
MORRIS IL 60450-9636

TODD ERENPUTSCH
PARK RANGER
ILLINOIS WATERWAY PROJECT OFFICE
257 GRANT ST
PEORIA IL 61603

DAVE HOOD
LOCKMASTER
LAGRANGE LOCK AND DAM
RR 1 BOX 185
VERSAILLES IL 62378

PAT WHARRY
LOCKMASTER
LOCKPORT LOCK
2502 CHANNEL DR
LOCKPORT IL 60441-4199

JIM HART
LOCKMASTER
MARSEILLES LOCK AND DAM
PO BOX 117
MARSEILLES IL 61341-0117

RICHARD MOSS
LOCKMASTER
PEORIA LOCK AND DAM
1071 WESLEY RD
CREVE COEUR IL 61610-3869

FLOYD COLLINS
LOCKMASTER
STARVED ROCK LOCK AND DAM
650 N 27TH RD
OTTAWA IL 61350-9736

ROBERT BALAMUT
LOCKMASTER
T J O'BRIEN LOCK
134TH & CALUMET RIVER
CHICAGO IL 60633-9998

KEVIN EWBANK
PARK RANGER
ILLINOIS WATERWAY VISITOR CENTER
US ARMY ENGR DIST - ROCK ISLAND
950 N 27TH RD
OTTAWA IL 61350-9735

KATHERINE HIGDON
PARK RANGER
ILLINOIS WATERWAY VISITOR CENTER
US ARMY ENGR DIST - ROCK ISLAND
950 N 27TH RD
OTTAWA IL 61350-9735

ILLINOIS WATERWAY PROJECT OFFICE
FOOT OF GRANT ST
PEORIA IL 61603

REGIONAL ENGINEER
FEDERAL POWER COMMISSION
230 S DEARBORN ST - FED BLDG - 31ST FL
CHICAGO IL 60604

WILLIAM GRADLE
STATE CONSERVATIONIST
NATURAL RESOURCE CONSERVATION SERVICE
2118 W PARK CT
CHAMPAIGN IL 61821

HONORABLE ROD BLAGOJEVICH
GOVERNOR OF ILLINOIS
207 STATE CAPITOL BLDG
SPRINGFIELD IL 62706

JULIE MAIN
AREA PLANNERS
55 W TOMPKINS
GALESBURG IL 61401

ROBERT L PINKERTON
AREA PLANNERS
417 S MINNESOTA AVE
MORTON IL 61550

HONORABLE PAT QUINN
LIEUTENANT GOVERNOR
207 STATE HOUSE
SPRINGFIELD IL 62706

KRISTIN RICHARDS
OFC OF HONORABLE ROD BLAGOJEVICH
207 STATE CAPITOL BLDG
SPRINGFIELD IL 62706

CHRIS RYAN
416 MAIN ST SUITE 915
PEORIA IL 61602

MICHAEL WELSH
AREA CONSULTANTS
300 W PERSHING
MORTON IL 61550

WILLIAM FIELDING
PEORIA/PEKIN URBANIZED AREA TR
CENTRAL IL CENTER FOR INDEP LIVING
614 W GLEN
PEORIA IL 61614

DANIEL HYNES
LEGISLATORS
COMPTROLLER
201 STATEHOUSE
SPRINGFIELD IL 62706

EVERETT W CONWAY
ECONOMIC DEVEL BOARD
P O BOX 5187
PEORIA IL 61601

JIM HELWIG
ENHANCEMENTS
2109 W BIGELOW
PEORIA IL 61604

GEBHARD WOODS STATE PARK
PO BOX 272
MORRIS IL 60450

MARY ALICE ERICKSON
GREENWAYS BOARD
6707 N GREENMONT
PEORIA IL 61614-2411

IL AGRI MEDIATION PROGRAM
104 LESAR LAW BLDG
CARBONDALE IL 62901

DAN MALOOF
DEVELOPER
MALOOF COMMERCIAL REAL ESTATE
2000 1ST FINANCIAL PLAZA
PEORIA IL 61602

HONORABLE MITCH DANIELS
GOVERNOR OF INDIANA
OFFICE OF THE GOVERNOR
STATEHOUSE
INDIANAPOLIS IN 46204-2797

RANDY TAYLOR
DEVELOPER
PIONEER INDUSTRIAL PARK INC.
7820 N UNIVERSITY ST
PEORIA IL 61614

ROB MOORE
EXECUTIVE DIRECTOR
CENTRAL STATES EDUCATION CENTER
PRAIRIE RIVERS NETWORK
809 S 5TH ST
CHAMPAIGN IL 61820

MAGGIE MARTINO
DEVELOPER
PRUDENTIAL/CULLINAN PROPERTIES LTD.
7707 N KNOXVILLE
PEORIA IL 61614

JUDY BAAR TOPINKA
LEGISLATORS
TREASURER
219 STATEHOUSE
SPRINGFIELD IL 62706

MICHAEL LANDWIRTH
DEVELOPER
WALD-LAND CORPORATION
121 NE JEFFERSON AVE
PEORIA IL 61602

RUSS WALDSHMIDT
DEVELOPER
WALD-LAND CORPORATION
121 NE JEFFERSON AVE
PEORIA IL 61602

DOUG CARNEY
IL DEPT OF NATURAL RESOURCES
8450 MONT CLAIRE AVE
BRIGHTON IL 62012

LAURA DUFFORD
8957 S FITZSIMMONS RD
STOCKTON IL 61085

ALAN TUCKER
STATE'S ATTORNEY
208 N BROADWAY ST
HAVANA IL 62644

DONALD KILVER
RESOURCE COORDINATOR
AMERENCIPS
PO BOX 349 800 S WASHINGTON
MEREDOSIA IL 62665

KEITH BARR
OLD INN FARM
ARCHAEOLOGICAL & ARCHITECTURAL SURVEYS
RURAL ROUTE 1
FAIRVIEW IL 61432

HONORABLE LISA RYAN
ATTORNEY GENERAL OF IL
500 S 2ND ST
SPRINGFIELD IL 62706

DIRECTOR
CASS CO SOIL & WATER CONSERVATION DIST
15381 N STATE HWY 100
LEWISTOWN IL 61542

LEE S AUSTIN
HEARTLAND WATER RESOURCE BOARD
ESE
8901 N INDUSTRIAL RD
PEORIA IL 61615

STAFF
FORBES BIOLOGICAL STATION
PO BOX 590
HAVANA IL 62644

PAUL YOUNGSTRUM
DIST CONSERVATIONIST
GRUNDY CNTY SOIL & WATER CONSRV DIST
3585 N STATE ROUTE 47
MORRIS IL 60450-8245

DAN BELL
I&M CANAL STATE TRAIL
PO BOX 272 402 OTTAWA ST
MORRIS IL 60450

TRACY EVANS
PARTNERSHIP
IDNR CONTACT FOR ECOSYSTEM PARTNERSHIP
REGION 5 OFFICE 11731 STATE HIGHWAY 37
BENTON IL 62812

PAULA MARTEL
PARTNERSHIP
IDNR CONTACT FOR ECOSYSTEM PARTNERSHIP
REGION 3 OFFICE 2005 ROUNDBARN RD
CHAMPAIGN IL 61821

DAN NORTH
PARTNERSHIP
IDNR CONTACT FOR ECOSYSTEM PARTNERSHIP
4521 ALTON COMMERCE PARKWAY
ALTON IL 62002

LEE BUNTING
IL ASSOC OF SOIL & WATER CONSERV DIST
28542 N 2900 E RD
DWIGHT IL 60420

DIRECTOR
JAMES R THOMPSON CTR
IL CONSERVATION FOUNDATION
100 W RANDOLPH ST STE 4-300
CHICAGO IL 60601

TONY HAMILTON
IL DEPARTMENT OF AGRICULTURE
9329 162ND AVE
ORION IL 61273

MAUREEN ADDIS
ENHANCEMENTS
IL DEPARTMENT OF TRANSPORTATION DIST 4
401 MAIN ST
PEORIA IL 61602

SCOTT CARPENTER
PEORIA/PEKIN URBANIZED AREA TR
IL DEPARTMENT OF TRANSPORTATION DIST 4
401 MAIN ST
PEORIA IL 61602

SHAUN COYLE
GREENWAYS BOARD
IL DEPARTMENT OF TRANSPORTATION DIST 4
401 MAIN ST
PEORIA IL 61602

RAY ENGMAN
PEORIA/PEKIN URBANIZED AREA TR
IL DEPARTMENT OF TRANSPORTATION DIST 4
401 MAIN ST
PEORIA IL 61602

PAULA GREEN
GREENWAYS BOARD
IL DEPARTMENT OF TRANSPORTATION DIST 4
401 MAIN ST
PEORIA IL 61602

ERIC THERKILDSEN
PEORIA/PEKIN URBANIZED AREA TR
IL DEPARTMENT OF TRANSPORTATION DIST 4
401 MAIN ST
PEORIA IL 61602

J.R. THOMPSON CENTER
IL DEPT OF AGRICULTURE
100 W RANDOLPH STE 10-700
CHICAGO IL 60601

MIKE BEATY
DIV ADMINISTRATOR
DIVISION OF NATURAL RESOURCES
IL DEPT OF AGRICULTURE
STATE FAIRGROUNDS PO BOX 19281
SPRINGFIELD IL 62794-9281

STEVE CHARD
DEPUTY DIV ADMINISTRATOR
DIVISION OF NATURAL RESOURCES
IL DEPT OF AGRICULTURE
STATE FAIRGROUNDS PO BOX 19281
SPRINGFIELD IL 62794-9281

STEVE FRANK
BUREAU CHIEF
LAND & WATER RESOURCES
IL DEPT OF AGRICULTURE
STATE FAIRGROUNDS PO BOX 19281 801 SANGAMON AVE
SPRINGFIELD IL 62794-9281

WARREN GOETSCH
DIVISION ADMINISTRATOR
DIVISION OF NATURAL RESOURCES
IL DEPT OF AGRICULTURE
STATE FAIRGROUNDS PO BOX 19281
SPRINGFIELD IL 62794-9281

DENNIS MC KENNA
DIVISION OF NATURAL RESOURCES
IL DEPT OF AGRICULTURE
STATE FAIRGROUNDS PO BOX 19281
SPRINGFIELD IL 62794-9281

BOB ANSTINE
SENIOR ADVISORY FOR LOCAL GOVERNMENT
IL DEPT OF COMMERCE & COMMUNITY AFFAIRS
620 E ADAMS 6TH FLOOR
SPRINGFIELD IL 62701

TIM KELLEY
IL DEPT OF NATURAL RESOURCES - DIST HERITAGE
700 S 10TH ST
HAVANA IL 62644

CONTACT FOR ECOSYSTEM PARTNERSHIP
IL DEPT OF NATURAL RESOURCES
5931 FOX RIVER DR
PLANO IL 60545

CONTACT FOR ECOSYSTEM PARTNERSHIP
IL DEPT OF NATURAL RESOURCES
13921 W ROUTE 150 JUBILEE COLLEGE ST PRK
BRIMFIELD IL 61517

DIRECTOR
NATURAL PRESERVES COMMISSION
IL DEPT OF NATURAL RESOURCES
ONE NATURAL RESOURCES WAY
SPRINGFIELD IL 62702-1270

DOUGLAS AUSTEN
OFFICE OF RESOURCE CONSERVATION
IL DEPT OF NATURAL RESOURCES
ONE NATURAL RESOURCES WAY
SPRINGFIELD IL 62702-1271

JEFF BOEDDER
IL DEPT OF NATURAL RESOURCES
ONE NATURAL RESOURCES WAY
SPRINGFIELD IL 62702

LYNN BOERMAN
IL DEPT OF NATURAL RESOURCES
2050 STEARMS RD
BARTLETT IL 60515

DEBBIE BRUCE
WATERSHED/WETLANDS MGMT UNIT
IL DEPT OF NATURAL RESOURCES
ONE NATURAL RESOURCES WAY
SPRINGFIELD IL 62702-1271

GARY CLARK
DIRECTOR
OFFICE OF WATER RESOURCES
IL DEPT OF NATURAL RESOURCES
ONE NATURAL RESOURCE WAY
SPRINGFIELD IL 62702-1271

MAGGIE COLE
IL DEPT OF NATURAL RESOURCES
2050 W STEARNS
BARTLETT IL 60103

FRED DAVIDSON
HAVANA FIELD HQ
IL DEPT OF NATURAL RESOURCES
700 S 10TH ST
HAVANA IL 62644

SAM FLOOD
ACTING DIRECTOR
IL DEPT OF NATURAL RESOURCES
ONE NATURAL RESOURCES WAY
SPRINGFIELD IL 62702-1271

DR HAROLD HASSEN
IL DEPT OF NATURAL RESOURCES
ONE NATURAL RESOURCES WAY
SPRINGFIELD IL 62702-1271

ANDY HAWKINS
CONTACT FOR ECOSYSTEM PARTNERSHIP
IL DEPT OF NATURAL RESOURCES
PO BOX 992
BOURBONNAIS IL 60914

JIM HEMINGWAY
IL DEPT OF NATURAL RESOURCES
JUBILEE COLLEGE STATE PARK
BRIMFIELD IL 61517

ANN HOLTROP
IL DEPT OF NATURAL RESOURCES
ONE NATURAL RESOURCE WAY
SPRINGFIELD IL 62702-1271

MICHAEL JONES
IL DEPT OF NATURAL RESOURCES
PO BOX 447
PITTSFIELD IL 62363

GREG KILE
BRANCH MANAGER
ILLINOIS MICH CANAL STATE TRAIL
IL DEPT OF NATURAL RESOURCES
PO BOX 272
MORRIS IL 60450-0272

JIM LANGBEIN
SILVER SPRINGS STATE PARK
IL DEPT OF NATURAL RESOURCES
13608 FOX RD
YORKVILLE IL 60560

GARY LUTTERBIE
IL DEPT OF NATURAL RESOURCES
301 S DATE ST
GIBSON CITY IL 60936

DECK MAJOR
WILDLIFE BIOLOGIST
REGION IV OFFICE
IL DEPT OF NATURAL RESOURCES
4521 ALTON COMMERCE PARKWAY
ALTON IL 62002

DR JOHN MARLIN
WASTE MAN AND RES CTR
IL DEPT OF NATURAL RESOURCES
1 E HAZELWOOD DR
CHAMPAIGN IL 61820

RAY MARSHALLA
IL DEPT OF NATURAL RESOURCES
ONE NATURAL RESOURCES WAY
SPRINGFIELD IL 62702-1270

JIM MICK
REG 3 FISHERIES ADMINISTRATOR
HAVANA FIELD HEADQUARTERS
IL DEPT OF NATURAL RESOURCES
700 S 10TH ST
HAVANA IL 62644

RICK MOLLAHAN
ACTG MGR CORPS OF ENGRS ECOSYS PROG
OFC OF RESOURCE CONSERVATION
IL DEPT OF NATURAL RESOURCES
ONE NATURAL RESOURCES WAY
SPRINGFIELD IL 62702-1271

DICK NIEMEYER
BRANCH MANAGER
PERE MARQUETTE STATE PARK
IL DEPT OF NATURAL RESOURCES
PO BOX 158
GRAFTON IL 62037-0158

JOSEPH NYHOFF
BRANCH MANAGER
GOOSE LAKE PRAIRIE STATE PARK
IL DEPT OF NATURAL RESOURCES
5010 N JUGTOWN RD
MORRIS IL 60450-9628

STEVE PESCITELLI
IL DEPT OF NATURAL RESOURCES
5931 FOX RIVER DR
PLANO IL 60545

DAN SALLEE
WILDLIFE BIOLOGIST
REG I
IL DEPT OF NATURAL RESOURCES
2317 E LINCOLN WAY STE A
STERLING IL 61081

ROBERT SCHANZLE
PERMIT PROGRAM MANAGER
OFC OF REALTY & ENVIRONMENTAL PLNG
IL DEPT OF NATURAL RESOURCES
ONE NATURAL RESOURCES WAY
SPRINGFIELD IL 62702-1271

SCOTT STUEWE
CHIEF
FISHERIES DIVISION
IL DEPT OF NATURAL RESOURCES
ONE NATURAL RESOURCES WAY
SPRINGFIELD IL 62702-1271

TRENT THOMAS
FISHERIES
IL DEPT OF NATURAL RESOURCES
1004 W HOVEY
NORMAL IL 61761

TAMMY WATSON
C2000 COORDINATOR
OFFICE OF WATER RESOURCES
IL DEPT OF NATURAL RESOURCES
ONE NATURAL RESOURCE WAY
SPRINGFIELD IL 62702-1271

SHAWN WILCOCKSON
IL DEPT OF NATURAL RESOURCES
ONE NATURAL RESOURCES WAY
SPRINGFIELD IL 62702

LOREN WOBIG
OFFICE OF WATER RESOURCES
IL DEPT OF NATURAL RESOURCES
ONE NATURAL RESOURCE WAY
SPRINGFIELD IL 62702-1271

RANDY TIMMONS
AVCC E CAMPUS BLDG
IL DEPT OF NATURAL RESOURCES - FORESTY
11 815 N ORLANDO SMITH AVE
OGLESBY IL 61348

DAN INJERD
OFC OF WATER RESOURCES
IL DEPT OF NATURAL RESOURCES - OWR RM 1606
36 S WABASH RM 1415
CHICAGO IL 60603

NEIL BOOTH
IL DEPT OF NATURAL RESOURCES - WILDLIFE
MISSISSIPPI RIVER AREA OFC
GRAFTON IL 62037

JON HANDEL
IL DEPT OF NATURAL RESOURCES - WILDLIFE
PERE MARQUETTE STATE PARK PO BOX 158
GRAFTON IL 62037

NANCY WILLIAMSON
ECOSYSTEM PROJ GRANT ADMIN
IL DEPT OF NATURAL RESOURCES REG 2 HDQRS
2050 W STEARNS RD
BARTLETT IL 60103

PAUL MARTEL
ECOSYSTEM ADMIN
IL DEPT OF NATURAL RESOURCES REG 3 OFC
1556 STATE RT 54 E
CLINTON IL 61727

KEVIN LYONS
BRANCH MANAGER
CHILD SUPPORT DIVISION
IL DEPT OF PUBLIC AID
324 MAIN ST
PEORIA IL 61602-1319

EDWIN SILVERMAN
BRANCH MANAGER
REFUGEE SERVICES
IL DEPT OF PUBLIC AID
401 S CLINTON ST, #3 FL
CHICAGO IL 60607-3800

ENVIRONMENTAL UNIT
IL DEPT OF TRANSPORTATION
700 E NORRIS DR
OTTAWA IL 61350-0697

IL DEPT OF TRANSPORTATION
401 MAIN ST
PEORIA IL 61602

JOSEPH CROWE
DEPUTY DIRECTOR REGION 3 ENGINEER
IL DEPT OF TRANSPORTATION
401 MAIN ST
PEORIA IL 61602-1111

DAN EDWARDS
IL DEPT OF TRANSPORTATION
401 MAIN ST
PEORIA IL 61602-1267

ED EVANS
IL DEPT OF TRANSPORTATION
401 MAIN ST
PEORIA IL 61602

STEVE FERGUSON
BRIDGE & HYDRAULICS ENGINEER
IL DEPT OF TRANSPORTATION
700 E NORRIS DR
OTTAWA IL 61350

DALE FITSCHEN
PEORIA/PEKIN URBANIZED AREA TR
IL DEPT OF TRANSPORTATION
310 S MICHIGAN AVE
CHICAGO IL 60610

PETE FRANTZ
CHIEF OF ENVIRONMENT
HARRY R. HANELY BUILD RM 330
IL DEPT OF TRANSPORTATION
2300 S DIRKSEN PKWY
SPRINGFIELD IL 62764

JAMES JEREB
DISTRICT ENGINEER
DIV OF HIGHWAYS - DIST 3
IL DEPT OF TRANSPORTATION
700 E NORRIS DR
OTTAWA IL 61350-0697

JAMES A. JOHNSON
IL DEPT OF TRANSPORTATION
310 S MICHIGAN AVE RM 1606
CHICAGO IL 60604

STEPHEN LEE
IL DEPT OF TRANSPORTATION
401 MAIN ST
PEORIA IL 61602

TIMOTHY MARTIN
SECRETARY
IL DEPT OF TRANSPORTATION
2300 S DIRKSEN PKWY RM 300
SPRINGFIELD IL 62764

JOSEPH CROWE PE
DIST ENGINEER
IL DEPT OF TRANSPORTATION DIST 4
401 MAIN ST
PEORIA IL 61602

DIRECTOR
CHIEF-BUR OF RES REG
IL DIVISION OF WATER RESOURCES
310 S MICHIGAN AVE - RM 1606
CHICAGO IL 60604

NEIL FULTON
IL DIVISION OF WATER RESOURCES
310 S MICHIGAN AVE RM 1606
CHICAGO IL 60604

IL ENVIRONMENTAL PROTECTION AGENCY
PO BOX 19276
SPRINGFIELD IL 62794-9276

CHRISTINE DAVIS
IL ENVIRONMENTAL PROTECTION AGENCY
1021 N GRAND AVE E
SPRINGFIELD IL 62794-9276

JIM KAMMUELLER
MANAGER
DWPC
IL ENVIRONMENTAL PROTECTION AGENCY
5415 N UNIVERSITY AVE
PEORIA IL 61614

RICH LANGE
IL ENVIRONMENTAL PROTECTION AGENCY
BOX 1515
LA SALLE IL 61301

JIM PARK
CHIEF
BUREAU OF WATER
IL ENVIRONMENTAL PROTECTION AGENCY
1021 N GRAND AVE, PO BOX 19276
SPRINGFIELD IL 62794-9276

DOUGLAS SCOTT
DIRECTOR
IL ENVIRONMENTAL PROTECTION AGENCY
1021 N GRAND AVE E
SPRINGFIELD IL 62794-9276

AMY WALKENBACK
IL ENVIRONMENTAL PROTECTION AGENCY
1021 N GRAND AVE E
SPRINGFIELD IL 62794-9276

BRUCE YURDIN
MANAGER
WATERSHED MANAGEMENT SECTION
IL ENVIRONMENTAL PROTECTION AGENCY
1021 N GRAND AVE E
SPRINGFIELD IL 62794-9276

TEENA PITMAN
BRANCH MANAGER
IL INDUSTRIAL COMMISSION
202 NE MADISON AVE STE 201
PEORIA IL 61602

TEAM LEADER
IL NATURAL HISTORY SURVEY
704 N SCHRADER AVE PO BOX 590
HAVANA IL 62644

DR STEVE HAVERA
FORBES BIOLOGICAL STATION
IL NATURAL HISTORY SURVEY
PO BOX 590 17500 E CR 1950 N
HAVANA IL 62644

DR KEVIN IRONS
LTRM HAVANA FIELD STATION
IL NATURAL HISTORY SURVEY
704 N SCHRADER
HAVANA IL 62644

TOM LERCZAK
IL NATURAL HISTORY SURVEY
704 N SCHRADER AVE PO BOX 590
HAVANA IL 62644

MATT O'HARA
LONG TERM RES MONITORING STATION
IL NATURAL HISTORY SURVEY
704 N SCHRADER AVE PO BOX 590
HAVANA IL 62644

DR MARK PEGG
LTRM HAVANA FIELD STATION
IL NATURAL HISTORY SURVEY
704 N SCHRADER
HAVANA IL 62644

JOSH STAFFORD
IL NATURAL HISTORY SURVEY
704 N SCHRADER AVE PO BOX 590
HAVANA IL 62644

AARON YETTER
IL NATURAL HISTORY SURVEY
704 N SCHRADER AVE PO BOX 590
HAVANA IL 62644

CLARE MANNING
IL POLLUTION CONTROL BOARD
100 W RANDOLPH STE 11-500
CHICAGO IL 60601

DON CONDIT
HEARTLAND WATER RESOURCE BOARD
IL RIV CONSERV TASK FORCE
RR 1 BOX 16
PUTNAM IL 61560

JEANETT BUHLIG
BRANCH MANAGER
DEPT OF MOTOR VEHICLES
IL SECRETARY OF STATE
110 W 15TH ST
BEARDSTOWN IL 62618-1701

DR EDWARD ARMBRST
ACTING CHIEF
IL STATE NATURAL HIST SURVEY
607 E PEABODY
CHAMPAIGN IL 61820

DR NANI BHOWMIK
IL STATE WATER SURVEY
2204 GRIFFITH DR
CHAMPAIGN IL 61820-7495

THOMAS BUTTS
IL STATE WATER SURVEY
PO BOX 697
PEORIA IL 61652

DR MICHAEL DEMISSIE
PRINCIPAL SCIENTIST
IL STATE WATER SURVEY
2204 GRIFFITH DR
CHAMPAIGN IL 61820

JON RODSATER
IL STATE WATER SURVEY
PO BOX 697
PEORIA IL 61652

DANA B SHACKLEFORD
IL STATE WATER SURVEY
PO BOX 697
PEORIA IL 61652

JIM SLOWKOWSKI
IL STATE WATER SURVEY
2204 GRIFFITH DR
CHAMPAIGN IL 61820-7495

MELINDA TIDRICK
IL STATE WATER SURVEY
2204 GRIFFITH DR
CHAMPAIGN IL 61820

RICK TWAIT
IL STATE WATER SURVEY
PO BOX 697
PEORIA IL 61652

BILL WHITE
IL STATE WATER SURVEY
PO BOX 697
PEORIA IL 61652-0697

DR DEREK WINSTANLEY
CHIEF
IL STATE WATER SURVEY
2204 GRIFFITH DR
CHAMPAIGN IL 61820

ROLLIE MOORE
VICE PRESIDENT
ILLINOIS FARM BUREAU
662 KNOX RD 2600 N
ONEIDA IL 61467

ANNE HAAKER
DEPUTY STATE HIST PRESERVATION OFCR
ILLINOIS HISTORIC PRESERVATION AGENCY
1 OLD STATE CAPITOL PLAZA
SPRINGFIELD IL 62701

DAVID L THOMAS
CHIEF
ILLINOIS NATURAL HISTORY SURVEY
172 NAT RESOURCES BLDG 607 E PEABODY DR
CHAMPAIGN IL 61820

RICH CAHILL
ILLINOIS STATE GEOLOGICAL SURVEY
615 E PEABODY DR
CHAMPAIGN IL 61820

DAVID GROSS
ILLINOIS STATE GEOLOGICAL SURVEY
615 E PEABODY DR
CHAMPAIGN IL 61820

BEV HERZOG
ILLINOIS STATE GEOLOGICAL SURVEY
615 E PEABODY DR
CHAMPAIGN IL 61820

JOHN MASTERS
ILLINOIS STATE GEOLOGICAL SURVEY
615 E PEABODY DR
CHAMPAIGN IL 61821

DREW PHILLIPS
FLUVIAL SEDIMENTATION-GEOMORPHOLOGY
ILLINOIS STATE GEOLOGICAL SURVEY
615 E PEABODY DR
CHAMPAIGN IL 61820

C BRIAN TRASH
NATURAL RESOURCES BUILDING
ILLINOIS STATE GEOLOGICAL SURVEY
615 E PEABODY DR
CHAMPAIGN IL 61820-6964

JUDIE WELCH
BRANCH MANAGER
DIVISION OF FORENSIC SRVCS
ILLINOIS STATE POLICE
515 WOODRUFF RD
JOLIET IL 60432-1260

KIP STEVENSON
ILLINOIS STATE WATER SURVEY
BOX 697
PEORIA IL 61652

TERRI CURLEE PRICE
WATER RESOURCE PLANNER
DIVISION OF WATER
IN DEPT OF NATURAL RESOURCES
402 W WASHINGTON RM W264
INDIANAPOLIS IN 46204-2748

JON EGGEN
ENVIRONMENTAL SUPERVISOR
DIVISION OF FISH AND WILDLIFE
IN DEPT OF NATURAL RESOURCES
402 W WASHINGTON ST RM W264
INDIANAPOLIS IN 46204-2748

TERRI PRICE
DIVISION OF FISH AND WILDLIFE
IN DEPT OF NATURAL RESOURCES
402 W WASHINGTON ST RM W264
INDIANAPOLIS IN 46204-2748

GLEN SALMON
DIRECTOR
DIVISION OF FISH AND WILDLIFE
IN DEPT OF NATURAL RESOURCES
402 W WASHINGTON ST RM W273
INDIANAPOLIS IN 46204

DAVID NOLAN
ITARP WESTERN ILLINOIS SURVEY DIV
604 EAST VANDALIA
JACKSONVILLE IL 62650

JONATHAN BLOOM
JONATHAN A BLOOM CONSULTING
527 DUNDEE RD
NORTHBROOK IL 60062

KANKAKEE COUNTY REG PLANNING COMMISS
189 E CT ST
KANKAKEE IL 60901

STAFF
LONG TERM RES MONITORING STATION
704 N SCHRADER
HAVANA IL 62644

RALPH SCHOBERT
MINERAL AND LAND RESOURCES
222 N LASALLE ST
CHICAGO IL 60601

SITE MANAGER
MISS RIVER FISH & WILDLIFE MGMT AREA
RR 182
GRAFTON IL 62037

SARAH NERENBERG
NE IL PLANNING COMMISSION
222 S RIVERSIDE PLAZA STE 1800
CHICAGO IL 60606

TOBIAS MILLER
STARVED ROCK STATE PARK
PO BOX 116
UTICA IL 61373-0116

CATHERINE BENDOWITZ
THE NATURE CONSERVANCY
8 S MICHIGAN AVE
CHICAGO IL 60603

ELIZABETH MC CANCE
THE NATURE CONSERVANCY
8 S MICHIGAN AVE
CHICAGO IL 60603

KAREN BILLE
THE NATURE CONSERVANCY TAZEWELL CO
1201 S MAIN ST
EUREKA IL 61530

ROBERT SPERLING
USCG SANGAMON (WLR 65506)
FOOT OF WASHINGTON ST
EAST PEORIA IL 61611

MATT STAFFORD
USDA NATURAL RESOURCES CONSERVATION SERVICE
SERVICE
1691 N 31ST RD
OTTAWA IL 61350

PAUL YOUNSTRUM
USDA NATURAL RESOURCES CONSERVATION

1691 N 31ST RD
OTTAWA IL 61350

RUTHE BADGER
DIRECTOR
SOUTH CENTRAL REGION
WI DEPT OF NATURAL RESOURCES
3911 FISH HATCHERY RD
FITCHBURG WI 53711-5397

JIM D'ANTUONO
WI DNR REP TO FOX RIVER BASIN COMM
SOUTHEASTERN REGION
WI DEPT OF NATURAL RESOURCES
141 NW BARSTOW ST RM 180
WAUKESHA WI 53188

CHIP KROHN
REGIONAL WATER LEADER
SOUTHEASTERN REGION
WI DEPT OF NATURAL RESOURCES
2300 N DR MARTIN LUTHER KING JR DR
MILWAUKEE WI 53212-3128

HONORABLE WILLIAM BRADY
ILLINOIS STATE SENATOR
2203 EASTLAND DR STE 3
BLOOMINGTON IL 61704

HONORABLE JOHN CULLERTON
IL STATE SENATOR
1051 W BELMONT
CHICAGO IL 60657

HONORABLE JOHN PHILLIP NOVAK
REPRESENTATIVE IN CONGRESS
135 S SCHUYLER AVE
KANKAKEE IL 60901

HONORABLE DONALD L. SALTSMAN
REPRESENTATIVE IN CONGRESS
815 N WESTERN
PEORIA IL 61604

HONORABLE EDWARD MALONEY
IL SENATOR-18TH DIST
IL HOUSE OF REPRESENTATIVES
10444 S WESTERN AVE
CHICAGO IL 60643

HONORABLE JUDY MYERS
IL SENATOR
IL SENATE
119 1/2 GILBERT ST
DANVILLE IL 61832

HONORABLE LARRY WALSH
IL SENATOR
IL SENATE
1100 PLAINFIELD RD
JOLIET IL 60435

HONORABLE FRANK WATSON
IL SENATOR - 51ST DIST
IL SENATE
101 S MAIN ST STE LL2
DECATUR IL 62523

HONORABLE PATRICK WELCH
IL SENATOR
IL SENATE
PO BOX 341
PERU IL 61354-0341

HONORABLE
ILLINOIS STATE SENATOR
LEGISLATORS
IL STATE SENATE
613 CAPITOL BLDG
SPRINGFIELD IL 62706

HONORABLE DALE RISINGER
UNITED STATES SENATOR
IL STATE SENATE DIST 37
3700 W CHARTWELL
PEORIA IL 61614

HONORABLE DALE RISINGER
UNITED STATES SENATOR
LEGISLATORS
IL STATE SENATE DIST 37
M103F STRATTON BLDG
SPRINGFIELD IL 62706

HONORABLE CAROL HALLOCK
GREENWAYS BOARD
PIMITEOUI TRAIL ASSOCIATION
3016 N WESTERN
PEORIA IL 61604

HONORABLE LISA DUGAN
STATE REP 79TH
1355 SCHUYLER
KANKAKEE IL 60901

HONORABLE DAVID LEITCH
REPRESENTATIVE IN CONGRESS
3114 N UNIVERSITY
PEORIA IL 61604

HONORABLE TOM P WALSH
REPRESENTATIVE IN CONGRESS
PO BOX 21
OTTAWA IL 61350

HONORABLE BILL BLACK
IL CONGRESSMAN
IL CONGRESS
7 E FAIRCHILD ST
DANVILLE IL 61832

HONORABLE PHIL NOVAK
IL CONGRESSMAN
IL CONGRESS
135 S SCHUYLER
KANKAKEE IL 60901

HONORABLE MARY KAY O'BRIEN
IL CONGRESSWOMAN
IL CONGRESS
760 E DIVISION ST
COAL CITY IL 60461

HONORABLE DAVID R LEITCH
LEGISLATORS
IL HOUSE OF REPRESENTATIVES
220 STRATTON BUILDING
SPRINGFIELD IL 62706

HONORABLE FRANK MAUTINO
REPRESENTATIVE IN CONGRESS 76TH DIST
IL HOUSE OF REPRESENTATIVES
108 W SAINT PAUL ST
SPRING VALLEY IL 61362-1951

HONORABLE MICHAEL K SMITH
IL REPRESENTATIVE - 91ST DIST
LEGISLATORS
IL HOUSE OF REPRESENTATIVES
45 E SIDE SQ #301
CANTON IL 61520-2673

HONORABLE KEITH SOMMER
LEGISLATORS
IL HOUSE OF REPRESENTATIVES
205 W JEFFERSON
MORTON IL 61550

HONORABLE JOHN C (JACK) MCGUIRE
REPRESENTATIVE IN CONGRESS
US HOUSE OF REPRESENTATIVES
1510 GLENWOOD AVE
JOLIET IL 60435

EDWARD WEISS
Batavia Plan Commission
100 N. Island Ave.
BATAVIA IL 60510

CARL BIBBS
REG MGR FOR NORTHERN IL MKTG PROG
DEPT OF COMMERCE & COMMUNITY AFFAIRS
100 W RANDOLPH STE 3-400
CHICAGO IL 60601

ROBERT BRUCE
FOREIGN DIRECT INVESTMENT MANAGER
DEPT OF COMMERCE & COMMUNITY AFFAIRS
100 W RANDOLPH STE 3-400
CHICAGO IL 60601

IL NATURE PRESERVES COMMISSION
ONE NATURAL RESOURCES WAY
SPRINGFIELD IL 62702-1271

SEAN WIEDEL
WATERSHED PLANNER
LAKE CO STORM MGMT COMMISSION
333 PETERSON RD
LIBERTYVILLE IL 60048

SANDI RADTKE
NORTHEASTERN IL PLANNING COMMISSION
222 S RIVERSIDE PLAZA STE 1800
CHICAGO IL 60606

BESS CHILDS
AURORA AREA CONVENTION & VISITORS BUREAU
PO BOX 907
AURORA IL 60507-0907

SUE VOS
AURORA AREA CONVENTION & VISITORS BUREAU
PO BOX 907
AURORA IL 60507-0907

JIM WASSER
BUILDING TRADES COUNCIL
5896 ROSE CIRCLE
ST ANNE IL 60964

BOB CURRY
CES
6407 N 1600E RD
MOMENCE IL 60954

FOX VALLEY LAND FOUNDATION
PO BOX 1036
ELGIN IL 60121

EDMUND THORNTON
CHAIRMAN
I&M CANAL COMMISSION
1461 W LAFAYETTE ST
OTTAWA IL 61350

PAM GIBSON
IL COUNCIL OF WATERSHEDS
866 DOOLIN
JACKSONVILLE IL 62650

JANE JOHNSON
PRESIDENT
ILLINOIS COUNCIL OF WATERSHEDS
RR 2 BOX 50
GILSON IL 61436

MARY JO ADAMS
MACKINAW RIVER WATERSHED PARTNERSHIP
RR 1 BOX 228 2015 ELKINS LANE
CARLOCK IL 61725

HARRY MEHL
MILLS BLUFF NATURE PRESERVE
RR1 BOX 14
STANFORD IL 61774

GREG EDWARDS
PEORIA AREA CONVENTION & VISITORS BUREAU
456 FULTON ST STE 300
PEORIA IL 61602

COUNTY SHERIFF
BROWN CO COURT HOUSE
MT STERLING IL 62353

COUNTY ATTORNEY
BROWN CO COURT HOUSE
MT STERLING IL 62353

COUNTY ENGINEER
BROWN CO COURT HOUSE
MT STERLING IL 62353

COUNTY ENGINEER
FULTON COUNTY COURT HOUSE
LEWISTOWN IL 61542

COUNTY ATTORNEY
FULTON COUNTY COURT HOUSE
LEWISTOWN IL 61542

COUNTY CLERK
FULTON COUNTY COURT HOUSE
LEWISTOWN IL 61542

COUNTY SHERIFF
FULTON COUNTY COURT HOUSE
LEWISTOWN IL 61542

COUNTY SHERIFF
GRUNDY COUNTY COURT HOUSE
MORRIS IL 60450

COUNTY ATTORNEY
GRUNDY COUNTY COURT HOUSE
MORRIS IL 60450

COUNTY ENGINEER
KENDALL COUNTY COURT HOUSE
YORKVILLE IL 60560

COUNTY ATTORNEY
KENDALL COUNTY COURT HOUSE
YORKVILLE IL 60560

COUNTY SHERIFF
KENDALL COUNTY COURT HOUSE
YORKVILLE IL 60560

COUNTY SHERIFF
` LASALLE COUNTY COURT HOUSE
707 E ETNA RD
OTTAWA IL 61350

COUNTY ENGINEER

707 E ETNA RD
OTTAWA IL 61350

COUNTY CLERK
MARSHALL COUNTY COURT HOUSE
LACON IL 61540

COUNTY SHERIFF
MASON COUNTY COURT HOUSE
HAVANA IL 62644

COUNTY SHERIFF
MORGAN COUNTY COURT HOUSE
JACKSONVILLE IL 62650

COUNTY SHERIFF
PEORIA COUNTY COURT HOUSE
PEORIA IL 61602

COUNTY ATTORNEY
PEORIA COUNTY COURT HOUSE
PEORIA IL 61602

COUNTY ENGINEER
PEORIA COUNTY COURT HOUSE
PEORIA IL 61602

COUNTY CLERK - STARK COUNTY
108 E WILLIAMS ST
WYOMING IL 61491-1455

COUNTY SHERIFF
WILL COUNTY COURT HOUSE
JOLIET IL 60434

COUNTY ATTORNEY
WILL COUNTY COURT HOUSE
JOLIET IL 60434

COUNTY ENGINEER
WILL COUNTY COURT HOUSE
JOLIET IL 60434

COUNTY CLERK
WILL COUNTY COURT HOUSE
JOLIET IL 60434

JUDGE THOMAS BROWNFIELD
COURT HOUSE
HAVANA IL 62644

MARC HESS
COMMISSIONER
BOX 64
BRYANT IL 61519

LAWRENCE KINZER
COUNTY ENGINEER
1400 N 27TH RD PO BOX 128
OTTAWA IL 61350-0128

VERNON C THOMSON
100 N MAIN COUNTY COURT HOUSE
LEWISTOWN IL 61542

RICHARD WALKER
SHERIFF
COURT HOUSE
HAVANA IL 62644

ROBERT WIDMAN
SUPERVISOR-BROOKFIELD TWP
RFD 1
RANSOM IL 60470

ADAMS COUNTY FARM SERVICE AGENCY
PO BOX 3006
QUIINCY IL 62305

DR GERALD HENRIKSEN
PRESIDENT
ASSN OF PEO COUNTY VET
3310 N PROSPECT RD
PEORIA IL 61603-1550

BOARD OF SUPERVISORS
BROWN CO COURT HOUSE
MT STERLING IL 62353

CASS COUNTY ENGINEER
BOARD OF SUPERVISORS
100 E SPRINGFIELD ST
VIRGINIA IL 62691

BOARD OF SUPERVISORS
CASS COUNTY COURT HOUSE
VIRGINIA IL 62691

CHAIRMAN
BOARD OF SUPERVISORS
COUNTY COURTHOUSE
OTTAWA IL 61350

MASON CO COURTHOUSE
BOARD OF SUPERVISORS
118 W MARKET ST
HAVANA IL 62644

BOARD OF SUPERVISORS
MASON COUNTY COURT HOUSE
HAVANA IL 62644

MASON COUNTY ENGINEER
BOARD OF SUPERVISORS
125 N PLUM ST
HAVANA IL 62644

MORGAN COUNTY ENGINEER
BOARD OF SUPERVISORS
300 W STATE ST
JACKSONVILLE IL 62651

STARK COUNTY
BOARD OF SUPERVISORS
108 E WILLIAMS ST
WYOMING IL 61491-1455

COUNTY CLERK
BROWN CO COURT HOUSE
200 W COURT ST
MT STERLING IL 62353

COUNTY CLERK
BROWN CO COURT HOUSE
200 W COURT ST
MT STERLING IL 62353

GLENNA DORMICE
BROWN CO FARM BUREAU
109 W N ST
MT STERLING IL 62353

COUNTY ATTORNEY
BROWN COUNTY COURT HOUSE
200 W COURT ST
MT STERLING IL 62353

COUNTY ENGINEER
BROWN COUNTY COURT HOUSE
200 W COURT ST
MT STERLING IL 62353

COUNTY CLERK
BROWN COUNTY COURT HOUSE
200 W COURT ST
MT STERLING IL 62353

COUNTY CLERK
BROWN COUNTY COURTHOUSE
200 W COURT ST
MT STERLING IL 62353

BROWN COUNTY FARM SERVICE AGENCY
PO BOX 111
MT STERLING IL 62353

COUNTY CLERK
BUREAU COUNTY COURT HOUSE
700 S MAIN ST
PRINCETON IL 61356

CARROLL COUNTY FARM SERVICE AGENCY
807A S CLAY ST
MOUNT CARROLL IL 61503

COUNTY CLERK
CASS COUNTY COURT HOUSE
100 E SPRINGFIELD ST
VIRGINIA IL 62691

CASS COUNTY FARM SERVICE AGENCY
652 S MAIN ST
VIRGINIA IL 62691

CHAMPAIGN COUNTY FARM SERVICE AGENCY
PO BOX 3007
CHAMPAIGN IL 61826-3007

BRIAN RUCH
CLERK
CITY OF BEARDSTOWN
105 W 3RD PO BOX 467
BEARDSTOWN IL 62618

RICK JEREMIAH
CITY OF EAST PEORIA DPW
2232 E WASHINGTON ST
EAST PEORIA IL 61611

DAVID ORR
COUNTY CLERK
COOK COUNTY
69 W WASHINGTON ST
CHICAGO IL 60602

JOHN STROGER JR
PRESIDENT
COOK COUNTY BD OF COMMISSIONERS
118 N CLARK ST RM 537
CHICAGO IL 60602

JACQUELYN HARDER
ECONOMIC DEVELOPMENT DIRECTOR
OFFICE OF ECONOMIC DEVELOPMENT
COOK COUNTY DEPT OF PLANNING
69 W WASHINGTON ST STE 290
CHICAGO IL 60602

STANLEY JAMES
COUNTY BOARD
5981 MURIEL LN
ST ANNE IL 60964

COUNTY BOARD OF SUPERVISORS
KENDALL COUNTY COURT HOUSE
YORKVILLE IL 60560

CHAIRMAN
LASALLE COUNTY COURT HOUSE
COUNTY BOARD OF SUPERVISORS
707 E ETNA RD
OTTAWA IL 61350

CHAIRMAN
COUNTY BOARD OF SUPERVISORS
LIVINGSTON COUNTY COURT HOUSE
PONTIAC IL 61764

CHAIRMAN
COUNTY BOARD OF SUPERVISORS
MACON COUNTY COURT HOUSE
DECATUR IL 62526

CHAIRMAN
COUNTY BOARD OF SUPERVISORS
MCLEAN COUNTY COURT HOUSE
MC LEAN IL 61701

CHAIRMAN
COUNTY BOARD OF SUPERVISORS
WILL COUNTY COURT HOUSE
JOLIET IL 60434

CHAIRMAN
COUNTY BOARD OF SUPERVISORS
COURT HOUSE - WOODFORD COUNTY
EUREKA IL 61530

RON HAPPACH
CHAIRMAN
BUREAU COUNTY COURT HOUSE
COUNTY BOARD OF SUPERVISORS
700 S MAIN ST
PRINCETON IL 61356

COUNTY CLERK
COURT HOUSE
MACON COUNTY
DECATUR IL 62526

COUNTY CLERK
COURT HOUSE
MCLEAN COUNTY
BLOOMINGTON IL 61701

BOARD OF SUPERVISORS
COURTHOUSE
100 N MAIN
LEWISTOWN IL 61542

SHELLY FINFROCK
ECSYTM PRTNSHP-UPR SALT CRK SANGAMON
DEWITT COUNTY SWCD
RR 4 BOX 344A
CLINTON IL 61727

STEVE BALISTERI
PEORIA CO ECON DEVELOPMENT DIRECTOR
EDC INC FOR THE PEORIA AREA
124 S W ADAMS STE 300
PEORIA IL 61602-1388

RANDY BELSLEY
TAZEWELL COUNTY DEVELOPMENT DIRECTOR
EDC INC FOR THE PEORIA AREA
124 S W ADAMS STE 300
PEORIA IL 61602-1388

GRUNDY COUNTY ADMINISTRATION CENTER
ENVIRONMENTAL COMMITTEE OF GRUNDY CO BD
1320 UNION ST
MORRIS IL 60450

DOUG SHORT
FOREST PRESERVE DIST OF WILL CNTY
PO BOX 1069
JOLIET IL 60433

RICHARD PHELAN
PRESIDENT
FOREST PRESERVE DISTRICT OF COOK COUNTY
536 N HARLEM AVE
RIVER FOREST IL 60305-1932

COUNTY CLERK
COURTHOUSE
FULTON COUNTY
100 N MAIN
LEWISTOWN IL 61542

BARBARA SINCLAIR
FULTON COUNTY
100 N MAIN PO BOX 283
LEWISTOWN IL 61542

BOARD OF SUPERVISORS
FULTON COUNTY COURT HOUSE
PO BOX 226
LEWISTOWN IL 61542-0226

JIM LUTZ
DIRECTOR
OFFICE OF EMERGENCY MANAGEMENT
GRUNDY CO EMER SERVICES
1320 UNION ST RM E-01
MORRIS IL 60450-2426

COUNTY CLERK
GRUNDY COUNTY
COURT HOUSE
MORRIS IL 60450

MATT MORRIS
PLANNING DIRECTOR
DEPT OF PLANNING, ZONING, & BUILDING
GRUNDY COUNTY
1320 UNION ST
MORRIS IL 60450

LARRY PACHEL
ASSISTANT PLANNING DIRECTOR
DEPT OF PLANNING, ZONING, & BUILDING
GRUNDY COUNTY
1320 UNION ST
MORRIS IL 60450

PAUL NELSON
CHAIRMAN
GRUNDY COUNTY BOARD OF SUPERVISORS
1320 UNION ST
MORRIS IL 60450

COUNTY BOARD OF SUPERVISORS
GRUNDY COUNTY COURT HOUSE
1320 UNION ST
MORRIS IL 60450

HENDERSON COUNTY FARM SERVICE AGENCY
PO BOX 510
STRONGHURST IL 61480

CATHY OLSON
DISTRICT CONSERVATIONIST
HENDERSON COUNTY SWCD
323 E MAIN PO BOX 485
STRONGHURST IL 61480

COUNTY CLERK
HENRY COUNTY COURT HOUSE
307 W CENTER ST
CAMBRIDGE IL 61238-1232

THE BOARD OF SUPERVISORS
HENRY COUNTY COURT HOUSE
307 W CENTER ST
CAMBRIDGE IL 61238-1232

CRAIG CASSEM
GRUNDY CO ENGINEER
HWY DEPT
310 E DUPONT RD
MORRIS IL 60450

L ROBERT DEAN
ASST STATE CONSERVATIONIST
DIST 4
IL NATURAL RESOURCES CONSERVATION SERVICE
233 S SOANGETAHA RD
GALESBURG IL 61401

