

*Illinois River Basin Restoration  
Comprehensive Plan  
With Integrated Environmental Assessment*

*Final*

## **8. CONCLUSIONS**

The Comprehensive Plan identified that collaborative implementation of the Illinois River Basin Restoration Program with other state and Federal agencies