DICK YOUNG
KANE CO FOREST PRESERVE
5118A ROUTE 34
OSWEGO IL 60543

MARY RICHARDS
KANE COUNTY BOARD
551 W. DOWNER PLACE
AURORA IL 60506

CO ENGINEER JIM PIEKARCVYK
COUNTY ENGINEER
KANKAKEE COUNTY
750 SE AVE PO BOX 825
KANKAKEE IL 60901

LEONARD MARTIN
KANKAKEE COUNTY BOARD
411 HILLTOP
BRADLEY IL 60915

LEO WHITTEN
KANKAKEE COUNTY BOARD
524 E JUNIPER LN
BRADLEY IL 60915-1102

DAN DEVALK
KANKAKEE COUNTY PLANNING
189 E COURT ST
KANKAKEE IL 60901

JIM GREENST
KANKAKEE COUNTY PLNG DEPT
189 E CT ST
KANKAKEE IL 60901

COUNTY CLERK
KENDALL COUNTY
COURT HOUSE
YORKVILLE IL 60560

SAM HALDIMAN
KENDALL COUNTY
111 W FOX
YORKVILLE IL 60560

FRANCIS KLAAS
CO ENGINEER
KENDALL COUNTY
6780 RT 47
YORKVILLE IL 60560

JOHN CHURCH
KENDALL COUNTY BOARD
5232 ROUTE34
OSWEGO IL 60543

MICHAEL GUITING
LA SALLE CO HWY
PO BOX 128
OTTAWA IL 61350

LARRY KINZER
LA SALLE COUNTY HWY DEPT
PO BOX 128
OTTAWA IL 61350

DOUG WILLIT
LA SALLE COUNTY HWY DEPT
PO BOX 128
OTTAWA IL 61350

COUNTY CLERK
LASALLE COUNTY
PO BOX 430
OTTAWA IL 61350

GLEN DOUGHERTY
CO BOARD CHAIRMAN
LASALLE COUNTY
707 E ETNA RD
OTTAWA IL 61350

COUNTY ATTORNEY
LASALLE COUNTY COURT HOUSE
707 E ETNA RD
OTTAWA IL 61350

VICTOR J WASHELESKY
ASSISTANT COUNTY ENGINEER
LASALLE COUNTY HIGHWAY DEPT
1400 N 27TH RD PO BOX 128
OTTAWA IL 61350

MENRY IMIG
MASON COUNTY BOARD
COURT HOUSE
HAVANA IL 62644

BOARD OF SUPERVISORS
MASON COUNTY COURT HOUSE
125 N PLUM ST
HAVANA IL 62644

COUNTY SHERIFF
MASON COUNTY COURT HOUSE
125 N PLUM ST
HAVANA IL 62644

WILLIAM BLESSMAN
COUNTY CLERK
MASON COUNTY COURT HOUSE
PO BOX 77
HAVANA IL 62644

JAMES GRIFFIN
COUNTY BOARD SUPERVISOR
MASON COUNTY COURT HOUSE
PO BOX 77
HAVANA IL 62644

ROBERT PEDIGO
COUNTY ENGINEER
MASON COUNTY COURT HOUSE
PO BOX 77
HAVANA IL 62644

ALLEN TUCKER
COUNTY ATTORNEY
MASON COUNTY COURT HOUSE
208 N BROADWAY
HAVANA IL 62644

DARREL HILST
MAYOR'S OFFICE
227 W MAIN ST
HAVANA IL 62644

CHARLES GINOLI
TRANSPORTATION COORDINATION CO
PEORIA CHAMBER TRANS COMMITTEE
205 W COVENTRY LANE
PEORIA IL 61614

AARON MC LEAN
PEORIA CO PLANNING AND ZONING
324 MAIN ST ROOM 301
PEORIA IL 61602

PEORIA COUNTY BOARD
324 MAIN ST
PEORIA IL 61602

ROBERT BAIETTO
PEORIA COUNTY BOARD
2815 BACON DR
PEORIA IL 61614

JAMES CHRISTOPHER
PEORIA COUNTY BOARD
618 W SINGING WOODS
EDELSTEIN IL 61526

BRIAN ELSASSER
PEORIA COUNTY BOARD
330 S KENNEDY
PRINCEVILLE IL 61559

JEFFREY D JOYCE
PEORIA COUNTY BOARD
1208 E MAYWOOD AVE
PEORIA IL 61603

SHARON K KENNEDY
PEORIA COUNTY BOARD
606 IRIS COURT
WEST PEORIA IL 61604

JEFF LICKISS
PEORIA COUNTY BOARD
907 W STRATFORD DR
PEORIA IL 61614-7042

TERRY LINDBERG
ADMINISTRATOR
PEORIA/PEKIN URBANIZED AREA TR
PEORIA COUNTY BOARD
324 MAIN ST
PEORIA IL 61602

MICHAEL MASON
PEORIA COUNTY BOARD
3419 W SHOFF AVE
PEORIA IL 61604

ROGER G MONROE
PEORIA COUNTY BOARD
2708 W OVERBROOK DR
PEORIA IL 61604

THOMAS O'NEILL
PEORIA COUNTY BOARD
4908 WANDA
BARTONVILLE IL 61607

LYNN SCOTT PEARSON
PEORIA COUNTY BOARD
1201 N E MADISON
PEORIA IL 61603

MICHAEL PHELAN
PEORIA COUNTY BOARD
1513 E MONETA AVE
PEORIA HEIGHTS IL 61603

WILLIAM R PRATHER
PEORIA COUNTY BOARD
1732 N 4TH
CHILLICOTHE IL 61523

ALEXANDRA L RANSBURG
PEORIA COUNTY BOARD
509 E HIGH POINT RD
PEORIA IL 61614

JAMES W THOMAS
PEORIA COUNTY BOARD
1629 W BRADLEY AVE
PEORIA IL 61606

CAROL TRUMPA
PEORIA COUNTY BOARD
6904 W CHALLACOMBE
EDWARDS IL 61528

CAROL TRUMPE
PEORIA COUNTY BOARD
6904 W CHALLACOMBE
EDWARDS IL 61528

JUNIOR WATKINS
PEORIA COUNTY BOARD
P O BOX 6125
PEORIA IL 61601

DAVID T WILLIAMS SR
PEORIA COUNTY BOARD
2513 W FREMONT
PEORIA IL 61605

COUNTY CLERK
PEORIA COUNTY COURT HOUSE
324 MAIN ST
PEORIA IL 61602

AMY BENECKE-MCLOREN
PEORIA CO HWY DEPT
PEORIA COUNTY HIGHWAY DEPARTMENT
6915 W PLANK RD
PEORIA IL 61604

THOMAS MC FARLAND
PEORIA/PEKIN URBANIZED AREA TR
PEORIA COUNTY HIGHWAY DEPARTMENT
6915 W PLANK RD
PEORIA IL 61604

R DALE PAGE
COUNTY ENGINEER
GREENWAYS BOARD
PEORIA COUNTY HIGHWAY DEPARTMENT
6915 W PLANK RD
PEORIA IL 61604

ANDREW WERNER
PEORIA CO HWY DEPT
PEORIA COUNTY HIGHWAY DEPARTMENT
6915 W PLANK RD
PEORIA IL 61604

ERLE F CURRIE
PEORIA/PEKIN URBANIZED AREA TR
PEORIA COUNTY HIGHWAY DEPT
6915 W PLANK RD
PEORIA IL 61604

SCOTT SORREL
LAND USE ADVISORY COMMITTEE L
PEORIA COUNTY PLANNING & ZONING
324 MAIN ST
PEORIA IL 61602

MATT WAHL
GREENWAYS BOARD
PEORIA COUNTY PLANNING & ZONING
324 MAIN RM 301
PEORIA IL 61602

KELLY MCINTYRE
GREENWAYS BOARD
PEORIA COUNTY PLANNING AND ZONING
324 MAIN ST ROOM 301
PEORIA IL 61602

W LOUIS SIDELL JR
PEORIA COUNTY ZONING
R 504 COURT HOUSE
PEORIA IL 61602

DAN BELL
HEARTLAND WATER RESOURCE BOARD
PEORIA LAKES STUDY
1900 ENGLISH OAK
WASHINGTON IL 61571-3433

JACK M FULLER
PEORIA PARK DIST
2218 N PROSPECT RD
PEORIA IL 61603

COUNTY CLERK
PUTNAM COUNTY
COURT HOUSE
HENNEPIN IL 61327

COUNTY CLERK
SANGAMON CO COURT HOUSE
800 E MONROE
SPRINGFIELD IL 62701

BOARD OF SUPERVISORS
SANGAMON CO COURT HOUSE
200 S 9TH ST
SPRINGFIELD IL 62701

ROBERT FAIRCHILD
DISTRICT #4 REPRESENTATIVE
SANGAMON COUNTY BOARD
200 S 9TH ST
SPRINGFIELD IL 62701-1629

SANGAMON COUNTY FARM SERVICE AGENCY
40 ADLOFF LANE STE 4
SPRINGFIELD IL 62703

KURT EHNLE
HEARTLAND WATER RESOURCE BOARD
SWCD BOARDS
3420 AKRON RD
EDELSTEIN IL 61526

CLIFF SCHROCK
GREENWAYS BOARD
TAZEWELL CO PARK & FOREST PRESERVE
COUNTY COURT HOUSE
PEKIN IL 61554

COUNTY CLERK
TAZEWELL COUNTY
COURT HOUSE
PEKIN IL 61554

DALE CLAUS
PEORIA/PEKIN URBANIZED AREA TR
TAZEWELL COUNTY ADMINISTRATOR
334 ELIZABETH ST STE 50
PEKIN IL 61554

JOYCE ANTONINI
TAZEWELL COUNTY BOARD
2107 BROOKVIEW TER #1
PEKIN IL 61554-5207

JOSEPH BERARDI
TAZEWELL COUNTY BOARD
1610 CAROLINE ST
PEKIN IL 61550

JAMES CARIUS
TAZEWELL COUNTY BOARD
83 FORESTVIEW AVE
MORTON IL 61550

TIMOTHY CHURCH
TAZEWELL COUNTY BOARD
802 FONDULAC DR
EAST PEORIA IL 61611

JAN DONOHUE
TAZEWELL COUNTY BOARD
506 COUNTRY CLUB DR
PEKIN IL 61554

KENNETH EUBANKS
TAZEWELL COUNTY BOARD
414 MANOR ST
PEKIN IL 61554

MICHAEL GODAR
TAZEWELL COUNTY BOARD
1004 LAWNDALE LANE
WASHINGTON IL 61571

PAUL GRETHEY
TAZEWELL COUNTY BOARD
22340 OAKLANE ACRES
MORTON IL 61550

DEAN GRIMM
TAZEWELL COUNTY BOARD
320 S MAIN
MORTON IL 61550

MICHAEL HARRIS
TAZEWELL COUNTY BOARD
P O BOX 245
MACKINAW IL 61755

BRIAN J HELLER
TAZEWELL COUNTY BOARD
109 N PINE ST BOX 213
WASHINGTON IL 61571

CARROLL IMIG
TAZEWELL COUNTY BOARD
8863 KESSINGER RD
TREMONT IL 61568

KEN KLOPFENSTEIN
TAZEWELL COUNTY BOARD
100 ARBOR CT
EAST PEORIA IL 61611-1901

CARLA KLOPFENSTEIN
TAZEWELL COUNTY BOARD
1600 E JEFFERSON
MORTON IL 61550

LARRY KOCH
TAZEWELL COUNTY BOARD
1100 FONDULAC DR
EAST PEORIA IL 61611

PEGGY MEISINGER
DIST OFFICE
TAZEWELL COUNTY BOARD
410 COURT ST
PEKIN IL 61554

JAMES NEWMAN
TAZEWELL COUNTY BOARD
616 WILSHIRE DR
WASHINGTON IL 61571

LARRY NOREUIL
TAZEWELL COUNTY BOARD
709 HILLYER ST
PEKIN IL 61554

JERRIANN ROSENAK
CHIEF CLERK
TAZEWELL COUNTY BOARD
1824 VALLE VISTA
PEKIN IL 61550

STEVEN SAAL
TAZEWELL COUNTY BOARD
608 S 5TH ST
PEKIN IL 61554

GREG SINN
TAZEWELL COUNTY BOARD
607 S LOCUST
TREMONT IL 61568

JAMES UNSICKER
CHAIRMAN
TAZEWELL COUNTY BOARD
334 ELIZABETH ST SUITE 50
PEKIN IL 61554

JAMES VONBOECKMAN
TAZEWELL COUNTY BOARD
334 ELIZABETH ST
PEKIN IL 61554-4176

NORMAN JOHANSEN
PEORIA/PEKIN URBANIZED AREA TR
TAZEWELL COUNTY HIGHWAY DEPT
21308 IL ROUTE 9
TREMONT IL 61568

DENNIS TRESENRITER
PEORIA/PEKIN URBANIZED AREA TR
TAZEWELL COUNTY HIGHWAY DEPT
21308 IL ROUTE 9
TREMONT IL 61568

KRISTAL DEININGER
LAND USE ADVISORY COMMITTEE
TAZEWELL COUNTY PLANNING & ZONING
MCKENZIE BUILDING 11 S 4TH
PEKIN IL 61554

JIM NACHEL
THE FOREST PRESERVE DIST OF WILL COUNTY
17540 W LARAWAY RD
JOLIET IL 60433

THOMAS GEREND
TRI COUNTY REG PLAN
411 N HAMILTON STE 2001
PEORIA IL 61602

ROBERT PINTARTIN
TRI COUNTY RIVERFRONT FORUM
417 S MINNESOTA AVE
MORTON IL 61550

BOB HAYES
TRI-COUNTY DUCK & GOOSE ASSOC
392 W HICKORY HILLS DR
HAVANA IL 62644

KEVIN GREEN
ECOSYSTEM PRTNRSHP-VERMILION RIVER
VERMILION COUNTY SWCD
1905-A US ROUTE 150
DANVILLE IL 61832

NANCY SCHULTZ VOOTS
COUNTY CLERK
WILL COUNTY
302 N CHICAGO ST
CHICAGO IL 60432

JAY KESSEN
WILL COUNTY LAND USE DEPARTMENT
58 E CLINTON STE 500
JOLIET IL 60432

AMY MUNRO
PLANNING DIV
WILL COUNTY LAND USE DEPARTMENT
58 E CLINTON ST STE 500
JOLIET IL 60432

COUNTY CLERK
WOODFORD COUNTY
COURT HOUSE
EUREKA IL 61530

ARDEN BALDWIN
WOODFORD COUNTY BOARD
19 SKYVIEW DR
EAST PEORIA IL 61611

JAMES L BOOTH
WOODFORD COUNTY BOARD
704 SOMERSET DR
METAMORA IL 61548

BERNARD BUCHER
WOODFORD COUNTY BOARD
RR 2 BOX 185
EUREKA IL 61530

ELLEN BURTON
WOODFORD COUNTY BOARD
RR 1 BOX 72
CONGERVILLE IL 61729

WILLIAM A CHRIST
WOODFORD COUNTY BOARD
RR 1
METAMORA IL 61548

JOHN A GAUGER
WOODFORD COUNTY BOARD
COURT HOUSE
EUREKA IL 61530

ROBERT HUSCHEN
WOODFORD COUNTY BOARD
706 RANDOLPH
ROANOKE IL 61561

THOMAS JANSSEN
CHAIRMAN
WOODFORD COUNTY BOARD
910 MARY ST
MINONK IL 61760

K C JONES
WOODFORD COUNTY BOARD
1918D CANTERBURY DR
WASHINGTON IL 61571-3416

PETER LAMBIE
WOODFORD COUNTY BOARD
1346 VALLEYVIEW
EAST PEORIA IL 61611

RODNEY RUESTMAN
WOODFORD COUNTY BOARD
404 LINCOLN ST
MINONK IL 61760

CHARLES TANTON
WOODFORD COUNTY BOARD
121 KNOLLAIRE
METAMORA IL 61548

KENNETH M UPHOFF
WOODFORD COUNTY BOARD
RR 1 BOX 66A
HUDSON IL 61748

LARRY WHITAKER
WOODFORD COUNTY BOARD
BOX 301 TIMBERLINE RD
GOODFIELD IL 61742

WOODFORD COUNTY FARM SERVICE AGENCY
939 W CENTER ST
EUREKA IL 61530

DENNIS BACHMAN
PEORIA/PEKIN URBANIZED AREA TR
WOODFORD COUNTY HIGHWAY DEPT
301 S MAIN BOX 467
ROANOKE IL 61561

DIANE FREEMAN
WOODFORD COUNTY SWCD
937 W CENTER ST
EUREKA IL 61530

ROBERT WEERS
ZONING ADMINISTRATOR
GREENWAYS BOARD
WOODFORD COUNTY ZONING
ROOM 104 115 N MAIN
EUREKA IL 61530

DIRECTOR OF PUBLIC WORKS
1101 EDWARDS
BEARDSTOWN IL 62618

CITY ADMINISTRATOR
115 W HOWARD ST
CITY HALL
PONTIAC IL 61764

CITY ATTORNEY
115 W HOWARD ST
CITY HALL
PONTIAC IL 61764

CITY MANAGER
CITY HALL
419 FULTON ST RM 207
PEORIA IL 61602

EXE DIRECTOR OF RIVERFRONT DEV
CITY HALL
419 FULTON ST RM 302
PEORIA IL 61602

FINANCE DIRECTOR/COMPTROLLER
CITY HALL
419 FULTON ST RM 106
PEORIA IL 61602

JUDY BATUSICH
TOWNSHIP SUPERVISOR
222 E 9TH ST RM 3110
LOCKPORT IL 60441

WAYNE EICHELKRAUT
802 W MCKINLEY RD
OTTAWA IL 61350

ANTON GRAFF
CITY ADMINISTRATOR
800 GAME FARM RD
YORKVILLE IL 60560-9999

VALERIE JARRETT
COMMISSIONER
121 N LASALLE ST RM 1000
CHICAGO IL 60602

DWIGHT JARVIS
425 E MAIN ST
HAVANA IL 62644-1435

DANIEL KRAMER
CITY ATTORNEY
800 GAME FARM RD
YORKVILLE IL 60560-9999

BILL KRAUSE
CITY ENGINEER
301 W MADISON
OTTAWA IL 61350

ARLEN PETERSON
FORREST RESTORATION CONSULTANT
1231 SUPERIOR ST
AURORA IL 60505

ARTHUR PROCHASKA
MAYOR
800 GAME FARM RD
YORKVILLE IL 60560-9999

JOSEPH WYWROT
MUNICIPAL ENGINEER
800 GAME FARM RD
YORKVILLE IL 60560-9999

SUPERVISOR
AURORA TWNSP KANE CO
80 N. BROADWAY
AURORA IL 60504

ANDREW MANION
DEAN
COLLEGE ARTS & SCIENCES
AURORA UNIVERSITY
347 GLADSTONE AVE
AURORA IL 60506

CHUCK BETSON
BARTONVILLE CITY COUNCIL
4434 S BAKER LANE
BARTONVILLE IL 61607

W DON GARSKE
BARTONVILLE CITY COUNCIL
4615 SANDRON
BARTONVILLE IL 61607

LARRY A JOHNSON
BARTONVILLE CITY COUNCIL
4100 S BAKER LANE
BARTONVILLE IL 61607

TERRY L PYATT
BARTONVILLE CITY COUNCIL
6105 S MADISON
BARTONVILLE IL 61607

CYNTHIA STAFFORD
BARTONVILLE CITY COUNCIL
3524 DOROTHY
BARTONVILLE IL 61607

GLEN STALLINGS
BARTONVILLE CITY COUNCIL
3902 S AIRPORT RD
BARTONVILLE IL 61607

EXECUTIVE DIRECTOR
BATAVIA CHAMBER OF COMMERCE
101 N ISLAND AVE
BATAVIA IL 60510

MICAHEL CLARK
EXECUTIVE DIRECTOR
BATAVIA PARK DISTRICT
327 W WILSON
BATAVIA IL 60510

SUPERVISOR
BATAVIA TOWNSHIP KANE CO
100 N ISLAND AVE
BATAVIA IL 60510

BEARDSTOWN CHAMBER OF COMMERCE
101 W 3RD
BEARDSTOWN IL 62618

BEARDSTOWN SANITARY DIST
W 6TH ST
BEARDSTOWN IL 62618

BEARDSTOWN WATER WORKS
1101 EDWARDS ST
BEARDSTOWN IL 62618

BOARD OF SUPERVISORS
119 S ADAMS ST FULTON COUNTY COURTHOUSE
LEWISTOWN IL 61542

MARK KEINICKE
BOURBONNAIS TOWNSHIP PARK DIST
459 N KENNEDY
BOURBONNAIS IL 60914

BARBARA KOCH
EXECUTIVE DIRECTOR - IL VALLEY AREA
CHAM OF COMMERCE & ECON DEVELOPMENT
300 BUCKLIN PO BOX 446
LA SALLE IL 61301-0446

CHAMBER OF COMMERCE
320 WAUPONSEE ST
MORRIS IL 60450

CHAMBER OF COMMERCE
100 W LAFAYETTE ST
OTTAWA IL 61350

CHAMBER OF COMMERCE
135 WASHINGTON ST
MARSEILLES IL 61341

CHAMBER OF COMMERCE
3 S OLD STATE CAPITOL PLZ
SPRINGFIELD IL 62701

CHAMBER OF COMMERCE
100 N CHICAGO ST
JOLIET IL 60434

CHAMBER OF COMMERCE
603 OTIS AVE
ROCKDALE IL 60436

DENICE RAY
EXECUTIVE DIRECTOR
CHAMBER OF COMMERCE
PO BOX 116
HAVANA IL 62644

LYNN SMITH
CHAMBER OF COMMERCE
R 2 BOX 30
RUSHVILLE IL 62081

DEPT OF RESEARCH & PLANNING
CHICAGO PARK DIST
401 S LA SALLE ST
CHICAGO IL 60605

KEN MALURE
CHICAGO PARK DIST
7032 W FARREGUT
CHICAGO IL 60686

PATRICIA HEIDEN
CHILLICOTHE CHAMBER OF COMMERCE
1007 N 2ND STE 1 BOX 106
CHILLICOTHE IL 61523

TARA CAPOCCI-KILMER
CHILLICOTHE CITY COUNCIL
1017 N HISHAW AVE
CHILLICOTHE IL 61523-1438

SHARON CRABEL
CHILLICOTHE CITY COUNCIL
108 WILLIAMS DR
CHILLICOTHE IL 61523

JAMES DENNISON
ALDERMAN
CHILLICOTHE CITY COUNCIL
1722 BENEDICT ST
CHILLICOTHE IL 61523

RICHARD ECKSTEIN
ALDERMAN
CHILLICOTHE CITY COUNCIL
1127 ELM ST
CHILLICOTHE IL 61523

R PAUL GOLLNITZ
ALDERMAN
CHILLICOTHE CITY COUNCIL
1521 N SANTA FE
CHILLICOTHE IL 61523

IRVIN LATTA
TREASURER
CHILLICOTHE CITY COUNCIL
311 2ND ST
CHILLICOTHE IL 61523

CARL A SPENCER JR
ALDERMAN
CHILLICOTHE CITY COUNCIL
224 CLOVERFIELD DR
CHILLICOTHE IL 61523

NEIL YOUNG
ALDERMAN
CHILLICOTHE CITY COUNCIL
810 N SANTA FE
CHILLICOTHE IL 61523

MAYOR
CITY HALL
145 W MAIN ST
MT STERLING IL 62353

MAYOR
CITY HALL
109 3RD ST
GRAFTON IL 62037

MAYOR
CITY HALL
203 E THOMAS
RANSOM IL 60470

MAYOR
CITY HALL
213 S FRONT ST
ODELL IL 60460

MAYOR
CITY HALL
PO BOX 166
CULLOM IL 60929

MAYOR
CITY HALL
115 W HOWARD ST
PONTIAC IL 61764

MAYOR
CITY HALL
GENERAL DELIVERY
CHATSWORTH IL 60921

MAYOR
CITY HALL
209 S PRAIRIE AVE
DWIGHT IL 60420

MAYOR
CITY HALL
385 E OAK ST
KANKAKEE IL 60901

MAYOR
CITY HALL
204 S BLOOMINGTON ST
STREATOR IL 61364

MAYOR
CITY HALL
602 E MAIN ST
CORNELL IL 61319

MAYOR
CITY HALL
GENERAL DELIVERY
SAUNEMIN IL 61769

MAYOR
CITY HALL
201 E LOCUST ST
FAIRBURY IL 61739

MAYOR
CITY HALL
GENERAL DELIVERY
EMINGTON IL 60934

MAYOR
CITY HALL
202 N CENTER ST
FORREST IL 61741

MAYOR
CITY HALL
1 GARY K ANDERSON PLAZA
DECATUR IL 62520

MAYOR
CITY HALL
329 W MAIN ST
LEXINGTON IL 61753

MAYOR
CITY HALL
307 N HARRISON
COLFAX IL 61728

MAYOR
CITY HALL
109 E OLIVE ST
BLOOMINGTON IL 61701

MAYOR
CITY HALL
313 E JEFFERSON ST
RIVERTON IL 62561

MAYOR
CITY HALL
101 SE MAIN ST
HOPEDALE IL 61747

CITY MANAGER
CITY HALL
111 S CAPITOL ST
PEKIN IL 61544

MAYOR
CITY HALL
207 E FAST ST
MACKINAW IL 61755

HONORABLE JOE COOK
VILLAGE PRESIDENT
CITY HALL
24555 S NAVAJO DR
CHANNAHON IL 60410-3334

HONORABLE C. RICHARD ELLIS
VILLAGE PRESIDENT
CITY HALL
121 E MCVILLY RD
MINOOKA IL 60447-9420

HONORABLE ROBERT ESCHBACH
MAYOR
CITY HALL
301 W MADISON ST
OTTAWA IL 61350-2820

HONORABLE FRED ESMOND
MAYOR
CITY HALL
PO BOX 188
UTICA IL 61373

HONORABLE KAREN HASARA
MAYOR
CITY HALL
406 E MONROE ST
SPRINGFIELD IL 62706

HONORABLE JIM JENNINGS
MAYOR
CITY HALL
145 W MAIN ST
MT STERLING IL 62353-1223

HONORABLE RICHARD KOPCZICK
MAYOR
CITY HALL
320 WAUPONSEE ST
MORRIS IL 60450-2125

HONORABLE ARTHUR SCHULTZ
MAYOR OF JOLIET
CITY HALL
150 W JEFFERSON ST
JOLIET IL 60432-1148

HONORABLE DAVID SINCLAIR
MAYOR
CITY HALL
153 S FRONT ST
VIRGINIA IL 62691-9999

HONORABLE ROBERT WALTERS
MAYOR
CITY HALL
105 W 3RD PO BOX 467
BEARDSTOWN IL 62618

HONORABLE ART WASHKOWIAK
MAYOR
CITY HALL
745 2ND ST
LA SALLE IL 61301-2501

HONORABLE DAVID YECK
MAYOR
CITY HALL
116 W WILLIAMS ST PO BOX 27
SENECA IL 61360-0027

HONORABLE JEFFREY ZIRCHER
VILLAGE PRESIDENT
CITY HALL
5912 S ADAMS ST
BARTONVILLE IL 61607-1997

HONORABLE RICHARD M DALEY
MAYOR
CITY HALL RM 507
121 N LASALLE ST
CHICAGO IL 60602

STEVE ANDRAS
CITY OF AURORA
44 E DOWNER PLACE
AURORA IL 60507

RICHARD TODAS
CHIEF OF STAFF
CITY OF AURORA
44 EAST DOWNER PL
AURORA IL 60507

HONORABLE TOM WEISNER
MAYOR
CITY OF AURORA
44 E DOWNER PLACE
AURORA IL 60507

SUPERINTENDENT
ELECTRIC UTILITIES
CITY OF BATAVIA
100 N ISLAND AVE
BATAVIA IL 60510

LINNEA MILLER
ALDERMAN
CITY OF BATAVIA
100 N ISLAND AVE
BATAVIA IL 60510

JEFFERY SCHIELKE
MAYOR
CITY OF BATAVIA
101 N ISLAND AVE
BATAVIA IL 60510

HONORABLE JOANN CONWAY
VILLAGE PRESIDENT
CITY OF BATH
PO BOX 140
BATH IL 62617-9999

HONORABLE HOWARD MAYFIELD
VILLAGE PRESIDENT
CITY OF BAY VIEW GARDENS
300 GARBER LN# 8
EAST PEORIA IL 61611-9668

HONORABLE JESSE SMART
MAYOR
CITY OF BLOOMINGTON
P O BOX 3157
BLOOMINGTON IL 61702

HONORABLE DANNY FISHEL
VILLAGE PRESIDENT
CITY OF BRIMFIELD
PO BOX 451
BRIMFIELD IL 61517-0451

HONORABLE MAX MAYBERRY
VILLAGE PRESIDENT
CITY OF BRYANT
PO BOX 13
BRYANT IL 61519-0013

HONORABLE DWIANE VAN MEENEN
VILLAGE PRESIDENT
CITY OF CAMBRIDGE
123 W EXCHANGE ST
CAMBRIDGE IL 61238

HONORABLE ROD HEINZE
MAYOR
CITY OF CANTON
2 N MAIN
CANTON IL 61520

HENRY HENDERSON
DEPT OF ENVIRONMENT
CITY OF CHICAGO
30 N LASALLE ST 25TH FLOOR
CHICAGO IL 60602

HONORABLE BURTON NATARUS
ALDERMAN
CITY OF CHICAGO
121 N LA SALLE ST RM 306
CHICAGO IL 60602

LISA BURNETT
ECONOMIC DEVELOPMENT DIRECTOR
GREENWAYS BOARD
CITY OF CHILLICOTHE ECONOMIC DEVELOPMENT
908 N 2ND ST
CHILLICOTHE IL 61523

HONORABLE GLORIA ORLANDI
VILLAGE PRESIDENT
CITY OF DALZELL
119 SCOTT ST PO BOX 255
DALZELL IL 61320-0255

HONORABLE JOSEPH CENTENO
VILLAGE PRESIDENT
CITY OF DANA
VILLAGE HALL
DANA IL 61321-9999

WILLIAM SANDS
DIRECTOR OF PUBLIC WORKS
CITY OF DECATUR
ONE CIVIC CENTER PLAZA
DECATUR IL 62523

HONORABLE CHARLES DENMAN
MAYOR
CITY OF DELAVAN
PO BOX 590
DELAVAN IL 61734-0590

HONORABLE HELEN WILLIAMS
VILLAGE PRESIDENT
CITY OF DUNFERMLINE
129 FULTON ST PO BOX 121
DUNFERMLINE IL 61524-0121

HONORABLE RICHARD CALHOUN
VILLAGE PRESIDENT
CITY OF DUNLAP
104 N 2ND ST PO BOX 116
DUNLAP IL 61525-0121

CITY CLERK
CITY OF EAST PEORIA
100 S MAIN ST
EAST PEORIA IL 61611

ANTHONY BARRETT
PEORIA/PEKIN URBANIZED AREA TR
CITY OF EAST PEORIA
100 S MAIN ST
EAST PEORIA IL 61611

TOM BRIMBERRY
LAND USE ADVISORY COMMITTEE L
CITY OF EAST PEORIA
100 S MAIN
EAST PEORIA IL 61611

HONORABLE CHARLES DOBBELAIRE
MAYOR
CITY OF EAST PEORIA
100 S MAIN ST
EAST PEORIA IL 61611-2457

JOHN ESKLE
CITY OF EAST PEORIA
701 MARINER WAY
EAST PEORIA IL 61611

JEFF GIEBELHAUSEN
PEORIA/PEKIN URBANIZED AREA TR
CITY OF EAST PEORIA
100 S MAIN ST
EAST PEORIA IL 61611

JEFF GIEBELHOUSEN
MAYOR
CITY OF EAST PEORIA
100 S MAIN ST
PEORIA IL 61611-2457

HONORABLE EDWARD COSBY JR
MAYOR
CITY OF ELMWOOD
201 W MAIN ST PO BOX 439
ELMWOOD IL 61529-0439

HONORABLE LAURA SISCOE
MAYOR
CITY OF EUREKA
128 N MAIN ST
EUREKA IL 61530-1157

HONORABLE SCOTT KNIGHT
VILLAGE OF FLANAGAN
CITY OF FLANAGAN
PO BOX 597
FLANAGAN IL 61740-0597

LYMAN JENSEN
DIRECTOR OF PUBLIC WORKS
CITY OF GALESBURG
PO BOX 1387
GALESBURG IL 61402-1387

HONORABLE ROBERT SHEEHAN
MAYOR
CITY OF GALESBURG
55 W TOMPKINS
GALESBURG IL 61402-9999

HONORABLE MARVIN JOHNSON
VILLAGE PRESIDENT
CITY OF GERMANTOWN HILLS
216 HOLLAND RD
METAMORA IL 61548-9999

HONORABLE SHIRLEY GLELOW
MAYOR
CITY OF GRAND RIDGE
PO BOX 745
GRAND RIDGE IL 61325-0745

HONORABLE ROBERTA BUCHER
VILLAGE PRESIDENT
CITY OF GREEN VALLEY
P O BOX 111
GREEN VALLEY IL 61534-0111

HONORABLE PHIL MC ALEARNEY
VILLAGE PRESIDENT
CITY OF HANNA CITY
313 N 1ST ST PO BOX 492
HANNA CITY IL 61536-0492

PORTIA BROWN
CITY OF HAVANA
617 N BROADWAY ST
HAVANA IL 62644-1003

HONORABLE DALE ROBERTS
MAYOR
CITY OF HAVANA
227 W MAIN ST
HAVANA IL 62644-1137

HONORABLE KEVIN COLEMAN
VILLAGE PRESIDENT
CITY OF HENNEPIN
VILLAGE HALL
HENNEPIN IL 61327-9999

HONORABLE DARYL FOUNTAIN
MAYOR
CITY OF HENRY
426 E PARK ROW ST PO BOX 196
HENRY IL 61537-0196

HONORABLE AUGUST CILTS
VILLAGE PRESIDENT
CITY OF HOPEDALE
PO BOX 387
HOPEDALE IL 61747-0387

HONORABLE CHARLETTE HANCOCK
VILLAGE PRESIDENT
CITY OF KINGSTON MINES
201 WASHINGTON PO BOX 17
KINGSTON MINES IL 61539-0017

TIMOTHY R. HANSEN
VILLAGE PRESIDENT
CITY OF LA GRANGE
53 S LA GRANGE RD
LA GRANGE IL 60525

PAM BROVIAK
CITY OF LA SALLE
745 2ND
LA SALLE IL 61301

HONORABLE MICHAEL HIELL
MAYOR
CITY OF LACON
406 5TH ST
LACON IL 61540-1295

HONORABLE RONALD BARNHART
MAYOR
CITY OF LEONORE
VILLAGE HALL
LEONORE IL 61332-9999

HONORABLE BARRY BLACKWELL
MAYOR
CITY OF LEWISTOWN
119 S ADAMS ST
LEWISTOWN IL 61542-1443

HONORABLE RANDY MAY
VILLAGE PRESIDENT
CITY OF LOMAX
PO BOX 116
LOMAX IL 61454-0116

HONORABLE RICHARD LEFLER
VILLAGE PRESIDENT
CITY OF LONG POINT
PO BOX 38
LONG POINT IL 61333-0038

HONORABLE PHILLIP THAMES
VILLAGE PRESIDENT
CITY OF MACKINAW
100 E FAST AVE PO BOX 542
MACKINAW IL 61755-0542

HONORABLE TIMOTHY SONDAG
VILLAGE PRESIDENT
CITY OF MANITO
204 N BROADWAY ST PO BOX 618
MANITO IL 61546-0618

HONORABLE KEN OEDEWALDT
VILLAGE PRESIDENT
CITY OF MAPLETON
P O BOX 101
MAPLETON IL 61547-0101

HONORABLE DAVID REDFIELD
MAYOR
CITY OF MARQUETTE HEIGHTS
715 LINCOLN RD
MARQUETTE HEIGHTS IL 61554-1313

HONORABLE NEILL KENEIPP
VILLAGE PRESIDENT
CITY OF MINIER
PO BOX 350
MINIER IL 61759-0350

HONORABLE MARK SPENCER
MAYOR
CITY OF MINONK
670 N CHESTNUT ST
MINONK IL 61760-1272

HONORABLE DON ROTH
MAYOR
CITY OF MORTON
120 N MAIN ST
MORTON IL 61550

HONORABLE JO HAMLET
MAYOR
CITY OF MOUNT STERLING
104 ELM
MT STERLING IA 52573-7700

SUPERINTENDENT
ELECTRIC UTILITIES
CITY OF NAPERVILLE
139 WATER ST
NAPERVILLE IL 60540

HONORABLE KENT KARRAKER
MAYOR
CITY OF NORMAL
100 E PHOENIX
NORMAL IL 61761

HONORABLE WILLIAM CLUTTS
VILLAGE PRESIDENT
CITY OF NORTH PEKIN
318 N MAIN ST
NORTH PEKIN IL 61554-1066

HONORABLE ROBERT EGBERT
VILLAGE PRESIDENT
CITY OF NORWOOD
1515 N NORWOOD BLVD
NORWOOD IL 61604-4355

HONORABLE JERRY SCOTT
MAYOR
CITY OF OGLESBY
128 W WALNUT ST PO BOX 10
OGLESBY IL 61348-0010

RANDY CONSTANTINE
CITY OF OTTAWA
301 W MADISON ST
OTTAWA IL 61350

WAYNE EICHELKRAUT JR
COMMISSIONER OF PUBLIC PROPERTY
CITY OF OTTAWA
301 W MADISON ST
OTTAWA IL 61350

DAPHNE MITCHELL
CITY OF OTTAWA
301 W MADISON ST
OTTAWA IL 61350

GARY PIKE
CITY OF OTTAWA
301 W MADISON ST
OTTAWA IL 61350

ELIZABETH TAYLOR
CITY OF OTTAWA
301 W MADISON ST
OTTAWA IL 61350

EDWARD WHITNEY
CITY OF OTTAWA
301 W MADISON ST
OTTAWA IL 61350

HONORABLE LYNDELL HOWARD
MAYOR
CITY OF PEKIN
111 S CAPITAL ST
PEKIN IL 61554-3260

RICHARD JOST
LAND USE ADVISORY COMMITTEE L
CITY OF PEKIN
1416 W SHORE DR
PEKIN IL 61554

DENNIS KIEF
PEORIA/PEKIN URBANIZED AREA TR
CITY OF PEKIN
111 S CAPITOL ST
PEKIN IL 61554

GREG RANNEY
MUNICIPAL BUS DEPT
CITY OF PEKIN
1130 KOCH ST
PEKIN IL 61554

CITY CLERK
CITY OF PEORIA
419 FULTON ST #401
PEORIA IL 61602

PEORIA/PEKIN URBANIZED AREA TR
CITY OF PEORIA
419 FULTON ST ROOM 307
PEORIA IL 61602

ENHANCEMENTS
CITY OF PEORIA
419 FULTON
PEORIA IL 61602

WAYNE ANTHONY
PEORIA/PEKIN URBANIZED AREA TR
CITY OF PEORIA
4 FULTON ST TWIN TOWERS #402
PEORIA IL 61602

ROSS BLACK
AREA PLANNERS
CITY OF PEORIA
419 FULTON ROOM 402
PEORIA IL 61602

GENE HEWITT
PEORIA/PEKIN URBANIZED AREA TR
CITY OF PEORIA
419 FULTON ST
PEORIA IL 61602

ELLIE HOGAN
RIVERFRONT BUSINESS DIST COMM
CITY OF PEORIA
419 FULTON ST ROOM 106
PEORIA IL 61602

JOHN KUNSKI
419 FULTON ST #401
CITY OF PEORIA
PEORIA CITY HALL ROOM 300 419 FULTON
PEORIA IL 61602

MICHAEL MC KNIGHT
PEORIA/PEKIN URBANIZED AREA TR
CITY OF PEORIA
419 FULTON SUITE 207
PEORIA IL 61602

BRIAN NICHOLSON
EROSION CONTROL TASK FORCE
CITY OF PEORIA
419 FULTON ROOM 307
PEORIA IL 61602

HONORABLE DAVID RANSBURG
MAYOR
CITY OF PEORIA
419 FULTON ST RM 401
PEORIA IL 61602-1217

STEVEN VAN WINKLE
DIRECTOR OF PUBLIC WORKS
PEORIA/PEKIN URBANIZED AREA TR
CITY OF PEORIA
419 FULTON ST #307
PEORIA IL 61602

VILLAGE CLERK
CITY OF PEORIA HEIGHTS
4901 N PROSPECT RD
PEORIA HEIGHTS IL 61616

HONORABLE EARL CARTER
VILLAGE PRESIDENT
CITY OF PEORIA HEIGHTS
4901 N PROSPECT RD
PEORIA HEIGHTS IL 61616-5397

DAVID EVANCOE
AREA PLANNERS
CITY OF PEORIA PLANNING & ZONING
419 FULTON ROOM 404
PEORIA IL 61602

OLAJIDE GIWA
AREA PLANNERS
CITY OF PEORIA PLANNING & ZONING
456 FULTON ST #402
PEORIA IL 61602

PATRICIA LANDES
AREA PLANNERS
CITY OF PEORIA PLANNING & ZONING
419 FULTON ROOM 404
PEORIA IL 61602

MIKE SALATA
TRANSPORTATION COORDINATION CO
CITY OF PEORIA PUBLIC WORKS
3505 N DRIES LANE
PEORIA IL 61604

HONORABLE DONALD BAKER
MAYOR
CITY OF PERU
PO BOX 299
PERU IL 61354-0299

HONORABLE KEITH CAIN
MAYOR
CITY OF PRINCETON
2 S MAIN ST
PRINCETON IL 61356-1708

HONORABLE SIDNEY R STAHL
VILLAGE PRESIDENT
CITY OF PRINCEVILLE
206 N WALNUT
PRINCEVILLE IL 61559-9999

HONORABLE KEITH KLEIN
VILLAGE PRESIDENT
CITY OF ROANOKE
PO BOX 1098
ROANOKE IL 61561-1098

HONORABLE CHARLOTTE RUPE
VILLAGE PRESIDENT
CITY OF RUTLAND
101 N W FRONT ST
RUTLAND IL 61358-0395

HONORABLE MIKE LAFRAMBOISE
VILLAGE PRESIDENT
MAYOR
CITY OF SECOR
VILLAGE HALL
SECOR IL 61771-9999

HONORABLE RICHARD HUSE
VILLAGE PRESIDENT
CITY OF SOUTH PEKIN
309 W MAIN ST PO BOX 10
SOUTH PEKIN IL 61564-0010

HONORABLE PHILLIP MURPHY
VILLAGE PRESIDENT
CITY OF SPARLAND
PO BOX 278
SPARLAND IL 61565-0278

HONORABLE JAMES NARCZEWSKI
MAYOR
CITY OF SPRING VALLEY
215 N GREENWOOD ST
SPRING VALLEY IL 61362-2003

HONORABLE ROGER THOMPSON
VILLAGE PRESIDENT
CITY OF TONICA
PO BOX 268
TONICA IL 61370-0268

HONORABLE DAVE MASON
TOWN PRESIDENT
CITY OF TOPEKA
TOWN HALL
TOPEKA IL 61567-9999

HONORABLE TODD BONG
VILLAGE PRESIDENT
CITY OF TREMONT
211 S SAMPSON ST
TREMONT IL 61568-9999

HONORABLE MARWOOD KIDD
VILLAGE PRESIDENT
CITY OF TROY GROVE
PO BOX 2
TROY GROVE IL 61372-0002

HONORABLE CHARLES ELDRED
MAYOR
CITY OF URBANA
400 S VINE ST
URBANA IL 61801

HONORABLE STEVE FORMEY
VILLAGE PRESIDENT
CITY OF WASHBURN
136 JEFFERSON
WASHBURN IL 61570-9999

DALE CLAUS
CITY ADMINISTRATOR
CITY OF WASHINGTON
115 W JEFFERSON
WASHINGTON IL 61571

JAMES GEE
CITY OF WASHINGTON
810 HILLDALE AVE
WASHINGTON IL 61571

JAY GETZ
AREA PLANNERS
CITY OF WASHINGTON
115 W JEFFERSON
WASHINGTON IL 61570

HONORABLE GARY MANIER
MAYOR
CITY OF WASHINGTON
115 W JEFFERSON
WASHINGTON IL 61571-9999

DAVID PLYMAN
CITY OF WASHINGTON
115 W JEFFERSON
WASHINGTON IL 61571

HONORABLE JAMES R DILLON
MAYOR
CITY OF WEST PEORIA
2506 W ROHMANN
WEST PEORIA IL 61604-1377

JEFF ROBINSON
PEORIA/PEKIN URBANIZED AREA TR
CITY OF WEST PEORIA
2506 W ROHMANN
WEST PEORIA IL 61604

DAVID STROHL
PEORIA/PEKIN URBANIZED AREA TR
CITY OF WEST PEORIA
2506 W ROHMANN
WEST PEORIA IL 61604

DALE SMITH
CITY RECREATION BOARD
301 W MADISON
OTTAWA IL 61350

RICK SEMONSKI
PEORIA/PEKIN URBANIZED AREA TR
DEPARTMENT OF PUBLIC WORKS
2232 E WASHINGTON ST
EAST PEORIA IL 61611

STEVE CARR
DIRECTOR
DEPT OF PUBLIC WORKS
2232 E WASHINGTON ST
EAST PEORIA IL 61611

DICK DODSON
E PEORIA CHAMBER OF COMMERCE
111 W WASHINGTON ST
EAST PEORIA IL 61611

CHARLES DOBBELAIRE
E PEORIA CITY COUNCIL
232 COVENTRY LANE
EAST PEORIA IL 61611

HAROLD FOGELMARK
E PEORIA CITY COUNCIL
126 W FAULKNER RD
EAST PEORIA IL 61611

TOM ROTH
EL PASO CHAMBER OF COMMERCE
1 W FRONT ST
EL PASO IL 61738

FONDULAC PARK DIST
201 VETERANS DR #2
EAST PEORIA IL 61611

WILLIAM RUTHERFORD
GREENWAYS BOARD
FOREST PARK FOUNDATION
5823 N FOREST PARK DR
PEORIA HEIGHTS IL 61614

LOUISE MC ENTIRE
ENHANCEMENTS
FORT CREVE COEUR PARK
301 LAWNRIDGE DR
CREVE COEUR IL 61610

BOB VAUGHAN
FOX VALLEY PARK DIST
P.O. Box 818
AURORA IL 60507

STEVEN HATCHER
GREATER AURORA AREA CHAMBER OF COMMERCE
40 W DOWNER PL
AURORA IL 60506

DAVID BRAUN
PEORIA/PEKIN URBANIZED AREA TR
GREATER PEORIA MASS TRANSIT
2105 NE JEFFERSON ST
PEORIA IL 61603

JOHN STOKOWSKI
PEORIA/PEKIN URBANIZED AREA TR
GREATER PEORIA MASS TRANSIT
2105 NE JEFFERSON ST
PEORIA IL 61603

MICHAEL P BOER
GRTR SPGFLD CHAMBER OF COMMERCE
3 S OLD STATE CAPITOL PLAZA
SPRINGFIELD IL 62701

SUPERINTENDENT OF HIGHWAYS
GRUNDY COUNTY
310 E DUPONT RD
MORRIS IL 60450

HAVANA CHAMBER OF COMMERCE
112 S ORANGE ST
HAVANA IL 62644

HAVANA PARK DIST
227 W MAIN ST
HAVANA IL 62644

ROBERTA PARKS
CHAMBER OF COMMERCE
HEARTLAND PARTNERSHIP
124 SW ADAMS ST SUITE 300
PEORIA IL 61602

HENRY CHAMBER OF COMMERCE
426 E PARK ROW
HENRY IL 61537

COUNTY CLERK
KANKAKEE COUNTY
189 E CT ST
KANKAKEE IL 60901

ED SMITH
COUNTY ATTORNEY
KANKAKEE COUNTY
450 E CT ST
KANKAKEE IL 60901

JEAN HURRLE
KANKAKEE FOREST PRESERVE
605 1/2 S 5TH AVE
KANKAKEE IL 60901

CHUCK SMEAD
KANKAKEE FOREST PRESERVE
1221 E 5000 S RD
ST ANNE IL 60904

JOSEPH CANTWELL
KANKAKEE RIVER CONSERVANCY DIST
207 E RIVER ST
MOMENCE IL 60954

STEVE ENGELKING
KANKAKEE RIVER CONSERVANCY DIST
11861 E GREGG BLVD
MOMENCE IL 60954

J R BLACK
KANKAKEE RIVER PARTNERSHIP
9 NORTHVIEW
KANKAKEE IL 60901

DAVE MOGLE
KANKAKEE VALLEY PARK DIST
175 S WALL
KANKAKEE IL 60901

ROBERT PADDOCK
GLADYS FOX MUSEUM
LOCKPORT TOWNSHIP PARK DIST
1911 S LAWRENCE
LOCKPORT IL 60441-4498

GEORGE WHITLATCH
CHAIRMAN
GREENWAYS BOARD
MACKINAW RECREATION PROGRAM
100 E FAST AVE
MACKINAW IL 61755

PAUL MARIEN
ECOSYSTEM PRTNRSHP-HEART SANGAMON R
MACON COUNTY CONSERVATION DISTRICT
3939 NEARING LANE
DECATUR IL 62521

RICK CRUM
GREENWAYS BOARD
MARQUETTE HEIGHTS STS AND PARKS
715 LINCOLN RD
MARQUETTE HEIGHTS IL 61554

THEODORE J BAKALAR
MAYOR
204 S BLOOMINGTON ST
STREATOR IL 61364

GENERAL SUPERINTENDENT
METR SANITARY DIST - GREATER CHICAG0
100 E ERIE ST
CHICAGO IL 60511

BYRON MILLER
MOMENCE CHAMBER OF COMMERCE
PO BOX 34 28 N DIXIE HWY
MOMENCE IL 60954

MIKE BADGEROW
MORTON CHAMBER OF COMMERCE
415 W JEFFERSON ST
MORTON IL 61550

DONALD BIGGER
MORTON CITY COUNCIL
77 MAPLE RIDGE DR
MORTON IL 61550

MARK HUTCHISON
MORTON CITY COUNCIL
309 E BIRCHWOOD
MORTON IL 61550

JEFF KAUFMAN
MORTON CITY COUNCIL
525 S MAIN
MORTON IL 61550

CRAIG SCHWARZENTRAUB
MORTON CITY COUNCIL
317 S MINNESOTA
MORTON IL 61550

GENE SHRADER
MORTON CITY COUNCIL
9 HOLLY RIDGE SPUR
MORTON IL 61550

MAYOR
OSWEGO
113 MAIN
OSWEGO IL 60543

PAT DUNN
OSWEGO CHAMBER OF COMMERCE
44 MONROE ST PO BOX 863
OSWEGO IL 60543

SUPERVISOR
OSWEGO TWNSP, KENDALL CO
4100 Rt. 71
OSWEGO IL 60543

JERRY GALAS
OTTAWA AREA CHAMBER
301 W MADISON ST
OTTAWA IL 61350

BOYD PALMER
CHAIRMAN OF THE BOARD
OTTAWA AREA CHAMBER OF COMMERCE & INDUST
110 W LAFAYETTE ST PO BOX 888
OTTAWA IL 61350

CURT SESTO
PRESIDENT
OTTAWA CHAMBER AMBASSADORS
PO BOX 888
OTTAWA IL 61350

PEKIN CHAMBER OF COMMERCE
402 COURT ST
PEKIN IL 61554-3201

CAROL SHIELDS
PEKIN CHAMBER OF COMMERCE
402 COURT ST
PEKIN IL 61554-3201

LAURIE BARRA
PEKIN CITY COUNCIL
#9 RAINBOW DR
PEKIN IL 61554

JIM JONES
PEKIN CITY COUNCIL
1806 VALENCIA DR
PEKIN IL 61554

LLOYD ORRICK
PEKIN CITY COUNCIL
699 OXFORD
PEKIN IL 61554

HARVEY RICHMOND
PEKIN CITY COUNCIL
33 ROSEWOOD LANE
PEKIN IL 61554

CELIUS ANDERSON
PEKIN PLANNING COMMISSION
1015 MATILDA
PEKIN IL 61554

RICHARD BOLAM
PEKIN PLANNING COMMISSION
1014 PRINCE ST
PEKIN IL 61554

RALPH BROWER
PEKIN PLANNING COMMISSION
1832 HIGHWOOD
PEKIN IL 61554

SCOTT EWING
PEKIN PLANNING COMMISSION
2206 SCENIC VIEW COURT
PEKIN IL 61554

WOODY GOOD
PEKIN PLANNING COMMISSION
711 WASHINGTON ST
PEKIN IL 61554

EMIL MONGE
PEKIN PLANNING COMMISSION
1418 N 9TH ST
PEKIN IL 61554

J DOUGLAS PAYNE
PEKIN PLANNING COMMISSION
2306 COURT ST
PEKIN IL 61554

MARGE SEVIER
PEKIN PLANNING COMMISSION
1700 ST CLAIR DR
PEKIN IL 61554

CHAIRMAN
PEORIA AREA CHAMBER OF COMMERCE
124 SW ADAMS ST #300
PEORIA IL 61602

PEORIA CITY COUNCIL
419 FULTON ST RM 207
PEORIA IL 61605

CAMILLE M GIBSON
PEORIA CITY COUNCIL
1627 W COLUMBIA TERRACE
PEORIA IL 61606

EDWARD P GLOVER
PEORIA CITY COUNCIL
3711 N SHERIDAN RD
PEORIA IL 61614

CHARLES V GRAYEB
PEORIA CITY COUNCIL
510 W HIGH ST
PEORIA IL 61606

PATRICK NICHTING
PEORIA CITY COUNCIL
10507 N SLEEPY HOLLOW RD
PEORIA IL 61615-1119

GARY V SANDBERG
PEORIA CITY COUNCIL
2807 N LINN
PEORIA IL 61604

WILLIAM R SPEARS
PEORIA CITY COUNCIL
2225 W OVERHILL RD
PEORIA IL 61615

GALE S THETFORD
PEORIA CITY COUNCIL
1126 E FAIROAKS AVE
PEORIA IL 61603

W ERIC TURNER
PEORIA CITY COUNCIL
6212 N TEALWOOD CIRCLE
PEORIA IL 61615

LEONARD A UNES
PEORIA CITY COUNCIL
1216 W TETON DR
PEORIA IL 61614

PEORIA ECONOMIC DEVELOPMENT
419 FULTON ST #303
PEORIA IL 61602

ROBERT F FAVORITE
PEORIA HEIGHTS CITY COUNCIL
5121 N MONTCLAIR
PEORIA HEIGHTS IL 61614

RICK GRIFFITH
PEORIA HEIGHTS CITY COUNCIL
820 E COX AVE
PEORIA HEIGHTS IL 61614

PATRICIA HONEY
PEORIA HEIGHTS CITY COUNCIL
1708 E ST JUDE COURT
PEORIA HEIGHTS IL 61614

WILLIAM KELLEY SR
PEORIA HEIGHTS CITY COUNCIL
1111 E EUCLID AVE
PEORIA HEIGHTS IL 61614

ANDREA PENDLETON
PEORIA HEIGHTS CITY COUNCIL
1200 E DURYEA AVE
PEORIA HEIGHTS IL 61614

ROSS TARR
PEORIA HEIGHTS CITY COUNCIL
215 W SAM J STONE AVE APT 501
PEORIA IL 61605-2569

PEORIA PARK DIST
GLEN OAK PAVILION-2218 N PROSPECOURT RD
PEORIA IL 61603

JERRY OLSON
DIRECTOR
JOLIET PARK DIST
PILCHER PARK NATURE CENTER
RTE 30 & COUGAR RD- 3000 W JEFFERSON
JOLIET IL 60435

SUSAN SCHANLABER
THE LANDMARK GROUP
P.O. Box 5155
AURORA IL 60507

TOWNSHIP OF OSWEGO
PO BOX 792 4100 RT 71
OSWEGO IL 60543

DOUGLAS TUCKER
GREENWAYS BOARD
TREMONT PARK BOARD
312 E JEFFERSON
TREMONT IL 61615

JOHN WEBB
GREENWAYS BOARD
TREMONT PARK BOARD
309 N SAMPSON
TREMONT IL 61568

JACK WEST
GREENWAYS BOARD
TREMONT PARK BOARD
115 RIPLEY
TREMONT IL 61568

JEFF RANDOLPH
TRI COUNTY RIVERFRONT ACTION FORUM
911 N PIONEER PKWY
PEORIA IL 61615

UTICA CITY OFFICE
255 MILL ST
UTICA IL 61373

MARVIN DEAN
SUPERVISOR
UTICA TOWNSHIP
PO BOX 472
UTICA IL 61373

UTICA TOWNSHIP SUPERVISOR
200 MILL ST
UTICA IL 61373

RICHARD MYERS
VALLEY CITY LEVEE AND DRAINAGE DIST
RR 2 BOX 21
GRIGGSVILLE IL 62340

PRESIDENT
VILLAGE BOARD
CHANDLERVILLE IL 62627

HONORABLE ROBERT HORNER
MAYOR
VILLAGE OF ARMINGTON
P O BOX 31
ARMINGTON IL 61721

DON GARSKE
PEORIA/PEKIN URBANIZED AREA TR
VILLAGE OF BARTONVILLE
4615 SANDRON LANE
BARTONVILLE IL 61607

HONORABLE STEVE MEYER
MAYOR
VILLAGE OF BAYVIEW GARDENS
325 GARDEN RD RR 8
EAST PEORIA IL 61611

HONORABLE RALPH WILSON
MAYOR
VILLAGE OF BELLEVUE
622 S BYRON AVE
PEORIA IL 61604

HONORABLE ARTHUR BROOKS
MAYOR
VILLAGE OF BENSON
412 FRONT ST PO BOX 107
BENSON IL 61516-0107

LISA ARMOUR
INTERIM VILLAGE ADMIN
VILLAGE OF CHANNAHON
24555 S NAVAJO DR
CHANNAHON IL 60410-3334

EILEEN CLARK
VILLAGE CLERK
VILLAGE OF CHANNAHON
24555 S NAVAJO DR
CHANNAHON IL 60410-3334

HONORABLE TROY CHILDERS
MAYOR
VILLAGE OF CHILLICOTHE
908 N 2ND ST
CHILLICOTHE IL 61523

HONORABLE STEVEN SCHROCK
VILLAGE PRESIDENT
VILLAGE OF CONGERVILLE
PO BOX 118
CONGERVILLE IL 61729-0118

HONORABLE EUGENE TALBOT
VILLAGE PRESIDENT
VILLAGE OF CREVE COEUR
101 N THORNCREST AVE
CREVE COEUR IL 61611-3959

HONORABLE RONALD B MOOL
MAYOR
VILLAGE OF EL PASO
475 W FRONT
EL PASO IL 61738

HONORABLE JACK RUDD
VILLAGE PRESIDENT
VILLAGE OF GLASFORD
PO BOX 47
GLASFORD IL 61533-0047

HONORABLE DEAN HUDSON
VILLAGE PRESIDENT
VILLAGE OF GOODFIELD
114 S EUREKA ST
GOODFIELD IL 61742-0121

HONORABLE MARK HAWKINS
MAYOR
VILLAGE OF KAPPA
RR1 BOX 142
EL PASO IL 61738

HONORABLE GEORGE EMERY
MAYOR
VILLAGE OF KINGSTON MINES
209 WASHINGTON ST
KINSTON MINES IL 61539

HONORABLE GARY LITTLE
MAYOR
VILLAGE OF MARQUETTE HEIGHTS
715 LINCOLN RD
MARQUETTE HEIGHTS IL 61554

BOB WRAIGHT
PEORIA/PEKIN URBANIZED AREA TR
VILLAGE OF MORTON
120 N MAIN ST PO BOX 28
MORTON IL 61550

CLAUDE STONE
LAND USE ADVISORY COMMITTEE L
VILLAGE OF MORTON PLANNING
1109 BRENTWOOD RD
MORTON IL 61550

TOM SURACE
BRANCH MANAGER
TRANSPORATION DEPT
VILLAGE OF NILES
6859 W TOUHY AVE
NILES IL 60714-4519

CARRIE HANSEN
VILLAGE ADMINISTRATOR
VILLAGE OF OSWEGO
113 MAIN ST
OSWEGO IL 60543

HONORABLE ROGER BOGNER
MAYOR
VILLAGE OF PANOLA
RR 2
EL PASO IL 61738

KENTON D MANNING
VILLAGE PRESIDENT
VILLAGE OF PAWNEE
617 9TH ST PO BOX 560
PAWNEE IL 62558

RICK WILLIAMS
PEORIA/PEKIN URBANIZED AREA TR
VILLAGE OF PEORIA HEIGHTS
4901 N PROSPECT HEIGTHS
PEORIA HEIGHTS IL 61614

HONORABLE HENRY BERRY
PRESIDENT
VILLAGE OF ROCKDALE
603 OTIS ST
ROCKDALE IL 60436

HONORABLE RICK CHAPMAN
PRESIDENT
VILLAGE OF SHOREWOOD
903 W JEFFERSON ST
SHOREWOOD IL 60431

PRESIDENT
VILLAGE OF SPRING BAY
EAST PEORIA IL 61611

HONORABLE RALPH ATHERTON
MAYOR
VILLAGE OF SPRING BAY
111 TAZEWELL
SPPRING BAY IL 61611

TARRY LANCE
WASHINGTON CHAMBER OF COMMERCE
112 WASHINGTON SQUARE
WASHINGTON IL 61571

DON BRUBAKER
WASHINGTON CITY COUNCIL
502 N MAIN APT M
WASHINGTON IL 61571

DELMAR CUNNINGHAM
WASHINGTON CITY COUNCIL
616 PARR HUE LANE
WASHINGTON IL 61571

JIM GEE
WASHINGTON CITY COUNCIL
9 BROWNING CT
WASHINGTON IL 61571-9551

ROBERT GORDON
WASHINGTON CITY COUNCIL
604 YORKSHIRE
WASHINGTON IL 61571

TERRY HILLEGONDS
WASHINGTON CITY COUNCIL
1300 OAK LEAF LN
WASHINGTON IL 61571-9711

CAROL K MOSS
WASHINGTON CITY COUNCIL
204 N SPRUCE
WASHINGTON IL 61571

STEVE HARENBERG
WASTE MANAGEMENT OF PEORIA
3550 E WASHINGTON ST
EAST PEORIA IL 61611

ANA KOVAL
EXE DIR
CANAL CORRIDOR ASSOC
25 E WASHINGTON STE 1650
CHICAGO IL 60602

EUGENE KURDA PHD
SENIOR ECONOMIST-AGRIC MARKETS GROUP
MARKET AND PRODUCT DEVELOPMENT DEPT
CHICAGO BOARD OF TRADE
141 W JACKSON BLVD #1
CHICAGO IL 60604-2994

CHRIS MANHEIM
EXECUTIVE DIRECTOR
GRUNDY ECONOMIC DEVELOPMENT COUNCIL
112 E WASHINGTON ST
MORRIS IL 60450

JACK BERNHARDT
ILLINOIS CHAMBER
311 S WACKER DR
CHICAGO IL 60606

ED SLININGER
LAND USE ADVISORY COMMITTEE
RR 5 1004 HICHORY CREEK CT
METAMORA IL 61548

DONNA WOODROW
MACKINAW VALLEY IMPROVEMENT ASSN
RR #1 BOX 274
GREEN VALLEY IL 61534

GEORGE CLARK
MID AMERICA PORT COMMISSION
RR 3 BOX 23
MT STERLING IL 62665

MAX EDLEN
COMMISSIONER
MID AMERICA PORT COMMISSION
213 N BLUFF ST
BLUFFS IL 62621

NORTHEASTERN IL PLANNING COMMISSION
222 S RIVERSIDE PLAZA SUITE 1800
CHICAGO IL 60606

TOM PRICE
NORTHEASTERN IL PLANNING COMMISSION
222 S RIVERSIDE PLAZA SUITE 1800
CHICAGO IL 60606

MIKE VAN MILL
REGIONAL PLANNING COMMISSION
189 E COURT ST
KANKAKEE IL 60901

THOMAS A WOBBE
EXECUTIVE DIRECTOR
SOUTHWEST ILLINOIS
SOUTHWEST ILLINOIS METRO PLANNING COMM
203 W MAIN ST
COLLINSVILLE IL 62234-3002

OUTDOOR SPACE & RECR COMMITTEE
TRI COUNTY REG PLANNING COMMISSION
411 HAMILTON BLVD
PEORIA IL 61602-1144

HALA AHMED
TRI COUNTY REG PLANNING COMMISSION
411 HAMIILTON BLVD STE 2001
PEORIA IL 61602

MELISSA EATON
TRI COUNTY REG PLANNING COMMISSION
411 HAMILTON BLVD STE 2001
PEORIA IL 61604

TERRY KOHLBUSS
EXECUTIVE DIRECTOR
TRI COUNTY REG PLANNING COMMISSION
411 HAMILTON BLVD STE 2001
PEORIA IL 61602-1104

MARY DICKSON
TRI COUNTY RIVERFRONT ACTION FORUM
6916 N BROOKSTONE DR
PEORIA IL 61615-8600

DONALD MEINEN
REGIONAL DIRECTOR
TRI COUNTY RIVERFRONT ACTION FORUM
PO BOX 131
PEKIN IL 61555-0131

DON PETERSON
TRI COUNTY RIVERFRONT ACTION FORUM
500 S MENARD
METAMORA IL 61548-9707

WILLIAM TANTON
TRI COUNTY RIVERFRONT ACTION FORUM
612 TIMBER RIDGE CT
EUREKA IL 61530-9205

RANDY J. BELSLEY
TAZWELL COUNTY DEVELOPMENT DIRECTOR
EDC INC FOR PEORIA AREA
124 SW ADAMS ST STE 300
PEORIA IL 61602

ROBERT RICH
ATTORNEY AT LAW
25 N OTTAWA ST
JOLIET IL 60431

DAVID A STJERN
ATTORNEY AT LAW
3116 VICTORIA DR
SPRINGFIELD IL 62704

DICK L WILLIAMS ESQ
ATTORNEY AT LAW
139 E WASHINGTON ST
EAST PEORIA IL 61611

LONNIE DOAN
1ST FARM CREDIT SERVICE OF N IL
1689 N 31ST RD
OTTAWA IL 61350

A F M MESSENGER SERVICE INC
7420 N WESTERN AVE #1
CHICAGO IL 60645-1707

AARON BROS MOVING SYSTEM INC
4034 S MICHIGAN AVE
CHICAGO IL 60653-2116

BOB JACOBS
ADM
PO BOX 175
PEORIA IL 61650

RICHARD BLAUDOW
ECONOMIC DEVEL BOARD
ADVANCE TECHNOLOGY SERVICES
8201 N UNIVERSITY
PEORIA IL 61615

ADVANCED MESSENGER SERVICE
485 N MILWAUKEE AVE
CHICAGO IL 60610-3922

DAVID WARD
ADWELL CORP
102 N WESTGATE AVE
JACKSONVILLE IL 62650-1718

AFFETTO LEWIS A CARTAGE INC
2143 N NARRAGANSETT AVE
CHICAGO IL 60639-2633

TONY DOWIATT
AREA CONSULTANTS
AJ DOWIATT INC
121 W CENTER
EUREKA IL 61530

ALEXANDERS MOVERS INC
6535 S COTTAGE GROVE AVE
CHICAGO IL 60637-4209

ALL SEASONS MOVERS
6059 N ALBANY AVE
CHICAGO IL 60659-2402

DOUGLAS KULLEN
ALLIED ARCHEOLOGY
239 S CALUMET AVENUE
AURORA IL 60506

LOCAL 235
AMALGAMATED PLANT
446 CASS ST
EAST PEORIA IL 61611

AMER THEOLOGICAL LIBRARY ASSOCIATION
250 S WACKER
CHICAGO IL 60606

BOB ANDERSON
AREA CONSULTANTS
AMERICAN ENGINEERS ASSOCIATED
1750 FOSTER RD
WASHINGTON IL 61571

GARY F STELLA
ECONOMIC DEVEL BOARD
AMERICAN FAMILY INS/PEORIA CO BRD
4229 N PROSPECT RD
PEORIA HEIGHTS IL 61614

AMERICAN HOECHST CORP
501 BRUNNER ST
PERU IL 61354

RON WUNDERLICH
AMERICAN RIVER TRANSPORTATION
PO BOX 50
LA SALLE IL 61301

PATTI STERLING
PEORIA AREA CONVENTION & VISITOR BUR
AMERITECH
324 FULTON ST FLOOR 2
PEORIA IL 61602

ANCHOR MARINE - SENECA HARBOR SERVICE
1 EAST DUPONT RD
SENECA IL 61360

ANDERSON BROS STORAGE & MOVING COMPANY
3141 N SHEFFIELD AVE
CHICAGO LA 60657-4434

MARY ARDAPPLE
PEORIA AREA CONVENTION & VISITOR BUR
APPLE'S BAKERY
8412 N KNOXVILLE AVE
PEORIA IL 61615

AREA DISPOSAL SERVICE INC
PO BOX 9071
PEORIA IL 61612-9071

JACK BEAUPRE
ARK
12 BRIARCLIFF PROFESSIONAL CTR
BOURBONNAIS IL 60914

ARROW EXPRESS INC
505 N LAKE SHORE DR APT 6409
CHICAGO IL 60611-6455

ARROW MESSENGER SERVICES INC
1322 W WALTON ST
CHICAGO IL 60622-5340

MATHEW FRENCH
ARTCO
PO BOX 50
LA SALLE IL 61301

EDWARD HASKELL
ARTCO
PO BOX 1470
DECATUR IL 62525

GEORGE M BURRIER
GREENWAYS BOARD
ATTORNEY AT LAW
257-259 E WASHINGTON
EAST PEORIA IL 61611

REX LINDER
PEORIA AREA CONVENTION & VISITOR BUR
ATTORNEY AT LAW
124 S W ADAMS ST
PEORIA IL 61602

AURORA AREA EXPRESS INC (DEL)
1036 5TH AVE
AURORA IL 60505-5061

AURORA BANK TRUST 19310
2 S BROADWAY
AURORA IL 60507

RIC CREASY
PEORIA/PEKIN URBANIZED AREA TR
AUSTIN ENGINEERING COMPANY
8100 N UNIVERSITY ST
PEORIA IL 61614

AREA CONSULTANTS
AUSTIN ENGINEERING INC
8100 N UNIVERSITY
PEORIA IL 61614

AREA CONSULTANTS
AUTOMATED ANALYSIS CORP
423 SW WASHINGTON
PEORIA IL 61602

DON ANDERSON
AUTOMOTIVE TRADES
1499 W RTE 102
BOURBONNAIS IL 60914

AVAILABLE DISPOSAL SERVICE
7246 S EBERHART AVE
CHICAGO IL 60619-1713

RAY ADAMS
AXIS
2201 W TOWNLINE RD
PEORIA IL 61615

AREA CONSULTANTS
AXIS INC
2201 W TOWNLINE RD
PEORIA IL 61615

B F CARTAGE COMPANY
3627 W HARRISON ST
CHICAGO IL 60624-3621

BRUCE HALVERSON
BAIRD & ASSOCIATES
2981 YARMOUTH GREENWAY
MADISON WI 53711

MARK HOSKINS
BAKER ENGINEERING
801 W ADAMS ST
CHICAGO IL 60607

JAMES M CORKERY
CHAIRMAN
BANK ONE
124 SW ADAMS ST
PEORIA IL 61602

JAMES M CORKERY
RIVERFRONT BUSINESS DIST COMM
BANK ONE
124 SW ADAMS ST
PEORIA IL 61602

DEAN HEINZMANN
ECONOMIC DEVEL BOARD
BANK ONE
124 SW ADAMS ST
PEORIA IL 61602

BARR & MILES INC
5448 W 47TH ST
CHICAGO IL 60638-1807

KAI TARUM
BATVAIA
100 N. Island Ave.
BATAVIA IL 60510

BCW CONSTRUCTION COMPANY
8145 S EUCLID AVE
CHICAGO IL 60617-1036

BEARDSTOWN CLINIC II
8460 ST LUKE DR
BEARDSTOWN IL 62618

LOREN BECKER
BECKER & RANSON BULLDOZING
RR 2
JACKSONVILLE IL 62650-9802

ROBERT REGINA
HILLCREST SHOPPING CENTER
BELING CONSULTANTS
N LARKIN AVE AT PLAINFIELD RD
JOLIET IL 60435

DALE STEPHENSON
VICE PRESIDENT
BELL CO S H
10218 S AVE O
CHICAGO IL 60617

BEN LEE MOTOR SERVICE COMPANY INC
3314-44 S LAWNDALE AVE
CHICAGO IL 60623

DAVID BIELFELDT
ECONOMIC DEVEL BOARD
BIELFELDT & COMPANY
4700 N PROSPECT RD
PEORIA HEIGHTS IL 61614

BIGANE VESSEL FUELING CO
10540 S WESTERN AVE
CHICAGO IL 60643-2536

WILLIAM BLANK
BLANK, WESWELINK, COOK & ASSOC INC
2623 E PERSHING RD PO BOX 2910
DECATUR IL 62524

CAPT ROBERT ANTON
BOATWORKS
606 E ILLINOIS
PEORIA IL 61603

BRODERICK TEAMING COMPANY
3927 S HALSTED ST
CHICAGO IL 60609-2610

BOB KINNEY
AREA CONSULTANTS
BROWN ENGINEERING COMPANY
2407 WASHINGTON RD
WASHINGTON IL 61571

BROWNS RELIABLE MOVERS
30 SHERWICK DR
OSWEGO IL 60543-9406

BRUNT BROS TRANSFER INC
1220 E 75TH ST
CHICAGO IL 60619-2012

BURROWS MOVING COMPANY INC
6542 N CLARK ST
CHICAGO IL 60626-4002

C & D MOVING & STORAGE INC
PO BOX 410565
CHICAGO IL 60641

C R DAVIDSON LTD
114 E NORTH ST
MORRIS IL 60450-1814

BILL RIEBEL
PEORIA AREA CONVENTION & VISITOR BUR
C/O MARK TWAIN HOTEL
225 NE ADAMS ST
PEORIA IL 61602

CAHAKA PROPERTIES INC
1215 N SHERIDAN
PEORIA IL 61606

LOUISE TIMMERMAN
CAMP FARM MANAGEMENT INC
PO BOX 707
CHAMPAIGN IL 61824-0707

CANNONBALL INC
PO BOX 806167
CHICAGO IL 60680-4123

BRIAN HARRELL
CARPENTERS LOCAL 904
121 ELDEN
JACKSONVILLE IL 62650

JACOB PETERSON
CARPENTERS LOCAL 904
406 REID ST
JACKSONVILLE IL 62650

EARL BIMM
CARPENTERS UNION
1119 S DIAMOND ST
JACKSONVILLE IL 62650

JOEL MC NEELY
CARPENTERS UNION
1145 S EAST ST
JACKSONVILLE IL 62650

ANDREA DAWN PARKER
RIVERFRONT BUSINESS DIST COMM
CARVER FAMILY HEALTH CTR
711 W JOHN GWYNN AVE
PEORIA IL 61605

TIM CASSIDY
RIVERFRONT BUSINESS DIST COMM
CASSIDY & MUELLER
323 COMMERCE BANK BLDG 416 MAIN
PEORIA IL 61602

DON MAHANNAH
CATERPILLAR
901 W WASHINGTON ST SS6400
EAST PEORIA IL 61630-6400

CHAIRMAN
CATERPILLAR INC
100 NE ADAMS ST 9210
PEORIA IL 61629-1899

CRAIG BENNETT
CATERPILLAR INC
100 NE ADAMS ST
PEORIA IL 61629

JIM HANNEMAN
CATERPILLAR INC
100 NE ADAMS ST
PEORIA IL 61629

MARILYN LEYLAND
CATERPILLAR INC
7501 S ADAM ST
BARTONVILLE IL 61607-2732

DEREK PASCHAL
CATERPILLAR INC
100 NE ADAMS ST
PEORIA IL 61629

DICK POWELL
CATERPILLAR INC
100 NE ADAMS ST
PEORIA IL 61629

JOHN SLYMAN
PEORIA AREA CONVENTION & VISITOR BUR
CATERPILLAR INC
100 N E ADAMS
PEORIA IL 61629

JOE SPARKS
CATERPILLAR INC
100 N E ADAMS ST
PEORIA IL 61602

ORRIN STEMLER
CATERPILLAR INC
100 NE ADAMS ST
PEORIA IL 61629

TERRY THORSTENSON
PEORIA CHAMBER BOARD
CATERPILLAR INC
100 NE ADAMS ST - 1465
PEORIA IL 61629

GARY KRAMER
CATERPILLAR PROVING GROUNDS
136 STAR RIM DR
EAST PEORIA IL 61611

CATERPILLAR TRACTOR CO.
100 N E ADAMS ST
EAST PEORIA IL 61611

MICHAEL CLINE
CATERPILLER INC
23 WOODFORD WAY
METAMORA IL 61548

RON SATYLE
CATERPILLER INC
16615 W STREITMATTER
PRINCEVILLE IL 61559

CEE-BEE CARTAGE INC
14 W S WATER MARKET
CHICAGO IL 60608-2210

ELDON R ARNOLD
ECONOMIC DEVEL BOARD
CEFCU
PO BOX 1715
PEORIA IL 61656

PHIL LOZIUK
CEMCON LTD
2280 WHITE OAK CIRCLE
AURORA IL 60504-9675

CENTER FOR RESEARCH LIBRARIES
6046 S KENWOOD AVE
CHICAGO IL 60637-2804

DAVID LOUDENBURG
CENTRAL IL CENTER FOR INDEP LIVING
614 W GLEN
PEORIA IL 61614

AREA CONSULTANTS
CENTRAL IL CONTROLS
345 CENTER
EAST PEORIA IL 61611

CALVIN G BUTLER
PEORIA CHAMBER BOARD
CENTRAL IL LIGHT COMPANY
300 LIBERTY ST
PEORIA IL 61602

JIM STEIN
CENTRAL STATE BANK
301 IOWA AVE
MUSCATINE IA 52761

AREA CONSULTANTS
CH2MHILL
8501 W HIGGINS RD SUITE 300
CHICAGO IL 60631

JERRY YENDRO
CHAMLIN & ASSOCIATES, INC.
3017 5TH ST
PERU IL 61354

CHARLES ROCK
DEVELOPER
CHARLES ROCK & ASSOCIATES
230 SW ADAMS
PEORIA IL 61602

CHICAGO DISTRIBUTION COMPANY L P
140 S DEARBORN ST STE 320
CHICAGO IL 60603-5202

CHICAGO MESSENGER SERVICE INC
1600 S ASHLAND AVE
CHICAGO IL 60608-2013

CHICAGO SUBURBAN EXPRESS INC
PO BOX 388568
CHICAGO IL 60638-8568

KARYE F SETTERLUND
ECONOMIC DEVEL BOARD
CHILLICOTHE METAL CO
4507 E ROME RD
CHILLICOTHE IL 61523-9071

STEVE KERR
AREA CONSULTANTS
CHRISTOPHER B BURKE ENGINEERING
410 FAYETTE
PEORIA IL 61602

GREENWAYS BOARD
CILCO
300 LIBERTY ST
PEORIA IL 61602-1400

S L BURNS
CILCO
300 LIBERTY ST
PEORIA IL 61602

JAMES VERGON
ECONOMIC DEVEL BOARD
CILCO
300 LIBERTY ST
PEORIA IL 61601

JOHN SAHN
PEORIA CHAMBER BOARD
CILCORP
300 LIBERTY ST
PEORIA IL 61602-1400

WILLIAM M SHAY
EXEC VP
RIVERFRONT BUSINESS DIST COMM
CILCORP
300 LIBERTY ST
PEORIA IL 61602

CITGO
3737 S CICERO AVE
CHICAGO IL 60650

FEDERAL CREDIT UNION
CITIZEN'S EQUITY
PO BOX 1715
PEORIA IL 61656

CITY HAUL INC
4101 S MORGAN ST
CHICAGO IL 60609-2516

BILL MC GRATH
CITY MANAGER
CITY OF BATAVIA
100 NORTH ISLAND AVE
BATAVIA IL 60510-1930

BOB POPECK
CITY OF BATAVIA
100 N ISLAND AVE
BATAVIA IL 60510

BYRON RITCHASON
WASTEWATER TREATMENT
CITY OF BATAVIA
100 N ISLAND AVE
BATAVIA IL 60510

RYAN PALM
LANDSCAPE ARCHITECT
GREENWAYS BOARD
CLARK ENGINEERS
111 NE JEFFERSON ST
PEORIA IL 61602

AREA CONSULTANTS
CLARK ENGINEERS INC
111 N E JEFFERSON AVE
PEORIA IL 61602

JAMES ASH
GREENWAYS BOARD
CLARK ENGINEERS MIDWEST INC
111 N E JEFFERSON AVE
PEORIA IL 61602

KAREN DVORSKY
EROSION CONTROL TASK FORCE
CLARK ENGINEERS MW INC
111 NE JEFFERSON
PEORIA IL 61602

EARL S MOLDOVAN
ECONOMIC DEVEL BOARD
CLARK ENGINEERS MW INC
111 N E JEFFERSON AVE
PEORIA IL 61602

CLER INC
6445 S STATE ST
CHICAGO IL 60637

WILLIAM R BARRICK
ECONOMIC DEVEL BOARD
CLIFTON GUNDERSON & COMPANY
301 SW ADAMS SUITE 800
PEORIA IL 61602

CMT TRANSPORT INC
4056 W 54TH ST
CHICAGO IL 60632-4248

BOB COHEN
DEVELOPER
COHEN DEVELOPMENT COMPANY
406 SW WASHINGTON
PEORIA IL 61602

LES COHEN
DEVELOPER
COHEN DEVELOPMENT COMPANY
406 SW WASHINGTON
PEORIA IL 61602

DALE JORGENSON
DEVELOPER
COLDWELL BANKER-JORGENSON NHS
8500 N KNOXVILLE
PEORIA IL 61614

C. G. COLBURN
COLLBURN LAW OFFICE
5 AARON DR
JACKSONVILLE IL 62650-1728

COLLINS CARTAGE INC
6850 W 63RD ST
CHICAGO IL 60638-4026

COMET MESSENGER SERVICE INC
1316 S MICHIGAN AVE
CHICAGO IL 60605-2602

JOSEPH T HENDERSON
PEORIA CHAMBER BOARD
COMMERCE BANK N A
416 MAIN ST
PEORIA IL 61602

GREG SCHULER
COMMONWEALTH EDISON
PO BOX 767
CHICAGO IL 60690

BOB SCHMELTER
COMMUNITY HOSPITAL OF OTTAWA
1100 E NORRIS DR
OTTAWA IL 61350

DAVID HANDWERK
CONSOER TOWNSEND ENVIRODYNE ENGINEERS
303 E WASCKER DR STE 600
CHICAGO IL 60601

CONTRACT DISTRIBUTION INC
1506 W DETWEILLER DR
PEORIA IL 61615-1601

CORTESE MOTOR SERVICE COMPANY
7821 W CARMEN AVE
CHICAGO IL 60656-3207

RICHARD BADEUSZ
TRANSPORTATION MANAGER
COZZI IRON & METAL INC
2231 S BLUE ISLAND AVE
CHICAGO IL 60608

ERIC HANSEN
AREA CONSULTANTS
CRAWFORD MURPHY & TILLY
5701 W SMITHVILLE RD SUITE 600
PEORIA IL 61607

WILLIAM KNOWLES
AREA CONSULTANTS
CRAWFORD MURPHY & TILLY
2750 W WASHINGTON
SPRINGFIELD IL 62702

THERESA O GRADY
CRAWFORD, MURPHY & TILLY
600 N COMMONS DR STE 107
AURORA IL 60504

CONSULTING ENGINEERS
CRAWFORD, MURPHY AND TILLY
2750 W WASHINGTON ST
SPRINGFIELD IL 62702

CROSSTOWNS INC
4359 S WOOD ST
CHICAGO IL 60609-3138

DAVID JOSEPH
DEVELOPER
D JOSEPH SONS & ASSOCIATES
5001 N UNIVERSITY ST.
PEORIA IL 61614

WILLIAM DUNLOP
DAILY & ASSOC ENGINEERS INC
1610 BROADMOOR DR
CHAMPAIGN IL 61821

JUDY GAGNON
DAILY & ASSOC ENGINEERS
7500 N HARKER DR
PEORIA IL 61615

G RICHARD SPENCER
DAILY & ASSOCIATES
7500 N HARKER
PEORIA IL 61615

PATRICK G SLOAN
DAILY & ASSOCIATES ENGINEERS
7500 N HARKEY DR
PEORIA IL 61615

MARION MC GREW
PEORIA/PEKIN URBANIZED AREA TR
DAILY AND ASSOCIATES
7500 N HARKER DR
PEORIA IL 61615

STANLEY BERSIN
AREA CONSULTANTS
DAILY AND ASSOCIATES INC
7500 N HARKER DR
PEORIA IL 61615

STEPHEN DORF
PRESIDENT
DAMEN-LAWERENCE CURRENCY EXCHANGE INC
4753 N DAMEN AVE
CHICAGO IL 60625-1442

WILLIAM DAUB
DAUB TV SERVICE
30 WESTFAIR DRIVE
JACKSONVILLE IL 626501760

TODD R DAVIS
PEORIA CHAMBER BOARD
DAVIS AGENCY INSURANCE
1105 N NORTH ST
PEORIA IL 61606

DAWSON MOTOR SERVICE INC
2025 N PULASKI RD
CHICAGO IL 60639-3733

LEGISLATORS
DCCA
620 E ADAMS
SPRINGFIELD IL 62701

DENNISON PROPERTIES
PO BOX 120055
PEORIA IL 61614

DEVON CARTAGE & WAREHOUSE INC
1017 W 48TH ST
CHICAGO IL 60609-4305

DIETZS INC
1822 W 23RD ST
CHICAGO IL 60608-4312

AREA CONSULTANTS
DL MARKLEY & ASSOCIATES INC
2104 W MOSS AVE
WEST PEORIA IL 61604

DUKE FAKLARIS
ECONOMIC DEVEL BOARD
DMI INC
RT 150 E BOX 65
GOODFIELD IL 61742

DOLPHIN CARTAGE INC
5274 S ARCHER AVE
CHICAGO IL 60632-4756

DONALD Z WHITE
PEORIA CHAMBER BOARD
DONALD Z WHITE PLANNING CONSLT
302 N 2ND
CHILLICOTHE IL 61523

DOUG LAVERY LIMITED
12200 S SHIRLEY LN
CHICAGO IL 60658-2422

CHRIS DOUGLAS
DOUGLAS CRANE
15 MARQUETTE LN
KANKAKEE IL 60901

ROBERT DOUGLAS
DOUGLAS CRANE
15 MARQUETTE LN
KANKAKEE IL 60901

LORI NELSON
MANAGER
DYNAMIC DIME
PO BOX 10712
PEORIA IL 61652-0712

E GATES COMPANY
2055 W WALNUT ST
CHICAGO IL 60612-2317

EAST BALT INC
1801 W 31ST PL
CHICAGO IL 60608-6102

DR DAVID SCHAEFFER
ECO HEALTH RESEARCH INC
701 DEVONSHIRE DR STE 209
CHAMPAIGN IL 61820

ECONOMY INC
3850 W CORTLAND ST
CHICAGO IL 60647-4636

ECONOMY MOVING & TRANSFER COMPANY
5875 N ROGERS AVE
CHICAGO IL 60646-5953

EDENS EXPRESS INC
837 N MILWAUKEE AVE, #104
CHICAGO IL 60622-4152

NEAL NINMANN
PEORIA CHAMBER BOARD
ENTERPRISE RENT-A-CAR
1130 W PIONEER PARKWAY
PEORIA IL 61614

GREG ASBURY
ECONOMIC DEVEL BOARD
ESE
8901 N INDUSTRIAL RD
PEORIA IL 61615

EVERGREEN PLACE
8570 ST LUKE DR
BEARDSTOWN IL 62618

MERRILL PARSONS
ECONOMIC DEVEL BOARD
EXCEL FOUNDRY
RR 3 BOX 400
PEKIN IL 61554

LYNN FINLEN
FARNSWORTH & WYLIE
2709 MCGRAW DR
BLOOMINGTON IL 61704

JEFF GASTEL
PEORIA/PEKIN URBANIZED AREA TR
FARNSWORTH & WYLIE
4600 BRANDYWINE DR SUITE 105
PEORIA IL 61614

AREA CONSULTANTS
FARNSWORTH & WYLIE PC
4600 N BRADNYWINE DR
PEORIA IL 61614

RICHARD HELM
FARNSWORTH GROUP INC
7707 N KNOXVILLE STE 200
PEORIA IL 61614

R BRANDON LOTT
FARNSWORTH GROUP INC
7707 N KNOXVILLE STE 200
PEORIA IL 61614

ED SCHOMBERG
FARNSWORTH GROUP INC
2909 MCGRAW DR
BLOOMINGTON IL 61704

FAUCHER BROS CARTAGE INC
PO BOX 94934
CHICAGO IL 60690-4934

DR JOHN F GILLIGAN
PEORIA CHAMBER BOARD
FAYETTE COMPANIES
P O BOX 1346
PEORIA IL 61654

FEDERAL WAREHOUSE COMPANY
PO BOX 1329
PEORIA IL 61654-1329

WAYNE FIELDMAN
FIELDMAN REALTY INC
1304 GEMINI CIR
OTTAWA IL 61350

DANIEL DALY
ECONOMIC DEVEL BOARD
FIRST CAPITAL BANK
6699 N SHERIDAN RD
PEORIA IL 61614-2934

DON HARRIS
FIRST NATIONAL BANK
PO BOX 657
OTTAWA IL 61350

DAVID R LEITCH
VICE PRESIDENT
FIRST OF AMERICA BANK
301 SW ADAMS ST 4TH FLOOR
PEORIA IL 61602

DOUGLAS S STEWART
PEORIA CHAMBER BOARD
FIRST OF AMERICA BANK-IL NA
301 SW ADAMS ST
PEORIA IL 61652

LEON MC NAIR
FOX BEND GOLF COURSE
RT 34
OSWEGO IL 60543

LINDA RICKMAN
FOX WATERWAY AGENCY
45 S PISTAKEE LAKE RD
FOX LAKE IL 60020

FRANK J SIBR & SONS INC
5240 W 123RD PL
CHICAGO IL 60658-3201

FREDS MOVERS
1301 TOWNE AVE
BATAVIA IL 60510-4521

G M RANDA INC
123 CHESTERFIELD DR
OSWEGO IL 60543-8946

G Z ENTERPRISES INC
840 W 34TH PL
CHICAGO IL 60608-6716

GALAXY TRANSPORT INC
4950 W 39TH ST
CHICAGO IL 60650

TED SUMMERS
GARVEY PROCESSING INC
PO BOX 546
OTTAWA IL 61350

AREA CONSULTANTS
GIOVANETTO CONSULTING SERVICES
RR2
TREMONT IL 61568

GOLDEN EAGLE MOVERS
2719 W BARRY AVE
CHICAGO IL 60618-7103

SCOTT POTTER
GORDON ELECTRIC
PO BOX 231
KANKAKEE IL 60901

TOM MEYER
AREA CONSULTANTS
GPSD
2322 S DARSH ST
PEORIA IL 61607

GRAND SERVICES INC
4630-34 W ARMITAGE AVE
CHICAGO IL 60639

TOTE GRAY
HEARTLAND WATER RESOURCE BOARD
GRAYBOY KAWASAKI
4426 N PROSPECT RAOD
PEORIA HEIGHTS IL 61614

FRED TRAUB
PEORIA/PEKIN URBANIZED AREA TR
GREATER PEORIA AIRPORT AUTHORITY
6100 W DIRKSEN PARKWAY
PEORIA IL 61607

GREG LEE
EROSION CONTROL TASK FORCE
GREG LEE CONSTRUCTION
4635 MINIER RD
ARMINGTON IL 61721-9371

GRRH INC
12600 S HAMLIN CT
CHICAGO IL 60658-1525

TED - BONNIE GUDAT
GUDAT'S CHAUTAUQUA LAKE BAR & GRILL
21464 N DR
HAVANA IL 61644

GUS MOTOR SERVICE INC
5921 W 65TH ST
CHICAGO IL 60638-5405

NICK OWENS
RIVERFRONT BUSINESS DIST COMM
HAGERTY BROTHERS COMPANY
601 N MAIN ST
EAST PEORIA IL 61611

CHARLES J POPARAD
ECONOMIC DEVEL BOARD
HAGERTY BROTHERS COMPANY
601 N MAIN PO BOX 1500
EAST PEORIA IL 61655

JACK HEALY
HANSON PROFESSIONAL SERVICES INC
1525 S 6TH ST
SPRINGFIELD IL 62703

TIM LEACH
AREA CONSULTANTS
HANSON PROFESSIONAL SERVICES INC
2900 W WILLOWKNOLLS DR
PEORIA IL 61614

CHRIS EVERTS
HARDING ESE
8901 N INDUSTRIAL RD
PEORIA IL 61614

CHRIS EVERTS
HARDING ESE
2721 N KINGSTON DR
PEORIA IL 61604

WAYNE INGRAM
HARDING ESE
8901 N INDUSTRIAL RD
PEORIA IL 61614

HAROLD TURLEY
HAROLD D TURLEY & ASSOCIATES
6824 N FROSTWOOD PKWY
PEORIA IL 61615-2417

D H WHITE
HARRISON WHITE & SONS
RR 1
LEWISTOWN IL 61542-9801

GREGORY HILLEBRENNER
HARZA ENGINEERING CO
SEARS TOWER - 233 S WACKER DR
CHICAGO IL 60606

CAROL WASKO
HARZA ENGINEERING COMPANY
175 W JACKSON BLVD #18
CHICAGO IL 60604-2615

PETE CONROY
HARZA ENGINEERING CORP
175 W JACKSON BLVD #18
CHICAGO IL 60604-2615

RAYMOND HAYES
HAYES TRENCHING
RR 5 BOX 28
JACKSONVILLE IL 62650-9212

DOUGLAS W FEHR
HEARTLAND WATER RESOURCE BOARD
HEARTLAND FARM BUREAU
1806 W KINSWAY
PEORIA IL 61614

CHARLES BLYE
LAND USE ADVISORY COMMITTEE
HEARTLAND WATER RESOURCE BOARD
112 VONACHEN CT
EAST PEORIA IL 61611

HEBARD-PORTER STORAGE & MOVING COMPANY
6331 N BROADWAY ST
CHICAGO IL 60660-1401

HELDERS MOTOR SERVICE COMPANY
3201 S KOSTNER AVE
CHICAGO IL 60623-4845

AREA CONSULTANTS
HENNEMAN RAUFEISEN & ASSOCIATES
1605 S STATE
CHAMPAIGN IL 61821

HENNEPIN BOAT MARKET INC
PO BOX 487
HENNEPIN IL 61327-0380

ARNOLD SOBEL
HENRY CROWN & CO
222 N LASALLE ST
CHICAGO IL 60601

HERITAGE MANOR
8306 ST LUKE DR
BEARDSTOWN IL 62618

KENNETH HESS
HESS BROS
1531 BASE LINE RD
JACKSONVILLE IL 62650-6032

JOHN TANDARICH
HEY AND ASSOCIATES
53 W JACKSON BLVD STE 1015
CHICAGO IL 60604

MIKE LUFTON
HOFMMAN PAN RIVER RATS
141 GAGE
RIVERSIDE IL 60546

JOHN MACH
HOFMMAN PAN RIVER RATS
6141 W 26TH ST
CICERO IL 60804

DARRYL SCHULTE
PEORIA AREA CONVENTION & VISITOR BUR
HOLIDAY INN/BRANDYWINE
4400 N BRANDYWINE DR
PEORIA IL 61614

PATT MEDCHILL
HOLLYWOOD-CASINO-AURORA
49 W. Galena Blvd.
AURORA IL 60506

HOLTON CARTAGE INC
7837 S RIDGELAND AVE
CHICAGO IL 60649-4905

SCOTT BOSECKER
EROSION CONTROL TASK FORCE
HOME BUILDERS ASSOCIATION OF GREATER PEO
4024 S DANBAR POINT
MAPLETON IL 61547

GREGG FOLTZ
HOMER L CHASTAIN & ASSOC LLP
5 N CNTY CLUB RD - PO BOX 25587
DECATUR IL 62525

BILL CARTER
PEORIA AREA CONVENTION & VISITOR BUR
HOTEL PERE MARQUETTE
501 MAIN ST
PEORIA IL 61602

JAMES TWYFORD
VICE PRESIDENT
HUTCHISON ENGINEERING INC
1801 W LAFAYETTE AVE PO BOX 820
JACKSONVILLE IL 62651-0820

RICHARD C SCHWARZ
ECONOMIC DEVEL BOARD
IL AMERICAN WATER CO
123 SW WASHINGTON ST
PEORIA IL 61602

JOSEPH F. BOYLE, JR.
COMMISSIONER
IL DEPT OF TRANSPORTATION
310 S MICHIGAN AVE
CHICAGO IL 60601

MICHEL MC CORD
ECONOMIC DEVEL BOARD
IL MUTUAL INSURANCE COMPANY
300 SW ADAMS ST
PEORIA IL 61634

JAMES D BROADWAY
CHAIRMAN
WESTERVELT JOHNSON NICOLL & KELLER
IL RIVERFRONT DEV CORP
411 HAMILTON BLVD 14TH FLOOR
PEORIA IL 61602-1114

GREENWAYS BOARD
IL VALLEY STRIDERS
700 W MAIN ST
PEORIA IL 61606

KEN BECKLER
ENHANCEMENTS
IL VALLEY WHEELM'N
1022 NORTH INSTITUTE
PEORIA IL 61604

SAMUEL JOSLIN
ENHANCEMENTS
IL VALLEY WHEELM'N
119 W SANTA FE RD
CHILLICOTHE IL 61523-9316

STEVE SHAFFER
ENHANCEMENTS
IL VALLEY WHEELM'N
1009 W RIDGE RD
PEORIA IL 61614

ELWIN BASQUIN
PRESIDENT
WTVP-CHANNEL 47
IL VLY PUB TELECOM CORP
PO BOX 1347
PEORIA IL 61654-1347

CHARLES BAREIS
UNIVERSITY OF ILLINOIS
ILLINOIS ARCHELOGICAL SURVEY
396B DAVENPORT HALL 607 S MATTHEWS AVE
URBANA IL 61801

ANTHONY IANELLO
EXECUTIVE DIRECTOR
ILLINOIS INTERNATIONAL PORT DIST
3600 E 95TH ST
CHICAGO IL 60617-5100

FRANK ALBERT
DIRECTOR
ILLINOIS INTNL PORT OF CHICAGO
BUTLER DR & LAKE CALUMET
CHICAGO IL 60633

PHILLIP ROGERS
ILLINOIS POWER CO
500 S 27TH ST
DECATUR IL 62525

JIM DARNELL
IT CORP
16406 US RTE 224 E
FINDLAY OH 45840

J & J MOTOR SERVICE INC
2338 S INDIANA AVE
CHICAGO IL 60616-2402

J & S AIR FREIGHT INC
1740 HUBBARD AVE
BATAVIA IL 60510-1424

JACK VENTURINI
5319 N NEWCASTLE AVE
CHICAGO IL 60656-2019

STEVE KRUEGER
JAKE WOLF FISH HATCHERY
25410 N FISH HATCHERY RD
TOPEKA IL 61567

JIMS CARTAGE & GARAGE INC
9040 S HALSTED ST
CHICAGO IL 60620-2611

GARY E JAKOBY
AREA CONSULTANTS
JOKOBY G E ENGINEERING INC
12025 N KNOWVILLE
DUNLAP IL 61525

JRED ENTERPRISES INC
449 N UNION AVE
CHICAGO IL 60610-3927

MICHELLE PEARSON
PEORIA AREA CONVENTION & VISITOR BUR
JUMER'S CASTLE LODGE
117 N WESTERN AVE
PEORIA IL 61604

JANICE HARTMAN
KANKAKEE CNTY REALTORS
PO BOX 373
AROMA PARK IL 60910

HAROLD JOHNSON
KANKAKEE RIVER AG CONCERNS
16081 E 5000N RD
MOMENCE IL 60964

KEITH KELLOGG
7 STONE HILL RD
OSWEGO IL 60543-9449

DOUG DRAEAR
ECONOMIC DEVEL BOARD
KIRBY-RISK ELECTRICAL SUPPLIES
316 SW WASHINGTON
PEORIA IL 61602

KNAPPEN MOLASSES CO
13550 S INDIANA AVE
CHICAGO IL 60627

KNICKERBOCKER CORP
PO BOX 2065
EAST PEORIA IL 61611-0065

KRESS CORP
227 W ILLINOIS ST
BRIMFIELD IL 61517

JIM SUTOR
KRESS CORP
227 ILLINOIS ST
BRIMFIELD IL 61517

DENNIS THOMAS
KRESS CORP
227 ILLINOIS ST
BRIMFIELD IL 61517

STEVE KUHN
KUHN CONSTRUCTION
321 KAIN ST
OTTAWA IL 61350-1160

L R MILLER INC
PO BOX 277707
CHICAGO IL 60627-7707

L U TRANSPORT INC
2648 W 50TH ST
CHICAGO IL 60632

CURTIS JORSTAD
LA SALLE COMPANY SOIL
RTE 23 & DAYTON RD
OTTAWA IL 61350

JON J VRABEL
TRANSPORTATION COORDINATION CO
LAFARGE CORPORATION
6033 WICKWOOD
PEORIA IL 61614

LAVERDIERE CONSTRUCTION INC
4055 W JACKSON ST
MACOMB IL 61455

LAVERDIERE CONSTRUCTION INC
4055 W JACKSON ST
MACOMB IL 61455

MARY A CORRIGAN
PEORIA CHAMBER BOARD
LAW OFFICE OF MARY CORRIGAN PC
456 FULTON ST #425
PEORIA IL 61602-1250

WILLIAM PAPE
PEORIA CHAMBER BOARD
LINCOLN OFFICE
7707 N KNOXVILLE #100
PEORIA IL 61614

MICHAEL R WIESEHAN
RIVERFRONT BUSINESS DIST COMM
LIPPMANN'S FURNITURE & INTERIORS
2514 N SHERIDAN RD
PEORIA IL 61604

TROY LOGSDON
CO-OWNER
LOGSDON SAND & GRAVEL CO
300 W MAIN ST
BEARDSTOWN IL 62618

BRUCE DAVEY
ECONOMIC DEVEL BOARD
LONZA INC
P O BOX 105
MAPLETON IL 61547

LOOP EXPRESS INC
2608 S DAMEN AVE
CHICAGO IL 60608-5209

JACK GITTINGER
LTZ ASSOCIATES INC
124 SW ADAMS
PEORIA IL 61602

MARTIN H COLLIER
AREA PLANNERS
LZT ASSOCIATION INC
124 SW ADAMS ST
PEORIA IL 61602

M & G TRANSPORT INC
2934 N LONG AVE
CHICAGO IL 60641-4921

M & S TRANSPORT INC
3738 S CICERO AVE
CHICAGO IL 60650-4536

M H K INC
7615 N PAULINA ST
CHICAGO IL 60626-1017

M J SEIWERT CARTAGE COMPANY
140 S DEARBORN ST STE 820
CHICAGO IL 60603-5224

GREENWAYS BOARD
MACKINAW CANOE CLUB
701 E POLK ST
MORTON IL 61550

PAUL J TENAVITZ
ECONOMIC DEVEL BOARD
MAGNA BANK NA
107 SW JEFFERSON ST
PEORIA IL 61602

MARIAN K KRAMER TRUST
32 N MAIN ST
OSWEGO IL 60543

CHRISTY BLEZ
MARINA COMMITTEE
107 W 7TH ST
BEARDSTOWN IL 62218

MARK MARQUIS
MARQUIS INC
602 POPLET HOLLOW RD
PEORIA IL 61614

DAN PARTRIDGE
MARSEILLES MARINE & FLEETING
PO BOX 249
OTTAWA IL 61350

DAVE HORVATH
MASON STATE NURSERY
17855 N CR 2400E
TOPEKA IL 61567

DON HALLORIN
MATERIAL SERVICE CORP
PO BOX 232
MORRIS IL 60450

DAN SCHWIND
MATERIAL SERVICE CORP
4226 LAWNDALE
LYONS IL 60534

JURIS AND LIBBY LAZDINS
MATTHEWS & LAZDINS
247 W JEFFERY
KANKAKEE IL 60901

JOE STUTZ
AREA CONSULTANTS
MAURER-STUTZ ENGINEERS INC
7615 N HARKER
PEORIA IL 61615

KEN MURATA
MBL USA CORPORATION
601 DAYTON RD
OTTAWA IL 61350

MILTON MC CLURE
MCCLURE BRANNAN & HARDWICK
113 STATE ST
BEARDSTOWN IL 62618

AREA CONSULTANTS
MCCLURE ENGINEERING ASSOCIATES
1138 COLUMBUS ST
OTTAWA IL 61350-2107

HENRY ALLOVIO JR
ECONOMIC DEVELOPMENT BOARD
MCGLADREY & PULLEN LLP
401 MAIN ST #1200
PEORIA IL 61602

DONALD GORMAN
MCIRCC
4914 N LONGVIEW PL
PEORIA HEIGHTS IL 61616-5135

MEDLEYS MOVING AND STORAGE
251 E 95TH ST
CHICAGO IL 60619-7207

STEVE SHAW
PEORIA AREA CONVENTION & VISITOR BUR
MERCEDES RESTAURANTS
2402 W NEBRASKA ST
PEORIA IL 61604

JIM KEISTLER
INLAND WATERWAYS USERS BOARD
MERCHANDISING MANAGER - TWOMEY CO
2031 58TH
MONMOUTH IL 61462

MERCHANTS NATIONAL BANK OF AURORA
84 S BROADWAY
AURORA IL 60148

MEREDOSIA TERMINAL
PO BOX 246
MEREDOSIA IL 62665

MERRILL ASSOCIATES LTD
2317 E 71ST ST
CHICAGO IL 60649-2505

TONY MERTEL
MERTEL GRAVEL CO
W END OF WATER ST
PERU IL 61354

DEBORAH SIMON
PEORIA CHAMBER BOARD
METHODIST MEDICAL CENTER
221 NE GLEN OAK
PEORIA IL 61636

METRO CHICAGO FLOOR DELIVERY COOP
1760 N MILWAUKEE AVE
CHICAGO IL 60647-5453

RICHARD WORTHEN
METRO EAST STORMWATER OFFICE
PO BOX 1366
GRANITE CITY IL 62040-1366

METROPOLITAN CHICAGO INC
2500 W ROOSEVELT RD
CHICAGO IL 60608-1006

MGM COMPANY INC
1800 W 43RD ST
CHICAGO IL 60609-3111

MICHAELS LEASING INC
4208 S WESTERN AVE
CHICAGO IL 60609-2224

MIDWAY MOVING AND STORAGE INC
4100 W FERDINAND ST
CHICAGO IL 60624-1027

MIDWEST CARGO SYSTEMS INC
1050 W PERSHING RD
CHICAGO IL 60609-1462

DAN DOUGHERTY
MIDWEST CORRESPONDANT
1949 W LUNT AVE
CHICAGO IL 60626

JAMES P CATHEY
AREA CONSULTANTS
MIDWEST ENGINEERING PROFESSIONALS
1 LAUREL CT
WASHINGTON IL 61571

MERLE KALKWARF
ECONOMIC DEVEL BOARD
MINONK STATE BANK
137 W 5TH ST
MINONK IL 61760

MOBIL OIL CO
3801 S CICERO AVE
CHICAGO IL 60650

MORDUE MOVING & STORAGE INC
9011 N UNIVERSITY ST
PEORIA IL 61615-1646

MR BULTS INC
2658 E 139TH ST
CHICAGO IL 60633-2131

LARRY CLORE
PEORIA CHAMBER BOARD
MULTI-AD SERVICES
1720 W SETWEILLER DR
PEORIA IL 61615

EUGENE DAUGHERITY
MYERS, DAUGHERITY, BERRY, O'CONOR & KUZM
130 E MADISON ST
OTTAWA IL 61350

N D LEASING COMPANY
200 N DEARBORN ST APT 701
CHICAGO IL 60601-1617

BRUCE ALKIRE
PEORIA CHAMBER BOARD
N E FINCH COMPANY
P O BOX 5187
PEORIA IL 61601

N E FINCH COMPANY
PO BOX 5187
PEORIA IL 61601-5187

DALE BURKLAND
CHAIRMAN OF THE BOARD
NATL MARINE SALES INC
5406 N GALENA RD
PEORIA IL 61614-5445

NEW WORLD VAN LINES OF CAL CAL
5875 N ROGERS AVE
CHICAGO IL 60646-5953

J W FARMER
NORFOLK SOUTHERN CORP
1735 E CONDIT
DECATUR IL 62521

NORMANS MOVING & STORAGE
3517 W MONTROSE AVE
CHICAGO IL 60618-1118

NORTHERN CROSS DOCK OPERATION
2000 WIESBROOK RD #D
OSWEGO IL 60543-8308

NORTHERN PETROCHEMICALS COMPANY
8805 TABLER RD
MORRIS IL 60450

MANAGER
OBSERVER
1616 W PIONEER PKWY
PEORIA IL 61615-1945

SUE O'CONNOR
O'CONNOR CONCEPTS
6649 W RTE 115
HERSCHER IL 60941

OIL-DRI CORP AMERICA
410 N MICHIGAN AVE
CHICAGO IL 60611-4211

OL THOMPSON TRANSPORT SERVICE
1351 BRANDON RD
JOLIET IL 60436-8529

TRUST 587
OLD SECOND NATIONAL BANK OF AURORA
37 S RIVER ST
AURORA IL 60507

SULFURIC ACID TERMINAL
OLIN CORP
PO BOX 2219 1945 PATTERSON RD
JOLIET IL 60436

OLYMPIC FREIGHTWAYS INC
1801 W 31ST PL
CHICAGO IL 60608-6102

OMEGA CARTAGE INC
7601 S WENTWORTH AVE
CHICAGO IL 60620-1058

OROURKE CARTAGE COMPANY INC
13518 S HOXIE AVE
CHICAGO IL 60633-1808

RICHARD RICHMAN
CORPORATE DIRECTOR OF ENGINEERING
OSF HEALTH CARE SYSTEM
800 NE GLEN OAD AVE
PEORIA IL 61603

JON KRANOV
OTTAWA SAVINGS BANK
925 LASALLE ST
OTTAWA IL 61350

PAL AUTOMOTIVE PARTS
1016 E MARIETTA AVE
PEORIA IL 61614-6320

CHRIS HEINTZELMAN
PEORIA AREA CONVENTION & VISITOR BUR
PAR A DICE HOTEL
7 BLACKJACK BOULEVARD
EAST PEORIA IL 61611

BOB PARSONS
ECONOMIC DEVELOPMENT BOARD
PARSONS COMPANY
JCT OF ROUTE 116 & 117
ROANOKE IL 61561

AREA CONSULTANTS
PDC TECHNICAL SERVICES INC
4349 SOUTHPORT RD
PEORIA IL 61615

PECKLER MOTOR SERVICE INC
4601 W 47TH ST
CHICAGO IL 60632-4801

ROBERT MOORE
ECONOMIC DEVELOPMENT BOARD
PEKIN HOSPITAL
600 S 13TH ST
PEKIN IL 61554

TRANSPORTATION COORDINATION CO
PEORIA & PEKIN UNION RAILWAY
101 WESLEY RD
CREVE COEUR IL 61610

GARY JAMESON
DIRECTOR
PEORIA ART GUILD
203 HARRISON ST
PEORIA IL 61602

ROGER WINKLER
TRANSPORTATION COORDINATION CO
PEORIA CHARTER COACH COMPANY
2600 NE ADAMS ST
PEORIA IL 61603

RALPH WOOLARD
TRANSPORTATION COORDINATION CO
PEORIA CHARTER COACH COMPANY
2600 NE ADAMS ST
PEORIA IL 61603

DON WELCH
PEORIA AREA CONVENTION & VISITOR BUR
PEORIA CIVIC CENTER
201 S W JEFFERSON ST
PEORIA IL 61602

GARY ROCKOW
AREA CONSULTANTS
PHILLIPS SWAGER AND ASSOCIATES
401 SW WATER ST STE 702
PEORIA IL 61602-1530

PHOENIX OIL COMPANY
1434 W 76TH ST
CHICAGO IL 60620-4153

MERCHANDISE MART
PHOTO DELIVERY SERVICE INC
PO BOX 4114
CHICAGO IL 60654

PICKENS-KANE MOVING & STORAGE COMPANY
410 N MILWAUKEE AVE
CHICAGO IL 60610-3935

PIONEER RAILCORP
1318 S JOHANSON RD
PEORIA IL 61607-1130

THERESA KOEHLER
AREA PLANNERS
PLANNING & GROWTH MGMT
419 FULTON ST STE 404
PEORIA IL 61602

DAVID PANZERA
PRESIDENT
PML INC- PANZERA MARINE TRANSP INC
2455 GLENWOOD AVE STE #204
JOLIET IL 60435

DENNIS HUFF
ECONOMIC DEVELOPMENT BOARD
PMP FERMENTATION PRODUCTS INC
121 WAYNE ST
PEORIA IL 61603

PAUL FELTENSTEIN
ECONOMIC DEVELOPMENT BOARD
PP&U RAILWAY CO
301 WESLEY RD
CREVE COEUR IL 61610

KIM ST JOHN
PRAIRIE RIVER RC & D
400 EDWARDS ST
HENRY IL 61537

PRATT LUMBER & HOME CENTER
311 E AVE E
LEWISTOWN IL 61542

IL RIALTO SQUARE
PREITZEL & STOUFFER, CHARTERED
116 N CHICAGO STE 500
JOLIET IL 60432

PREMIER CARTAGE INC
3217 W 48TH PL
CHICAGO IL 60632-3022

GARY MUELLER
PRETZEL & STOUFFER CHARTERED
116 N CHICAGO STE 500
JOLIET IL 60432

NORMAN H LACONTE
ECONOMIC DEVELOPMENT BOARD
PROCTOR HOSPITAL
5409 N KNOXVILLE
PEORIA IL 61614

PRODUCE HAULERS INC
2038 N CLARK ST #151
CHICAGO IL 60614-4713

SANDRA J BIRDSALL
PEORIA CHAMBER BOARD
PRUDENTIAL/CULLINAN PROPERTIES
7707 N KNOXVILLE AVE
PEORIA IL 61614

HENRY HOLLING
HEARTLAND WATER RESOURCE BOARD
PUBLIC AFFAIRS CATERPILLAR
100 N E ADAMS
PEORIA IL 61629

QUICK TRIP EXPRESS INC
3004 N WILSON
PEORIA IL 61605

R & S GROUP SERVICES INC
5500 W 47TH ST
CHICAGO IL 60638-1890

MICHAEL CULLINAN
ECONOMIC DEVELOPMENT BOARD
R A CULLINAN & SONS
P O BOX 166
TREMONT IL 61568

ROBERT C MILLER
PEORIA CHAMBER BOARD
R C MILLER CO INC
1406 W QUEENS CT RD
PEORIA IL 61614

MEREDOSIA TERMINAL, INC
R WM DAVIDSMEYER
HWY 104 W PO BOX 268
MEREDOSIA IL 62665

HARRY SCHOLL
RACKOFF-EADS
118 N CLINTON-SUITE 303
CHICAGO IL 60606

PATRICK MEYER
PEORIA/PEKIN URBANIZED AREA TR
RANDOLPH & ASSOCIATES INC
911 W PIONEER PARKWAY
PEORIA IL 61615

REEBIE STORAGE & MOVING COMPANY
2325-33 N CLARK ST
CHICAGO IL 60614

JIM REED
REEDS CANOE RENTAL
907 N INDIANA
KANKAKEE IL 60901

REILLEY EXCAVATING & WRECKING
4844 N LAMON AVE
CHICAGO IL 60630-2414

RELIANCE SPECIAL DELIVERY SERVICE
1722 W CARROLL AVE
CHICAGO IL 60612-2504

REO MOVERS & VAN LINES INC
7000 S CHICAGO AVE
CHICAGO IL 60637-4143

REPUBLIC STEEL CORP
941 LEHIGH CIR
NAPERVILLE IL 60565-3456

RAYMOND HOPKINS
ARTCO
RIAC
PO BOX 2889 4528 S BROADWAY
ST LOUIS MO 63111

RICHARD MC CURRIE TEAMING COMPANY
1443 W 41ST ST UNIT 1
CHICAGO IL 60609-2496

RIDOL INC
6801 W 66TH PL
CHICAGO IL 60638-4805

RJN ENVIRONMENTAL ASSOCIATES INC
247 W JEFFERSON
KANKAKEE IL 60901

MICHAEL E QUINE
PEORIA CHAMBER BOARD
RLI COPORATION
9025 N LINDBERGH DR
PEORIA IL 61615

TIM KRUEGER
ECONOMIC DEVELOPMENT BOARD
RLI CORPORATION
9025 N LINDBERGH DR
PEORIA IL 61615

AREA CONSULTANTS
RMR CONSULTING
3128 N BILTMORE
PEORIA IL 61604

ROGERS TRANSFER INC
1040 5TH AVE
AURORA IL 60505-5061

ROTRANSCO INC
6516 W 74TH ST
CHICAGO IL 60638-6011

RYANS EXPRESS INC
7035 W 65TH ST
CHICAGO IL 60638-4603

S T SERVICES - SUNMARK SMITH OIL
PO BOX 5
PERU IL 61354

ESTHER C. ABERNATHY
BRANCH MANAGER
SAMMONS COMMUNICATIONS INC
PO BOX 607
JACKSONVILLE IL 62651-0607

SAMMY SUTTON
7500 S ASHLAND AVE
CHICAGO IL 60620-4245

SCHACHTRUP FARMS INC
4515 GRANDVIEW
PEORIA IL 61614

SCHADTS INC
3611 S NORMAL AVE
CHICAGO IL 60609-1723

SCHIEK MOTOR EXPRESS COMPANY INC
90 CASSEDAY AVE
JOLIET IL 60432-2909

AREA CONSULTANTS
SCHWARTZ ENGINEERING INC
602 DERBY
PEKIN IL 61554

GLIDDEN DURKEE DIVISION
SCM CORP
PO BOX 796
JOLIET IL 60434

SEAYS DELIVERY SERVICE INC
920 N GARFIELD AVE
PEORIA IL 61606-1828

DALE ROEDL
SHADY HAVEN
212 E 6TH ST
MENDOTA IL 61342

MARY CAY WESTPHAL
PEORIA CHAMBER BOARD
SHAMROCK PLASTICS INC
PO BOX 3530
PEORIA IL 61612

LAURA ROSS-STUART
SHRADER ASSOC.
2S648 DEERPATH RD
BATAVIA IL 60510

SILICA SAND TRANSPORT INC
1521 WAREHOUSE DR
OTTAWA IL 61350-9004

SMITH MOVERS INC
7150 S HALSTED ST
CHICAGO IL 60621-1728

SNAP TRANSPORT INC
9410 S LEAVITT ST
CHICAGO IL 60620-5621

SOUTH END CARTAGE CORP DEL
4222 S KNOX AVE
CHICAGO IL 60632-3934

SPECIAL SERVICE COMPANY INC
681 N GREEN ST
CHICAGO IL 60622-5966

DAVE VAN HISE
FARM MANAGER
SPRING LAKE FARMS CORPORATION
4541 N PROSPECT RD - STE 303
PEORIA HEIGHTS IL 61614

TERRY GALLE
SPURGEONS MERCANTILE CO
822 W WASHINGTON BLVD
CHICAGO IL 60607

STARKS BROTHERS MOVING & HAULING
PO BOX 24191
CHICAGO IL 60624-0191

TERRY CROSS
STARVED ROCK LODGE & CONFERENCE CENTER
PO BOX 570 HWY 178 AND 71
UTICA IL 61373

STATLAND CARTAGE COMPANY INC
443 N RACINE AVE
CHICAGO IL 60622-5841

WILLIAM STEVENSON
STEVENSON TRANSFER
300 W STEVENSON RD
OTTAWA IL 61350

DUANE HAMILTON
STEVERS SAND AND GRAVEL
2423 W FARMINGTON RD
WEST PEORIA IL 61604

JR NEDZA
STOLT HAVEN INC
12200 S STONEY ISLAND AVE
CHICAGO IL 60633

SUN BRITE SERVICES INC
6825 S HERMITAGE AVE
CHICAGO IL 60636-3330

DARRYL ANDERSON
SUPER 8 MOTEL
500 E ETNA RD
OTTAWA IL 61350

SUPERB MOTOR SERVICE INC
6214 N ALBANY AVE
CHICAGO IL 60659-1402

TOM SVENDSEN
EROSION CONTROL TASK FORCE
SVENDSEN CONSTRUCTION
1302 HOWARD CT
PEKIN IL 61554

T & T TRANSFER INC
140 S DEARBORN ST STE 320
CHICAGO IL 60603-5236

T M DOYLE TEAMING INC
4232 W 81ST ST
CHICAGO IL 60652-2243

JOHN TALBERT
TALBERTS GARAGE
PO BOX 464
BEARDSTOWN IL 62618-0065

TERRY DOWD INC
2501 W ARMITAGE AVE
CHICAGO IL 60647-4324

THE BELT RAILWAY COMPANY OF CHICAGO
6900 S CENTRAL AVE
CHICAGO IL 60638-6312

ALLEN M CAMERON
THE CAMERON GROUP
444 INTERSTATE RD
ADDISON IL 60101

JAMES SHERMAN
PEORIA CHAMBER BOARD
THE CHILDREN'S HOME ASSOCIATION
2130 N KNOXVILLE AVE
PEORIA IL 61603

WILLIAM O BROWNING
PEORIA CHAMBER BOARD
THE HEARTLAND PARTNERSHIP
124 SW ADAMS - #300
PEORIA IL 61602

THE LEWISTON BANK
120 E WASHINGTON
LEWISTOWN IL 61542

TERRANCE HOLM
THE NARRAGANSETT
1640 E 50TH ST - 9C
CHICAGO IL 60615

THE VALLEY LINE CO
529 N CHICAGO ST
JOLIET IL 60432

THE VALLEY LINE COMPANY
529 N CHICAGO ST
JOLIET IL 60432

ED WYSS
TRANSPORTATION COORDINATION CO
TP & W
1990 E WASHINGTON ST
EAST PEORIA IL 61611

TRANS AMERICAN STORAGE DEL
7540 S WESTERN AVE
CHICAGO IL 60620-5816

DICK CRIDLEBAUGH
TRANSPORTATION COORDINATION CO
116 FLORENCE ST
EAST PEORIA IL 61611

TREYS MOVERS INC
9122 S MICHIGAN AVE
CHICAGO IL 60619-6619

DANA LOGSDON
PRESIDENT
TUG LOGSDON SERVICE
PO BOX 27
BEARDSTOWN IL 62618-1134

TURKS MOTOR EXPRESS INC
1017 W 48TH ST
CHICAGO IL 60609-4305

TWOMEY CO
PO BOX 158
SMITHSHIRE IL 61478

U HAUL
1700 N CICERO AVE
CHICAGO IL 60639-4504

THOMAS CLARK
BRANCH MANAGER
U A CABLE SYSTEM
UACC MIDWEST INC
3517 N DRIES LN
PEORIA IL 61604-1210

VAN JACKSON
OTTAWA BANKING CTR
UNION BANK
122 W MADISON ST
OTTAWA IL 61350

UNION CARTAGE COMPANY INC
5401 W 65TH ST
CHICAGO IL 60638-5637

UNION EXPRESS DES SERVICE
PO BOX 180047
CHICAGO IL 60618-0524

UNION FREIGHTWAYS INC
1001 S LARAMIE AVE
CHICAGO IL 60644-5506

UNITED EXPRESS SYSTEM INC
PO BOX 1628
AURORA IL 60507-1628

UNITED LOGISTICS INC
PO BOX 559
PEORIA IL 61651-0559

WILLIAM C MANIKA
TRANSPORTATION COORDINATION CO
UNITED PARCEL SERVICE
2600 WARRENVILLE RD SUITE 210
DOWNERS GROVE IL 60515

MICHAEL J TRURAN
TRANSPORTATION COORDINATION CO
UNITED PARCEL SERVICE
2349 HUBBARB AVE
DECATUR IL 62526

JAMES OLIVER
ECONOMIC DEVELOPMENT BOARD
UNIVERSITY FORD OF PEORIA INC
2100 W PIONEER PARKWAY
PEORIA IL 61615

CORNELL OLIVER
PEORIA CHAMBER BOARD
UNIVERSITY FORD OF PEORIA INC
2100 W PIONEER PARKWAY
PEORIA IL 61615

VAN OHARE LINES INC
5000 W ROOSEVELT RD
CHICAGO IL 60650-1368

MATT J VONACHEN
PEORIA CHAMBER BOARD
VONACHEN SERVICE & SUPPLY
PO BOX 3156
PEORIA IL 61612

ED LAURENT
PRESIDENT
WATER AND OIL TECHNOLOGIES INC
52 EASTFIELD RD
MONTGOMERY IL 61538

WATKINS TRUST
5 OAKWOOD DR
OSWEGO IL 60543

JIM SUSIN
PEORIA AREA CONVENTION & VISITOR BUR
WAUGH FROZEN FOODS COMPANY
8903 N HALE AVE
PEORIA IL 61615

DAN SILVERTHORN
ECONOMIC DEVELOPMENT BOARD
WEST CENTRAL IL BLDG & CONST
400 N E JEFFERSON ST STE 403
PEORIA IL 61603

JAMES BROADWAY
RIVERFRONT BUSINESS DIST COMM
WESTERVELT JOHNSON NICOLL & KELLER
411 HAMILTON BLVD 14TH FLOOR
PEORIA IL 61602

CAROLINE NEIL
PRESIDENT
WHITECAP DRIFTERS BOAT CLUB
6802 SANKOTY DR
PEORIA IL 61614-3118

AREA CONSULTANTS
WILLETT HOFMANN & ASSOCIATES INC
512 1/2 COURT ST
PEKIN IL 61554

WILLIAM CUNNINGHAM MOVERS
5862 N NW HWY
CHICAGO IL 60631-2641

WINKLER DISTRIBUTING INC
PO BOX 698
PEORIA IL 61652-0698

WIRTZ CARTAGE COMPANY
4116 W PETERSON AVE
CHICAGO IL 60646-6017

MIKE J WISDOM
PEORIA CHAMBER BOARD
WISDOM DEVELOPMENT GROUP
405 SW COMMERCIAL ALY
PEORIA IL 61602-1550

STEVEN WOODRUM
WOODRUM MANUFACTURING
RR 4
JACKSONVILLE IL 62650-9804

WORLD PAPER STORAGE
4545 W PALMER ST
CHICAGO IL 60639-3421

YACKLEY ALL WEATHER SERVICE LTD
435 RANCE RD
OSWEGO IL 60543-9766

RICHARD LINDEMEIR
AMERICAN RIVER TRANS
PO BOX 1470
DECATUR IL 62525

FRANK CASTLEMAN
AMERICAN RIVER TRANSPORTATION
PO BOX 1470
DECATUR IL 62525

BARGE TERMINAL TRUCKING INC
PO BOX 636
OSWEGO IL 60543-0636

CBSL TRANSPORTATION SERVICES INC
4750 S MERRIMAC AVE
CHICAGO IL 60638-1439

FULL TRANSPORTATION SERVICE
2300 S THROOP ST
CHICAGO IL 60608-5012

BILL KINZELER II
DIRECTOR
ILLINOIS RIVER CARRIERS ASSOC
PO BOX 610
JEFFERSONVILLE IN 47130

DANIEL HOUGHTON
JACK TANNER TOWING CO
801 S 11TH ST
HAVANA IL 62644

LLOYD COLE
PRESIDENT
JACK TANNER TOWING COMPANY INC
801 11TH ST
HAVANA IL 62644-1613

MARK CARR
MEMCO BARGE LINE INC
16090 SWINGLEY RIDGE RD #600
CHESTERFIELD MO 63017

DON HUFFMAN
MARC 2000
MEMCO BARGE LINE INC
16090 SWINGLEY RIDGE RD STE 600
CHESTERFIELD MO 63017

OHIO BARGE LINE, INC.
927 COLLINS ST
JOLIET IL 60432

DAN WIESBROCK
OTTAWA BARGE TERMINAL INC
PO BOX 197
LEONORE IL 61332

PEM TRANSPORTATION
5757 W OGDEN AVE
CHICAGO IL 60650-3807

JAMES R MEHLENBECH
PEORIA BARGE TERMINAL
1925 DARST ST PO BOX 5187
PEORIA IL 61605

JAMES R MEHLENBECK
TRANSPORTATION COORDINATION CO
PEORIA BARGE TERMINAL
P O BOX 5187
PEORIA IL 61601

THOMAS FINCH
PRESIDENT
PEORIA BARGE TERMINAL INC
PO BOX 5187
PEORIA IL 61601-5187

PIER TRANSPORTATION INC
2901 W 31ST ST
CHICAGO IL 60623-5104

PYRAMID TRANSPORTATION COMPANY
3103 E 79TH ST
CHICAGO IL 60649-5311

ROADLINK USA MIDWEST
4201 W 36TH ST FL 4
CHICAGO IL 60632-3828

STAR TRUCK DRIVING SCHOOL
PO BOX 1039
MONTGOMERY IL 60538-7039

PETE COFER
TABOR MARINE
PO BOX 175
PEORIA IL 61650

THE VALLEY LINE CO
529 N CHICAGO ST
JOLIET IL 60432

JOHN ZICK
SENIOR VICE PRESIDENT
1421 W FLETCHER ST
CHICAGO IL 60657-2112

ADM-GROWMARK, INC
PO BOX 560
HAVANA IL 62644-1364

APEX MARINE TERMINAL
3301 S KEDZIE AVE
CHICAGO IL 60623

TOM KRAMER
CALUMET TERMINAL
3259 E 100TH ST
CHICAGO IL 60617

BEN MILLER
CARGILL GRAIN
310 S WATER ST
HAVANA IL 62644

CARGILL INC
PO BOX 232
SPRING VALLEY IL 61362

OIL TAD DEPT
CARGILL INC
122ND & TORRENCE AVE
CHICAGO IL 60617

OIL TAD DEPT
CARGILL INC
122ND & TORRENCE AVE
CHICAGO IL 60617

CARGILL INC
310 S WATER ST
HAVANA IL 62644-1360

MARK BIEBER
GRAIN DIVISION
CARGILL INC
PO BOX 260
MEREDOSIA IL 62665

ROBERT LAURISCH
LAKES AREA SUPERINTENDENT
CARGILL INC
122ND & TORRENCE AVE
CHICAGO IL 60617

ED MC QUEEN
CARGILL INC
300 BOARD OF TRADE BLDG
PEORIA IL 61602

CERES TERMINALS
9301 S KREITER AVE
CHICAGO IL 60617

JAMES FARLEY
CONTI CARRIERS & TERMINALS
3647 173RD CT APT 9C
LANSING IL 60438-1450

GARVEY INTERNATIONAL INC
P O BOX 546
OTTAWA IL 61350

KOCH MARINE OIL TERMINAL
4100 S CICERO AVE
CHICAGO IL 60650

LAKE RIVER TERMINALS INC
6800 W 68TH ST
CHICAGO IL 60638-4838

R WM DAVIDSMEYER
MEREDOSIA TERMINAL INC
HWY 104 W PO BOX 268
MEREDOSIA IL 62665

NORMAN LITTLE
MEREDOSIA TERMINAL INC
HWY 104 W PO BOX 268
MEREDOSIA IL 62665

FRAN KASTEN
QUANTUM CHEMICAL CO
8805 N TABLER RD
MORRIS IL 60450

RESERVE MARINE TERMINALS
11401 S GREEN BAY AVE
CHICAGO IL 60617-7100

S H BELL CO
10218 S AVE O
CHICAGO IL 60617

TIM BERENS
STOLTHAVEN CHICAGO INC
12200 S STONY ISLAND AVE
CHICAGO IL 60633

BURLINGTON NORTHERN - GALESBURG DIV
1670 S HENDERSON
GALESBURG IL 61401

ELMER BERGQUIST
MANAGER
PUBLIC PROJECTS
BURLINGTON NORTHERN & SANTA FE RAILROAD
1670 S HENDERSON ST
GALESBURG IL 61401

DIRECTOR OF PUBLIC WORKS
BURLINGTON NORTHERN INC.
547 W JACKSON BLVD
CHICAGO IL 60606

RUTH MC CULLUM
BURLINGTON RAILROAD
5601 W 26TH ST
CHICAGO IL 60650

CHICAGO RAIL LINK
2728 E 104TH ST
CHICAGO IL 60617-5766

CHICAGO W PULLMAN SOUTHERN RR COMPANY
2728 E 104TH ST FL 1
CHICAGO IL 60617-5766

J. T. HENSCHEL
ASSET MANAGEMENT DEPARTMENT
ELGIN JOLIET & EASTRN RAILWAY COMPANY
1141 MAPLE RD
JOLIET IL 60432-1981

DAVE BLACKMON
ACTING REGIONAL ADMINISTRATOR
FEDERAL RAILROAD ADMINISTRATION-REG 4
111 ST CANAL ST SUITE 655
CHICAGO IL 60606

MICHAEL K. MOHAN
ILLINOIS CENTRAL RAILROAD
455 NORTH CITY FRONT PLAZA DR
CHICAGO IL 60611-5504

NORTHEAST IL REG COMMUTER RR CORP (METRA)
547 W JACKSON BLVD
CHICAGO IL 60661-5717

ANTHONY OGNIBENE
REAL ESTATE & CONTRACT MGMT
NORTHEAST IL REG COMMUTER RR CORP (METRA)
547 W JACKSON BLVD
CHICAGO IL 60661-5717

RICK HART
ENGINEER
AMEREN CIPS
104 E 3RD ST
BEARDSTOWN IL 62618

CENTRAL IL LIGHT CO.
300 LIBERTY ST
PEORIA IL 61602

KEVIN CULVER
LABORATORY DIRECTOR
CONSUMERS ILLINOIS WATER COMPANY
1100 COBB BLVD
KANKAKEE IL 60901

GEORGE LEVI
DIRECTOR - ECONOMIC DEVELOPMENT
ILLINOIS POWER CO
500 S 27TH ST
DECATUR IL 62525

RICH SCHULTZ
KANKAKEE MUNICIPAL UTILITY
199 S EAST AVE #2
KANKAKEE IL 60901

NORTHERN ILLINOIS GAS CO
2704 FESTIVAL DR
KANKAKEE IL 60901

JOSEPH PRZEN
PERU POWER CO
1415 WATER ST
PERU IL 61354

PRINCETON MUNICIPAL UTILITIES
2 S MAIN ST
PRINCETON IL 61356

THOMAS BRIGGS
WEBSTER ILLINOIS POWER COOP
PO BOX 609
JACKSONVILLE IL 62651

MARK LAMBERT
IL CORN GROWERS ASSOCIATION
102 S BONE DR
NORMAL IL 61761

DALE KNAPP
ADM/GROWMARK
PO BOX 352
MORRIS IL 60450

JAMES L WHALEN
ADM/GROWMARK
PO BOX 560
HAVANA IL 62644-0560

JOHN SKORBURG
SENIOR ECONOMIST
AMERICAN FARM BUREAU
1501 E WOODFIELD RD STE 300W
SCHAUMBURG IL 60173-5422

G ALLEN AND MARTIN ANDREAS
PRESIDENT & CEO
ARCHER DANIELS MIDLAND CO
PO BOX 1470
DECATUR IL 62525

LEW BATCHELDER
ARCHER DANIELS MIDLAND CO
4666 FARIES PKWY
DECATUR IL 62525

NANCY HAMILL WINTER
NATURE CONSERVANCY
BIG SKY FARM
5229 S MASSBACH RD
STOCKTON IL 61085

BRIAN INGRAM
BROWN CO FARM BUREAU
RR 3
MT STERLING IL 62353

LEN WIESE
BROWN CO FARM BUREAU
RR 1 BOX 86
VERSAILLES IL 62378

MANAGER
BUREAU COUNTY FARM BUREAU
PO BOX 190
PRINCETON IL 61356

ROGER BRUYN
MANAGER
BUREAU COUNTY FARM BUREAU
627 DOWNEY DR
PRINCETON IL 61356

DALE HADDEN
CASSMORGAN FARM BUREAU
1291 HWY 78 W
JACKSONVILLE IL 62650

JAMES CARLETON
CASS-MORGAN FARM BUREAU
1152 TENDICK
JACKSONVILLE IL 62650

CANDY ANDERSON
CITIZENS AGAINST FACTORY FARMS INC
RT 3 BOX 235
MT STERLING IL 62353

LYLE & SHARI LEWIS
CITIZENS AGAINST FACTORY FARMS INC
RR 3 BOX 239
MT STERLING IL 62353

JIM HAMACKER
CONSOLIDATED GRAIN & BARGE CO
RR 4 BOX 167
PRINCETON IL 61356

ROBERT W HALE
ASST VICE PRESIDENT
CHICAGO REGION
CONTINENTAL GRAIN & BARGE CO
PO BOX 408
BEARDSTOWN IL 62618

CONTINENTAL GRAIN CO
101 N WATER ST PO BOX 117
LACON IL 61540

CONTINENTAL GRAIN CO-BEARDSTOWN TMNL
814 W MAIN ST PO BOX 408
BEARDSTOWN IL 62618

TED HARDING
FARM BUREAU
208 S TRIVOLI RD
TRIVOLI IL 61569

ROBERT JOHNSON
FARM BUREAU
10625 N RT 47
MORRIS IL 60450

GEORGE FLAGEOLE
FLAGEOLE FARMS INC
1656 W 2000S RD
KANKAKEE IL 60901

ELAINE STONE
MANAGER
FULTON CO FARM BUREAU
15411-A N IL 100 HWY
LEWISTOWN IL 61542-9500

MANAGER
FULTON COUNTY FARM BUREAU
RR2 BOX 37A5
LEWISTOWN IL 61542-9500

GOFFLAND FARMS
26880 ACORN
HOPEDALE IL 61747

WILLIAM LEMMON
EXECUTIVE VICE PRESIDENT
GRAIN AND FEED ASSOC OF IL
3521 HOLLIS DR
SPRINGFIELD IL 62707

GROWMARK INC
PO BOX 352
MORRIS IL 60450

JAYNE KITTELL
GRUNDY CNTY FARM BUREAU
4000 N DIVISION
MORRIS IL 60450

ROGER HARDY
HARDY FARMS
RR 1 BOX 35A
JACKSONVILLE IL 62650-9801

CHARLES HUNT
HUNT FAMILY FARMS
RR 1
GRAFTON IL 62037-9801

ROSS PAULI
ICGA
9919 N FORD RD
EDWARDS IL 61528

RODNEY WEINZIEL
IL CORN GROWERS
3617 N 1300 E RD
STANFORD IL 61774

DENNY BOGNER
IL CORN GROWERS ASSOCIATION
898 CAMP GROVE RD
SPARLAND IL 61565

NANCY ANDERSON
IROQUOIS CNTY FARM BUREAU
RTE 1 BOX 30
DANFORTH IL 60930

BILL OLTHOFF
KANKAKEE COUNTY FARM BUREAU
4503-A E 3000N RD
BOURBONNAIS IL 60914

KANKAKEE COUNTY FARM SERVICE AGENCY
685 LARRY POWERS RD
BOURBONNAIS IL 60914

ROBERT KENNELL
KENNELL ROBERT FERTILIZER
RR 2 BOX 24
ROANOKE IL 61561-9802

HAROLD KUHLMANN
KUHLMANN & KUHLMANN FARMS
RR 1 BOX 73
BEARDSTOWN IL 62618-9505

MACON COUNTY FARM SERVICE AGENCY
PO BOX 3458
DECATUR IL 62524

MASON COUNTY FARM SERVICE AGENCY
PO BOX 107
HAVANA IL 62644

KEITH SWIGART
MINIER COOP GRAIN
PO BOX 650
MINIER IL 61759-0650

LEW KORSMEYER
PRESIDENT
KORSMEYER N FARMS
N KORSMEYER INC
RR 3 BOX 358
BEARDSTOWN IL 62618-9577

MIKE COCHRAN
NIGHT HAWK FARMS
RR 1 BOX 149C
TIMEWELL IL 62375

GREENWAYS BOARD
PEORIA COUNTY FARM BUREAU
1716 NORTH UNIVERSITY
PEORIA IL 61604

PATRICK KIRCHHOFER
PEORIA COUNTY FARM BUREAU
1716 N UNIVERSITY
PEORIA IL 61604

PEORIA COUNTY FARM SERVICE AGENCY
2412 W NEBRASKA AVE
PEORIA IL 61604

BLAKE RODERICK
MANAGER
PIKE.SCOTT COUNTY FARM BUREAU
629 E WASHINGTON
PITTSFIELD IL 62363

JAMES RAY
RAY BROTHERS FARM PARTNERSHIP
PO BOX 149
MT STERLING IL 62353-0149

BOBBY G. HARDWICK, JR.
PRESIDENT
S W HARDWICK FARMS INC
1401 GRAND AVE
BEARDSTOWN IL 62618

FRANCIS B. SCHACHTRUP
PRESIDENT
SCHACHTRUP FARMS INC
4515 N GRANDVIEW DR
PEORIA IL 61614-6629

F. M. SCHACHTRUP
VICE-PRESIDENT
SCHACHTRUP FARMS INC
105 FAIRHAVEN LN
PEORIA HEIGHTS IL 61614-6611

KENT PRATHER
SCHUYLER CO FARM BUREAU
415 N CAPITOL
MT STERLING IL 62353

KENT PRATTEN
SCHUYLER COUNTY FARM BUREAU
114 E LAFAYETTE
RUSHVILLE IL 62681

WARREN WOLF
SISTER CREEK FARMING
20798 E USHWY 24
LEWISTOWN IL 61542

ALISON WOLF
SISTER CREEK GRAIN
20798 E US RT 24
LEWISTOWN IL 61542

TODD HUDSON
TABOR GRAIN CO
PO BOX 447
LA SALLE IL 61301

GREENWAYS BOARD
TAZEWELL COUNTY FARM BUREAU
1505 VALLE VISTA
PEKIN IL 61554

TAZEWELL COUNTY FARM SERVICE AGENCY
1440 VALLE VISTA BLVD
PEKIN IL 61554-6224

JOAN FRENCH
TRENCHARD FARMS
4531 N MILLER
PEORIA HEIGHTS IL 61616

WAYNE UNSIKER
TRIPLE U FARMS
8611 N RADNOR RD
PEORIA IL 61615-9641

WILL COUNTY FARM SERVICE AGENCY
1201 GOUGAR RD
NEW LENOX IL 60451

GREENWAYS BOARD
WOODFORD COUNTY FARM BUREAU
117 W CENTER
EUREKA IL 61530

STAN GREBNER
LAND USE ADVISORY COMMITTEE
WOODFORD COUNTY FARM BUREAU
RR 1 BOX 191
WASHBURN IL 61570

GORDON A TINGLEY
SENIOR TRANSMISSION ENGINEER
AmerenCIPS
104 E 3rd ST
BEARDSTOWN IL 62618

C F INDUSTRIES
PO BOX 492
PERU IL 61354

DONALD DAVIS
CATERPILLAR INDUSTRIAL PRODUCTS
100 N E ADAMS
PEORIA IL 61629-9310

DAVID ASBRIDGE
AGRI-BUSINESS ANALYSIS DEPT
AGRI-BUSINESS ANALYSIS DEPT
CF INDUSTRIES INC
ONE SALEM LAKE DR
LONG GROVE IL 60047-8401

TIM MINOR
DIRECTOR, STATE GOV RELATIONS
CF INDUSTRIES INC
ONE SALEM LAKE DR
LONG GROVE IL 60047

MARGARET VAN WISSINK
STATE GOVERNMENT RELATIONS
CF INDUSTRIES INC
ONE SALEM LAKE DR
LONG GROVE IL 60047-8402

INDUSTRIAL WASTE MANAGEMENT INC
2515 S WABASH AVE
CHICAGO IL 60616-2308

KIM LOGSDON
LOGSDON TUG SERVICE
400 1/2 W MAIN ST
BEARDSTOWN IL 62618

PRECAST/PRESTRESSED CONCRETE INSTITUTE
209 W JACKSON BLVD
CHICAGO IL 60606

GEORGE R LAMB
SHIPYARD TERMINAL & INDUSTRIAL PARK
520 SHIPYARD RD
SERVICE
SENECA IL 612360-921

WILLIAM LEWIS JR
AGRICULTURAL ECONOMIST
USDA NATURAL RESOURCES CONSERVATION

2118 W PARK CT
CHAMPAIGN IL 61821-2986

A & R TRANSPORT INC
2223 BUSH RD
JOLIET IL 60436-8557

ALL TRUCK TRANSPORTATION COMPANY
4924 S AUSTIN AVE
CHICAGO IL 60638-1412

AURORA FAST FREIGHT INC
1859 PLAIN AVE
AURORA IL 60505-3250

BECK TRUCKING COMPANY INC
1149 W GRAND AVE
CHICAGO IL 60622-5808

C & C TRUCKING COMPANY
300 MAPLE ST
JOLIET IL 60432-2545

C&K TRUCKING INC
6850 W 63RD ST
CHICAGO IL 60638-4026

CHICAGO FREIGHT SYSTEM INC
3333 W 36TH ST
CHICAGO IL 60632-2702

CITY WIDE WAREHOUSE & TRUCKING
3850 W CORTLAND ST
CHICAGO IL 60647-4636

CUSHING TRUCKING INC
3756 S CICERO AVE
CHICAGO IL 60650-4536

EWG TRUCKING CORP
12 E 112TH PL
CHICAGO IL 60628-4914

FARQUHAR TRUCKING COMPANY
2200 S LOOMIS ST
CHICAGO IL 60608-5007

FULLERTON MOTOR TRUCK SERVICE INC
181763 W 33RD PL
CHICAGO IL 60608

HOYT BROTHERS TRUCKING INC
1665 TERRY DR
JOLIET IL 60436-8542

J AND V TRUCKING INC
5308 W GRAND AVE
CHICAGO IL 60639-3010

J D GRIGGS TRUCKING COMPANY INC
4950 N ELSTON AVE
CHICAGO IL 60630-1730

JACK FREEMAN TRUCKING COMPANY
4948 S WESTERN BLVD
CHICAGO IL 60609-4742

JAYDEE TRUCK SERVICE INC
PO BOX 2302
PEORIA IL 61611-0302

JOHN RYAN TRUCKING INC
2704 W MELROSE ST
CHICAGO IL 60618-5908

JOMAR TRUCK LINES INC
13803 S SAGINAW AVE
CHICAGO IL 60633-2105

DAVE VAN HISE
LINCOLN FARM CORP
1314 E MARIETTA AVE
PEORIA IL 61614-6530

MC DOWELL TRUCKING COMPANY
4622 S BISHOP ST
CHICAGO IL 60609-3240

MELKAS TRUCKING INC
910 SAK DR
JOLIET IL 60435-2478

MILLER TRUCKING INC
8800 S FRANCISCO AVE
CHICAGO IL 60642-1248

NAGEL TRUCKING & MATERIALS
1043 PARAMOUNT PKWY
BATAVIA IL 60510-1454

PROSPERITY TRUCKING COMPANY
4654 W ERIE ST
CHICAGO IL 60644-1713

RELIANCE TRUCKING INC
PO BOX 803
MORRIS IL 60450-0803

SPIRIT TRUCKING COMPANY
5400 W 47TH ST
CHICAGO IL 60638-1807

STALL TRUCK AND EQUIPMENT INC
13735 S JEFFERY AVE
CHICAGO IL 60633-2343

STOKES TRUCKING
35W160 BUTTERFIELD RD
BATAVIA IL 60510-9338

SUNSHINE MOVERS TRUCK RENTAL INC
2309 N DAMEN AVE
CHICAGO IL 60647-3321

TEXS TRUCKING INC
PO BOX 8324
CHICAGO IL 60680-8324

THRIFT TRUCKING INC
4420 ENTEC DR
PEORIA IL 61607-2779

VANEK BROS TRUCKING COMPANY
3920 S LOOMIS ST
CHICAGO IL 60609-2401

W & D TRUCK LINES INC
6019 SO PERRY
CHICAGO IL 60621

WILLETT TRUCKING COMPANY LP
140 S DEARBORN ST STE 320
CHICAGO IL 60603-5202

TOM CASSON
CASSON CONSTRUCTION
RR 5
JACKSONVILLE IL 62650-9805

RICHARD DAVIDSMEYER
BRANCH MANAGER
IL ROAD CONTRACTORS
HWY 104 W PO BOX 268
MEREDOSIA IL 62665

JOHN SIMPSON
JOHN D SIMPSON CONSTRUCTION CO
512 MACK ST
JOLIET IL 60435-5922

GARY PRUDEN
PRUDEN CONSTRUCTION
PO BOX 167
MT STERLING IL 62353-1208

FOUR STAR MARINA
BOX 249
OTTAWA IL 61350

KEVIN JUDD
HENNEPIN BOAT STORE
118 FRONT ST
HENNEPIN IL 61327

ASSOC GEN CONTRACTORS OF IL
3219 EXECUTIVE PARK DR
SPRINGFIELD IL 62708

KERRY RICE
ECONOMIC DEVELOPMENT BOARD
GP CONTRACTORS & SUPPLIERS ASSOC
1811 W ALTORFER DR
PEORIA IL 61615

CHRISTOPHER KLUG
ILLINOIS VALLEY MARINE
720 LINCOLN CT
LA SALLE IL 61301

TROY LOGSDON
LOGSDON SAND & GRAVEL
PO BOX 319
BEARDSTOWN IL 62618-0319

HOLLY FULTON
EAST PEORIA MARINA
701 MARINER WAY
EAST PEORIA IL 61611

R. SCOTT OWEN
GALENA MARINE
4817 N GALENA RD
PEORIA IL 61614-5432

NICK NEKNOSIUS
IL VALLEY MARINE
748 7TH ST
LA SALLE IL 61301

MARINA CARTAGE INC
4450 MORGAN ST
CHICAGO IL 60609-3336

ROBERT T. KELLER
PRESIDENT
PEORIA HARBOR & FLEETING SERVICE
619 WESLEY RD
PEORIA IL 61611-3118

ROBERT MOONEY
OWNER
RAINBOW COVE MARINA
202 DISTRICT CT
EAST PEORIA IL 61611-1411

STARVED ROCK MARINA
PO BOX 2460
OTTAWA IL 61350

STARVED ROCK YACHT CLUB
DEE BENNETT RD
OTTAWA IL 61350

WHARF HARBOR MARINA
FOOT OF ALEXANDER
PEORIA IL 61603

JOHN J. SULKA, JR.
PRESIDENT
WHARF HARBOR SALES INC
FOOT OF ALEXANDER ST
PEORIA IL 61603

TERRY GUILINDRI
BOOKKEEPER
EAST PEORIA SANITARY DIST
802 E WASHINGTON ST
EAST PEORIA IL 61611

HOWARD HIGHT
SECRETARY-TREASURER
EAST PEORIA SANITARY DIST
802 E WASHINGTON ST
EAST PEORIA IL 61611

DAVE MC CARTY
SUPERINTENDENT
EAST PEORIA SANITARY DIST
802 E WASHINGTON ST
EAST PEORIA IL 61611

EMERY SARY
PRESIDENT-COMMISSIONER
EAST PEORIA SANITARY DIST
802 E WASHINGTON ST
EAST PEORIA IL 61611

DICK WILLIAMS
ATTORNEY
EAST PEORIA SANITARY DIST
802 E WASHINGTON ST
EAST PEORIA IL 61611

BOB LAWLESS
ECSYTM PTNSHP-VERMILION WTRSHD TASK
22855 E 1123 N RD
FAIRBURY IL 61739

PRESIDENT
FOX METRO WATER RECLAMATION DIST
682 Route 31
OSWEGO IL 60543-9417

GREGG BUCHNER
FOX METRO WATER RECLAMATION DISTRICT
682 STATE ROUTE 31
OSWEGO IL 60543-8500

STAN BROWNING
GREATER PEORIA SANITARY DISTRICT
2322 S DARST ST
PEORIA IL 61607

STEVE JURGENS
ECOSYSTEM PRTNRSHP-UPPER KASKASKIA
LAKE SHELBYVILLE WATERSHED MGMT. COMMITT
1102 W JACKSON
SULLIVAN IL 61951

MARK DRESSEL
METROPOLITAN WATER RECLAMATION DIST
100 E ERIE ST
CHICAGO IL 60611-2803

JACK FARNAN
GENERAL SUPERINTENDENT
DIST OF GREATER CHICAGO
METROPOLITAN WATER RECLAMATION DIST
100 E ERIE ST
CHICAGO IL 60611-2803

RONALD HILL
PRINCIPAL ASSISTANT ATTORNEY
DIST OF GREATER CHICAGO
METROPOLITAN WATER RECLAMATION DIST
100 E ERIE ST
CHICAGO IL 60611-2003

RICHARD LANYON
DIRECTOR
RESEARCH AND DEVELOPMENT
METROPOLITAN WATER RECLAMATION DIST
100 E ERIE ST
CHICAGO IL 60611

HUGH MC MILLAN
GENERAL SUPERINTENDENT
METROPOLITAN WATER RECLAMATION DIST
100 E ERIE ST
CHICAGO IL 60611

TERRENCE O'BRIEN
PRESIDENT
DIST OF GREATER CHICAGO
METROPOLITAN WATER RECLAMATION DIST
100 E ERIE ST
CHICAGO IL 60611

MICHAEL ROSENBERG
ATTORNEY
METROPOLITIAN WATER RECLAMATION DIST
111 E ERIE
CHICAGO IL 60441

DAVID RAMSAY
ECOSYSTEM PRTNRSHP-N BRNCH CHICAGO R
NORTH BRANCH WATERSHED PROJECT
407 S DEARBORN SUITE 1580
CHICAGO IL 60605

COMISSIONER-SECRETARY
RT 1 BOX 47
ARENZVILLE IL 62611

CHAIRPERSON
BD OF COMMISSIONERS
1906 MOUND AVE
JACKSONVILLE IL 62650

PRESIDENT
BOARD OF COMMISSIONERS
BROWN CO COURT HOUSE COURT ST
MT STERLING IL 62353

CHARLES TAYLOR
CHAIRMAN-COMMISSIONER
TAYLOR GRAIN & LIVESTOCK FARM
CLEAR LAKE SPECIAL DRAINAGE DIST
19466 CHANDLERVILLE RD
VIRGINIA IL 62691-8670

CHESTER ESTHER JR
COMMISSIONER
COAL CREEK DRAINAGE & LEVEE DIST
RR2 BOX 186
BEARDSTOWN IL 62618

PRESIDENT-BD OF COMMISSIONERS
COON RUN DRAIN DIST
222 N PUTNAM
MEREDOSIA IL 62665

LELAND LITTIG
COON RUN DRAIN DIST
RT 1 BOX 174 D
MEREDOSIA IL 62655

ROBERT MEYER
COMMISSIONER
CRANE CREEK DR & LEVEE DIST
15 TAYLOR CT
BEARDSTOWN IL 62618

HOMER BRINEY
% MIKE MEYER CHAIRMAN
CRANE CREEK DRAINAGE & LEVEE DIST
515 W 8TH ST
BEARDSTOWN IL 62618

MIKE MEYER
CHAIRMAN-COMMISSIONER
CRANE CREEK DRAINAGE & LEVEE DIST
515 W 8TH ST
BEARDSTOWN IL 62618

JAMES BULL
CHAIRMAN-COMMISSIONER
EAST LIVERPOOL DRAINAGE & LEVEE DIST
21583 E US HWY 24
LEWISTOWN IL 61542

JOHN GRAHAM
COMMISSIONER
EAST PEORIA SANITARY DIST
802 E WASHINGTON ST
EAST PEORIA IL 61611

KENNETH EFFLAND
EFFLAND DRAINAGE & LEVEE DIST
RR1 BOX 86
AVON IL 61415

OAKLEIGH ADKINS JR
PRESIDENT-COMMISSIONER
FARMERS LEVEE & DRAINAGE DIST
RR 2 BOX 19
CHANDLERVILLE IL 62627

DAVID SANDIDIGE
HAGER SLOUGH DRAINAGE & LEVEE DIST
RR 1 BOX 27
BEARDSTOWN IL 62618

MARTY TURNER
CHAIRMAN-COMMISSIONER
HAGER SLOUGH DRAINAGE & LEVEE DIST
RR 1 BOX 27
BEARDSTOWN IL 62618

LANE WEISE
HAGER SLOUGH DRAINAGE & LEVEE DIST
RR 1 BOX 27
BEARDSTOWN IL 62618

MARTIN TURNER
CHAIRMAN
HAGER SLOUGH DRAINAGE AND LEVEE DIST
RR 1 BOX 27
BEARDSTOWN IL 62618

WILLIAM RICHTER
CHAIRMAN
HAGER SLOUGH SPECIAL DRAINAGE DIST
CLEAR LAKE RD RR1 BOX 82
BEARDSTOWN IL 62618

WILLIAM STEVENSON
CHAIRMAN
HENDERSON COUNTY DRAINAGE DIST NO 2
RR 1 BOX 15
GLADSTONE IL 61437

JOHN ROBB
COMMISSIONER
HENDERSON COUNTY DRAINAGE DIST NO 3
624 WOODLAND KNOLLS RD
METAMORA IL 61548-9429

GUDMUND JESSEN
CHAIRMAN-COMMISSIONER
HENNEPIN DRAINAGE & LEVEE DIST
WETLANDS
PO BOX 236
HENNEPIN IL 61327

ALBERT PYOTT
COMMISSIONER/PRESIDENT
HENNEPIN DRAINAGE AND LEVEE DIST (THE

INITIATIVE)
SUITE 1015 53 W JACKSON BLVD
CHICAGO IL 60604-3703

DUKE LYTER
CHAIRMAN
INDIAN GRAVE DRAINAGE DIST
RR 2 BOX 109
QUINCY IL 62301

DAVID SHAFFER
COMMISSIONER
INDIAN GRAVE DRAINAGE DIST
411 SHAFFER LN
URSA IL 62376

MIKE RAUSCH
KEACH DRAINAGE & LEVEE DIST
102 N WESTGATE AVE
JACKSONVILLE IL 62650

LYNN MASON
SOLE COMMISSIONER
KERTON VALLEY DRAINAGE & LEVEE DIST
4030 STONEYARD RD
HAVANA IL 62644

STEPHEN SPECKETER
CHAIRMAN-COMMISSIONER
LACEY DRAINAGE & LEVEE DIST
18214 QUIVER BEACH RD
HAVANA IL 61644

DONALD SPECKETER
COMMISSIONER
LACEY DRAINAGE & LEVEE DIST
620 E MAIN
HAVANA IL 62644

WARREN WOLF
CHAIRMAN-COMMISSIONER
LIVERPOOL DRAINAGE & LEVEE DIST
20544 E US RTE 24
LEWISTOWN IL 61542

EDWIN HOBROCK
CHAIRMAN-COMMISSIONER
LOST CREEK DRAINAGE & LEVEE DIST
9024 CHANDLERVILLE RD
BEARDSTOWN IL 62618

MARTY TURNER
COMMISSIONER
LOST CREEK DRAINAGE & LEVEE DIST
CHANDLERVILLE RD
BEARDSTOWN IL 62618

ROBERT TALBOTT
PRESIDENT-COMMISSIONER
MACKINAW RIVER LEVEE & DRAINAGE DIST
10413 SKY RANCH RD
MANITO IL 61546

JOSEPH POWLEY
PRESIDENT-COMMISSIONER
MASON & MENARD DRAINAGE & LEVEE DIST
26266 E COUNTY RD
EASTON IL 62633

LOREN WIESE
PRESIDENT
MC GEE CREEK DRAINAGE & LEVEE DIST
RR 1 BOX 82
VERSAILLES IL 62378

BRENT HOERR
COMMISSIONER
MO FARM BUREAU FED/MARION CO DRAINAGE DIST
7265 CO RD 336
PALMYRA MO 63461

MICK CLICH
SUPERINTENDENT
OTTAWA LEVEE & DRAINAGE DISTRICT
211 E MAIN ST
OTTAWA IL 61350

RICHARD WHITNEY
PEKIN & LAMARSH DRAINAGE & LEVEEE DIST
2406 N NEBRASKA
PEORIA IL 61604

WILLLIAM MUELLER
PRESIDENT-COMMISSIONER
SANITARY DIST OF BEARDSTOWN
114 W 17TH ST
BEARDSTOWN IL 62618

ROBERT TURK
COMMISSIONER
SEAHORN DRAINAGE & LEVEE DIST
BOX 108
TOPEKA IL 61567

DAVID SAGER
SPOON RIVER ECO-SYSTEM PARTNERSHIP
RR 1 BOX 5
SPEAR IL 61479

RICHARD SPANGLER
SPOON RIVER LEVEE VIST #1
26668 N RIVER BOTTOM RD
SMITHFIELD IL 61477

OWEN MILLER
SPOON RIVER RANCH & RODDIS D&L DIST
12012 E COUNTY HIGHWAY 14
LEWISTOWN IL 61542

RALPH GUENGERICH
CHAIRMAN-COMMISSIONER
SPRING LAKE DRAINAGE & LEVEE DIST
7360 SKY RANCH RD
MANITO IL 61546

STEVE THOMAS
COMMISSIONER
SPRING LAKE DRAINAGE & LEVEE DIST
6336 SKY RANCH RD
MANITO IL 61546

DIANNE BARNETT
UMIMRA
102 N WESTGATE
JACKSONVILLE IL 62650

NORMAN KORSMEYER
CHAIRMAN AND COMMISSIONER
VALLEY DR & LEVEE DIST
RR 2 BOX 146A
BEARDSTOWN IL 62618

LEW KORSMEYER
CHAIRMAN-COMMISSIONER
VALLEY DRAINAGE & LEVEE DIST
RR3 BOX 358
BEARDSTOWN IL 62618

W A MORRISON
VALLEY DRAINAGE & LEVEE DIST
RFD 1 BOX 290
BEARDSTOWN IL 62618

WAYNE NELSON
% DAVID PRATT
VILLAGE OF CHANDLERVILLE LEVEE DIST
PO BOX 205
CHANDLERVILLE IL 62627

KEN CAPPS
BEARDSTOWN SANITARY DIST
1016 W 6TH ST
BEARDSTOWN IL 62618

EARL JOHN CODERS
IL ASSOCIATION DRAINAGE DISTRICTS
27637 ARROW RD
DEER GROVE IL 61243

COULTER MASON
KERTAS VALLEY DRAINAGE DIST
RR 2
HAVANA IL 62644

RALPH PFISTER
EXEC DIR
SANITARY DISTRICT
PO BOX 27 305 RIVER ST
YORKVILLE IL 60560

BERNARD MC CANCE
FULTON CO SOIL & WATER CONSERVATION DIST
15381 N STATE HWY 100
LEWISTOWN IL 61542

HAVANA SERVICE CENTER
930 E LAUREL AVE
HAVANA IL 62644-6977

JIM GIGL
IROQUOIS COUNTY SWCD
1367 E 3200N RD
CHEBANSE IL 60922

KEN BLANCK
IROQUOIS RIVER 2020
BOX 164
CRESCENT CITY IL 60928

JOHN LAUBSCHER
IROQUOIS RIVER 2020
BOX 327
CISSNA PARK IL 60924

RICHARD RYAN
IROQUOIS RIVER 2020
2780 E TWP RD 121
SHELDON IL 60966

ALLEN CARLEY
IROQUOIS SOIL AND WATER
1991E 1630 N RD
WATSEKA IL 60970

THAD ESHLEMAN
IROQUOIS SWCD
1001 E GRANT ST STE A
WATSEKA IL 60970

JACKSONVILLE SERVICE CENTER
1904 W LAYFAYETTE AVE
JACKSONVILLE IL 62650-1011

RICH HOWELL
KANKAKEE CNTY SWCD
658 LARRY POWER RD
BOURBONNAIS IL 60914

DON LAMBERT
KANKAKEE RIVER CONSERVATION DIST
207 E RIVER ST
MOMENCE IL 60954-1609

LARRY KUCLINE
KANKAKEE SOIL AND WATER CONSERVATION SERVICE
5108 N 9000W RD
BONFIELD IL 60913

KENDALL COUNTY S&WCD
7775 A ROUTE 47
YORKVILLE IL 60560

CONSERVATION DISTRICT
LASALLE COUNTY SOIL & WATER
ROUTE 23 & DAYTON RD
OTTAWA IL 61350

LEWISTOWN SERVICE CENTER
15381 N STATE 100 HWY
LEWISTOWN IL 61542-9456

CHAIRMAN
MACON COUNTY S&WCD
4004 COLLEGE PARK RD
DECATUR IL 62521-6207

MARSHALL-PUTNAM COUNTY S&WCD
509 FRONT ST
HENRY IL 61537-1573

VAN BITNER
MASON CO SOIL & WATER CONSERVATION DIST
930 E LAUREL
HAVANA IL 62644

ERIC GOLDEN
MENDARD CO S&WCD
9521-2 W RR 3 BOX 16
PETERSBURG IL 62675

MORRIS SERVICE CENTER
3585 N STATE RT 47
MORRIS IL 60450-8245

MT STERLING SERVICE CENTER
511 E MAIN ST
MT STERLING IL 62353-1378

OTTAWA SERVICE CENTER
1691 N 31ST RD
OTTAWA IL 61350-9640

JENNIFER HAMMER
DIRECTOR OF WATERSHED PROTECTION
THE CONSERVATION FOUNDATION
10 S 404 KNOCH KNOLLS RD
NAPERVILLE IL 60565

TRACI GOLDIE
WILL COUNTY SWCD
1201 S GOUAR RD
NEW LENOX IL 60451

ROBERT BO WINDY
135 JUNEWAY DR
UTICA IL 61373

JENNIFER MAKASEAH
TRIBAL SECRETARY
ABSENTEE-SHAWNEEE TRIBE OF INDIANS OF OK
2025 S GORDON COOPER DIRVE
SHAWNEE OK 74801-9381

ART ASSOC OF JACKSONVILLE
331 W COLLEGE AVE PO BOX 213
JACKSONVILLE IL 62651

JOHN ROSS
CHIEF
UNITED KEETOOWAH BAND
CHEROKEE INDIANS OF OKLAHOMA
PO BOX 746
TAHLEQUAH OK 74465-0746

RICHARD L ALLEN
CHEROKEE NATION OF OKLAHOMA
PO BOX 948
TAHLEQUAH OK 74465

GARY WHITE DEER
DIRECTOR OF CULTURAL AFFAIRS
CHICKASAW NATION
PO BOX 1548
ADA OK 74820

TERRY D COLE
NAGPRA COORDINATOR
CHOCTAW NATION OF OKLAHOMA
PO DRAWER 1210 16TH & LOCUST ST
DURANT OK 74701

JOHN BARRETT
TRIBAL CHAIRPERSON
OKLAHOMA BUSINESS COMMITTEE
CITIZEN BAND POTAWATOMI INDIAN TRIBE
1601 S GORDON COOPER DR
SHAWNEE OK 74801

JEREMY FINCH
CULTURAL RESOURCES MANAGEMENT CONSUL
OF OKLAHOMA BUSINESS COMMITTEE
CITIZEN BAND POTAWATOMI INDIAN TRIBE
1601 S GORDON COOPER DR
SHAWNEE OK 74801

CHARLES CLARK
DIRECTOR OF NAGPRA
CITIZEN POTAWATOMI NATION
1601 GORDON COOPER DR
SHAWNEE OK 74801

LISA KRAFT
CULTURAL RESOURCES MGMT CONSULTANT
CITIZEN POTAWATOMI NATION
1901 S GORDON COOPER DR
SHAWNEE OK 74801

REBECCA WARE
ENVIRONMENTAL PROGRAM DIRECTOR
DELAWARE NATION OF OKLAHOMA
PO BOX 825
ANADARKO OK 73005

DR BRUCE OBERMEYER
EMPORIA STATE UNIV
DEPT OF SOC & ANTHROPOLOGY
DELAWARE TRIBE OF INDIANS
1200 COMMERCIAL BOX 4022 ROOSEVELT HALL RM
121
EMPORIA KS 66801

CURTIS ZUNIGA
CHIEF
DELAWARE TRIBE OF INDIANS
170 N BARBARA
BARTLESVILLE OK 74006-2746

KATHY MC COY
KAGPRA REPRESENTATIVE
EASTERN BAND OF CHEROKEE INDIANS
PO BOX 455
CHEROKEE NC 28719

GEORGE BUCK J CAPTAIN
CHIEF
EASTERN SHAWNEE TRIBE OF OKLAHOMA
PO BOX 350
SENECA MO 64865

MIKE ALLOWAY
DIRECTOR
FOREST CO POTAWATOMI CULTURAL CTR &
MUSEUM
PO BOX 340
CRANDON WI 54520

HAROLD "GUS" FRANK
CHAIRMAN
FOREST COUNTY POTAWATOMI EXE COUNCIL
PO BOX 340
CRANDON WI 54520

AL MILHAM
VICE-CHAIRMAN
FOREST COUNTY POTAWATOMI EXE COUNCIL
PO BOX 340
CRANDON WI 54520

HARTFORD SHEGONEE
CHAIRMAN
FOREST COUNTY POTAWATOMI EXE COUNCIL
RR 1
CRANDON WI 54520

MARCUS GUTHRIE
ALT REPATRIATION REP & MUSEUM CURATO
GEORGE W BROWN JR OJIBWE MUSEUM & CULT
RES
603 PEACE PIPE RD PO BOX 804
LAC DU FLAMBEAU WI 54814

CHARLES THURMOND
DEPUTY CHIEF
GEORGIA TRIBE OF EASTERN CHEROKEE
TEMBROOK RT 2
CLARKESVILLE GA 35023

GOVERNOR DUNCAN MANSION
4 DUNCAN PL
JACKSONVILLE IL 62650

KENNETH MESHIGUAD
CHAIRMAN
HANNAHVILLE INDIAN COMMUNITY COUNCIL
N14911 HANNAHVILLE B1 RD
WILSON MI 49896-9728

GEORGE LEWIS
TRIBAL PRESIDENT
HO-CHUNK NATION OF WI
PO BOX 667
BLACK RIVER FALLS WI 54615

TERRY CHIVIS
CHAIRMAN
HURON POTAWATOMI NATION
2221 1 1/2 MILE RD
FULTON MI 49052

LEON CAMPBELL
CHAIRMAN
IA OF KS-NB EXE COMMITTEE
RTE 1 BOX 58A
WHITE CLOUD KS 66094-9624

SUZETTE MCCORD-RODGERS
NATIVE AMERICAN HERITAGE MUSEUM
IA TRIBE OF KANSAS & NEBRASKA
RR1 BOX 152C
HIGHLAND KS 66035

JIM RHODD
NAGPRA REPRESENTATIVE
IA TRIBE OF KS AND NB
R 1 BOX 58 A
WHITE CLOUD KS 66094

DONALD L ROUBIDOUX
NAGPRA COORDINATOR
IA TRIBE OF NB AND KS
RTE 1 BOX 210
HIAWATHA KS 66434

LAWRENCE MURRAY
CHAIRMAN
IA TRIBE OF OKLAHOMA
RR1 PO BOX 721
PERKINS OK 74059

MARIANNE LONG
CULTURAL PRESERVATIONIST
IOWA TRIBE OF OKLAHOMA
RR 1 BOX 721
PERKINS OK 74059

JACKSONVILLE HERITAGE CULTURAL CENTER
200 W DOUGLAS
JACKSONVILLE IL 62650

JERRY JACKSON
JENA BAND OF CHOCTAW INDIANS
PO BOX 14
JENA LA 71342

JUNE FIXICO
TOWN KING
KIALEGEE TRIBAL TOWN OF CREEK NATION OK
PO BOX 332
WETUMKA OK 74883-0332

TRIBAL CHAIRPERSON
KICKAPOO OF KANSAS TRIBAL COUNCIL
ROUTE 1 BOX 157
HORTON KS 66349

CAROL ANSKE
CHAIRPERSON
KICKAPOO OF KANSAS TRIBAL COUNCIL
ROUTE 1 PO BOX 271
HORTON KS 66349

NANCY BEAR
CHAIR
KICKAPOO OF KANSAS TRIBAL COUNCIL
RTE 1 BOX 157
HORTON KS 66439

TRIBAL CHAIRPERSON
KICKAPOO OF OKLAHOMA BUS COUNCIL
BOX 70
MC CLOUD OK 74851

RICHARD SALAZAR
CHAIRMAN
KICKAPOO OF OKLAHOMA BUSINESS COUNCIL
PO BOX 70
MC CLOUD OK 74851

TRIBAL CHAIRPERSON
KICKAPOO TRADITIONAL TRIBE OF TEXAS
HC 1 PO BOX 9700
EAGLE PASS TX 78853

RAUL GARZA
CHAIRMAN
KICKAPOO TRADITIONAL TRIBE OF TEXAS
HC 1 BOX 9700
EAGLE PASS TX 78853

TRIBAL CHAIRPERSON
KICKAPOO TRIBE OF INDIANS OF THE KICKAPOO
PO BOX 270
HORTON KS 66439

CURTIS SIMON
NAGPRA DIRECTOR
KICKAPOO RESERVATION IN KANSAS
KICKAPOO TRIBE OF INDIANS OF THE KICKAPOO
PO BOX 270
HORTON KS 66439

EMERY NEGONSOTT
CHAIRMAN
KICKAPOO TRIBE OF KANSAS
PO BOX 271
HORTON KS 66439

KATHY SCHUETZ
DELEGATE
KICKAPOO TRIBE OF KANSAS
RR 1 BOX 225
HORTON KS 66439

FRED THOMAS
KICKAPOO TRIBE OF KANSAS
RR 1 BOX 157A
HORTON KS 66439

JANICE HOMESKY
REPARTIATION REPRESENTATIVE
LAKE SUPERIOR CHIPPEWA INDIANS
LAC COURTE OREILLE BAND
ROUTE 2 BOX 2700
HAYWARD WI 54543

ROXANNE BAIN
NAGPRA COORDINATOR
LAC VIEUX DESERT BAND
LAKE SUPERIOR CHIPPEWA INDIANS
PO BOX 249
WATERSMEET MI 49969

GEORGE BECK
TRIBAL HISTORIC PRESERVATION OFFICER
LAC VIEUX DESERT BAND
LAKE SUPERIOR CHIPPEWA INDIANS
PO BOX 249
WATERSMEET MI 49969

KELLY JACKSON
HISTORIC PRESERVATION OFFICER
WI INTER-TRIBAL REPATRIATION COM
LK SPR CHIPPEWA INDIANS-LAC DU FLAMBEAU
PO BOX 67
LAC DU FLAMBEAU WI 54538

JOSEPH GOODTHUNDER
PRESIDENT
LOWER SIOUX INDIAN COMMUNITY COUNCIL
PO BOX 308
MORTON MN 56270

CHAD WAUKECHON
CULTURAL PLANNER
MENOMINEE INDIAN TRIBE OF WISCONSIN
PO BOX 910
KESHENA WI 54135-0910

JULIE OLDS
CULTURAL PRESERVATION OFFICER
MIAMI TRIBE OF OKLAHOMA
PO BOX 1326
MIAMI OK 74355

TRAVIS R ANNETTE
SPECIAL PROJECTS COORDINATOR
MINNESOTA CHIPPEWA TRIBE
PO BOX 217
CASS LAKE MN 56633

JIM JONES
MINNESOTA INDIAN AFFAIRS COUNCIL
3801 BEMIDJI AVE N STE 5
BEMIDJI MN 56601-4236

KENNETH H CARLETON
TRIBAL ARCHAEOLOGIST
CHOCTAW BRANCH
MISSISSIPPI BAND OF CHOCTAW INDIANS
PO BOX 6005 - CHOCTAW BRANCH
PHILADELPHIA MN 39350

HONORABLE AUDREY KOHNEN
TRIBAL CHAIRMAN
PRAIRIE ISLAND INDIAN COMMUNITY
MN MDWAKANTON SIOUX
1158 ISLAND BLVD
WELCH MN 55089-9540

PERRY BEAVER
PRINCIPAL CHIEF
MUSCOGEECREEK NATION OF OKLAHOMA
PO BOX 580
OKMULGEE OK 74447

RON HARRIS JR
COMMITTEE MEMBER
SAC & FOX NATION OF OKLAHOMA
NAGRAPA CONTACT REPRESENTATIVE
ROUTE 2 BOX 246
STROUD OK 74079

DR CAROL CORNELIUS
HISTORIC PRESERVATION OFFICER
ONEIDA TRIBE OF INDIANS OF WISCONSIN
PO BOX 365
ONEIDA WI 54155

EVERETT M WALLER
NAGRPA REPRESENTATIVE
OSAGE NATION
813 GRANDVIEW AVE
PAWHUSKA OK 74056

MILDRED HUDSON
NAGPRA REPRESENTATIVE
OTOE-MISSOURIA TRIBE
8151 HWY 177
RED ROCK OK 74651

NAGPRA COORDINATOR
OTOE-MISSOURIA TRIBAL OFFICE
OTOE-MISSOURIA TRIBE OF OKLAHOMA
RT 1 BOX 62
RED ROCK OK 74651

BUD ELLIS
REPARTIATION/NAGPRA REPRESENTATIVE
PEORIA TRIBE OF INDIANS OF OKLAHOMA
118 S EIGHT TRIBES TRAIL PO BOX 1527
MIAMI OK 74355

JOHN MILLER
CHAIRMAN
POKAGON BAND OF POTAWATOMI INDIANS
PO BOX 180
DOWAGIAC MI 49047

JOSEPH B WINCHESTER
CHAIRMAN
POKAGON BAND OF POTAWATOMI INDIANS
53237 TOWN HALL RD
DOWAGIAC MI 49047

LUTHER WAHWASUCK
DELEGATE
PRAIRIE BAND OF POTAWATOMI
16281 Q RD PO BOX 97
MAYETTA KS 66509

ZACHARIAH PAHMAHMIE
TRIBAL CHAIRPERSON
NATIVE AMERICAN GRAVES PROTECTION
PRAIRIE BAND POTAWATOMI TRIBAL COUNCIL
16281 Q RD PO BOX 97
MAYETTA KS 66509

CURTUS CAMPBELL SR
PRESIDENT
PRAIRIE ISLAND COMMUNITY COUNCIL
1158 ISLAND BLVD
WELCH MN 55089

ROSE GURNOE
CHAIRMAN OF THE BOARD
RED CLIFF TRIBAL COUNCIL
RED CLIFF CHIPPEWA TRIBAL FUND
37960 BISHOP LN
BAYFIELD WI 54814

DEANNE BAHR
NAGPRA COORDINATOR
SAC & FOX NATION OF MO IN KS & NB
305 N MAIN
RESERVE KS 66434-9723

CURTIS GILFILLAN
SAC & FOX OF MISSOURI
305 N MAIN
RESERVE KS 66434

SANDRA KEO
DELEGATE
SAC & FOX OF MISSOURI
305 N MAIN RR 1 BOX 60
RESERVE KS 66434

JOAN REBAR
TRIBAL CHAIRPERSON
SAC & FOX OF MISSOURI
305 N MAIN
RESERVE KS 66434

YVONNE SCHEKAHOSE
SAC & FOX OF MISSOURI
RT 1 BOX 60
RESERVE KS 66434-9723

GAILEY WANATEE
ACTING CHIEF
SAC & FOX TRIBAL COUNCIL
349 MESKWAKI RD
TAMA IA 52339

HOMER BEAR JR
TRIBAL CHAIRPERSON
SAC & FOX TRIBE OF THE MISSISSIPPI IN IA
349 MESKWAKI RD
TAMA IA 52339-9629

CHAIRMAN JOHNATHAN BUFFALO
HISTORIC PRESERVATION OFFICER
SAC & FOX TRIBE OF THE MISSISSIPPI IN IA
349 MESKWAKI RD
TAMA IA 52339-9629

TALBERT DAVENPORT
SAC & FOX TRIBE OF THE MISSISSIPPI IN IA
349 MESKWAKI RD
TAMA IA 52339-9629

CHAR THOMPSON
SAC & FOX TRIBE OF THE MISSISSIPPI IN IA
349 MESKWAKI RD
TAMA IA 52339-9629

SANDRA MASSEY
NAGPRA COORDINATOR
CULTURAL RESOURCES
SAC AND FOX NATION
RT 2 BOX 246
STROUD OK 74079

KAY RHOADS
PRINCIPAL CHIEF
SAC AND FOX OF OK BUSINESS COUNCIL
RTE 2 BOX 246
STROUD OK 74079

TRIBAL CHAIRPERSON
SAC AND FOX OF OKLAHOMA BUSINESS COUNCIL
ROUTE 2 BOX 246
STROUD OK 74079

JERRY HANEY
PRINCIPAL CHIEF
SEMINOLE NATION OF OKLAHOMA
PO BOX 1498
WEWOKA OK 74884

JAMES BILLIE
CHAIRMAN
SEMINOLE TRIBE OF FLORDIA
6073 STIRLING RD
HOLLYWOOD FL 33024

STANLEY CROOKS
TRIBAL CHAIRPERSON
SHAKOPEE SIOUX COMMUNITY COUNCIL
2330 SIOUX TRAIL NW
PRIOR LAKE MN 55372

ROBERT VAN ZILE
REPARTIATION REPRESENTATIVE
SOKOAGON CHIPPEWA COMMUNITY MOLE LAKE
INDIANS
3140 STATE HWY 55 RT1 BOX 625
CRANDON WI 54520

TED NELSON
TRIBAL HISTORIC PRESERVATION OFFICER
ST CROIX BAND OF LAKE SUPERIOR CHIPPEWA

PO BOX 287
HERTEL WI 54845

DOROTHY DAVIDS
REPATRIATION REPRESENTATIVE
OF MOHICAN INDIANS
CHIPPEWA INDIANS
STOCKBRIDGE-MUNSEE BAND
8476 MOKECONUCK RD
BOWLER WI 54416

SHARON LEMIEUX
THPO
THE BAD RIVER BAND OF LAKE SUPERIOR

PO BOX 39
ODANAH WI 54861

WILLIAM QUACKENBUSH
TRIBAL HISTORIC PRESERVATION OFFICER
THE HO-CHUNK NATION
PO BOX 667
BLACK RIVER FALLS WI 54615-0667

JOHN FROMAN
CHIEF
THE PEORIA TRIBE OF OKLAHOMA
PO BOX 1527
MIAMI OK 74355

LORRAINE CAVENDER-GOUGE
TRIBAL CHAIRPERSON
UPPER SIOUX TRIBE
PO BOX 147
GRANITE FALLS MN 56241

JOHN BLACKHAWK
TRIBAL CHAIRPERSON
WINNEBAGO TRIBAL COUNCIL
PO BOX 687
WINNEBAGO NE 68071

DAVID LEE SMITH
CULTURAL PRESERVATION OFFICER
WINNEBAGO TRIBE OF NB TRIBAL COUNCIL
PO BOX 687
WINNEBAGO NE 68071

MONA ELK SHOULDER
DELEGATE
WINNEBAGO TRIBE OF NEBRASKA
PO BOX AE
SLOAN IA 51055

STEPHEN PARRISH
ARCHAEOLOGICAL RESEARCH
1735 NORTH PAULINA ST SUITE 113
CHICAGO IL 60622

HENRY DRAWVE
DRAWVE NURSERY SCHOOL
900 W 6TH ST APT B13
BEARDSTOWN IL 62618-1460

EDUCATIONAL SERVICE REGION
500 N RUSH ST
STOCKTON IL 61085-1033

DR KEVIN MC GOWAN
CHICAGOLAND OFFICE (UI-UC)
PUBLIC SERVICE ARCHAEOLOGY PRGM
PO BOX 7085
GRAYSLAKE IL 60030

JOE BYBEE
SOCIAL SCIENCE RESEARCH INSTITUTE
NORTHERN IL UNIVERSITY
DE KALB IL 60115

FATHER ALLEN MATTINGLY
ST BEDE ACADEMY
RT 6
PERU IL 61354

LAWRENCE CONRAD
ARCHEOLOGICAL RESEARCH LAB
WESTERN ILLINOIS UNVERSITY
201 TILLMAN HALL
MACOMB IL 61455

RON FERGUSON
800 W MEADOWS PL
PEORIA IL 61604-3450

JAY GLATZ
435 E HIGH POINT LN
PEORIA IL 61614-3006

CHARLES WARTHEN
VICE PRESIDENT
BLACK HAWK EAST CAMPUS
1501 STATE HIGHWAY 78
KEWANEE IL 61443

BLUE ISLAND PUBLIC LIBRARY
2433 YORK ST
BLUE ISLAND IL 600406

STANLEY R LIBERTY
PEORIA CHAMBER BOARD
BRADLEY UNIVERSITY
1501 W BRADLEY AVE
PEORIA IL 61625

DR BILL MATHIS
HEARTLAND WATER RESOURCE BOARD
BRADLEY UNIVERSITY
1501 W BRADLEY AVE
PEORIA IL 61625

DR SHARON M MURPHY
PROVOST & VP - ACADEMIC AFFAIRS
RIVERFRONT BUSINESS DIST COMM
BRADLEY UNIVERSITY
1501 W BRADLEY AVE #205
PEORIA IL 61625

ROBERT WEINSTEIN
ECONOMIC DEVEL BOARD
BRADLEY UNIVERSITY
1501 W BRADLEY AVE
PEORIA IL 61625

CARTHAGE PUBLIC LIBRARY DIST
538 WABASH
CARTHAGE IL 62321

MARK BOUMAN
CHICAGO STATE UNIVERSITY
9501 S KING DR
CHICAGO IL 60617

MICAHEL SIOLA
ECOSYSTEM PRTNRSHP-LAKE CALUMET
CHICAGO STATE UNIVERSITY
9501 S KING DR
CHICAGO IL 60628-1598

FOUNDATION CTR LIBRARY
BROOKEN LIBRARY - UIS
SPRINGFIELD IL 62794

KAREN D'ARCY PHD
GOVERNORS STATE UNIVERSITY
1 UNIVERSITY PARKWAY UNIVERSITY
PARK FOREST IL 60466

THOMAS K THOMAS
ECONOMIC DEVELOPMENT BOARD
IL CENTRAL COLLEGE
ONE COLLEGE DR
EAST PEORIA IL 61635

PAUL ANDERSON
IL INSTITUTE OF TECHNOLOGY
10 W 33RD ST
CHICAGO IL 60616

IL STATE LIBRARY
300 S 2ND ST
SPRINGFIELD IL 62701

DR CHARLES ORSER
DIRECTOR
MIDWEWESTERN ARCHAEOLOGICAL RES CTR
IL STATE UNIV
111 EDWARDS HALL
NORMAL IL 61761-6901

MIDWEST ARCH RESEARCH CTR
IL STATE UNIVERSITY
MARC 4641
NORMAL IL 61761

ANGELO CAPPARELLA
DEPT OF BIOLOGICAL SCIENCES
IL STATE UNIVERSITY
NORMAL IL 61790-4120

DAVID PFEIFER
ILL RIVER COOR COUNCIL
PO BOX 9
ELSAH IL 62028-9799

JOHN THOMPSON
ILLINOIS MATH & SCIENCE COMMITTEE
1500 SULLIVAN RD
AURORA IL 60506

DR CHARLES ROHRBAUGH
MW ARCHEOLOGICAL RESEARCH CENTER
ILLINOIS STATE UNIVERSITY
EDWARDS HALL - 320 ROBERT DR
NORMAL IL 61761

JOLIET JUNIOR COLLEGE INFORMATION TDD
1216 HOUBOLT AVE
Joliet IL 60435

DIRECTOR
KENNEDY PARK LIBRARY
11320 S WESTERN AVE
CHICAGO IL 60655

ANNE GRAUER
LAKE SHORE CAMPUS
LOLOYA UNIVERSITY OF CHICAGO
6525 N SHERIDAN RD
CHICAGO IL 60626

DR RICHARD SPARKS
DIRECTOR OF RESEARCH
NATIONAL GREAT RIVERS RESEARCH AND EDUCATION CENTER
110 OLIN SCIENCE BLDG 5800 GODFREY RD
GODFREY IL 62035-2466

RACHELLE DAVIS
PRINCIPIA COLLEGE
1 MAYBECK PLACE
ELSAH IL 62028

LAURON WARBUY
PRINCIPIA COLLEGE
1 MAYBECK PLACE
ELSAH IL 62028

DIRECTOR
QUINCY UNIVERSITY-BRENNER LIBRARY
1800 COLLEGE AVE
QUINCY IL 62301

DR BRIAN BUTLER
SOUTHERN ILLINOIS UNIVERSITY
CENTER FOR ARCHAEOLOGICAL INVEST
CARBONDALE IL 61455

DR PHOEBE HELM
PRESIDENT
TRUMAN COLLEGE
1145 W WILSON AVE
CHICAGO IL 60640

DR ROBERT HALL
DEPT OF ANTHROPOLOGY
UNIV OF IL-CHICAGO BRANCH
601 S MORGAN ST
CHICAGO IL 60680

BOB FRAZEE
EAST PEORIA EXTENSION CENTER
UNIV OF ILLINOIS COOP EXTENSION SVC
727 SABRINA DR
EAST PEORIA IL 61611

DALE MC ELRATH
RESOURCE INVESTIGATION PROGRAM
UNIVERSITY OF IL - ANTHROPOLOGY DEPT
109 DAVENPORT HALL
URBANA IL 61801

DR PAUL KREISA
PUBLIC SERVICE ARCHAEOLOGY PROGRAM
UNIVERSITY OF IL - ANTHROPOLOGY PROGRAM
109 DAVENPORT HALL - 607 S MATTHEWS AVE
URBANA IL 61801

ROBERT EASTER
DEAN
COLLEGE OF AG CONSUMER & ENVIRON SCI
UNIVERSITY OF IL AT URBANA-CHAMPAIGN
122 MUMFORD HALL MC710 1301 W GREGORY DR
URBANA IL 61801-9015

PAM JACOBS
ECSYSTM PRTNRSHP-SINKHOLE PLAN AREA
UNIVERSITY OF IL COOPERATIVE EXT SERVICE
901 B ILLINOIS AVE
WATERLOO IL 62298-1140

DIRECTOR
WATER RESOURCES CENTER
UNIVERSITY OF ILLINOIS
1101 W PEABODY DR
URBANA IL 61801

DR JOHN BRADEN
DIRECTOR - WATER RESOURCES CENTER
278 ENVIRONMENTAL & AG SCIENCES BLDG
UNIVERSITY OF ILLINOIS
1101 W PEABODY DR
URBANA IL 61801

BRUCE HANNON
UNIVERSITY OF ILLINOIS
1208 W UNION ST
CHAMPAIGN IL 61821

DR THOMAS RILEY
ASSOCIATE DEAN - ANTHROPOLOGY
UNIVERSITY OF ILLINOIS
107 COBLE HALL 801 S WRIGHT
CHAMPAIGN IL 61820

DR WILLIAM SCHOWALTER
DEAN - COLLEGE OF ENGINEERING
UNIVERSITY OF ILLINOIS
1308 W GREEN ST MC 266
URBANA IL 61801

GERALD NEWTON
INST FOR REGL RURAL & COMM STUDIES
WESTERN ILLINOIS UNIV
1 UNIVERSITY CIR
MACOMB IL 61455

LEE ANN BRAMMEIER
WESTERN ILLINOIS UNIVERSITY
13587 N STATE 78 HWY
LEWISTOWN IL 61542-8721

SHAWN MEAGHER
BIOLOGICAL SCIENCE
WESTERN ILLINOIS UNIVERSITY
1 UNIVERSITY CIR
MACOMB IL 61455

DIRECTOR
BRADLEY UNIVERSITY LIBRARY REFERENCE
1511 W BRADLEY AVE
PEORIA IL 61606-1047

JOHN MENDELSON
PROFESSOR
ECYSTM PRTNRSHP-THRON CREEK MACROSIT
ENVIRONMENTAL BIOLOGY
GOVERNOR'S STATE UNIVERSITY
UNIVERSITY PARK IL 60466

DIRECTOR
ILLINOIS CENTRAL COLLEGE LIBRARY & AUDIO
#1 COLLEGE DR
EAST PEORIA IL 61635

ILLINOIS CENTRAL COLLEGE LIBRARY HEALTH
201 SW ADAMS ST
PEORIA IL 61602-1407

DAVE CATTRON
LIVING EDUCATION HISTORY MUSEUM
JOLIET JUNIOR COLLEGE
1216 HOUBOLT AVE
JOLIET IL 60436-9352

JIM SHINN
LIVING EDUCATION HISTORY MUSEUM
JOLIET JUNIOR COLLEGE
1216 HOUBOLT AVE
JOLIET IL 60436-9352

JOE MILOSEVICH
JOLIET JUNIOR COLLEGE
LAURA A SPRAGUE ART GALLERY
1216 HOUBOLT AVE
JOLIET IL 60436-9352

SUE MERCHANT
ECSYSTM PRTNRSHP-SUGAR PECATONICA RV
NATURAL LAND INSTITUTE
320 S THRID ST
ROCKFORD IL 61104

NEWS DIRECTOR
UNIVERSITY OF ILLINOIS SPRINGFIELD
WUIS
STATE HOUSE PRESS ROOM
SPRINGFIELD IL 62706

DIRECTOR
ALLIANCE FRANCAISE DE CHICAGO LIBRARY
810 N DEARBORN ST
CHICAGO IL 60610-3317

DIRECTOR
ANTONIA SPITZER JEWISH LIBRARY
6331 N CALIFORNIA AVE
CHICAGO IL 60659-1701

DIRECTOR
ASHER LIBRARY OF SPERTUS COLLE
618 S MICHIGAN AVE
CHICAGO IL 60605-1900

DIRECTOR
AURORA PUBLIC LIBRARY
LIBRARY
1 E BENTON ST
AURORA IL 60505

DIRECTOR
BEARDSTOWN HOUSTON MEMORIAL PUBLIC

13 BOULEVARD RD
BEARDSTOWN IL 62618-8119

DIRECTOR
BELLEVILLE PUBLIC LIBRARY
121 E WASHINGTON ST
BELLEVILLE IL 62220

DIRECTOR
BLOOMINGTON PUBLIC LIBRARY
205 E OLIVE ST PO BOX 3308
BLOOMINGTON IL 61702

DIRECTOR
BRIDGEVIEW PUBLIC LIBRARY
7840 W 79TH ST
BRIDGEVIEW IL 60455-1496

DIRECTOR
CHRISTIAN CNTY HIST MUSEUM
C/O TAYLORVILLE PUBLIC LIBRARY
PO BOX 28
TAYLORVILLE IL 62568

DIRECTOR
CAIRO PUBLIC LIBRARY
1609 WASHINGTON AVE PO BOX 151
CAIRO IL 62914

DIRECTOR
COLLEGE OF ST FRANCIS LIBRARY
500 WILCOX ST
JOLIET IL 60435-6169

DIRECTOR
DECATUR PUBLIC LIBRARY
247 E N ST
DECATUR IL 62523

DIRECTOR
FONDULAC DISTRICT LIBRARY
140 E WASHINGTON ST
EAST PEORIA IL 61611-2526

DIRECTOR
GALESBURG PUBLIC LIBRARY
40 E SIMMONS ST
GALESBURG IL 61401-4515

DIRECTOR
HAROLD WASHINGTON LIBRARY CENTER
400 S STATE ST
CHICAGO IL 60605

DIRECTOR
HAVANA PUBLIC LIBRARY
201 W ADAMS ST
HAVANA IL 62644-1321

DIRECTOR
HENDERSON COUNTY PUBLIC LIBRARY DISTRICT
110 HILL CREST DR
BIGGSVILLE IL 61418-1418

DIRECTOR
HENRY PUBLIC LIBRARY
328 EDWARD ST
HENRY IL 61537

DIRECTOR
ILLINOIS VALLEY LIBRARY SYSTEM
600 HIGH POINT LN STE 2
EAST PEORIA IL 61611-9397

DIRECTOR
JACKSONVILLE PUBLIC LIBRARY
201 W COLLEGE
JACKSONVILLE IL 62650-2497

DIRECTOR
JERSEYVILLE PUBLIC LIBRARY
105 N LIBERTY ST
JERSEYVILLE IL 62052-1512

DIRECTOR
JOLIET PUBLIC LIBRARY
3395 BLACK RD
JOLIET IL 60432-4152

DIRECTOR
KANKAKEE PUBLIC LIBRARY
201 E MERCHANT ST
KANKAKEE IL 60901-3864

DIRECTOR
LA SALLE PUBLIC LIBRARY
305 MARQUETTE ST
LA SALLE IL 61301-2196

DIRECTOR
LACON PUBLIC LIBRARY
205 6TH ST
LACON IL 61540-1244

DIRECTOR
LEWISTOWN CARNEGIE LIBRARY
321 W LINCOLN AVE
LEWISTOWN IL 61542-1304

DIRECTOR
LINCOLN PUBLIC LIBRARY
326 S SEVENTH ST
SPRINGFIELD IL 62701-1621

DIRECTOR
MACOMB PUBLIC LIBRARY DISTRICT
235 S LAFAYETTE ST
MACOMB IL 61455-2231

DIRECTOR
MATSON PUBLIC LIBRARY
15 PARK AVE W
PRINCETON IL 61356

DIRECTOR
MORRIS PUBLIC LIBRARY
604 LIBERTY ST
MORRIS IL 60450

DIRECTOR
MOUNT STERLING PUBLIC LIBRARY
143 W MAIN ST
MOUNT STERLING IL 62353

DIRECTOR
NICHOLS PUBLIC LIBRARY
200 W JEFFERSON AVE
NAPERVILLE IL 60540

DIRECTOR
NORMAL PUBLIC LIBRARY
206 W COLLEGE AVE
NORMAL IL 61761

DIRECTOR
OGLESBY PUBLIC LIBRARY
128 W WALNUT ST
OGLESBY IL 61348

DIRECTOR
OSWEGO PUBLIC LIBRARY
32 W JEFFERSON ST
OSWEGO IL 60543

DIRECTOR
PEORIA HEIGHTS PUBLIC LIBRARY
816 E GLEN AVE
PEORIA IL 61614-5206

DIRECTOR
PEORIA PUBLIC LIBRARY
107 NE MONROE ST
PEORIA IL 61602-1021

DIRECTOR
PERU PUBLIC LIBRARY
1409 11TH ST
PERU IL 61354

DIRECTOR
PONTIAC PUBLIC LIBRARY
211 E MADISON ST
PONTIAC IL 61764-2088

DIRECTOR
REDDICK PUBLIC LIBRARY
1010 CANAL ST
OTTAWA IL 61350

DIRECTOR
SENECA PUBLIC LIBRARY
210 N MAIN ST
SENECA IL 61360

DIRECTOR
SPRING BAY LIBRARY
406 ILLINOIS ST
EAST PEORIA IL 61611-4213

DIRECTOR
SPRING VALLEY PUBLIC LIBRARY
215 E CLEVELAND ST
SPRING VALLEY IL 61362

DIRECTOR
STREATOR PUBLIC LIBRARY
130 S PARK ST
STREATOR IL 61364

DIRECTOR
UTICA PUBLIC LIBRARY
MILL & GROVE STS PO BOX 367
UTICA IL 61373-0367

DIRECTOR
VIRGINIA PUBLIC LIBRARY
200 N MAIN ST
VIRGINIA IL 62691

DIRECTOR
WATSEKA PUBLIC LIBRARY
201 S 4TH ST
WATSEKA IL 60970

DIRECTOR
WAUBONSEE COMMUNITY COLLEGE LIBRARY
RT 47 WAUBONSEE DR
SUGAR GROVE IL 60554

DIRECTOR
WESTERN ILLINOIS LIBRARY SYSTEM
1518 S HENDERSON ST
GALESBURG IL 61401-5708

DIRECTOR
YORKVILLE PUBLIC LIBRARY
902 Game Farm Rd
Yorkville IL 60560-1135

SCIENCE DEPARTMENT CHAIR
BATAVIA HIGH SCHOOL
1200 W. WILSON ST
BATAVIA IL 60510

SCIENCE DEPARTMENT CHAIR
EAST AURORA HIGH SCHOOL
500 Tomcat Lane
AURORA IL 60505

STEVE INMAN
KANKAKEE VALLEY HIGH SCHOOL
1200 W JEFFERY ST
KANKAKEE IL 60901

SCIENCE DEPARTMENT CHAIR
OSWEGO SENIOR HIGH SCHOOL
4250 RT 71
OSWEGO IL 60543

ROBERT KASSEL
PRINCIPAL
ST JOHN LUTHERAN SCHOOL
220 E 6TH ST
BEARDSTOWN IL 62618-1868

SCIENCE DEPARTMENT CHAIR
WAUBONSIE VALLEY HIGH SCHOOL
2590 OGDEN AVE
AURORA IL 60504

SCIENCE DEPARTMETN CHAIR
WEST AURORA HIGH SCHOOL
1201 W NEW YORK
AURORA IL 60506

TOM JOBST
ADMINISTRATIVE ASSISTANT
OTTAWA TWP HIGH SCHOOL
211 E MAIN ST PO BOX 792
OTTAWA IL 61350

DIRECTOR
RUTLAND PUBLIC LIBRARY
RUTLAND IL 61358

RICK MILLER
12526 N 2700 E RD
FORREST IL 61741

TIM SULLIVAN
RR 4 41
RUSHVILLE IL 62681

INGRID WEST
32400 N HARRIS RD
GRAYSLAKE IL 60040

KEVIN WILLIAMS
CHAIR
24309 WILLIAMSON LANE
CANTON IL 61520

DIRECTOR
ALLIANCE LIBRARY SYSTEM
600 HIGH POINT LN
EAST PEORIA IL 61611-9396

BUD GANN
IL STATE GOV COORDINATOR
AMER SOC OF MECHANICAL ENGRS
3423 CHRISTINE DR
DECATUR IL 62526

DAVID KEENE
ARCHAEOLOGICAL RESEARCH INC
1735 NORTH PAULINA ST SUITE 113
CHICAGO IL 60622

PATRICK AND DANA LEWIS
AREA RIVER CLEANUP
526 E ERIE
SPRING VALLEY IL 61362

IRENE MONDHINK
AUDUBON
1830 MC CLUSKY RD
JERSEYVILLE IL 62052

TOM WALL
PRESIDENT
BETTER FISHING ASSN
1212 PEORIA ST
PERU IL 61354

JOHN KELLA
PRESIDENT
CATHEDRAL AREA PRESERVATION ASSOC
PO BOX 3662
JOLIET IL 60434-3662

ZURICH EXPOSITO
CHICAGO ARCHITECTURE FDN
224 S MICHIGAN AVE
CHICAGO IL 60604-2507

JIM S RERMON
CHILDRENS HOME
2130 N KNOXVILLE
PEORIA IL 61603

DAN LOBBES
VOLUNTEER
CONSERVATION FOUNDATION
10 S 404 KNOCH KNOLLS RD
NAPERVILLE IL 60565

BILL MEYER
GAR ANGLERS' SPORTING SOCIETY
620 ROOT ST
NEW LENOX IL 60451

PASHION GAWORSKI
ASSISTANT DIRECTOR
HEARTLAND WATER RESOURCES COUNCIL
416 MAIN ST STE 828
PEORIA IL 61602-1116

THOMAS TINCHER
EXECUTIVE DIRECTOR
HEARTLAND WATER RESOURCES COUNCIL
416 MAIN ST STE 828
PEORIA IL 61612

I V Y CLUB
5102 N GALENA RD
PEORIA HGHTS IL 61614

ELEANOR ZIMMERLEIN
IL AGRI- WOMEN
1518 BASELINE RD
LA MOILLE IL 61330-9257

HELEN WUESTERNFELD
IL AUDOBON SOC
34 OAKWOOD PL
JERSEYVILLE IL 62052

R BRYON WALTERS
IL NATURAL AREAS IMPROVEMENT
130 N2803RD RD
UTICA IL 61373

F JOHN TAYLOR
IL VALLEY FLOOD CONTROL ASSOCIATION
RR 2 BOX 152
VIRGINIA IL 62691

ILLINOIS RIVER REFUGES
19031 E COUNTY RD 2105N
HAVANA IL 62644

BECKY KEENE
JAYCEES
PO BOX 123
OTTAWA IL 61350

DENNIS HESS
KANKAKEE COUNTY CONV & VISITORS
864 ASH DR
ST ANNE IL 60964

RAY ENGLISH
KANKAKEE VALLEY BOAT CLUB
1LAWRENCE DR
KANKAKEE IL 60901

DAVID BAHLMAN
LANDMARKS PRES COUNCIL OF IL
53 W JACKSON STE 752
CHICAGO IL 60604

DARLENE J BRUCE
NATURAL RESOURCES CHAIRPERSON
GREENWAYS BOARD
LEAGUE OF WOMEN VOTERS
505 W CRESTWOOD DR
PEORIA IL 61614

CHERYL BUDZINSKI
LEAGUE OF WOMEN VOTERS
623 W STRATFORD DR
PEORIA IL 61614

MARY JANE CROWELL
GREENWAYS BOARD
LEAGUE OF WOMEN VOTERS
1630 N E GLEN OAK
PEORIA IL 61603

BETTE JOHNSON
GREENWAYS BOARD
LEAGUE OF WOMEN VOTERS
3300N ATLANTIC AVE
PEORIA IL 61603

JEAN SANGER
LEAGUE OF WOMEN VOTERS
3205 W BROOKSIDE D
PEORIA IL 61615

AL WYLLE
GREENWAYS BOARD
LEAGUE OF WOMEN VOTERS
2615 W NEBRASKA
PEORIA IL 61604

FRANKLIN JASIEK
LVR WATERSHED
462 N 2929TH RD
LA SALLE IL 61301

JIM GILLES
MIDWEST FOUNDATION
PO BOX 1207
TREMONT IL 61568

JOHN GILLESPIE
MIGRATORY WATERFOWL HUNTERS
PO BOX 8009
ALTON IL 62002

HAROLD PETERS
MIGRATORY WATERFOWL HUNTERS
1308 SEMINARY ST
ALTON IL 62002

GEORGE MURPHY
BRANCH MANAGER
MADD
MOTHERS AGAINST DRUNK DRIVING
1659 S MAIN ST
JACKSONVILLE IL 62650-3408

NATURE OF IL FOUNDATION
208 S LADALLE ST STE 1666
CHICAGO IL 60604-1003

ALICE ANDERSON
NIAA
20 DENNISON
BOURBONNAIS IL 60914

CHANNY LYONS
PEORIA ART GUILD
5856 N PROSPECT RD
PEORIA IL 61614

ALLEY RINGHAUSEN
PIASA CREEK WATERSHED PARTNERSHIP
PO BOX 821
ALTON IL 62002

POLISH NATIONAL ALLIANCE YOUTH CAMP
10701 RIVER RD
YORKVILLE IL 60560

DAVID KING
PRAIRIE HILLS RC&D
321 UNIVERSITY DR
MACOMB IL 61455

JEROME JACOBSEN
SAVE OLD SPRINGFIELD
2617 CLIFTON DR
SPRINGFIELD IL 62704

AARON ROSINSKI
SE ENVIRONMENTAL TASK FORCE
10100 S EWING AVE
CHICAGO IL 60617

MARY JO HETRICK
SPRING VALLEY PRIDE
215 N GREENWOOD ST
SPRING VALLEY IL 61362

TOM MILLER
TREES FOREVER
416 W CLYBOURN CT
PEORIA IL 61614

JAMES ELLIOTT
TWO RIVERS RESOURCES CONSERVATION & DEVELOPMENT
DEVELOPMENT
PO BOX 184
LIBERTY IL 62347-0184

MARTHA SHEPPARD
TWO RIVERS RESOURCES CONSERVATION &

110 E FAYETTE ST
PITTSFIELD IL 62363

TED STAKER
UMIMRA
27000 QUEENWOOD RD
MORTON IL 61550

RITA RENWICK
CHAIRWOMAN
UNIVERSITY OF ILLINOIS
1508 W ACRES RD
JOLIET IL 60435

LYDIA SCOTT
PRESIDENT
VILLAGE OF LINCOLNSHIRE
ONE OLDE HALF DAY RD
LINCOLNSHIRE IL 60069-3035

BOB NELSON
WESTERN ILLINOIS SPORTSMAN FOR DUCKS
694 E LOSEY
GALESBURG IL 61401

MRS WILLIAM C LIMACHER
WILL-JOLIET BICENTENNIAL PARK
201 W JEFFERSON ST
JOLIET IL 60435

MIKE CHRISMAN
WLPO
138 5TH ST
LA SALLE IL 61301

HOMEOWNERS ASSOCIATION
ALTA AREA ASSOC
P O BOX 9403
PEORIA IL 61612

NANCY LAWLESS
HOMEOWNERS ASSOCIATION
CENTER BLUFF NEIGHBORHOOD ASSOC
415 W MELBOURNE AVE
PEORIA IL 61604

LES KENYON
HOMEOWNERS ASSOCIATION
CENTRAL IL LANDMARKS FOUNDATION
PO BOX 495
PEORIA IL 61651

WAYNE NOWLAN
HOMEOWNERS ASSOCIATION
COLUMBIA TERRACE NEIGHBORHOOD ASSOC
1317 N MACHIN AVE
PEORIA IL 61606

BETTY FAGAN
HOMEOWNERS ASSOCIATION
COMMON PLACE NEIGHBORHOOD
514 S SHELLEY ST
PEORIA IL 61605

JANE GOLDSTEIN
HOMEOWNERS ASSOCIATION
CRAB ORCHARD HOMEOWNERS ASSOC
8106 CRAB ORCHARD CT
PEORIA IL 61614

JOHN AMDALL
HOMEOWNERS ASSOCIATION
DEERBROOK ESTATE HOMEOWNERS
11119 N ANTLER PLACE
PEORIA IL 61515

LAVONNE SCHLEETER
HOMEOWNERS ASSOCIATION
EDGEWILD HOMEOWNERS ASSOC
135 W COVENTRY LANE
PEORIA IL 61614

WILLIAM O'BRIEN
HOMEOWNERS ASSOCIATION
FORREST HILL HOMEOWNERS ASSOC
3321 N CHESTNUT LANE
PEORIA IL 61604

STEVEN BISHOP
HOMEOWNERS ASSOCIATION
GLENCREST HOMEOWNERS ASSOC
325 W IVY LANE
PEORIA IL 61614

MARK GUY
HOMEOWNERS ASSOCIATION
GRACE-BIGELOW NEIGHBORHOOD WATCH
605 W FLORENCE
PEORIA IL 61604

WILLIAM GRAMLEY
HOMEOWNERS ASSOCIATION
HARVARD AREA HOMEOWNERS ASSOC
4000 N HARVARD AVE
PEORIA IL 61614

MIKE HAMMER
HOMEOWNERS ASSOCIATION
HARVARD AREA HOMEOWNERS ASSOC
3803 N HARVARD AVE
PEORIA IL 61614

DAN LOSBY
HOMEOWNERS ASSOCIATION
HAWLEY HILLS HOMEOWNERS ASSOC
203 W LINDY LANE
PEORIA IL 61614

KELLY MC KINNEY
HOMEOWNERS ASSOCIATION
HAWTHORNE HILLS/TANGLEWOOD ASSOC
1501 W BUCKINGHAM DR
PEORIA IL 61614

RICHARD LENZ
HOMEOWNERS ASSOCIATION
134 N E ROCK ISLAND AVE
PEORIA IL 61603

GLORIA LURIE
HOMEOWNERS ASSOCIATION
605 E ARMSTRONG AVE
PEORIA IL 61603

RICHARD AND MARY BARTHEL
HOMEOWNERS ASSOCIATION
IDYLBROOK HOMEOWNERS ASSOC
6501 N GREENMONT RD
PEORIA IL 61614

MILDRED BRYANT
ILLINOIS RIVER VALLEY RESIDENTS
3120 N CALIFORNIA
PEORIA IL 61603

CARL HENDRICKSEN
HOMEOWNERS ASSOCIATION
KNOLLCREST HOMEOWNERS ASSOC
4013 N N ST
PEORIA IL 61614

PATRICK GALLAGHER
HOMEOWNERS ASSOCIATION
KNOLLS HOMEOWNERS ASSOC
309 W WESTWOOD DR
PEORIA IL 61614

JAMES BROWN
LAKE MATANZA HOMEOWNERS ASSOC
12528 N SR78
HAVANA IL 62644

DR ROBERT STIENAUER
LAKE MATANZA HOMEOWNERS ASSOC
312 W MAIN ST
HAVANA IL 62644

MAX SALMON
HOMEOWNERS ASSOCIATION
LAKE PARK HOMEOWNERS ASSOC
4526 DAWN DR
PEORIA IL 61614

JULIE WOZNIAK
CORPORATE EH & S GROUP
MIDWEST GENERATION
440 S LA SALLE ST STE 3500
CHICAGO IL 60605

MARY MATHEWS
HOMEOWNERS ASSOCIATION
MOSS-BRADLEY RESIDENTIAL ASSOC
1536 W MOSS AVE
PEORIA IL 61606

CINDY MC LEAN
HOMEOWNERS ASSOCIATION
MOSS-BRADLEY RESIDENTIAL ASSOC
1714 W MOSS AVE
PEORIA IL 61606

DAVID WENTWORTH II
HOMEOWNERS ASSOCIATION
MOSS-BRADLEY RESIDENTIAL ASSOC
1528 W MOSS AVE
PEORIA IL 61606

ALLEN KOHTZ
HOMEOWNERS ASSOCIATION
NEAR NORTHSIDE IMPROVEMENT ASSOC
122 N E ROCK ISLAND AVE
PEORIA IL 61603

TAMARA WHITE
HOMEOWNERS ASSOCIATION
NORTH CENTER BLUFF NEIGHBORHOOD
517 W RICHWOODS BLVD
PEORIA IL 61604

BARBARA HUNZIKER
HOMEOWNERS ASSOCIATION
NORTH PROSPECT AREA NEIGHBORHOOD
5513 MONTCLAIR AVE
PEORIA IL 61614

GENE PACYGA
HOMEOWNERS ASSOCIATION
NORTH STERLING HOMEOWNERS ASSOC
3637 W WILLOW KNOLLS CT
PEORIA IL 61603

JEFF KOLBUS
HOMEOWNERS ASSOCIATION
NORTHGATE PARK WEST HOMEOWNERS
7084 N AYCLIFFE DR
PEORIA IL 61614

BILL RYAN
HOMEOWNERS ASSOCIATION
NORTHMOOR HILLS HOMEOWNERS ASSOC
5924 N TRENTON LANE
PEORIA IL 61614

RONALD HINTON
HOMEOWNERS ASSOCIATION
NORTHMOOR KNOLLS HOMEOWNERS
6216 N KNOLL AIRE DR
PEORIA IL 61614

EDWARD NELSON
HOMEOWNERS ASSOCIATION
NORTHSIDE IMPROVEMENT ASSOC
4014 N NEW YORK AVE
PEORIA IL 61614

DAVID SAGER
HOMEOWNERS ASSOCIATION
OAK PARK HOMEOWNERS ASSOC
120 OAK PARK DR
PEORIA IL 61614

FRANK LEWIS
HOMEOWNERS ASSOCIATION
OLDE TOWNE NORTH HOMEOWNERS
712 EVONS
PEORIA IL 61603

GEORGE WISE
HOMEOWNERS ASSOCIATION
OLDE TOWNE NORTH HOMEOWNERS
504 VORIS ST
PEORIA IL 61603

BERNADINE FISHER
HOMEOWNERS ASSOCIATION
PARKVIEW NEIGHBORHOOD ASSOC
2402 N GALE AVENEUE
PEORIA IL 61604

ROBERT CAUGHEY
HOMEOWNERS ASSOCIATION
PARKWOOD HOMEOWNERS ASSOC
6811 N BOBOLINK RD
PEORIA IL 61614

MARCELLA TEPLITZ
HOMEOWNERS ASSOCIATION
RANDOLPH-ROANOKE HOMEOWNERS
240 N E RANDOLPH AVE
PEORIA IL 61606

LARRY SAVRE
HOMEOWNERS ASSOCIATION
RICHWOODS KNOLLS HOMEOWNERS
1913 W RIVIERA DR
PEORIA IL 61614

BETH SLEVIN
HOMEOWNERS ASSOCIATION
RIDGE ROAD ASSOC
911 W RIDGE
PEORIA IL 61614

RICHARD VAN NORMAN
HOMEOWNERS ASSOCIATION
SHERWOOD FORREST HOMEOWNERS
2723 W HUNTINGTON DR
PEORIA IL 61614

JOAN MONROE
HOMEOWNERS ASSOCIATION
STRATFORD AIRE HOMEOWNERS
820 STRATFORD DR
PEORIA IL 61614

HOMEOWNERS ASSOCIATION
TIMBEREDGE HOMEOWNERS ASSOC
5853 N OLD HICKORY LANE
PEORIA IL 61615

ROGER LUMAN
HOMEOWNERS ASSOCIATION
TIMBERIDGE II HOMEOWNERS ASSOC
501 E PROSPECT LN
PEORIA IL 61614-4320

JACK H SHEPLER
FRIENDS OF IL RIVERS
TRI COUNTY RIVERFRONT ACTION FORUM
1700 ST CLAIR DR
PEKIN IL 61554

THOMAS HOHN
HOMEOWNERS ASSOCIATION
UPLANDS RESIDENTIAL ASSOC
1600 W COLUMBIA TERRACE
PEORIA IL 61606

JANICE JACKSON
HOMEOWNERS ASSOCIATION
VINTON-HIGHLANDS HOMEOWNERS
3713 W VERNER DR
PEORIA IL 61615

JOHN MEEK
HOMEOWNERS ASSOCIATION
WARDCLIFFE HOMEOWNERS ASSOC
211 CROSSOVER RD
LACON IL 61540-8855

PETER DUSENBERY
HOMEOWNERS ASSOCIATION
WEST BLUFF NEIGHBORHOOD HOUSE
921 N MAPLEWOOD AVE
PEORIA IL 61606

GEORGE VOORHEES
HOMEOWNERS ASSOCIATION
WEST PARK KNOLLS HOMEOWNERS
5109 N DAWN
PEORIA IL 61614

GREGG MEHAWICH
HOMEOWNERS ASSOCIATION
WILLIAMSBURG HOMEOWNERS ASSOC
6311 JAMESTOWN RD
PEORIA IL 61615

JIM GRAVES
HOMEOWNERS ASSOCIATION
WILLOW KNOLLS HOMEOWNERS
6700 N COTTONWOOD CT
PEORIA IL 61614

HOMEOWNERS ASSOCIATION
WILLOW RIDGE TOWNHOUSE ASSOC
210 LIBERTY ST
PEORIA IL 61602

CHARITY MONROE
HOMEOWNERS ASSOCIATION
WIND CHIME CONDOMINIUM ASSOC
7102 N WIND CHIME CT
PEORIA IL 61614

P E W ROBERT IVARSON
PRACTICE DIRECTOR
WATER RESOURCES
ARCHITECTS ENGINEERS PLANNERS
111 N CANAL ST STE 1250
CHICAGO IL 60606-7252

DEBRA ROE
CHRISTOPHER B BURKE ENGINEERING
202 NE MADISON
PEORIA IL 61602

KAREN DVORSKY
CLARK ENGINEERS INC
11 NE JEFFERSON AVE
PEORIA IL 61602

ELDON AND KAREN HAGEMAN
CHAIRMAN
CROW CREEK WATER SHED
1158 CNTY RD 1300 E
HENRY IL 61537

JAMIE ZELLERS
SECRETARY
MATANZA LAKE ASSOC
12646 SR 78
HAVANA IL 62644

TERRY JOHNSON
AMERICAN RIVERS
ALLIANCE TO RESTORE THE KANKAKEE RIVER
154 E COURT ST
KANKAKEE IL 60901

MAURY BRUCKA
AUDUBON SOCIETY
6606 N ALLEN #92
PEORIA IL 61614

ENIKO YANG
AUDUBON SOCIETY
6606 N ALLEN RD #92
PEORIA IL 61614

SYLVESTER KASTIGAR
PRESIDENT
BETTER FISHING ASSN OF NORTHERN IL
BOX 46
SEATONVILLE IL 61359

DICK BLYTHE
CHAIRMAN
IN GRAND KANKAKEE MARSH REST PROJ
BLYTHE'S SPORT SHOPE INC
138 N BROAD ST
GRIFFITH IN 46319

N PARK VILLAGE
CHICAGO AUDUBON SOCIETY
5801-C N PULASKI
CHICAGO IL 60646

JULIE SMENTEK
ECOSYSTEM PRTNRSHP
CHICAGO WILDERNESS
8 S MICHIGAN #900
CHICAGO IL 60603

TOM BUNOSKY
CONSUMERS IL WATER
1000 S SCHUYLER
KANKAKEE IL 60901

GARY MECHANIC
ECOSYSTEM PRTNRSHP-LOWER DES PLAINES
DES PLAINES RIVER WATERSHED ALLIANCE
4905 N HAMLIN
CHICAGO IL 60625

HERBERT ALLEN JR
DUCKS UNLIMITED
20458 TIMBERLAND ESTATES LN
CARLINVILLE IL 62626

ERIC SCHENCK
DUCKS UNLIMITED INC
229 N 3RD AVE STE B
CANTON IL 61520

LARRY HASHEIDER
ECOSYSTEM PARTNERSHIP
6067 HERON RD
OKAWVILLE IL 62271

BRUCE OLSON
ECOSYSTEM PRTNRSHP UPPER ROCK RIVER
9544 N 2ND ST
ROSCOE IL 61073

ALBERT ETTINGER
SIERRA CLUB MEMBER & DIRECTOR
ENVIRON LAW & POLICY CTR OF THE MIDWEST
35 E WACKER DR #1300
CHICAGO IL 60601

BOBBY FRANKLIN, PE, LS
ENVIRONMENTAL SCIENCE & ENGINEERING
8901 N INDUSTRIAL RD
PEORIA IL 61615-1589

DALE GOODNER
HEARTLAND WATER RESOURCE BOARD
FOREST PARK NATURE CENTER
5809 FOREST PARK DR
PEORIA IL 61614

BECKY HOAG
FOX RIVER ECOSYSTEM PARTNERSHIP
1281 DANFORTH DRIVE
BATAVIA IL 60510

MARGARET FRISBIE
EXECUTIVE DIRECTOR
FRIENDS OF THE CHICAGO RIVER
407 S DEARBORN SUITE 1580
CHICAGO IL 60605

KATHE LACEY-ANDERSON
FRIENDS OF THE FOX RIVER
PO BOX 1314
CRYSTAL LAKE IL 60039-1314

WAYNE FREEMAN
SIERRA CLUB MEMBER
GREAT RIVERS HABITAT ALLIANCE
801 N SECOND ST STE 401
ST LOUIS MO 63102

ANNIE HOAGLAND
ECOSYSTEM PRTNRSHP-BIG RIVERS
GREAT RIVERS LAND PRESERVATION ASSOC.
3406 ROSENBERG LANE
GODFREY IL 62305

GREENWAYS BOARD
HEART OF IL SIERRA CLUB
P O BOX 3593
PEORIA IL 61614

RUDY HABBEN
HEART OF IL SIERRA CLUB
3732 N MONROE AVE
PEORIA HEIGHTS IL 61616-7632

JOYCE BLUMENSHIRE
HEART OF ILLINOIS SIERRA CLUB
2419 E RESERVOIR BLVD
PEORIA IL 61614-8029

SHIRLEY O'CONNELL
HEART OF ILLINOIS SIERRA CLUB
1609 N KNOLLWOOD CT
PEORIA IL 61604

MARIANNE HAHN
IL AUDOBON SOC
18429 GOTTSCHALK
HOMEWOOD IL 60430

LAURE ROSS
IL CHAPTER NATURE CONSERVANCY
8 S MICHIGAN AVE STE 900
CHICAGO IL 60603

IL CHAPTER OF SIERRA CLUB
200 N MICHIGAN AVE STE 505
CHICAGO IL 60601-5908

RANDY HOLBROOK
PARTNERSHIP
IL DEPT OF NATURAL RESOURCES REG 4 OFC
4521 ALTON COMMERCE PARKWAY
ALTON IL 62002

DOUG BLODGETT
CHAIRMAN/COMMISSIONER
THOMPSON LAKE DRAINAGE & LEVEE DIST
IL RIVER PROJECT DIRECTOR - THE NATURE CONSERVANCY
11304 N PRAIRIE RD
LEWISTOWN IL 61542

KEN GORTOWSKI
IL SMALLMOUTH ALLIANCE
206 W CRESCENT
ELMHURST IL 60126

PAUL TOBECK
IL SMALLMOUTH ALLIANCE
1405 E 1000 N RD
MILFORD IL 60953-6242

JOHN NELSON
IND RIVER
B0X 248
SCHNEIDER IN 46376

RICHARD EICHELKRAUT
HEARTLAND WATER RESOURCE BOARD
IZAAK WALTON LEAGUE
208 WILSHIRE DR
WASHINGTON IL 61571

BILL GRANT
DIRECTOR
MIDWEST OFFICE
IZAAK WALTON LEAGUE OF AMERICA
1619 DAYTON AVE #202
ST PAUL MN 55104

JODY MELTON
KANKAKEE RIVER BASIN COMMISSION
6100 SOUTHPORT RD
PORTAGE IN 46368

DONALD ANDERSON
KANKAKEE RIVER BASIN PARTNERSHIP
20 DENNISON DR
BOURBONNAIS IL 60914

JIM REED
KANKAKEE RIVER PARTNERSHIP - NIAA
261 W CHEBANSKE
CHEBANSE IL 60922

EXECUTIVE DIRECTOR
LAKE MICHIGAN FEDERATION
220 S STATE STE 2108
CHICAGO IL 60604

MICHAEL SANDS
ECSYSTM PRTNRSHP-UPPER DES PLAINES R
LIBERTY PRAIRIE FOUNDATION
1472 PRAIRIE TRAIL RD
GRAYSLAKE IL 60030

MARCIA DEFALCO
MARCIA SOLUTIONS
1071 DOUBLE GATE RD
DAVIDSONVILLE MD 21035-1808

JOHN THOMPSON
PRESIDENT
ECOSYSTEM PRTNRSHP-FOX RIVER
MAX MCGRAW WILDLIFE FOUNDATION
PO BOX 9
DUNDEE IL 60118

ANGELA ANDERSON
UPPER BASIN PROGRAM DIRECTOR
MISSISSIPPI RIVER BASIN ALLIANCE
1915 ALFRED AVE
ST LOUIS MO 63110

MARK BEORKREM
UPPER BASIN PROGRAM DIRECTOR
MISSISSIPPI RIVER BASIN ALLIANCE
PO BOX 370 204 N WYANDOTTE ST
MORRISONVILLE IL 62546

RICHARD HILDEBRAND
NAIA
21 BERRY LN
BOURBONNAIS IL 60914

DONALD ANDERSON
NIAA
PO BOX 188
BOURBONNAIS IL 60914

JIM RACHUY
NORTHWEST IL PRAIRIE ENTHUSIASTS
11219 E STOCKTON RD
STOCKTON IL 61085

DERS ANDERSON
ECOSYSTEM PRTNRSHP-KISHWAUKEE RIVER
OPENLANDS PROJECT
25 E WASHINGTON ST SUITE 1650
CHICAGO IL 60602-1708

JONATHON BECK
OPENLANDS PROJECT
25 E WASHINGTON STE 1605
CHICAGO IL 60602

JOYCE O'KEEFE
ECOSYSTEM PRTNRSHP-PRAIRIE PARKLANDS
OPENLANDS PROJECT
25 E WASHINGTON ST SUITE 1650
CHICAGO IL 60602

GREENWAYS BOARD
PEORIA AUDUBON SOCIETY
677 E HIGH POINT TERRACE
PEORIA IL 61614

MAURICE BRUCKER
PEORIA AUDUBON SOCIETY
6606 N ALLEN RD UNT # 92
PEORIA IL 61614

RICK & TRACY FOX
PEORIA AUDUBON SOCIETY
15215 IVY LAKE RD
CHILLICOTHE IL 61523

JEANNETTE ULRICH
GREENWAYS BOARD
PIMITEOUI TRAIL ASSOCIATION
2391 HOLLANDS GROVE RD
WASHINGTON IL 61571-9625

JOYCE BLUMENSHINE
PRAIRIE RIVERS NETWORK
2419 E RESERVOIR
PEORIA IL 61614-8029

ROBERT MOORE
EXECUTIVE DIRECTOR
PRAIRIE RIVERS NETWORK
809 S 5TH ST
CHAMPAIGN IL 61820

DON SWENSSON
CONSERVATION CHAIR
QUAD CITY CONSERVATION ALLIANCE
5301 11TH AVE C
MOLINE IL 61265

TOM EDWARDS
RIVER RESCUE
902 W MOSS AVE # I
PEORIA IL 61606-1800

FRAN CAFFEE
SIERRA CLUB
726 W DOWNER PL
AURORA IL 60506

AMY COSTA
SIERRA CLUB
330 E SPANGLE RD
STAUNTON IL 62088

BOB FREEMAN
SIERRA CLUB
223 MARKET ST
ALTON IL 62002

GEORGANNE HIGGINS
SIERRA CLUB
2904 CHIPPEWA DR
BOURBONNAIS IL 60914

JOE LASZLO
SIERRA CLUB
330 S BARNEWOLT DR
PEORIA IL 61604

DEAN REBUFFONI
MISSISSIPPI RIVER SPECIALIST
SIERRA CLUB
5421 QUEEN AVE S
MINNEAPOLIS MN 55410

MIKE BROCK
SIERRA CLUB - VALLEY OF THE FOX GROUP
726 WEST DOWNER
AURORA IL 60506

DOUG CHIEN
SIERRA CLUB ILLINOIS CHAPTER
200 N MICHIGAN AVE STE 505
CHICAGO IL 60601-5908

JACK DARIN
STATE FIELD REPRESENTATIVE
SIERRA CLUB ILLINOIS CHAPTER
200 N MICHIGAN AVE STE 505
CHICAGO IL 60601-5908

WILLIAM CROOK
CHAIR
SIERRA CLUB SANGAMON VALLEY GROUP
PO BOX 1452
SPRINGFIELD IL 62705

BOB FREEMAN
SIERRA CLUB-KASKASKIA GROUP
4313 KASKASKIA TRAIL
GODFREY IL 62035

YVETTE DULLE
ECOSYSTEM PRTNRSHP
SOUTHWESTERN IL RC 7 D
406 E MAIN
MASCOUTAH IL 62258

ED WEILBACHER
ECOSYSTEM PRTNRSHP-AMERICAN BOTTOM
SOUTHWESTERN IL RC&D
406 E MAIN
MASCOUTAH IL 62258

JOHN MC KEE
STARVED ROCK AUDUBON SOCIETY
605 9TH AVE
OTTAWA IL 61350

TED GRAY
ECO-HYDROLOGIST
TED GRAY & ASSOCIATES INC
1 SOUTH 132 SUMMIT AVE STE 304
OAKBROOK TERRACE IL 60181

BROOK MC DONALD
ECSYSTM PRTNRSHP-UPPER DUPAGE RIVER
THE CONSERVATION FOUNDATION
10 S 404 KNOCH KNOLLS RD
NAPERVILLE IL 60565

HERMAN BODEWES
THE NATURE CONSERVANCY
1 W OLD CAPITAL PLAZA #600
SPRINGFIELD IL 62704

MARY BUSWELL
CONSERVATION PROGRAMS ADMIN
THE NATURE CONSERVANCY
301 S W ADAMS ST STE 1007
PEORIA IL 61602

KEVIN COULTER
ECOSYSTEM PRTNRSHP-MACKINAW RIVER`
THE NATURE CONSERVANCY
301 SW ADAMS ST STE 1007
PEORIA IL 61602-1558

D J DAVIS
THE NATURE CONSERVANCY
301 S W ADAMS ST STE 1007
PEORIA IL 61629

CHRIST DINESEN ROGERS
CONSERVATION INFORMATION MANAGER
THE NATURE CONSERVANCY
301 S W ADAMS ST STE 1007
PEORIA IL 61602

PAUL DYE
THE NATURE CONSERVANCY
8 S MICHIGAN AVE STE 900
CHICAGO IL 60603-3310

CLAUDIA EMKEN
DIRECTOR OF GOVERNMENT RELATIONS
IL CHAPTER
THE NATURE CONSERVANCY
301 SW ADAMS ST STE 1007
PEORIA IL 61602

GUY FRAKER
THE NATURE CONSERVANCY
1312 E WASHINGTON
BLOOMINGTON IL 61701

KIRSTEN HALVORSON
THE NATURE CONSERVANCY
301 S W ADAMS ST STE 1007
PEORIA IL 61602

THARRAN HOBSON
THE NATURE CONSERVANCY
11304 N PRAIRIE RD
LEWISTOWN IL 61542

DOUG LEHR
GRAND PRAIRIE AREA ADMINISTRATOR
THE NATURE CONSERVANCY
301 SW ADAMS ST STE 1007
PEORIA IL 61602-1558

JIM MC MAHON
AREA DIRECTOR
THE NATURE CONSERVANCY
301 S W ADAMS ST STE 1007
PEORIA IL 61602-1558

SHELLY MILLER
AQUATIC ECOLOGIST
THE NATURE CONSERVANCY
301 S W ADAMS ST STE 1007
PEORIA IL 61602

CYNTHIA OLMSTEAD
THE NATURE CONSERVANCY
301 S W ADAMS ST STE 1007
PEORIA IL 61602-1528

JEFF POWERS
DIRECTOR OF LAND PROTECTION
THE NATURE CONSERVANCY
301 S W ADAMS ST STE 1007
PEORIA IL 61602

MIKE REUTER
CHIEF CONSERVATION OFFICER
ILLINOIS CHAPTER
THE NATURE CONSERVANCY
301 SW ADAMS ST STE 1007
PEORIA IL 61602

KYLE ROBESON
ROBESON'S INC
THE NATURE CONSERVANCY
1501 INTERSTATE DR
CHAMPAIGN IL 61821

DEBORAH LOESER SMALL
THE NATURE CONSERVANCY
8 S MICHIGAN AVE STE 900
CHICAGO IL 60603-3310

HANK STONE
THE NATURE CONSERVANCY
301 S W ADAMS ST STE 1007
PEORIA IL 61615

TIM TEAR
DIRECTOR OF CONSERVATION SCIENCE
THE NATURE CONSERVANCY
301 S W ADAMS ST STE 1007
PEORIA IL 61602

HOLLY VAN DYKE
OFFICE ADMINISTRATOR
THE NATURE CONSERVANCY
301 S W ADAMS ST STE 1007
PEORIA IL 61602

DONALD HEY
SENIOR VICE PRESIDENT
THE WETLANDS INITIATIVE
53 W JACKSON BLVD STE 1015
CHICAGO IL 60604-3703

JERRY PAULSON
THE WETLANDS INITIATIVE
53 W JACKSON BLVD STE 1015
CHICAGO IL 60604

NANCY PHILIPPI
THE WETLANDS INITIATIVE
53 W JACKSON BLVD
CHICAGO IL 60604

JACK HUGGINS
TNC - PEORIA LAKES BASIN ALLIANCE
1101 FONDULAC
EAST PEORIA IL 61611

DOROTHY SINCLAIR
TRI COUNTY RIVERFRONT ACTION FORUM
1019 W TETON DR
PEORIA IL 61614

LARAINE E BRYSON
PEORIA CHAMBER BOARD
TRI-COUNTY URBAN LEAGUE
317 S MACARTHUR HIGHWAY
PEORIA IL 61605

GEORGE VANDER VELDE
WMRC
1010 JORIE STE 12
OAK BROOK IL 60523

AL MC COY
AURORA ECONOMIC DEVELOPMENT COMMISSION
44 EAST DOWNER PL
AURORA IL 60507

DIRECTOR
REGIONAL OFFICE
ECONOMIC DEVELOPMENT ADMINISTRATION
111 N CANAL ST STE 855
CHICAGO IL 60606-7213

JIM MENTESTI
PRESIDENT
GREAT RIVER ECONOMIC DEVELOP FOUNDATION
300 CIVIC CENTER PLAZA STE 256
QUINCY IL 62305

WILLIAM BROWNING CED
PRESIDENT AND CEO
HARTLAND PARTNERSHIP
124 S W ADAMS STE 300
PEORIA IL 61602-1388

NORMAN WALZER
DIRECTOR
ILLINOIS INSTITUTE FOR RURAL AFFAIRS
WIU - 518 STIPES HALL
MACOMB IL 61455

RUTH FITZGERALD
PRESIDENT
JOLIET-WILL COUNTY CTR FOR ECO DEV
116 N CHICAGO ST
JOLIET IL 60431

LAWRENCE CHRISTMAS
EXECUTIVE DIRECTOR
NORTHEAST ILLINOIS PLANNING COM
400 W MADISON ST
CHICAGO IL 60606

JOSEPH SOMERSET
MGR OF COMMUNITY & ECON DEVELOPMENT
SOYLAND POWER COOPERATIVE
PO BOX 610
JACKSONVILLE IL 626510610

KEVIN WIEHARDT
WESTERN ILLINOIS REG PLANNING COUNCIL
223 S RANDOLPH
MACOMB IL 61455

J SCOTT SESSION
316 E MASON ST
HAVANA IL 62644-1821

JOHN CURRAN
DIRECTOR
ALSIP PARK DISTRICT
12521 S KOSTNER AVE
CHICAGO IL 60658-2624

JIM EBY
BATAVIA PARK DISTRICT
327 W WILSON ST
BATAVIA IL 60510

SCOTT LUKEN
PRESIDENT
BATAVIA PARK DISTRICT
327 W WILSON ST
BATAVIA IL 60510

GREG OUTSEN
BRADLEY BOURBONNAIS SPORTSMANS CLUB
417 KRISTINA
BOURBONNAIS IL 60914

JEAN A ROBINSON
CANAL CORRIDOR ASSOC
2617 E HOLDERMAN RD
MORRIS IL 60450

CHARLES PENDLETON
BRANCH MANAGER
CHICAGO PARK DISTRICT
6312 W ROSEDALE AVE
CHICAGO IL 60646-5316

WILLIAM PENN
BRANCH MANAGER
HUMBOLDT PARK DISTRICT
CHICAGO PARK DISTRICT
1400 N SACRAMENTO AVE
CHICAGO IL 60622-2738

TERRY JOHNSTON
DUCKS UNLIMITED
509 W WATER
KANKAKEE IL 60901

CHARLIE MYERS
COMMODORE
EAST PEORIA BOAT & RECREATION
707 COLLINS LN
EAST PEORIA IL 61611

JIM COUTTS
GREENWAYS BOARD
FONDULAC PARK DISTRICT
201 VETERANS DR
EAST PEORIA IL 61611

GREENWAYS BOARD
FORT CREVE COEUR STATE PARK
301 LAWNRIDGE DR
CREVE COEUR IL 61610

FOX VALLEY PARK DISTRICT
712 S RIVER ST
AURORA IL 60506

BILL DONNELL
FOX VALLEY PARK DISTRICT
PO BOX 818
AURORA IL 60507

AMY LARSON
FOX VALLEY PARK DISTRICT
PO BOX 818
AURORA IL 60507

JEFF PALMQUIST
FOX VALLEY PARK DISTRICT
PO BOX 818
AURORA IL 60507

STAN ULRICH
GREENWAYS BOARD
GRANT MEMORIAL PARK DISTRICT
508 HIGHVIEW RIDGE
WASHBURN IL 61570

HAVANA PARK DISTRICT
200 S MCKINLEY
HAVANA IL 62644

SUE BOBINSKY
EXECUTIVE DIRECTOR
HERIT CORRID CONVENT & VISITOR CTR
81 N CHICAGO ST
JOLIET IL 60431

GREENWAYS BOARD
IL ASSOCIATION OF PARK DISTRICT
211 E MONROE ST
SPRINGFIELD IL 62701

RONALD DODD
EXECUTIVE DIRECTOR
INWOOD GOLF COURSE
JOLIET PARK DISTRICT
3000 W JEFFERSON ST
JOLIET IL 60435-5277

RICK FOLKIE
KANKAKEE AREA SPORTSMANS CLUBS
4243 N 3000W RD
BOURBONNAIS IL 60914

MIKE BLACK
KANKAKEE RIVER VALLEY WHITETAILS
9 NORTHVIEW
KANKAKEE IL 60901

CHARLENE DYBEDOCK
PRESIDENT
KANKAKEE VALLEY PARK DISTRICT
BIRD PARK
KANKAKEE IL 60901

DAN DEVALK
MOMENCE ANCHOR CLUB
1441 N RIVERSIDE DR
MOMENCE IL 60954

GARY WATSON
GREENWAYS BOARD
MORTON PARK DISTRICT
349 W BIRCHWOOD
MORTON IL 61550

MARK DE SALVO
DIRECTOR
NORRIDGE PARK DISTRICT
4631 N OVERHILL AVE
CHICAGO IL 60656-4522

J R BLACK
NORTHERN IL ANGLERS
BOX 188
BOURBONNAIS IL 60914

OSWEGOLAND PARK DISTRICT
313 E WASHINGTON ST
OSWEGO IL 60543

GRANT CASLETON
OSWEGOLAND PARK DISTRICT
313 EAST WASHINGTON ST.
OSWEGO IL 60543

ROBERT GRAY
OSWEGOLAND PARK DISTRICT
313 E WASHINGTON ST
OSWEGO IL 60543

WILLIAM MC ADAM
OSWEGOLAND PARK DISTRICT
313 E WASHINGTON ST
OSWEGO IL 60543

LOUIS KOPESHKE
SUPERINTENDENT
RIVERDALE PARK DIST COMM CTR
PARK RIVERDALE
151 W 137TH ST
CHICAGO IL 60627-1652

ROBERT BLACKWELL
GREENWAYS BOARD
PEKIN PARK DISTRICT
1701 COURT ST
PEKIN IL 61554

PEORIA AREA CONVENTION & VISITOR BUR
PEORIA PARK DISTRICT
6017 N KNOXVILLE
PEORIA IL 61603

MATT FICK
PEORIA PARK DISTRICT
2218 N PROSPECT RD
PEORIA IL 61643

BONNIE NOBLE
GREENWAYS BOARD
PEORIA PARK DISTRICT
2218 N PROSPECT RD
PEORIA IL 61603

BILL ROEDER
PEORIA AREA CONVENTION & VISITOR BUR
PEORIA PARK DISTRICT
2218 N PROSPECT RD
PEORIA IL 61603

DAVID WHEELER
PEORIA PARK DISTRICT
2218 N PROSPECT RD
PEORIA IL 61603

GRANT CASTLETON
OSWEGOLAND PARK DIRECTOR
PRAIRIE POINT CENTER
313 E WASHINGTON ST
OSWEGO IL 60543

TERRY MONGE
GREENWAYS BOARD
ROANOKE PARK DISTRICT
1004 W HIGH ST
ROANOKE IL 61561

WALT DAVIS
TAZEWELL GUN CLUB
1020 DAKWOOD RD
EAST PEORIA IL 61611

EDWARD KAVANAUGH
TRI CO DUCKS & GEESE
2501 W MELUOSE PL
PEORIA IL 61604

RON GREG
GREENWAYS BOARD
WASHINGTON PARK DISTRICT
815 LINCOLN
WASHINGTON IL 61571

THOMAS MC CULLOUCH
C/O DON KLIMA
EASTERN OFFICE OF PROJECT REVIEW
ADVISORY COUNCIL ON HISTORIC PRESERVATION
1100 PENNSYLVANIA AVE NW #809
WASHINGTON DC 20004

DON KLIMA
DIRECTOR -EASTERN OFC OF PROJ REVIEW
EASTERN OFFICE OF PROJECT REVIEW
ADVISORY COUNCIL ON HISTORIC PRESERVATION
1100 PENNSYLVANIA AVE NW #809
WASHINGTON DC 20004

IL VETERANS HOME
ALL WARS MUSEUM
1701 N 12TH ST
QUINCY IL 62301

ALTON AREA HIST SOCIETY
PO BOX 971
ALTON IL 62002

ALTON MUSEUM OF HIST AND ART
121-123 E BROADWAY
ALTON IL 62002

ANCIENT TECH & ARCH MATERIALS
901 S MATHEWS AVE
URBANA IL 61801

ANDOVER HIST SOCIETY
PO BOX 197 - 418 LOCUST ST
ANDOVER IL 61233

ANITA PURVES NATURE CENTER
1505 N BROADWAY
URBANA IL 61801

ARLINGTON HEIGHTS HISTORICAL SOCIETY
110 W FREMONT ST
ARLINGTON HEIGHTS IL 6004

AURORA HISTORICAL SOCIETY
317 CEDAR ST
AURORA IL 60506

AURORA PRESERVATION COMMISSION
44 E DOWNER PL
AURORA IL 60507

AVON HISTORICAL SOCIETY
PO BOX 483
AVON IL 61415

BARLETT HISTORICAL SOCIETY
228 S MAIN ST PO BOX 8257
BARTLETT IL 60103

MUSEUM CENTER
BARRINGTON AREA HISTORICAL SOCIETY
212-218 W MAIN ST
BARRINGTON IL L0010

BATAVIA HISTORICAL SOCIETY
PO BOX 14
BATAVIA IL 60510

BEECHER COMMUNITY HISTORICAL SOCIETY
673 PENFIELD ST PO BOX 1469
BEECHER IL 60401

BELLFLOWER GENEALOGICAL & HISTORICAL SOC
RR 1 BOX 17
BELLFLOWER IL 61724

BERWYN HISTORICAL SOCIETY
PO BOX 479
BERWYN IL 60402

BETHALTO HIST MUSEUM
124 W MAIN
BETHALTO IL 62010

BIG ROCK HISTORICAL SOCIETY
PO BOX 206
BIG ROCK IL 60511

BISHOP HILL HERITAGE MUSEUM ASSOC
PO BOX 1853
BISHOP HILL IL 61419-1853

BISHOP HILL STATE HISTORIC SITE
PO BOX 104
BISHOP HILL IL 61419

BLACKWELL HISTORY OF ED MUSEUM
GABEL HALL 08 NORTHERN IL UNIVERSITY
DE KALB IL 60115

BLUE ISLAND HISTORICAL SOCIETY & MUSEUM
2433 YORK ST
BLUE ISLAND IL 60406-2094

BOLINGBROOK HISTORICAL SOCIETY
162 N CANYON DR
BOLINGBROOK IL 60440

BOURBONNAIS GROVE HIST SOCIETY
PO BOX 311
BOURBONNAIS IL 60914

BRIMFIELD PUBLIC LIBRARY
BRIMFIELD HISTORICAL SOCIETY
111 S GALENA
BRIMFIELD IL 61517

BUREAU CNTY HISTORICAL SOCIETY
109 PARK AVE W
PRINCETON IL 61356

BUREAU COUNTY HISTORICAL SOCIETY
109 PARK AVE W
PRINCETON IL 61356

BUSHNELL REC & CULTURAL CTR
BUSHNELL HIST SOCIETY MUSEUM
300 MILLER ST
DUSHNELL IL 61422

CABIN NATURE PROGRAM CTR
111 S WOOD DALE RD
WOOD DALE IL 60191

CAHOKIA COURTHOUSE STATE HISTORICAL SITE
107 ELM ST
CAHOKIA IL 62206

CAHOKIA MOUNDS STATE HIST SITE
30 RAMEY ST
COLLINSVILLE IL 62234

CALHOUN COUNTY HISTORICAL SOCIETY
PO BOX 46 COUNTY RD 2ND FLR FARM BLDG
HARDIN IL 62047

CALUMET CITY HIST SOCIETY
760 WENTWORTH AVE PO BOX 1917
CALUMET CITY IL 60409

CAMBRIDGE HISTORICAL SOCIETY
RR 2 BOX 96
CAMBRIDGE IL 61238

CAMPBELL CTR FOR HISTORIC PRES STUDIES
PO BOX 66 203 E SEMINARY ST
MOUNT CARROLL IL 61053

CARL SANDBURG STATE HISTORIC SITE
313 E 3RD ST
GALESBURG IL 61401

CASS CNTY HISTORICAL SOCIETY
PO BOX 11 RR 2, BOX 42
VIRGINIA IL 62691

CENTRAL IL LANDMARKS FOUNDATION
PO BOX 495
PEORIA IL 61651

URBANA FREE LIBRARY
CHAMPAIGN CNTY HISTORICAL ARCHIVES
201 S RACE
URBANA IL 61801

CHATSWORTH HISTORICAL SOCIETY
424 E LOCUST ST PO BOX 755
CHATSWORTH IL 60921

CHICAGO & NW HISTORICAL SOCIETY
8703 N OLCOTT AVE
NILES IL 60648

CHICAGO ACADEMY OF SCIENCES
2060 N CLARK ST
CHICAGO IL 60614

CHICAGO HEIGHTS PUBLIC LIBRARY
CHICAGO HIGHTS HIST PRESERV ADV COMM
25 W 15TH ST
CHICAGO HEIGHTS IL 60411

CHICAGO HISTORICAL SOCIETY
1601 N CLARK ST
CHICAGO IL 60614

CHICAGO LAWN LIBRARY
CHICAGO LAWN HISTORICAL SOCIETY
4043 W 63RD ST
CHICAGO IL 60629

FOREST PRESERVE DIST OF COOK CNTY
CHICAGO PORTAGE NATIONAL HISTORIC SITE
536 N HARLEM
RIVER FOREST IL 60305

CHILLICOTHE HISTORICAL SOCIETY
PO BOX 181
CHILLICOTHE IL 61523

CHRISTIAN CNTY HISTORICAL MUSEUM
PO BOX 254
TAYLORVILLE IL 62568

LINCOLN COURTROOM
CITY OF BEARDSTOWN
101 W 3RD ST
BEARDSTOWN IL 62618

CITY OF NEW BOSTON MUSEUM
2ND & MAIN PO BOX 284
NEW BOSTON IL 61272

PAT BRUMLEVE
COBDEN MUSEUM
104 CLEMENS
COBDEN IL 62920

COLLINSVILLE MEMORIAL PUBLIC LIBRARY
COLLINSVILLE HIST MUSEUM
408 W MAIN ST
COLLINSVILLE IL 62234

COLUMBIA HIST SOC
RR 1 BOX 160A
COLUMBIA IL 62236

FOREST RESERVE DISTRICT OF COOK CNTY
CRABTREE NATURE CENTER
RTE 3 STOVER RD
BARRINGTON IL 60010

CTR FOR AMERICAN ARCHEOLOGY
PO BOX 366
KAMPSVILLE IL 62053

CUSTOM HOUSE
14TH & WASHINGTON PO BOX 724
CAIRO IL 62914

DANVERS HISTORICAL SOCIETY
102 S W ST PO BOX 613
DANVERS IL 61732

DARIEN HISTORICAL SOCIETY
7422 S CASS AVE PO BOX 2178
DARIEN IL 60561

DEERFIELD AREA HISTORICAL SOCIETY
450 KIPLING PL PO BOX 520
DEERFIELD IL 60015

DES PLAINES HISTORICAL SOCIETY
789 PEARSON
DES PLAINES IL 60016-4506

DEWITT CNTY MUSEUM ASSOC
219 E WOODLAWN
CLINTON IL 61727

DUANE ESAREY
DICKSON MOUNDS MUSEUM
10956 N DICKSON MOUNDS RD RR 1 BOX 185
LEWISTOWN IL 61542

ALAN HARN
DEPT OF ANTHROPOLOGY
DICKSON MOUNDS MUSEUM
10956 N DICKSON MOUNDS RD RR 1 BOX 185
LEWISTOWN IL 61542

DOWNERS GROVE HISTORICAL SOCIETY
831 MAPLE AVE
DOWNERS GROVE IL 60515-4904

DOWNERS GROVE MUSEUM
831 MAPLE AVE
DOWNERS GROVE IL 60515-4904

DUNDEE TOWNSHIP HISTORICAL SOCIETY
426 HIGHLAND AVE
DUNDEE IL 60118

DUPAGE CNTY HISTORICAL SOCIETY
102 E WESLEY ST
WHEATON IL 60187

DWIGHT HISTORICAL SOCIETY
119 W MAIN ST
DWIGHT IL 60420

EARLVILLE COMM HISTORICAL SOCIETY
205 WINTHROP ST PO BOX 420
EARLVILLE IL 60518

EAST SIDE HISTORICAL SOCIETY
3658 E 106TH ST
CHICAGO IL 60617

EDGEBROOK HISTORICAL SOCIETY
6173 N MC CLELLAN
CHICAGO IL 60646

ELBURN & COUNTY HISTORICAL SOCIETY
525 N MAIN PO BOX 115
ELBURN IL 60119

ELGIN AREA HISTORICAL SOCIETY & MUSEUM
360 PARK ST
ELGIN IL 60120

ELGIN PUBLIC MUSEUM
225 GRAND BLVD
ELGIN IL 60120

ELKHART HISTORICAL SOCIETY
116 N LATHAM PO BOX 225
ELKHART IL 62634

EVANSTON HISTORICAL SOCIETY
225 GREENWOOD ST
EVANSTON IL 60201

FAIRMOUNT-JAMAICA HISTORICAL SOCIETY
PO BOX 349
FAIRMOUNT IL 61841-0349

FARMER CITY GENEALOGICAL & HIST SOCIETY
224 S MAIN PO BOX 173
FARMER CITY IL 61842

FERN DELL HISTORIC ASSOC
PO BOX 254
NEWARK IL 60541

FIELD MUSEUM OF NATURAL HISTORY
1200 S LAKE SHORE DR
CHICAGO IL 60605-2496

FLAGG CREEK HISTORICAL SOCIETY
7965 BIELBY
LA GRANGE IL 60521

ANDERSON
FORD CNTY HISTORICAL SOCIETY
201 W STATE ST PO BOX 115
PAXTON IL 60957-0115

JOHN ANDERSON
FORD COUNTRY HISTORICAL SOCIETY
201 W STATE ST PO BOX 115
PAXTON IL 60957-0115

FORT KASKASKIA HIST SITE
RR 1 BOX 63
ELLIS GROVE IL 62241

FRANKFORT AREA HIST SOCIETY OF WILL CNTY
132 KANSAS ST PO BOX 546
FRANKFORT IL 60423

FRANKLIN GROVE AREA HISTORICAL SOCIETY
110 W FRONT
MT MORRIS IL 61054

FREEBURG HIST & GENE SOCIETY
PO BOX 69
FREEBURG IL 62243

VILLA KATHRINE
FRIENDS OF THE CASTLE
PO BOX 732
QUINCY IL 62306

FRIENDS OF THE DR RICHARD EELLS HOUSE
PO BOX 628 415 JERSEY ST
QUINCY IL 62306

FULTON COUNTY HISTORICAL & GEN SOCIETY
45 ASPEN DR
CANTON IL 61520

GALENA STATE HIST SITES
PO BOX 333 908 3RD ST
GALENA IL 61036

GALESBURG HISTORICAL SOCIETY
534 N BROAD ST
GALESBURG IL 61401-3646

GALVA HISTORICAL SOCIETY
906 W DIVISION ST - PO BOX 4
GALVA IL 61434-0004

GALVA HISTORICAL SOCIETY
2141 COUNTY HWY 5
GALVA IL 61434

GARDNER MUSEUM OF ARCHITECTURE & DESIGN
332 MAINE ST
QUINCY IL 62306

GENEVA HISTORICAL SOCIETY
PO BOX 345
GENEVA IL 60134

LOCKPORT TWNSHP PARK DIST
GLADYS FOX MUSEUM
1911 S LAWRENCE
LOCKPORT IL 60441-4493

GLEN CARBON VILLAGE HALL MUSEUM
GLEN CARBON HIST PRESERVATION COMM
GLEN CARBON IL 62034

GLEN ELLYN HISTORICAL SOCIETY
557 GENEVA RD PO BOX 283
GLEN ELLYN IL 60137

GLENCOE HISTORICAL SOCIETY
377 PARK AVE
GLENCOE IL 60022

GLENVIEW AREA HISTORICAL SOCIETY
1121 WAUKEGAN RD
GLENVIEW IL 60025

GOLDEN HISTORICAL SOCIETY
PO BOX 148 902 PRAIRIE MILLS RD
GOLDEN IL 62339

GOOSE LAKE PRAIRIE STAT NATURAL AREA
5010 N JUGTOWN RD
MORRIS IL 60450

QUINCY PUBLIC LIBRARY
GREAT RIVER GENEALOGICAL SOCIETY
526 JERSEY
QUINCY IL 62306

GREATER HARVARD AREA HISTORICAL SOCIETY
308 N HART BLVD PO BOX 505
HARVARD IL 60033

GREENE CNTY HIST & GENEALOGICAL SOCIETY
PO BOX 137 532 N MAIN ST
CARROLLTON IL 62016

LAKEVIEW MUSEUM
GREENWAYS BOARD
1125 W LAKE AVE
PEORIA IL 61614

GROVE HERITAGE ASSOC
PO BOX 484
GLENVIEW IL 60025

GRUNDY COUNTY HISTORICAL SOCIETY
PO BOX 224
MORRIS IL 60450

HENRY BARSCHDORF
PRESIDENT
GRUNDY COUNTY HISTORICAL SOCIETY
PO BOX 224
MORRIS IL 60450-2329

ARTHUR HORNSBY
GRUNDY COUNTY HISTORICAL SOCIETY
815 CHAPIN ST
MORRIS IL 60450

HANCOCK CNTY HISTORICAL SOCIETY
PO BOX 68
CARTHAGE IL 62321

HANCOCK COUNTY HISTORICAL SOCIETY
PO BOX 68
CARTHAGE IL 62321

JOHN H ALLAMAN
HENDERSON COUNTY HISTORICAL SOCIETY
RR 1 BOX 130
OQUAWKA IL 61469-9711

HENRY COMMUNITY HIST & GENE SOCIETY
610 NORTH ST
HENRY IL 61537

HENRY COMMUNITY HISTORICAL & GENEAL SOC
610 N ST
HENRY IL 61537

HENRY COUNTY HISTORICAL SOCIETY
PO BOX D
BISHOP HILL IL 61419

HENRY COUNTY HISTORICAL SOCIETY
PO BOX 48
BISHOP HILL IL 61419

STOCKTON TOWNSHIP PUBLIC LIBRARY
HERITAGE LEAGUE MUSEUM
140 W BENTON ST
STOCKTON IL 61085

HIGHLAND HIST SOCIETY
PO BOX 51
HIGHLAND IL 62249

HIGHLAND PARK CONSERVATION SOCIETY
1729 BERKELEY RD
HIGHLAND PARK IL 60035

HINSDALE HISTORICAL SOCIETY
15 S CLAY ST PO BOX 336
HINSDALE IL 60522

HISTORIC PRESERVATION ASSOC
PO BOX 1632
SPRINGFIELD IL 62705

HISTORIC PRESERVATION COMMISSION OF OAK
1 VILLAGE HALL PL
OAK PARK IL 60302

HISTORIC PRESERVATION REVIEW COMMISSION
14700 RAVINIA AVE
ORLAND PARK IL 60462

JON BLUME
HISTORICAL & EDUCATION FOUNDATION
STARVED ROCK STATE PARK
UTICA IL 61373

HISTORICAL ASSOC OF PRINCEVILLE
325 N OSTROM AVE
PRINCEVILLE IL 61559-9538

HISTORICAL SOCIETY OF CICERO
2423 S AUSTIN BLVD
CICERO IL 60650

HISTORICAL SOCIETY OF ELMWOOD PARK
2823 N 77TH AVE
ELMWOOD PARK IL 60635-1408

HISTORICAL SOCIETY OF FOREST PARK
519 JACKSON BLVD
FOREST PARK IL 60130

HISTORICAL SOCIETY OF FORT HIL CNTY
PO BOX 582
MUNDELEIN IL 60060

HISTORICAL SOCIETY OF MONTGOMERY CNTY
904 S MAIN ST
HILLSBORO IL 62049

HISTORICAL SOCIETY OF OAK PARK & RIV FOREST
217 HOME PO BOX 771
OAK PARK IL 60303

HISTORICAL SOCIETY OF QUINCY&ADAMS CNTY
425 S 12TH ST
QUINCY IL 62301

HOMER HISTORICAL SOCIETY
605 S MAIN ST
HOMER IL 61849

HOMEWOOD HISTORICAL SOCIETY
PO BOX 1144
HOMEWOOD IL 60430

HOOPESTON HISTORICAL SOCIETY
PARKDIST
617 E WASHINGTON
HOOPESTON IL 60942

HOOSIER GROVE MUSEUM STREAMWOOD

700 W IRVING PARK RD
STREAMWOOD IL 60107

HYDE PARK HISTORICAL SOCIETY
5529 S LAKE PARK AVE
CHICAGO IL 60637

I&M CANAL MUSEUM
803 S STATE ST
LOCKPORT IL 60441

IL ASSOC OF MUSEUMS
1 OLD STATE CAPITOL PLAZA
SPRINGFIELD IL 62701

IL CANAL SOCIETY
1109 GARFIELD
LOCKPORT IL 60441

IL GREAT RIVERS CONFERENCE HIST SOCIETY
1211 N PARK ST PO BOX 515
BLOOMINGTON IL 61702

IL HERITAGE ASSOC
602 1/2 E GREEN ST
CHAMPAIGN IL 61820

IL HISTORIC PRESERVATION AGENCY
1 OLD STATE CAPITOL
SPRINGFIELD IL 62701

IL HISTORICAL WATER MUSEUM
123 S W WASHINGTON
PEORIA IL 61602

IL MINNONITE HERITAGE CTR
PO BOX 819
METAMORA IL 61548

IL STATE HISTORICAL SOCIETY
210 1/2 S 6TH ST STE 200
SPRINGFIELD IL 62701-1503

IL STATE MUSEUM
SPRING AND EDWARDS STS
SPRINGFIELD IL 62706-5000

DR BONNIE STYLES
MUSEUM DIRECTOR
IL STATE MUSEUM
SPRING AND EDWARDS STS
SPRINGFIELD IL 62706-5000

JIM ZIMMER
ADMINISTRATOR
ILLINOIS STATE MUSEUM LOCKPORT GALLERY
201 W 10TH ST
LOCKPORT IL 60441

IROQUOIS CNTY HISTORICAL SOCIETY
103 W CHERRY ST OLD COURHOUSE MUSEUM
WATSEKA IL 60970

IRVING PARK HISTORICAL SOCIETY
4200 W IRIVING RD
CHICAGO IL 60634-4749

ITASCA HISTORICAL SOCIETY
101 N CATALPA AVE
ITASCA IL 60143

JACKSON AREA GENEALOGICAL & HIST SOCIETY
416 S MAIN ST
JACKSONVILLE IL 62650

JACKSON CNTY HISTORICAL SOCIETY
1616 EDITH ST
MURPHYSBORO IL 62966-2543

JACKSON CNTY HISTORICAL SOCIETY
HISTORICAL SOCIETY
PO BOX 7
MURPHYSBORO IL 62966

JACKSONVILLE AREA GENEALOGICAL &

416 S MAIN ST
JACKSONVILLE IL 62650

JERSEY CNTY HIST SOCIETY
PO BOX 12
JERSEYVILLE IL 62052

JERSEY COUNTY HISTORICAL SOCIETY
PO BOX 12
JERSEYVILLE IL 62052

JO DAVIESS CNTY HIST SOC & MUSEUM
211 S BENCH ST
GALENA IL 61036

ELIZABETH SHEAHAN
DIRECTOR
JOLIET AREA HISTORICAL SOCIETY
204 N OTTAWA ST
JOLIET IL 60432-4007

JURICA NATURE MUSEUM BENEDICTINE UNIV
5700 COLLEGE RD
LISLE IL 60532

KANE CNTY FOREST PRESERVE DIST
1511 S BATAVIA AVE
GENEVA IL 60134

KANKAKEE CNTY HISTORICAL SOCIETY
801 S 8TH ST
KANKAKEE IL 60901

SOCIETY MUSEUM
KANKAKEE COUNTY HISTORICAL
801 S 8TH ST
KANKAKEE IL 60901

KEITHSBURG MUSEUM
PO BOX 128 14TH & WASHINGTON
KEITHSBURG IL 61442

KENDALL CNTY HISTORICAL SOCIETY
PO BOX 123
YORKVILLE IL 60560

KENILWORTH HISTORICAL SOCIETY
PO BOX 181
KENILWORTH IL 60043

KEWANEE HISTORICAL SOCIETY
211 N CHESTNUT
KEWANEE IL 61443

KEWANEE HISTORICAL SOCIETY
211 N CHESTNUT ST
KEWANEE IL 61443

KNOX COUNTY HISTORICAL SITES INC
PUBLIC SQUARE
KNOXVILLE IL 61448

KOHL CHILDRENS MUSEUM
165 GREEN BAY RD
WILMETTE IL 60091

LAGRANGE AREA HISTORICAL SOCIETY
444 S LAGRANGE RD
LA GRANGE IL 60525

LAHARPE HISTORICAL & GENEAL SOC
111 E MAIN PO BOX 289
LA HARPE IL 61450

LAKE COUNTY MUSEUM ASSOC
27277 N FOREST PRESERVE DR
WAUCONDA IL 60084

GREENWAYS BOARD
LAKEVIEW MUSEUM OF ARTS & SCIENCES
1125 W LAKE AVE
PEORIA IL 61614

LAKEVIEW MUSEUM OF ARTS & SCIENCES
1125 W LAKE AVE
PEORIA IL 61614

LANDMARKS PRESERVATION COUNCIL OF IL
53 W JACKSON BLVD STE 752
CHICAGO IL 60604

LANSING HISTORICAL MUSEUM
PO BOX 1776
LANSING IL 60438

CYNTHIA CARUS
PRESIDENT
LASALLE COUNTY HISTORICAL MUSEUM
CANAL & UNION STS ALONG I&M CANAL
UTICA IL 61373-0260

LASALLE COUNTY HISTORICAL SOCIETY
PO BOX 278
UTICA IL 61373

SAUK VALLEY COMMUNITY COLLEGE
LEARNING RESOURCE CTR (SVCC)
173 IL RTE 2
DIXON IL 61021

EAST CAMPUS
LEARNING RESOURCES CTR BLACK HAWK COLLEG
1501 IL HWY 78
KEWANEE IL 61443

LEBANON HIST SOCIETY
309 W ST LOUIS ST
LEBANON IL 62254

LEE COUNTY HISTORICAL SOCIETY
113 MADISON AVE PO BOX 58
DIXON IL 61021

LEMONT AREA HISTORICAL SOCIETY
306 LEMONT ST PO BOX 126
LEMONT IL 60439

MR JOHN LAMB
DIRECTOR
CANAL & REGIONAL HISTORY COLLECTION
LEWIS UNIVERSITY
ONE UNIVERSITY PARKWAY
ROMEOVILLE IL 60446-2298

LEWISTOWN SOCIETY FOR HISTORICAL PRESERVATION
396 S MAIN ST
LEWISTOWN IL 61542-1442

LIBERTYVILLE-MUNDELEIN HIST SOCIETY
413 N MILWAUKEE AVE
LIBERTYVILLE IL 60048

LINCOLN DOUGLAS VALENTINE MUSEUM
101 N 4TH ST
QUINCY IL 62306

LISLE HERITAGE SOCIETY
923 SCHOOL ST
LISLE IL 60532

LITTLE RED SCHOOLHOUSE NAT CTR
9800 S 104TH AVE
WILLOW SPRINGS IL 60480

LIVINGSTON CNTY HISTORICAL SOCIETY
PO BOX 680
PONTIAC IL 61764

LOGAN CNTY GENEALOGY & HIST SOCIETY
114 N CHICAGO ST
LINCOLN IL 62656-2729

LONG GROVE HISTORICAL SOCIETY
338 OLD MCHENRY RD
LONG GROVE IL 60047

LYNDON HISTORICAL SOCIETY
PO BOX 112 405 4TH ST E
LYNDON IL 61261

LYONS HISTORICAL COMMISSION
3910 BARRY POINT RD PO BOX 392
LYONS IL 60534

MACON COUNTY CONSERVATION DIST
1495 BROZIO LN
DECATUR IL 62521

MACON COUNTY HIST SOCIETY
5580 N FORK RD
DECATUR IL 62521

MACOUPIN COUNTY HISTORICAL SOCIETY
PO BOX 432
CARLINVILLE IL 62626

MADISON CNTY HIST SOC & MUSEUM
715 N MAIN ST
EDWARDSVILLE IL 62025

MAEYSTOWN PRESERVATION SOCIETY
PO BOX 25
MAEYSTOWN IL 62256

MAGNOLIA MANOR/CAIR HISTORICAL ASSOC
2700 WASHINGTON AVE
CAIRO IL 62914

MANHATTAN TOWNSHIP HISTORICAL SOCIETY
PO BOX 53
MANHATTAN IL 60442

MANITO HISTORICAL SOCIETY
PO BOX 304
MANITO IL 61546

MANTENO HISTORICAL SOCIETY
192 W 3RD
MANTENO IL 60950

MAQUON HISTORICAL ASSOCIATION
PO BOX 171
MAQUON IL 61458

MARSHAL COUNTY HISTORICAL SOCIETY
PO BOX 123
LACON IL 61540

MATTESON HISTORICAL MUSEUM
813 SCHOOL AVE
MATTESON IL 60443

MAYWOOD HISTORICAL SOCIETY
104 S 5TH AVE
MAYWOOD IL 60153

MC LEAN COUNTY HIST SOCIETY
200 N MAIN
BLOOMINGTON IL 61701

MCDONOUGH CNTY HISTORICAL SOCIETY
1200 E GRANT ST
MACOMB IL 61455

MCHENRY PRESERVATION
306 N RIVER RD
MCHENRY IL 60050

MENARD COUNTY HISTORICAL SOCIETY
125 S 7TH ST
PETERSBURG IL 62675

MENDOTA HISTORICAL SOCIETY
PO BOX 433
MENDOTA IL 61342

ESSLEY-NOBLE MUSEUM
MERCER CNTY HIST SOCIETY
1406 SE 2ND AVE
ALEDO IL 61231

DORA DAWSON
MEREDIOSIA AREA HIST SOC RVR MUSEUM
PO BOX 304
MEREDOSIA IL 62665

MEREDOSIA AREA HIST SOCIETY RVR MUSEUM
CORNER OF GREEN & MAIN STS PO BOX 304
MEREDOSIA IL 62665

MIDLOTHIAN HISTORICAL SOCIETY
14801 PULASKI
MIDLOTHIAN IL 60445

MONROE COUNTY HIST SOCIETY
PO BOX 48
WATERLOO IL 62298

MORGAN COUNTY HISTORICAL SOCIETY
PO BOX 1033
JACKSONVILLE IL 62651

MORRISON HIST SOCIETY
219 E MAIN PO BOX 1
MORRISION IL 61270

DIRECTOR
MORRISONVILLE HISTORICAL SOCIETY
606 CARLIN ST PO BOX 227
MORRISONVILLE IL 62546

MORRISONVILLE HISTORICAL SOCIETY
PO BOX 227
MORRISON IL 62546

MORTON GROVE HISTORICAL MUSEUM
PO BOX 542
MORTON GROVE IL 60053

MOULTRIE CNTY HIST & GEN SOCIETY
117 E HARRISON PO BOX 588
SULLIVAN IL 61951

MOWEAQUA AREA HISTORICAL SOCIETY
103 BIRCH ST
MOWEAQUA IL 62550

MT GREENWOOD HIST SOCIETY
11010 S KEDZIE AVE
CHICAGO IL 60655

MT PROSPECT HISTORICAL SOCIETY
101 S MAPLE ST
MT PROSPECT IL 60056

MT PULASKI TOWNSHIP HISTORICAL SOCIETY
108 S WASHINGTON ST
MT PULASKI IL 62548

MUSEUM OF SCIENCE AND INDUSTRY
57TH ST & LAKE SHORE DR
CHICAGO IL 60637

REV HOWARD WALKER
BLACKHAWK CHAPTER
NAT RAILWAY HIST SOCIETY
55 W BENTON
JOLIET IL 60431-1094

NATURAL TRUST FOR HISTORIC PRESERVATION
53 W JACKSON BLVD STE 1135
CHICAGO IL 60604

NAUVOO CHAMBER OF COMMERCE
PO BOX 41
NAUVOO IL 62354

NAUVOO HISTORICAL SOCIETY MUSEUM
PO BOX 69
NAUVOO IL 62354

NEW BOSTON HIST SOCIETY/MUSEUM
PO BOX 284 2ND & MAIN
NEW BOSTON IL 61272

C/O NEW LENOX PUBLIC LIBRARY
NEW LENOX AREA HISTORICAL SOCIETY
205 W MAPLE ST
NEW LENOX IL 60451-1741

NORTH EASTERN IL HISTORICAL COUNCIL
1720 B WILDBERRY DR
GLENVIEW IL 60025

NORTHBROOK HISTORICAL SOCIETY
1776 WALTERS AVE PO BOX 2021
NORTHBROOK IL 60065

NORWOOD PARK HISTORICAL SOCIETY
5624 N NEWARK AVE
CHICAGO IL 60631

OAK BROOK HISTORICAL SOCIETY
PO BOX 3821
OAK BROOK IL 60522

OAK PARK CONSERVATORY
617 GARFIELD
OAK PARK IL 60304

ORLAND HISTORICAL SOCIETY
PO BOX 324
ORLAND PARK IL 60462

OSWEGOLAND HERITAGE ASSOC
PO BOX 23
OSWEGO IL 60543

DARCIE HERRICH
OWEN LOVEJOY HOMESTEAD
1475 W CLARK ST
PRINCETON IL 61356

PALATINE HISTORICAL SOCIETY
224 E PALATINE RD PO BOX 134
PALATINE IL 60078

PALATINES TO AMERICA CHAPTER
PO BOX 3884
QUINCY IL 62301

WILLIAM POORE
SECRETARY
C/0 PALOS PUBLIC LIBRARY
PALOS HISTORICAL SOCIETY
12330 FOREST GLEN BLVD
PALOS PARK IL 60464

PARK FOREST HISTORICAL SOCIETY
400 LAKEWOOD BLVD
PARK FOREST IL 60466

PARK RIDGE HISTORICAL SOCIETY
41 W PRAIRIE AVE
COLLECTIONS
PARK RIDGE IL 60068

PEORIA PUBLIC LIBRARY
PEORIA CO GENEALOGICAL SOCIETY

107 NE MONROE PO BOX 1489
PEORIA IL 61655

GENE LEAT
GREENWAYS BOARD
PEORIA HISTORIC PRESERVATION COMM
419 FULTON
PEORIA IL 61602

PEORIA HISTORICAL SOCIETY
942 NE GLENOAK AVE
PEORIA IL 61603

JAMES DAKEN
EXECUTIVE DIRECTOR
PEORIA HISTORICAL SOCIETY
611 SW WASHINGTON ST
PEORIA IL 61602-5104

PERRY COUNTY HISTORICAL SOCIETY
108 W JACKSON ST
PINKNEYVILLE IL 62274

PETERSON HERITAGE SOCIETY
608 S MARKET
WATERLOO IL 62298

PIATT COUNTY HISTORICAL & GENEAL SOCIETY
PO BOX 111
MONTICELLO IL 61856

PIKE COUNTY HISTORICAL SOCIETY MUSEUM
400 BLOCK E JEFFERSON PO BOX 44
PITTSFIELD IL 62363

PILCHER PARK NATURE CENTER
227 N COUGAR RD
JOLIET IL 60432

PIPER CITY COMMUNITY HISTORICAL SOCIETY
39 W MAIN
PIPER CITY IL 60959

PLAINSFIELD HISTORICAL SOCIETY MUSEUM
217 E MAIN ST
PLAINFIELD IL 60544

PRAIRIE DUPONT PRESERVATION SOCIETY
213 FRONT ST
EAST CARONDELET IL 62240

PRAIRIE GRASS NATURE MUSEUM
860 HART RD
ROUND LAKE IL 60073

PRESERVATION & CONSERVATION ASSOCIATION
PO BOX 2555 STATION A
CHAMPAIGN IL 61825

LIZ SAFANDA
PRESERVATION PARTNERS OF FOX VALLEY
PO BOX 903
ST CHARLES IL 60174

PROPHETSTOWN AREA HIST SOCIETY
13320 W SPRINGHILL RD 320 WASHINGTON ST
PROPHETSTOWN IL 61277

PUTNAM COUNTY HISTORICAL SOCIETY
PO BOX 74
HENNEPIN IL 61327

QUINCY ART CTR
1515 JERSEY ST
QUINCY IL 62306

QUINCY MUSEUM
1601 MAINE ST
QUINCY IL 62301

QUINCY SOCIETY OF FINE ARTS
300 CIVIC CTR PL STE 244
QUINCY IL 62306

RAIL ROAD MUSEUM
103-105 QUINCY ST
GOLDEN IL 62339

RANDOLPH CNTY HIST SOCIETY
RR 1 BOX 197
STEELVILLE IL 62288

RAUPP MEM MUSEUM/BUFFALO GROVE PARK DIST
530 BERNARD DR
BUFFALO GROVE IL 60089

RAVENSWOOD-LAKE VIEW HISTORICAL ASSOC
4455 N LINCOLN AVE
CHICAGO IL 60625

RED OAK NATURE CENTER
2343 S RIVER ST
BATAVIA IL 60510

REG HISTORY CENTER
NIU -SWEN PARSON HALL 155
DE KALB IL 60115

RIDGE HISTORICAL SOCIETY
10621 S SEELEY AVE
CHICAGO IL 60643

RIVER TRAIL NATURE CTR
3120 N MILWAUKEE AVE
NORTHBROOK IL 60062

RIVERDALE HISTORICAL SOCIETY
208 W 144TH ST
RIVERDALE IL 60827

RIVERVIEW HISTORIC DIST
PO BOX 1787
KANKAKEE IL 60901

ROBBINS HISTORICAL SOCIETY
13820 S CENTRAL PARK AVE PO BOX 1561
ROBBINS IL 60472-1561

ROCHESTER HISTORICAL PRESERV SOCIETY
PO BOX 13
ROCHESTER IL 62563-0013

ROCK SPRINGS CTR FOR ENVIRON DISCOVERY
1495 BROZIO LN
DECATUR IL 62521

FOUNTAINDALE LIBRARY
ROMEOVILLE HISTORICAL SOCIETY
PO BOX 75-4 R ROMEO RD
ROMEOVILLE IL 60441

ROSSVILLE HISTORICAL SOCIETY
108 W ATTICA ST PO BOX 263
ROSSVILLE IL 60963

SAND RIDGE NATURE CTR
15890 PAXTON AVE`
SOUTH HOLLAND IL 60473

LAFAYETTE & RAILROAD STS
SANDWICH HISTORICAL SOCIETY
PO BOX 82
SANDWICH IL 60548

C/O ROBINSON'S ADVERTISING
SANGAMON CNTY HISTORICAL SOCIETY
308 E ADAMS ST
SPRINGFIELD IL 62701

SCHILLER PARK HISTORICAL SOCIETY
9526 W IRVING PARK RD
SCHILLER PARK IL 60176

SCHUYLER JAIL MUSEUM
200 S CONGRESS ST
RUSHVILLE IL 62681

SCOTT COUNTY HISTORICAL SOCIETY
PO BOX 85
WINCHESTER IL 62694

SHEFFIELD HISTORICAL SOCIETY
WASHINGTON & COOK STS
SHEFFIELD IL 61361

SHEFFIELD HISTORICAL SOCIETY
235 REED
SHEFFIELD IL 61361-0103

SHELBY CNTY HISTORICAL SOCIETY
151 S WASHINGTON PO BOX 286
SHELBYVILLE IL 62565

SIDELL COMMUNITY HISTORICAL SOCIETY
PO BOX 74
SIDELL IL 61876

SIDNEY HISTORICAL SOCIETY
PO BOX 87
SIDNEY IL 61877

ROBERT HOLMES
SLOVENIAN HERITAGE MUSEUM
431 N CHICAGO ST
JOLIET IL 60432-1785

PUBLIC LIBRARY LOWER LEVEL
SOUTH HOLLAND HISTORICAL SOCIETY
16250 WAUSAU AVE PO BOX 48
SOUTH HOLLAND IL 60473

SPRING VALLEY COAL MINE #1 PROJ
E ST PAUL ST PO BOX 170
SPRING VALLEY IL 61362

SPRING VALLEY COAL MINE MUSEUM PROJ
409 PULASKI ST
SPRING VALLEY IL 61362

SPRING VALLEY NATURE CTR
235 E BEECH DR
SCHAUMBURG IL 60173

SPRINGFIELD HISTORICAL SITES COMMISSION
1331 S DIAL CT
SPRINGFIELD IL 62704

ST CHARLES HERITAGE CENTER
215 E MAIN ST
ST CHARLES IL 60174

STARK CNTY HISTORICAL SOCIETY
PO BOX 524
TOULON IL 61483

STARVED ROCK HIST & ED FOUNDATION
PO BOX 116
UTICA IL 61373

STARVED ROCK STATE PARK
PO BOX 509
UTICA IL 61373

STERLING ROCK FALLS HIST SOC & MUSEUM
PO BOX 65 1005 E 3RD ST
STERLING IL 61081

STREATORLAND HISTORICAL SOCIETY
306 S VERMILLION
STREATER IL 61364

SUGAR GROVE HISTORICAL SOCIETY
259 MAIN ST PO BOX 102
SUGAR GROVE IL 60554

TAMPICO AREA HIST SOC
SOCIETY
PO BOX 248 304 BOOTH ST
TAMPICO IL 61283

TAZEWELL COUNT GENEALOGICAL & HIST

719 N 11TH ST PO BOX 312
PEKIN IL 61555

C/O THEBES HISOTRICAL SOCIETY
THEBES HISTORICAL COURTHOUSE
PO BOX 14
THEBES IL 62990

THORNTON TOWNSHIP HISTORICAL SOCIETY
66 WATER ST
PARK FOREST IL 60466

TILTON HISTORICAL SOCIETY
201 W 5TH ST
TILTON IL 61833

TINLEY PARK HISTORICAL SOCIETY
PO BOX 325
TINLEY PARK IL 60477

TREMONT MUSEUM & HISTORICAL SOCIETY
PO BOX 5
TREMONT IL 61568

TRI STATE LIVING HISTORY ASSOCIATION
RR 3 BOX 79
QUINCY IL 62301

UNION CNTY HIST SOCIETY
RTE 1 BOX 1153
JONESBORO IL 62952

JOHN HOFFMAN
ILLINOIS HISTORICAL SOCIETY
UNIV OF IL AT URBANA-CHAMPAIGN LIBRARY
346 MAIN LIBRARY1408 W GREGORY DR
URBANA IL 61801

UNIV OF IL MUSEUM OF NAT HIST
1301 GREEN ST
URBANA IL 61801

UPTOWN HIS SOCIETY
4531 N DOVER ST
CHICAGO IL 60640

US GRANT HOME STATE HIST SITE
PO BOX 333 500 BOUTHILLIER ST
GALENA IL 61036

VERMILION CNTY CONSERVATION DIST MUSEUM
22296-A HENNING RD
DANVILLE IL 61834

VERSAILLES AREA GEN & HIST SOCIETY
113 W FIRST ST PO BOX 92
VERSAILLES IL 62378

WARREN CNTY HISTORICAL MUSEUM
200 E PENN AVE PO BOX 325
ROSEVILLE IL 61473

WARSAW HISTORICAL SOCIETY AND MUSEUM
401 MAIN ST
WARSAW IL 62379

WASHBURNE HOUSE STATE HIST SITE
908 3RD ST PO BOX 333
GALENA IL 61036

WASHINGTON HISTORICAL SOCIETY
101 & 105 ZINSER PLACE PO BOX 54
WASHINGTON IL 61571

WATERLOO CENTENNIAL ASSOCIATION
102 PAUTLER PLACE
WATERLOO IL 62298

WAUCONDA TOWNSHIP HISTORICAL SOCIETY
PO BOX 256
WAUCONDA IL 60084

WEST CHICAGO HISTORICAL SOCIETY
PO BOX 246
WEST CHICAGO IL 60185

WEST RIDGE HISTORICAL SOCIETY
6424 NORTHWESTERN
CHICAGO IL 60645

WESTCHESTER HISTORICAL SOCIETY
10332 BOND ST
WESTCHESTER IL 60154

WESTERN SPRINGS HISTORICAL SOCIETY
PO BOX 139
WESTERN SPRINGS IL 60558

WESTMONT HISTORICAL SOCIETY
75 E RICHMOND ST
WESTMONT IL 60559

WHEATON HISTORY CTR
PO BOX 373
WHEATON IL 60189

WHEELING HISTORICAL SOCIETY
PO BOX 3
WHEELING IL 60090

WHITESIDE CNTY GENEALOGISTS
PO BOX 145
STERLING IL 61081

WILDLIFE PRAIRIE PARK
3826 N TAYLOR RD RR2 BOX 50
PEORIA IL 61615

DAVID DUBOIS
PLANNER
WILL COUNTY LAND USE DEPT
WILL CNTY HISTORIC PRESERVATION COMMISSION
501 ELLA AVE
JOLIET IL 60433

TYSON WARRENER
CHIEF, PLANNER
WILL COUNTY LAND USE DEPT
WILL CNTY HISTORIC PRESERVATION COMMISSION
58 E CLINTON ST SUITE 500
JOLIET IL 60432

STEVE ARDAN
WILL CNTY HISTORIC PRESERVATION COMMISSIONER
2700 CHERRY HILL RD
JOLIET IL 60433

WILL CNTY HISTORICAL SOCIETY
803 S STATE ST
LOCKPORT IL 60441

WILLOWBROOK WILDLIFE HAVEN
525 S PARK BLVD
GLEN ELLYN IL 60137

WILMINGTON AREA HISTORICAL SOCIETY
PO BOX 1
WILMINGTON IL 60481

WINDMILL MUSEUM
902 PRAIRIE MILLS RD
GOLDEN IL 62339

WINNETKA HISTORICAL SOCIETY
PO BOX 365
WINNETKA IL 60093

WOODRIDGE AREA HISTORICAL SOCIETY
2628 MITCHELL DR
WOODRIDGE IL 60517

WORLD HERITAGE MUSEUM
702 S WRIGHT ST
URBANA IL 61801

WYANET HISTORICAL SOCIETY
109 E MAIN
WYANET IL 61379

WYANET HISTORICAL SOCIETY
PO BOX 169
WYANET IL 61379-0169

YELLOWBANKS HERITAGE ASSOC
PO BOX 128
KEITHSBURG IL 61442

BARBARA KING
Batavia League of Women Voters
1178 Chillen Dr.
BATAVIA IL 60510

HANNAH VOLK
Batavia League of Women Voters
812 N. Washington Ave.
BATAVIA IL 60510

LINDA ENGELBARTS
3717 35TH ST APT 3
MOLINE IL 61265

JUANITA BRYAN
STATE CONSERVATION CHAIRPERSON
IL FEDERATION OF WOMEN'S CLUBS
1285 LUTHER LN APT 141
ARLINGTON HEIGHTS IL 60004-8110

JAN BENSON WRIGHT
PEORIA CHAMBER BOARD
CENTRAL IL BUSINESS PUBLISHERS
5005 N GLEN PARK PLACE RD
PEORIA IL 61614-4677

CHEETAH MESSENGER SERVICE INC
1026 N KEDZIE AVE
CHICAGO IL 60651-4128

BECKY HOAG
HOAG COMMUNICATIONS
1281 DANFORTH DR
BATAVIA IL 60510

GENERAL MANAGER
CHILLICOTHE TIMES BULLETIN
TAZEWELL PUBLISHING COMPANY INC
1616 W PIONEER PKWY
PEORIA IL 61615-1945

NEWS ROOM
WYZZ-TV CHANNEL 43
2714 E LINCOLN
BLOOMINGTON IL 61704

DENNIS CONRAD
REPORTER
ASSOCIATED PRESS
CAPITOL BUILDING
SPRINGFIELD IL 62701

GEORGE SAAL JR
1015 BACON ST
PEKIN IL 61554

NEWS ROOM
CHANNEL 25
2909 SPRINGFIELD RD
PEORIA IL 61611

JOAN COULSON
PUBLISHER
COULSON PUBLISHING COMPANY
PO BOX 71
MT STERLING IL 62353-0071

NEWS ROOM
PEORIA OBSERVER
1616 W PIONEER PARKWAY
PEORIA IL 61615

JOHN B WINSOR
TAZEWELL PUBLISHING COMPANY INC
456 FULTON ST STE 370
PEORIA IL 61602-1220

BILL BYRNS
360 HOLLY DR
BRADLEY IL 60915

KAREN GOVEIA
BEACON NEWS (NEWSPAPER)
728 NORWAY PL
OSWEGO IL 60543

BILL BEARD
CASS COUNTY STAR GAZETTE
PO BOX 79
BEARDSTOWN IL 62618-0079

NEWS EDITOR
METRO SECTION
CHICAGO TRIBUNE
435 N MICHIGAN AVE
CHICAG0 IL 60611

CHRISTY PARSONS
REPORTER
CHICAGO TRIBUNE
STATEHOUSE PRESS ROOM
SPRINGFIELD IL 62706

CHILLICOTHE TIMES BULLETIN
1616 W PIONEER PKWY
PEORIA IL 61615-1945

DANA HUEPEL
BUREAU CHIEF
COPLEY NEWS
OLD STATE CAPITOL PLAZA
SPRINGFIELD IL 62701

TOBY OLSZKEWSKI
COUNTRY MARKET HERALD
500 BROWN BLVD
BOURBONNAIS IL 60914

LEGAL CLASSIFIED
DAILY TIMES
110 W JEFFERSON
OTTAWA IL 61350

DAILY TIMES
110 W JEFFERSON ST
OTTAWA IL 61350-5010

ENTERPRISE
216 E CENTRAL
BENLD IL 62009

SUSAN KUMER
FULTON DEMOCRAT
BOX 191
LEWISTOWN IL 61542

HENDERSON COUNTY QUILL
102 N BROADWAY
STRONGHURST IL 61480

HENRY NEWS REPUBLICAN
303 EDWARD ST PO BOX 190
HENRY IL 61537

ILLINOIS VALLEY WEEKLY
426 2ND ST
LA SALLE IL 61301

TED ROTH
EDITOR
JACKSONVILLE JOURNAL COURIER
PO BOX 1048
JACKSONVILLE IL 62651-1048

LISA COON
EDITOR
JOURNAL STAR
1 NEWS PLAZA
PEORIA IL 61643

BILL BYRNS
KANKAKEE DAILY JOURNAL
8 DEARBORN SQ
KANKAKEE IL 60901

ROBERT THEMER
KANKAKEE DAILY JOURNAL
8 DEARBORN ST
KANKAKEE IL 60901

TONY SCOTT
LEDGER-SENTINEL (NEWSPAPER)
P.O. BOX 669
OSWEGO IL 60543

LIBERTY BEE-TIMES
19 E HANNIBAL ST
LIBERTY IL 62347

MASON COUNTY DEMOCRAT
217 W MARKET ST
HAVANA IL 62644

NEWS ROOM
MORRIS DAILY HERALD
1804 DIVISION ST
MORRIS IL 60450-1127

JOANN HUSTIS
MORRIS DAILY HERALD
1804 N DIVISION ST
MORRIS IL 60450

ANN TRAVERSO
MORRIS DAILY HERALD
1804 N DIVISION
MORRIS IL 60450

NEWS TRIBUNE
426 2ND ST
LA SALLE IL 61301

PUBLISHER
NEWS TRIBUNE
426 2ND ST
LA SALLE IL 61301

BROCK COOPER
NEWS TRIBUNE
601 PLAZA DR APT C
MENDOTA IL 61342

KAREN SORENSEN
ASST CITY EDITOR
PEORIA JOURNAL STAR - NEWS ROOM
1 NEWS PLAZA
PEORIA IL 61643

ELAINE HOPKINS
PEORIA STAR JOURNAL
ONE NEWS PLAZA
PEORIA IL 61643

BUFF CARMICHAEL
EDITOR
PRAIRIE FLAME
118 B E LAUREL
SPRINGFIELD IL 62704

BRUCE MACKEY
SPRINGFIELD BUSINESS JOURNAL/PRIMETIME
PO BOX 9798
SPRINGFIELD IL 62791

KEVIN MC DERMOTT
REPORTER
ST LOUIS POST DISPATCH
IL STATEHOUSE PRESS ROOM
SPRINGFIELD IL 62706

STATE JOURNAL-REGISTER
1 COPLEY PLAZA
SPRINGFIELD IL 62701-1927

THE BEACON-NEWS
101 S RIVER ST
AURORA IL 60506-6005

THE BUREAU VALLEY CHIEF
108 W MAIN ST
TISKILWA IL 61368

JAMES MALLEY
THE DAILY TIMES
110 W JEFFERSON ST
OTTAWA IL 61350

THE HERALD REVIEW
PO BOX 311
DECATUR IL 62525

NEWS ROOM
THE HERALD-NEWS
300 CATERPILLAR DR
JOLIET IL 60436

THE JOURNAL
CAMP POINT IL 62320

THE JOURNAL
8 DEARBORN SQUARE
KANKAKEE IL 60901

THE NEWS
242 A LA SALLE ST
TONICA IL 61370

SCOTT RICHARDSON
THE PANTAGRAPH
301 W WASHINGTON ST
BLOOMINGTON IL 61701

THE REGISTER
140 S PRAIRIE ST
GALESBURG IL 61401

THE REPORTER
703 IL AVE
MENDOTA IL 61342

THE STAR COURIER
105 E CENTRAL BLVD
KEWANEE IL 61443

THE TIMES
110 W JEFFERSON
OTTAWA IL 61350

THE TIMES-PRESS
122 S BLOOMINGTON ST
STREATOR IL 61364

TIMES NEWSPAPERS
P O BOX 9426
PEORIA IL 61612

JAMES SOMMER
PRESIDENT
TREMONT NEWS INC
456 FULTON ST STE 370
PEORIA IL 61602-1220

GREG TEJEDA
UNITED PRESS INTERNATIONAL
CAPITOL PRESS ROOM
SPRINGFIELD IL 62706

NEWS ROOM
WATER CONTROL NEWS
4025 W PETERSON AVE
CHICAGO IL 60646

B CORBIN
DAILY JOURNAL
8 DEARBORN SQ
KANKAKEE IL 60901

GRAY PRINTING
801 CANAL ST
OTTAWA IL 61350-4901

WARREN PUFAHL
EDITOR
ILLINOIS AGRI-NEWS
420 2ND ST
LA SALLE IL 61301

SIMON MULVERHILL
PUBLISHER
ILLINOIS TIMES INC
PO BOX 5256
SPRINGFIELD IL 62705-5256

KENDALL COUNTY RECORD
222 BRIDGE ST
YORKVILLE IL 60560

LACON HOME JOURNAL
204 S WASHINGTON ST
LACON IL 61540

LASALLE COUNTY MIDWEEK NWSPR
801 CANAL ST
OTTAWA IL 61350

DAVID AUER
ECONOMIC DEVEL BOARD
PEORIA JOURNAL STAR
ONE NEWS PLAZA
PEORIA IL 61643

NEWS EDITOR
ROANOKE REVIEW
105 E BROAD
ROANOKE IL 61561

MIKE KIENZLER
METRO EDITOR
STATE JOURNAL-REGISTER
1 COPELEY PLAZA
SPRINGFIELD IL 62707

THE CHRONICLE
PO BOX 218
GARDNER IL 60424

EDITOR
THE DAILY PANTAGRAPH
301 W WASHINGTON ST
BLOOMINGTON IL 61701

TC CHRISTIAN
PUBLISHER
THE PURE NEWS USA
1701 S COLLEGE
SPRINGFIELD IL 62704

VIRGINIA STAR GAZETTE
121 E SPRINGFIELD ST
VIRGINIA IL 62691

EDITOR
WOODFORD COUNTY JOURNAL
P O BOX 36
EUREKA IL 61530

JOHN CONNER
PRESIDENT
WRMS RADIO AM/FM
CONNER FAMILY BROADCASTING
108 E MAIN ST
BEARDSTOWN IL 62618-1241

DMR MEDIA INC
219 W WASHINGTON S
MORRIS IL 60450-2146

NEWS ROOM
FARM WEEK
1701 TOWANDA AVE
BLOOMINGTON IL 61701

BEN KININGHAM
NEWS ROOM
ILLINOIS RADIO NETWORK
IL STATEHOUSE PRESS ROOM
SPRINGFIELD IL 62706

JERRY SYMONS
WLDS
JERDON BROADCASTING
PO BOX 1180
JACKSONVILLE IL 62651-1180

JILLYN SHOEMAKER
NEWS DIRECTOR
KHQA RADIO
301 S 36TH ST
QUINCY IL 62301

B. D. HUNTER
WJIL RADIO
MORGAN COUNTY BROADCASTING COMPANY
PO BOX 1055
JACKSONVILLE IL 62651-1065

NEWS ROOM
WAIK RADIO
51 N PRAIRIE ST
GALESBURG IL 61401

NEWS ROOM
WAND TV
PO BOX 631
DECATUR IL 62525

NEWS ROOM
WBBM RADIO
630 N MC CLURG CT
CHICAGO IL 60611

NEWS ROOM
WCBU FM 90
1501 W BRADLEY AVE
PEORIA IL 61625

NEWS ROOM
WCFL RADIO
1802 DIVISION ST
MORRIS IL 60450-1182

NEWS ROOM
WCIC-WRVY RADIO - NEWS ROOM
3902 W BARING TRACE
PEORIA IL 61615

NEWS ROOM
WCMY RADIO
216 W LAFAYETTE
OTTAWA IL 61350

RICK KOSHKO
WCMY/WRKX RADIO STATIONS
216 W LAFAYETTE ST
OTTAWA IL 61350

NEWS ROOM
WCSJ RADIO
1802 DIVISION ST
MORRIS IL 60450-3104

NEWS ROOM
WCVS RADIO
3055 S 4TH ST
SPRINGFIELD IL 62701

EDWIN STIMPSON
NEWS ROOM
WDUK RADIO - NEWS ROOM
901 N PROMENADE ST
HAVANA IL 62644-0630

WAYNE ROBBINS
PROGRAM DIRCTOR
NEWS ROOM
WDZ-WDZQ-WSOY-Y103
337 N WATER ST
DECATUR IL 62523

NEWS ROOM
WEFM RADIO
435 N MICHIGAN AVE STE 1 SIDE
CHICAGO IL 30618

NEWS ROOM
WGIL RADIO
PO BOX 1227
GALESBURG IL 61401

CHARLIE SCHLENKER
NEWS ROOM
WGLT PUBLIC RADIO
CAMPUS BOX 8910 IL STATE UNIVERSITY
NORMAL IL 61790

NEWS ROOM
WGN RADIO
2501 W BRADLEY PLACE
CHICAGO IL 60618

NEWS ROOM
WIND RADIO
625 N MICHIGAN AVE
CHICAGO IL 60611

NEWS ROOM
WIRL RADIO
331 FULTON ST STE 1200
PEORIA IL 61602-1475

NEWS EDITOR
NEWS ROOM
WIRL RADIO NEWS
331 FULTON ST STE 1200
PEORIA IL 61602

RICH EGGER
NEWS ROOM
WIUM/WIUW PUBLIC RADIO
1 UNIVERSITY CIRCLE
MACOMB IL 61455

NEWS ROOM
WIZZ RADIO
PO BOX 377
STREATOR IL 61364

NEWS ROOM
WJBC RADIO
PO BOX 8
BLOOMINGTON IL 61701

PEPPER DANIELS
NEWS DIRECTOR
NEWS ROOM
WJIL-WJVL
PO BOX 1065
JACKSONVILLE IL 62651

NEWS ROOM
WJPC RADIO
820 S MICHIGAN AVE
CHICAGO IL 60605

NEWS ROOM
WKAI RADIO
119 W CARROLL ST
MACOMB IL 61455

NEWS ROOM
WKAN RADIO
6 DEARBORN SQUARE
KANKAKEE IL 60901

JAN PARCELL
NEWS ROOM
WKAN RADIO NEWS
2 DEARBORN SQ
KANKAKEE IL 60901

NEWS ROOM
WKET RADIO
133 E DIVISION ST - BOX 266
KEWANEE IL 61443

NEWS DIRECTOR
NEWS ROOM
WKOT
615 W MAIN ST
OTTAWA IL 61350

NEWS ROOM
WLPO/WAJK/WKOT RADIO
PO BOX 215
LA SALLE IL 61301

NEWS ROOM
WLRZ RADIO
3905 PROGRESS BLVD
PERU IL 61354

NEWS ROOM
WLUP RADIO
875 N MICHIGAN AVE
CHICAGO IL 60611

NEWS ROOM
WMAY RADIO
PO BOX 460
SPRINGFIELD IL 62705

NEWS ROOM
WMET RADIO
444 NMICHIGAN AVE
CHICAGO IL 60611

DIRECTOR
NEWS ROOM
WRMS RADIO - NEWS ROOM
108 E MAIN ST
BEARDSTOWN IL 62618

DIRECTOR
NEWS ROOM
WSOY RADIO
1100 E PERSHING RD
DECATUR IL 62526

NEWS DIRECTOR
NEWS ROOM
WTAX RADIO
3501 E SANGAMON AVE
SPRINGFIELD IL 62707-9777

NEWS DIRECTOR
NEWS ROOM
WTAZ RADIO
3641 N MEADOWBROOK RD
PEORIA IL 61604-1214

JONATHAN AHL
NEWS DIRECTOR
NEWS ROOM
WUBU
1501 W BRADLEY AVE
PEORIA IL 61604

RICH BRADLEY
NEWS DIRECTOR
UNIVERSITY OF ILLINOIS SPRINGFIELD
WUIS-WIPA
PO BOX 19243
SPRINGFIELD IL 62794-9243

NEWS ROOM
WVEM RADIO
3055 S 4TH BOX 2989
SPRINGFIELD IL 62701

NEWS ROOM
WWCT RADIO
4234 N BRANDYWINE DR STE D
PEORIA IL 61614

GARY MOORE
NEWS ROOM
WXCL RADIO
3641 N MEADOWBROOK RD
PEORIA IL 61615

NEWS ROOM
WZOE RADIO
RR 5
PRINCETON IL 61356

H WAYNE WILSON
NEWS ROOM
CHANNEL 47-WTVP-TV
1501 W BRADLEY AVE
PEORIA IL 61625

CABLE CHANNEL 22
EAST SIDE COMMUNITY ACCESS
1401 E WASHINGTON
EAST PEORIA IL 61611

JAMES C. NOVAK
PRESIDENT
WXCL-AM/FM
KELLY COMMUNICATIONS INC
PO BOX 180
PEORIA IL 61650-0180

GENE ROBINSON
SYSTEMS/DATA PROCESSING
WMBD WMBD-TV WKZW
MIDWEST TELEVISION INC
3131 N UNIVERSITY ST
PEORIA IL 61604-1316

DEBRA HARRIS
NEWS DIRECTOR
NEWS ROOM
WAND TV - 17
904 S SIDE DR
DECATUR IL 62521

DAVE SHAUL
NEWS DIRECTOR
NEWS ROOM
WCIA TV - 3
509 S NEIL ST
CHAMPAIGN IL 61820

NEWS EDITOR
NEWS ROOM
WEEK TV NEWS
2907 SPRINGFIELD RD
EAST PEORIA IL 61611

NEWS ROOM
WEEK-TV CHANNEL 25 - NEWS ROOM
2907 SPRINGFIELD RD
EAST PEORIA IL 61611

NEWS ROOM
WFLD TV
205 N MICHIGAN AVE
CHICAGO IL 60610

NEWS EDITOR
NEWS ROOM
WHOI TV NEWS
500 N SEWARD ST
CREVE COEUR IL 61610

SEAN MC AUGHLIN
NEWS DIRECTOR
NEWS ROOM
WICS TV - 20
2680 E COOK
SPRINGFIELD IL 62703

NEWS ROOM
WLS TV
190 N STATE ST
CHICAGO IL 60601

JONATHAN MILLER
NEWS ROOM
WMBD RADIO
331 FULTON STE 1200
PEORIA IL 61604

NEWS EDITOR
NEWS ROOM
WMBD TV NEWS
3131 N UNIVERSITY ST
PEORIA IL 61604

NEWS ROOM
WMBD-TV CHANNEL 31
3131 N UNIVERSITY
PEORIA IL 61604

BOB COLE
PRODUCTIONS
NEWS ROOM
WRSP TV - 55
3003 OLD ROCHESTER RD
SPRINGFIELD IL 62703

SCOTT MULFORD
PROGRAM DIRECTOR
NEWS ROOM
WSEC TV - 8
PO BOX 6248
SPRINGFIELD IL 62708

NEWS EDITOR
NEWS ROOM
WTVP TV NEWS
1501 W BRADLEY AVE
PEORIA IL 61606

NEWS DIRECTOR
NEWS ROOM
WTVP-TV CHANNEL 47
1501 W BRADLEY AVE
PEORIA IL 61625

ROBERT G. PETER
PUBLISHER
CATHOLIC POST OFFICE
CATHOLIC DIOCESE OF PEORIA
PO BOX 1722
PEORIA IL 61656

ROBERT - WENDY MARTIN JR
PRESIDENT - BRANCH MANAGER
MARTIN PUBLISHING COMPANY INC - MASON CO DEMOCRAT
FULTON CO DEMOCRAT
PO BOX 380 217 W MARKET ST
HAVANA IL 62644-0380

ED MULLADY
SPORTSMANS LETTER
726 S ELM
KANKAKEE IL 60901

BURTON -ELEANOR HESS
AMERICAN ASSN OF RETIRED PERSONS
1956 N 2959TH RD
OTTAWA IL 61350

BRUCE CAREY
EXECUTIVE DIRECTOR
CAMP GOOD NEWS
CHILD EVANGELISM FELLOWSHIP
708 E ARCHER AVE
PEORIA IL 61603-2636

REVEREND T WESLEY BURNS
HAVANA CHURCH OF THE NAZARENE
334 S BROADWAY
HAVANA IL 62644

RON EINHAUS
MANILUS CONCERNED CITIZEN
PO BOX 108
SENECA IL 61360

VICTORY BAPTIST CHURCH
121 STATE ST
EAST PEORIA IL 61611

GARY ADAMS
1530 W SUPERIOR ST STE 1
CHICAGO IL 60622-7654

KELLY AGNE
1633 W LE MAYNE APT B
CHICAGO IL 60622

MICHAEL AHERIN
720 N 2ND ST
SPRINGFIELD IL 62702

SCOTT AHRENS
1400 COBB BLVD
KANKAKEE IL 60901

PEGGY AHTEN
533 CHICAGO ST
EAST PEORIA IL 61611

JOHN AHTEN
1114 SPRINGFIELD RD
EAST PEORIA IL 61611

RAY ALDERMAN
509 W. MADISON ST
YORKVILLE IL 60560

EDNA ALEXANDER
4826 WICKMOR
ALTON IL 62002

KORENA ALVAREZ
146 CHICAGO ST
EAST PEORIA IL 61611

JIM ALWILL
RR1 BOX 151
BRADFORD IL 61421

JEANETTE - OWEN ANDERSON
3379 113TH AVE
ALLEGAN MI 49010-9361

GERALD ANDERSON
11 MARQUETTE LN
KANKAKEE IL 60901

BERNADINE ANTHONY
100 TURNRON
EAST PEORIA IL 61611

ALICE ANTHONY
308 ILLINI DR
EAST PEORIA IL 61611

DR JOHN ARMSTRONG
412 CONGRESS ST
OTTAWA IL 61350

ROBERT BALL
11375 MAPLE ISLAND
MANITO IL 61546

BILL BALTHUM
2710 HERITAGE LANE
KANKAKEE IL 60901

PAUL BAMBERG
6666 E MAIZE RD
RIDOTT IL 61067

WILLIAM BANASZAK
108 CHICAGO RD
OSWEGO IL 60543

DR JAMES BARDGETT
1301 ISLAND AVE
OTTAWA IL 61350

J STEVEN BARLOW
RT 5 BOX 328
PRINCETON IL 61356

ROY BARNWELL
105-111 ELM ST
EAST PEORIA IL 61611

STEVEN BARRY
RR 3 BOX 138A
LIBERTY IL 62347

JOE BASS
2404 N CLIFF DR
BOURBONNAIS IL 60914

JOHN BAXTER
50 DENNISON DR
BOURBONNAIS IL 60914

CLIFTON R BAXTER
2104 AUGUSTA DR
SPRINGFIELD IL 62704

PAUL BECKER
5559 W VAN BUREN ST
CHICAGO IL 60644

JOHN BECKER
BOX 98
VAN ORIN IL 61374

MARLENE BEDARD
2443 COURTYARD CIRCLE UNIT 6
AURORA IL 60506

TERRY BELCHER
316 CENTER ST
EAST PEORIA IL 61611

JOHN BENJA
RR 1
OTTAWA IL 61350

RICK BERCHTOLD
2007 N PRICHARD RD
PEORIA IL 61615

HAROLD BERJOHN
6868 N FOX POINT DR
PEORIA IL 61614

JOAN BERNABE
1289 N 2803 RD
OTTAWA IL 61350

GLANE BEVARD
530 MONSON ST
EAST PEORIA IL 61611

W AND JUDITH BIANCHI
4141 N PAULINA
CHICAGO IL 60613

J PAUL BIGGERS
7000 GARDEN VIEW LANE
SPRINGFIELD IL 62707

RUDY BILGRI
11694 N HENDERSON RD
ORANGEVILLE IL 61060

DR RICHARD BJORKLUND
26034 HARRIS LANE
TOPEKA IL 61567

STEVE BLACK
1898 COBB BLVD
KANKAKEE IL 60901

ELEANOR BLACKMON
1817 S NEIL SUITE 100
CHAMPAIGN IL 61820

CAROL ANN BLANCH
215 CLARK ST
EAST PEORIA IL 61611

MICHAEL BLANCH
112 ROOSEVELT CIR
EAST PEORIA IL 61611

ALVIN R BOGGS
7645 N PAWNEE RD
SPRINGFIELD IL 62707

MERILYN BOHM
811 GARFIELD AVE
AURORA IL 60506

STANLEY BORDA
BOX 2306
EAST PEORIA IL 61611

RALPH BOWERMASTER
2001 CANTON RD
OTTAWA IL 61350

ROBERT BRADLEY
244 EDMUND ST
EAST PEORIA IL 61611

EE BREIPOHL
PO BOX 1039
OTTAWA IL 61350-6039

KATHLEEN BROWN
9318 N PICTURE RIDGE RD
PEORIA IL 61615

FORREST BUCK
200 E ALLEN ST
OTTAWA IL 61350

WANITA BUMBALOUGH
108 MONSON ST
EAST PEORIA IL 61611

CLARENCE BUMP
1075 S BEECHNUT
MANTENO IL 60950

ART BUNTING
27998 N 2900 E RD
DWIGHT IL 60420

C D BURGER
124 STATE ST
EAST PEORIA IL 61611

WILLIAM BURKE
401 BURWASH AVE APT 321
SAVOY IL 61874-9576

GERALD BURROUGHS
131 STATE ST
EAST PEORIA IL 61611

DON BYCZYNSKI
1211 HOWARD ST
OTTAWA IL 61350

KIM CAIRNS
1457 E STATE RT 71
OTTAWA IL 61350

JAUNITA CALLEAR
304 MONSON ST
EAST PEORIA IL 61611

SHERRY CAMARGO
231 ELM ST
EAST PEORIA IL 61611

PAUL CAMPBELL
225 SHADOWAY DR
EAST PEORIA IL 61611-2817

LOUIS CARR
1817 W LAKE AVE
PEORIA IL 61614-5621

NANCY CASLETON
53 SHERWICK
OSWEGO IL 60543

ROBERT CAVITT
308 CENTER ST
EAST PEORIA IL 61611

STAN CHANGNON
801 BUCKTHORNE
MAHOMET IL 61853

JOHN R CHAPIN
205 S 5TH ST - ROOM 1000
SPRINGFIELD IL 62701

JAMES CHAPLIN
142 CASS ST
EAST PEORIA IL 61611

RICHARD CHELMINSKI
501 N BRIDGE ST
YORKVILLE IL 60560-1317

KAREN CHRISTENSEN
44 E DOWNER PL
AURORA IL 60507

WILLIE DEAN CHRISTIE
200 BITTERSWEET RD
WASHINGTON IL 61571

W E CLAUDIN
9156 N TIMBERLANE
PEORIA IL 61615

HUGH CLYMORE
226 CHICAGO ST
EAST PEORIA IL 61611

RICHARD COBB
216 CHICAGO ST
EAST PEORIA IL 61611

PAUL COGWELL
617 Edison Ave.
AURORA IL 60505

LYLE - IDA COLSON
1332 COPPER CREEK RD
MANITO IL 61546

GARY COOPER
22 HILLCREST DRIVE
BUSHNELL IL 61422

JOHN COREY
723 FAIRMOUNT DR APT 3B
BLOOMINGTON IL 61704

BILL & PAT COTE
116 STONEGATE DR.
OSWEGO IL 60543

WILLIAM COTE
116 STONEGATE DR
OSWEGO IL 60543

SIE COURI
407 JUNCOURTION AVE
EAST PEORIA IL 61611

JAMES & SHARON COVERT
5262 1925 E ST
TISKILWA IL 61368

RUSS CRAWFORD
204 DISTRICT COURT
EAST PEORIA IL 61611-1411

WILLIAM CROOK JR
945 S 1ST ST
SPRINGFIELD IL 61704

HORACE CROSS
235 CHICAGO ST
EAST PEORIA IL 61611

WILLIAM CURLESS, JR.
700 S PROMENADE ST
HAVANA IL 62644-1830

BESSIE CURRY
338 EDMUND ST
EAST PEORIA IL 61611

DON DAGGETT
620 S DOUGLAS
SPRINGFIELD IL 62704

DONALD DAHM
22 PENN CT
OSWEGO IL 60543

D F DAMMER
3430 ROVIA RD #169
SPRINGFIELD IL 62702

DAVE DANIELS
3201 PIPPA RD
SPRINGFIELD IL 62707

RICHARD - LOIS DAVES
305 EDMUND ST
EAST PEORIA IL 61611

CAROL & DENNIS DEAN
11 MERCHANTS DRIVE W
OSWEGO IL 60543

SUSAN DEES
7100 GARDEN VIEW LANE
SPRINGFIELD IL 62707

JACOB DEHNE
310 CHICAGO ST
EAST PEORIA IL 61611

CHESTER DELANEY
1366 N RIVERSIDE DR
MOMENCE IL 60954

RICHARD DEMACK
3332 N 16500 E RD
MOMENCE IL 60954

WAYNE DEPPERT
14798 CHRISTMAS TREE RD
GREEN VALLEY IL 61534

JAMES DESPER
320 WAUPONIS ST
TONICA IL 61370

JAMES DESPER
387 N 2629TH RD
OGLESBY IL 61348

BILL DEVINE
301 S WALNUT ST
CLINTON IL 61727

BILL DILLING
207 SPAULDING
SPRING VALLEY IL 61362

DONALD J. DINGLEDINE
139 STAR RIM DR
EAST PEORIA IL 61611-1588

EDWARD DOMAGALA
8551 S KNOX AVE
CHICAGO IL 60652

STEVE DOUGHERTY
2755 E 1835TH RD
OTTAWA IL 61350

PAULINE - JACK DUKE
108 GLENRIDGE DR
EAST PEORIA IL 61611

DOLLIE DUMONTELLE
2020 BURLISON DR
URBANA IL 61801

ALICE DUNBAR
333 CHICAGO ST
EAST PEORIA IL 61611

LANDON LH DUNBAS
95 W OAK ST
CHILLICOTHE IL 61523

DONALD DURBIN
2348 E LAKE DR
SPRINGFIELD IL 62707

KENNETH DURLAND
1136 N RIVER RD PO BOX 327
YORKVILLE IL 60560

EDWARD J ECK
2632 HILLTOP RD
SPRINGFIELD IL 62707

LARRY EDLEN
120 S WASHINGTON
MEREDOSIA IL 62655

LEROY EED
2661 RIVER RD
KANKAKEE IL 60901

DAVID EGAN
23368
TOPEKA IL 61567

THOMAS EHLESS
1295 S LINCOLN
KANKAKEE IL 60901

WILLIAM EICHELKRAUT
1432 OTTAWA AVE
OTTAWA IL 61350

RUBERT EUBANKS
239 CHICAGO ST
EAST PEORIA IL 61611

STANLEY FAULKNER
12415 N DAVIS RD
DAVIS IL 61019

PETER FERRACUTI
110 E MAIN ST
OTTAWA IL 61350

JAMES FESTER
PO BOX 2474
EAST PEORIA IL 61611

LARRY - LOIS FIDLER
1002 COPPER CREEK RD
MANITO IL 61546

WILLIAM FIESTER
5779 WAGONSELLER RD
GREEN VALLEY IL 61534

RAYMOND FILIPIAK
40 TWILIGHT LANE
SPRINGFIELD IL 62707

HARRY FITZGERALD
PO BOX 99
BOURBONNAIS IL 60914

JOSEPH FITZGERALD
2455 GLENWOOD AVE
JOLIET IL 60435-5495

JOHN M FLOYD
110 CENTER ST
EAST PEORIA IL 61611

TOM FORBURGER
6629 N 16000 ERD
MOMENCE IL 60954

DON AND DONNA FORBURGER
16780 E 5000 N RD
MOMENEE IL 60954

JOHN J FORNERIS
2236 S SPRING
SPRINGFIELD IL 61704

RANDALL FORNOFF
PO BOX 583
HAVANA IL 62644-9801

BILL FRAUSE
1425 DAIRY LANE
OTTAWA IL 61350

JOHN FRERICH
1615 Millview Dr.
BATAVIA IL 60510

RON FRIEND
11582 PETERVILLE RD
HAVANA IL 62644

WESLEY & BARB FRISCH
3 OAKWOOD CT
OSWEGO IL 60543

ADRIAN GALE
217 CHICAGO ST
EAST PEORIA IL 61611

PAT & JERRY GALLIGAR
3515 WOLF CROSSING
OSWEGO IL 60543

JAMES & MARTHA GARBE
12 OAKWOOD DR
OSWEGO IL 60543

GARY & PHILLIS GATES
309 W MAIN
YORKVILLE IA 60560

HENRY GAUWITZ
7407 N PATTON LN
PEORIA IL 61614-1804

BRIDGET GAVAGHAN
920 N FRANKLIN ST #301
CHICAGO IL 60610

NANCY GENDRON
545 CHICAGO ST
EAST PEORIA IL 61611

PAUL GERDING
725 CONGRESS ST
OTTAWA IL 61350

EARL GERDING
101 W ALLEN ST
OTTAWA IL 61350

WILLIAM GESSNER
1004 W HAWKINS ST
KANKAKEE IL 60901

CLARENCE GETTINGS
305 SCENIC PARK DR
CREVE COEUR IL 61610-3168

PAUL GEWARTOWSKI
3 TOPHILL LANE
SPRINGFIELD IL 62704

RON GILKERSON
1314 S BATAVIA AVE
BATAVIA IL 60510

CECIL GILSON
635 S BROADWAY
HAVANA IL 62644

GARY GLEESPEN
105 E VIRGINA AVE
PEORIA IL 61603

JOSEPH GLOSSICK
2816 S HILTON LANE
PEORIA IL 61607

ALAN G GOODFIELD
504 OLD TIPPECANOE DR
SPRINGFIELD IL 62707

JULIE GOWEN
18301 WILKINSONN RD
DEER CREEK IL 61733

GARRY GRAHAM
316 CHICAGO RD
OSWEGO IL 60543

DAVID GRANT
1 BRIARCLIFF CT
BOURBONNAIS IL 60914

BETTY E GREEN
216 ASTORIA RD
SPRINGFIELD IL 62704-1285

DR DONALD W "BILL" GRIFFIN
140 E WESTVIEW DR
MACOMB IL 61455

DALE HAGEN
HC82 BOX 90
BRUSSELS IL 62013-9724

GILFORD HAGEY
105 MARY PLACE
EAST PEORIA IL 61611

LAVERNE HAGEY
419 EDMUND ST
EAST PEORIA IL 61611

GAINES AND SHARON HALL
12 ELMWOOD DR
KANKAKEE IL 60901

DR MAX D HAMMER
501 N 1ST ST - PO BOX 19248
SPRINGFIELD IL 62694-9248

HAL HAMMOND
143 STATE ST
EAST PEORIA IL 61611

WALTER E HANSON
15 TURNBERRY PLACE
SPRINGFIELD IL 62704-3174

MILDRED HARDWICK
212 CASS ST
EAST PEORIA IL 61611

DUANE HARRING
34738 RT 122
MINIER IL 61759

MIKE HARTMAN
16590 E RT 114
MOMENCE IL 60954

RONALD HASTINGS
1400 E CRUGER RD
WASHINGTON IL 61571-9696

BILLY HATCHER
111 EDMUND ST
EAST PEORIA IL 61611

KATE HAWKES
65 MEADOWLARK LANE
SPRINGFIELD IL 62702

JERRY HAYES
2664 300TH AVE
EMDEN IL 62635

JOHN M HEALY
3112 KEMPER DR
SPRINGFIELD IL 62704

ED HEASLEY
4 TRA-LIN RIDGE
ALTON IL 62002

SHAWN HEINRICH
6 RIDGE RD
STREATER IL 61364-1428

MARK & VICKI HEIZLER
320 CHICAGO RD
OSWEGO IL 60543

ALVIN HELFERICH
100 MAPLE ST
EAST PEORIA IL 61611

DR BOB & ALICE HENRY
24 GRANDVIEW DR
MACOMB IL 61455

DENNIS HENSON
334 CENTER ST
EAST PEORIA IL 61611

LARRY HESTED
426 CHURCHILL CT
BATAVIA IL 60510

CHARLOTTE HIATT
418 TERMINAL RD
EAST PEORIA IL 61611

ROBERT HIATT
119 HIATTS LANE BOX 33-B
EAST PEORIA IL 61611

ERNEST HICKMAN
143 FISHER
EAST PEORIA IL 61611

MELVIN HICKS
BOX 7
GLADSTONE IL 61437

EDWIN HODROCK
RT 1 BOX 27
BEARDSTOWN IL 62618

MARGARET HOLLOWELL
908 ARLENE AVE
BLOOMINGTON IL 61701

GENE HOOD
139 CHICAGO ST
EAST PEORIA IL 61611

CAROL HOOVER
12 MARQUETTE
KANKAKEE IL 60901

GENE HOWELL
2 SPRUCE CT
BLOOMINGTON IL 61704-2782

JIM HULTS
22 LAWRENCE DR
KANKAKEE IL 60901

DEBORAH HUMBAUGH
430 MONSON ST
EAST PEORIA IL 61611

GARY HUME
15260 NORTH S.R. 78
HAVANA IL 62644

FRANK HUMMEL
101 S ILLINOIS ST
LEWISTOWN IL 61542-1507

DAVID HURST
7813 S HURST DR
PEORIA IL 61607

JOANN HUSTIS
110 W JEFFERSON ST
OTTAWA IL 61350

JACK HUTCHINSON
517 EDMUND ST
EAST PEORIA IL 61611

JACQUELINE JACKSON
816 N 5TH ST
SPRINGFIELD IL 62702

GERALD JACKSON
403 MONSON ST
EAST PEORIA IL 61611-2345

MIKE JACOCKS
440 E HIGH POINT DR
PEORIA IL 61614

BOB JAMESON
1042 STATE ST
OTTAWA IL 61350

KIM JANSSEN
PO BOX 19281
SPRINGFIELD IL 62794-9281

ABEL JAZONBECK
8 BEDNARCIK CT
OSWEGO IL 60533

DAVE AND PEARLE JEFFRIES
2762 N 2050 E
FAIRBURY IL 61734

DEAN JENSEN
24911 SHEPLEY RD
SHOREWOOD IL 60431

KAY JEVITZ
2 VALLEY VIEW LANE
OTTAWA IL 61350

ALAN JIRANEK
9065 VAN EMMON RD
YORKVILLE IL 60560

DEL JOHNSON
2992 DCOUNTY RD 1900 E
RANTOUL IL 61866

JAMES JOHNSON
159 N PRAIRIE
BRADLEY IL 60915

VIRGIL & DIXIE JOHNSON
112 CHICAGO RD
OSWEGO IL 60543

JANE JOHNSON
1776 KNOX HWY 11
GILSON IL 61436-9433

ANNIE JOHNSON
521 EDMUND ST
EAST PEORIA IL 61611

GEORGE JOHNSON
557 CHICAGO ST
EAST PEORIA IL 61611

DOROTHY JOLLEY
200 CASS ST
EAST PEORIA IL 61611

GEORGE JONES
109 MALLARD LANE
EAST PEORIA IL 61611

BOB JORDON
821 OAKWOOD RD
EAST PEORIA IL 61611

MARILYN KALB
407 W KIMBLE
SPRINGFIELD IL 62703

JOHN & SHARON KECK
19 PARKWAY DR
YORKVILLE IL 60560

KA KEIGHIN
19652 N 800 E RD
CARLOCK IL 61725-9559

THOMAS KELLY
302 MAIN ST
YORKVILLE IL 60560

RODGER - DIANNA KEMP
1011 HOWARD
NORMAL IL 61761

WILL - VELMA KERBER
1011 HOWARD
NORMAL IL 61761

GARY KIRKPATRICK
621 SHABBONA ST
OTTAWA IL 61350

DAVE AND SHEILA KLAMECKI
3233 SERPENTINE
MOMENCE IL 60954

ALAN KOCH
RR 1 BOX 136
MT STERLING IL 62353

DON KOCHEVAR
PO BOX 272
MORRIS IL 60450

EARL KOEHLER
1322 N RIVERSIDE DR
MOMENCE IL 60954

ORAL C KOST
ATTORNEY
200 MAIN ST
LEWISTOWN IL 61542

DONALD KRANOV DDS
150 FOREST PARK RD
OTTAWA IL 61350

W KRAUSE
1425 DAIRY LN
OTTAWA IL 61350

KEN KROS
117 GRIFFIN ST
GRANT PARK IL 60940

PAUL E LARSON
730 W MADISON ST
OTTAWA IL 61350

CURT LAWSON
2340 CHARLES CT
OTTAWA IL 61350

JAMES - CYNTHIA LAWSON
BOX 435
MANITO IL 61546

DALE LAWSON
3198 SPRING LAKE RD
MANITO IL 61546

ROBERT LEAS
291 E WHITE OAK CT
EAST PEORIA IL 61611

HOWARD LEE
403 CARLOCK CT
WASHINGTON IL 61571-1008

HOWARD LEE
1124 PEKIN AVE
CREVE COEUR IL 61610

JOHNNIE LEEMON
307 PARK AVE
EAST PEORIA IL 61611-3355

MAURICE LEGATE
RR 1 BOX 204
GRAFTON IL 62037-9746

JEANNE LINDBERT
18 MARQUETTE LN
KANKAKEE IL 60901

LOUIS LOOK
2224 N UNIVERSITY AVE
PEORIA IL 61604

DONALD LOREE
138 CHICAGO ST
EAST PEORIA IL 61611

EVELYN LOVE
541 EDMUND ST
EAST PEORIA IL 61611

JIM LOWE
233 CHICAGO ST
EAST PEORIA IL 61611

DOUG OR LARRY MACKIN
1068 S WILDWOOD
KANKAKEE IL 60901

SAM F MADONIA
2416 SILVER MILL CT
SPRINGFIELD IL 62704-6548

RAFAEL MAGANA
454 CHICAGO ST
EAST PEORIA IL 61611

JERRY - CHERYL MAJORS
129 LINCOLN PARKWAY
EAST PEORIA IL 61611

THOMAS MALPASS
630 E VAN BUREN ST
OTTAWA IL 61350

JEFFERY MANN
312 EDMUND ST
EAST PEORIA IL 61611

DR RONALD MARINO
542 CHAPEL ST
OTTAWA IL 61350

LARRY MARION
814 PLEANT HILL RD
EAST PEORIA IL 61611

KELLI MARKS
104 STONEGATE DR
OSWEGO IL 60543

JOHN MARLIN
2203 BOUDREAU CIRCLE
URBANA IL 61801-6601

DAVID & RAE MARTIN
6 PENN CT
OSWEGO IL 60543

THOMAS MARTIN
300 CHICAGO ST
EAST PEORIA IL 61611

GREG MASLOWSKI
622 YORK ST
OTTAWA IL 61350

GARY MASON
RR 2 BOX 171
BEARDSTOWN IL 62618-9755

ART MASON
1460 N 2401 RD
OTTAWA IL 61350

NANCY MASON
3419 W SHOFF AVE
PEORIA IL 61604

DONALD MC CARROLL
221 STATE ST
EAST PEORIA IL 61611

RAY MC CAUSLAND
16235 CR 1800 B
HAVANA IL 62644

TIMOTHY MC GREE
70 E CEDR ST
CHICAGO IL 60611

JOHN MC GREW
721 E ADAMS
HAVANA IL 62644

PAUL MC GREW
117 FISHER ST
EAST PEORIA IL 61611

JOHN MC MURRAY
3820 N DONNA LANE
PEORIA IL 61615

ARTHUR MEIER
307 DAKOTA RD
RIDOTT IL 61067

MARLI MEISS
2412 W IMPERIAL
PEORIA IL 61614

AL MELLOTT
2719 DEER CT
OTTAWA IL 61350

LARRY MICHAUD
40 BAY RIDGE
SPRINGFIELD IL 62707

LOUIS MIKRUT
71-5 W US HWY 150
EDWARDS IL 61528

LEO MILLER
4767 E 1950 N RD
DANVERS IL 61732-9208

ROBERT MILLER
222 FRANKLIN ST
EAST PEORIA IL 61611

ROBERT MILLER
101 JOLIET CT
EAST PEORIA IL 61611-1842

HOWARD MILLER
500 CENTENNIAL DR APT 6348
EAST PEORIA IL 61611-4976

ALMA K MILLER
443 MONSON ST
EAST PEORIA IL 61611

C E MITSULES
332 CASS ST
EAST PEORIA IL 61611

JERRY MITZELFELT
7672 WARNER RD
MANITO IL 61546

JIM MOLL
2914 S PARK
SPRINGFIELD IL 62704

KENNETH AND DONNA MOODY
1800 STATE HWY 78N
JACKSONVILLE IL 62650

DARRELL MOODY
12 COUNTRY LN
EAST PEORIA IL 61611

LEE & BETTY MOOREHEAD
700 W. FABYAN, 27A
BATAVIA IL 60510

ANGELLA MOOREHOUSE
20381 E 1100 ST
GOOD HOPE IL 61438

NELSON MORALES
24 SQUIRES
SPRINGFIELD IL 62704

GARY MORRISON
RT 1 BOX 248A
FIELDON IL 62031

GILBERT - EVA MORTON
1006 COPPER CREEK RD
MANITO IL 61546

JULIE MOSBY-ZIMMERMAN
101 E WATER ST PO BOX 47
GRAFTON IL 62037

MIKE MURPHY
2301 W WAGNER LN
PEORIA IL 61615

DAVID & SHERYL MUSSER
238 CHICAGO RD
OSWEGO IL 60543

AVON NABORS
336 CENTER ST
EAST PEORIA IL 61611

CLIFTON - JANET NANNIE
523 EDMUND ST
EAST PEORIA IL 61611

STEVEN NEAL
BUSINESS MANAGER
6408 W PLANK RD
PEORIA IL 61604

MIKE NELSON
3515 AN 17340 E RD
MOMENCE IL 60954

NICK NELSON
3584 N 18000 E RD
MOMENCE IL 60954

MARK AND NATHAN NELSON
R1
MOMENCE IL 60954

GARY NEUHAUS
6420 N CAMELOT RD
PEORIA IL 61615-2712

JOHN M NICHOLS
2300 S DIRKSEN PKWY
SPRINGFIELD IL 62764

UKEN NORMAN
2419 COUNTY RD 1800 E
URBANA IL 61802

ROBERT NORTHCUTT
7005 E 875 ST
MACOMB IL 61455

ROY E NOTTINGHAM
1916 S COLLEGE
SPRINGFIELD IL 62704-3923

DENNIS O'CONNELL
528 W ALLEN
SPRINGFIELD IL 62704

GARRY OEST
20545 CR 1950E
HAVANA IL 62644

DOYLE O'KEEFE
26 FOX MILL LANE
SPRINGFIELD IL 62707

RANDALL & LISA OLAH
2 PENN CT
OSWEGO IL 60543

JACK OLLER
404 MEADOW LANE
OTTAWA IL 61350

RICHARD OOST
1415 RANDALL CT
AURORA IL 60507

E Z OSTERHUBER
40 FORESTERS LANE
SPRINGFIELD IL 61704

STEVE OVERRIGHT
2518 N OSAGE DR
BOURBONNAIS IL 60914

RANDY PARKS
8240 E 2350TH ST
ADAIR IL 61411

OWEN PARN
RR 1
MT STERLING IL 62353-9801

ED PARNHAM
2305 SPRINGFIELD RD
EAST PEORIA IL 61611

MARY PATTON
1607 N AUTUMN LN
PEORIA IL 61604

MARTHA PATTON
231 FISHER ST
EAST PEORIA IL 61611

JERRY PAYNE
308 N ORANGE
HAVANA IL 62644

RAYMOND PELELAS
15 RED HAW LANE
LAKE ZURICK IL 60047

JAMES PENCE
45 MARIAN
SPRINGFIELD IL 61704

CHARLES H PERINO
900 W LAKE DR
SPRINGFIELD IL 62707

JEFFREY PETERSON
6513 N POST OAK RD
PEORIA IL 61615-2738

C K PETERSON
209 RACILL CT
EAST PEORIA IL 61611

LOLA PINE
317 PINE ST
MORRIS IL 60450

MIKE PLATT
RT 1
YATES CITY IL 61572-9801

MICHAEL D PLATT
2034 KNOX RD 700 N
LOTIS CITY IL 61572

DONALD PLAUCK
256 CHICAGO RD BOX 468
OSWEGO IL 60543

JOHN & MARY PLAYER
128 STONEGATE DR
OSWEGO IL 60543

BARNEY AND SHIRLEY POTTS
727 SABRINA DR
EAST PEORIA IL 61611

HAROLD POWERS
405 W CRESTWOOD DR
PEORIA IL 61614-7227

MARILYN PROPP
505 W CORRINGTON
PEORIA IL 61604

WILLIAM PURDY
PO BOX 371
WILMINGTON IL 60481

WALLACE PUTNEY
323 CHICAGO ST
EAST PEORIA IL 61611

RICKIE & JIM RACHEY
11219 E STOCKTON RD
STOCKTON IL 61085

AL RAE
2480 AMY LN
AURORA IL 60507-0907

ANDREW RAGAN
528 BLOOMINGTON RD
EAST PEORIA IL 61611

STANLEY RANSON
522 SANFORD ST
EAST PEORIA IL 61611

JOYCE RAY
704 N MAPLE ST
MT STERLING IL 62353-1136

WILLIAM J REAGAN
546 E MAIN ST
OTTAWA IL 61350

LAURIE REEVE
17372 ECR1600N
HAVANA IL 62644

KENNETH REGENTZ, SR.
446 CHICAGO ST
EAST PEORIA IL 61611

ROSE MARIE REPKA
1018 LINCOLN AVE
OTTAWA IL 61350

DON RHODES
RR #8 BOX 100 - TEN MILE CREEK RD
EAST PEORIA IL 61611

ROBERT RICE
1800 FISHER RD
CREVE COEUR IL 61610

HELEN RIMKUS
1139 N WALNUT ST
SPRINGFIELD IL 62702

JAMES RINEHART
100 MONSON ST
EAST PEORIA IL 61611

CHRIS RING
143 FRANKLIN ST
EAST PEORIA IL 61611

JOHN ROAT
RR 2
HAVANA IL 62644-9802

CHUCK ROBERTS
305 E. MAIN ST.
YORKVILLE IL 60560

PATRICIA ROBERTS
112 GLOBE ST
EAST PEORIA IL 61611

JOSEPH P ROCK
2404 CAHOKIA DR
SPRINGFIELD IL 62702

JOHN ROESCH
2445 W DOWNER PLACE
AURORA IL 60506

CHAU ROGER
106 TURNRON PL
EAST PEORIA IL 61611

ROY ROHN
532 CHICAGO ST
EAST PEORIA IL 61611

STEVE RONE
8481 MARKET ST
AKIN IL 62805

GIL & BETH RONE
1277 HILLPOINT RD
EAST PEORIA IL 61611

TOM ROWEN
223 COUNTY RD 1225E
DEER CREEK IL 61733

KSENIA RUDENSIVK
111 W FOX
YORKVILLE IL 60560

BUD RUFF
6800 RUFF LN
PEORIA IL 61614

JAY R & JOHN M SAMUEL
132 OAKLAWN AVE
OSWEGO IL 60543

SHARON SANDERSON
932 E MAIN
HAVANA IL 62644

GENE SARVER
ENGINEERING CONSULTANT
218 W LAFAYETTE
OTTAWA IL 61350

JOHN SASS
3001 N 15920 E RD
MOMENCE IL 60954-3019

CALRA SAVAGE
918 GRAND AVE
BEARDSTOWN IL 62618

MILTON SCHAIBLE
203 HAWTHORNE LANE
OTTAWA IL 61350

DONALD SCHIELEIN
914 EVERGREEN
CHILLICOTHE IL 61523

R G SCHLADEN
1113 W BRADLEY AVE PO BOX 6105
PEORIA IL 61606

TOM SCHRADER
75411 Midfield Drive
AURORA IL 60506

ROBERT SCHROEDER
2511 KEN MAR TER
QUINCY IL 62301

BOB SCHUESSLER
1719 N MOHAWK ST #E
CHICAGO IL 60614-5625

BOB SCOTT
126 STATE ST
EAST PEORIA IL 61611

RICHARD SCOVIL
300 W DETWEILLER
PEORIA IL 61615

DEBBIE SEARLE
12875 E 11670N
GRANT PARK IL 60940

DARRELL SEIGLER
434 PEARL ST
OTTAWA IL 61350

LEDGER SENTINEL
64 N MAIN
OSWEGO IL 60543

JOHN SEROVY
4107 W 82 PLACE
CHICAGO IL 60652

REGINA F SERRA
2580 LINDBERGH
SPRINGFIELD IL 62704

TOM SHANNON
901 ARLON RD
AURORA IL 60506

DAVID SHOMAN
3363 ADAM
MOMENCE IL 60954

GENE SHOSTRUM
300 E CONGRESS ST
OTTAWA IL 61350

RUSSELL SHRIVER
726 N 2353 RD LN
URSA IL 62376-2021

LEWIS SHRUM
247 CHICAGO ST
EAST PEORIA IL 61611

LESLIE SHUTTS
530 CASS ST
EAST PEORIA IL 61611

MARY ALICE SIEBERT
249 EDMUND ST
EAST PEORIA IL 61611

ANDREW SIEDLER
1001 N E MADISON AVE
PEORIA IL 61603

CECIL SIMMONS
2437 COLE ST
EAST PEORIA IL 61611

RICHARD SINKS
532 CASS ST
EAST PEORIA IL 61611

DONALD SKAGGS
326 CHICAGO ST
EAST PEORIA IL 61611

DAVID A SKELLY
453 W WATER ST
KANKAKEE IL 60901

JEAN SKELLY
850 W RIVER ST
KANKAKEE IL 60901

BOB SKOGLUND
708 N SCHRADER
HAVANA IL 62644

CLYDE DONALD SMITH
12 VILLA GROVE
SPRINGFIELD IL 62707

THEODORE J SMITH
406 S LIVINGSTON
SPRINGFIELD IL 62703

LASTON SMITH
405 CHICAGO ST
EAST PEORIA IL 61611

LARRY SMITH
324 EDMUND ST
EAST PEORIA IL 61611

GENE SOLOMON
505 CHICAGO ST
EAST PEORIA IL 61611

TIM SOUTHER
2224 S SPRING
SPRINGFIELD IL 61704

RICHARD SPECKMAN
203 KING ST
YORKVILLE IL 60560

FRANCIS G SPRINKEL
1648 W MONROE
SPRINGFIELD IL 62704

HENRY STAUFFER
2654 W CARMEN AVE
CHICAGO IL 60625

DAVID STELL
814 E MACARTHUR
LEWISTOWN IL 61542-1254

JAMES E STERN
1104 STEEPLECHASE LANE
SPRINGFIELD IL 62707

VERA STIDHAM
448 MONSON ST
EAST PEORIA IL 61611

BONDELYN LOU STIEFBOLD
124 CHICAGO RD BOX 406
OSWEGO IL 60543

SIGNEY STIEFEL
808 PEARL ST
OTTAWA IL 61350

DR ROBERT STINAVER
506 N PROMENADE
HAVANA IL 62644

ANNE STOSICH
341 CHICAGO ST
EAST PEORIA IL 61611

DON STOVALL
12273 SPRING LANE
MANITO IL 61546

NORM STRASMA
2 ISLAND VIEW
KANKAKEE IL 60901

WILLIAM STRONG
PO BOX 2123
OTTAWA IL 61350-6723

DON STUEDEMANN
590 LOGUE CIRCLE
SENECA IL 61360-9671

GARY SULLIVAN
3017 BENNINGTON
SPRINGFIELD IL 61704

LARRY SWIECK
6642 S KOSTNER
CHICAGO IL 60629

EDWOOD SYRJALA
PO BOX 149
CENTERVILLE MA 02632

WILLIAM C TANSKY
2746 LOWELL
SPRINGFIELD IL 61704

JIM TARLING
1871 CHARLES LN
AURORA IL 60505-1260

JACK E TAYLOR
RR 1
LEWISTOWN IL 61542-9801

L J TAYLOR
128 FRANKLIN ST
EAST PEORIA IL 61611

LOIS TEDFORD
317 PINE ST
MORRIS IL 60450

LYNNE TERRELL
3963 ROUTE 34
OSWEGO IL 60543

VERNON C THOMSON
BOX 283
LEWISTOWN IL 61542

GREGG TICHACEK
#5 VILLAGE GREEN DR
PETERSBURG IL 62675

SHELDON TOELKE
8824 W RANGE RD
LENA IL 61048

PAMELA TOLER
2414 GRANDVIEW AVE
PEORIA IL 61614

MAX TOLLEY
141 CHICAGO ST
EAST PEORIA IL 61611

MARK TOMM
610 E WARREN ST
LE ROY IL 61752-1266

S TOMMINELLO
1320 CROSS ST
PERU IL 61354

ED TONJES
200 CLARK ST
EAST PEORIA IL 61611

GEORGE & MARY TOSCANO
18 PENN CT
OSWEGO IL 60543

R L TOWNSEND
2028 S PARK AVE
SPRINGFIELD IL 62704-3404

DONALD R TRACY
700 MERCANTILE BANK BLDG - 205 S 5TH ST
SPRINGFIELD IL 62701-1489

JEFFERY TUPPER
6210 ST MARY LN
PEORIA IL 61614

MILO TURBETT JR
147 FRANKLIN ST
EAST PEORIA IL 61611

HAROLD TURNER
510 CHICAGO ST
EAST PEORIA IL 61611

GARY UPPOLE
109 RACILL CT
EAST PEORIA IL 61611

THO VAN BUI
4023 W COURTLAND
PEORIA IL 61615

LAWRENCE - RAY VINSON
114 RAYNOR
EAST PEORIA IL 61611

ROBERT VOLK
RR 1
MT STERLING IL 62353

MIRANDA VOLK
15522 RIVERBEACH
CHILLICOTHE IL 61523

RICHARD WACHENHEIM
503 AMHERST AVE
ROMEOVILLE IL 60446-1301

TESS WACKERLIN
44 E. Downer Place
AURORA IL 60507

RON WAGNER
3007 RIVER RD
KANKAKEE IL 60901

THEODORE WAGNER
7 OAKWOOD DR
OSWEGO IL 60543

DOUGLAS P WAGNER
900 AIRPORT DR
SPRINGFIELD IL 62707

DANA ROY WALKER
315 N MADISON
MACOMB IL 61455

PAUL E WALKER
1712 N 23RD ST
SPRINGFIELD IL 62702

HAROLD WALKER
125 DEVRON CIRCLE
EAST PEORIA IL 61611

HAROLD WALKER
441 SANFORD ST
EAST PEORIA IL 61611

BILL - MARLA WALLS
311 N BROADWAY
HAVANA IL 62644

JOSEPH - MARY WALSH
103-105 PFUND AVE
OSWEGO IL 60543

WILLIAM WALSH
1839 COLUMBUS ST
OTTAWA IL 61350

JOHN WALTON
160 CENTER ST
EAST PEORIA IL 61611

DAVID R WANKEL
7245 US HWY 67
BEARDSTOWN IL 62618

FLORENCE WARD
2509 HOWETT ST
PEORIA IL 61605

JEANNE B WARD
1915 HAMILTON CT
SPRINGFIELD IL 61704

JOHN WARNOCK
804 W CARROLL ST
MCOMB IL 61455

JOHN WARSAW
BOX 2302
EAST PEORIA IL 61611

J ELTON WATERS
724 RAILRD ST
JOLIET IL 60436

ROBERT WATKINS
5 OAKWOOD DR
OSWEGO IL 60543

VAL WATT
808 E LAKESHORE
SPRINGFIELD IL 62707

GARY WEBER
4101 W CHARTER OAK RD
PEORIA IL 61615

DALE WEBER
5026 N FAWVER RD
DAKOTA IL 61018

JERALD & PAT WEINER
9 BEDNARCIK CT
OSWEGO IL 60543

MIKEL WEISSER
200 S 11TH ST
SPRINGFIELD IL 62703

BOB WELKER
20391 CR 1950E
HAVANA IL 62644

CELIA WESLE
74 TRAILRIDGE LANE
SPRINGFIELD IL 62704

MARY JEAN WESTERN
13 WILDWOOD
SPRINGFIELD IL 62704

DON WHALEN
616 OAK ST
GLEN ELLYN IL 60137

CHARLES WHITMORE
16 WOOD DUCK LANE
OTTAWA IL 61350-9685

BILL WIET
44 E. Downer Place
AURORA IL 60507

RACHEL WILLIS
17740 ECR1600N
HAVANA IL 62644

DON - MARVIN WILSON
201 SUNSET ST
MANITO IL 61546

JOHN WILSON
301 N NORMAL ST
MACOMB IL 61455

MARY WINE
123 SW JEFFERSON STE 113
PEORIA IL 61602

BARBARA WINSLOW
PO BOX 305
GRAFTON IL 62037-0305

ROBERT WIRE
15 FOREST RIDGE
SPRINGFIELD IL 62707

LELAND WISER
125 CHICAGO ST
EAST PEORIA IL 61611

WILL - ROSLYN WOLFRAM
1103 E VIRGINIA AVE
PEORIA IL 61603

DON WOLLAND
1314 W TOBI LANE
PEORIA IL 61614

ARTHUR WOLLARD
238 FRANKLIN ST
EAST PEORIA IL 61611

BUDD WORMLEY
13 S. ADAMS, P.O. BOX 765
OSWEGO IL 60543

MARILYN WORTH
6 OLD ORCHARD
KANKAKEE IL 60901

RICHARD WRIGHT
1075 JUSTINE DR
KANKAKEE IL 60901

LAURI - BARRY WRIGHT
19 MARQUETTE
SPRINGFIELD IL 62707

MARY - RON WRIGHT
113 MONSON ST
EAST PEORIA IL 61611

RAWLEIGH YOUNG
251 CHICAGO ST
EAST PEORIA IL 61611

ERNIE ZAHNER
140 FRANKLIN ST
EAST PEORIA IL 61611

ROBERT ZENK
317 INDIAN
EAST PEORIA IL 61611

ANGELO ZERBONIA
514 JUSTA RD
METAMORA IL 61548

ARTHUR ZWEMKE
1351 DAVEY DRIVE
BATAVIA IL 60510

MELVIN MEIN
C-O SHERMAN BURRUS
109 E WASHINGTON ST
EAST PEORIA IL 61611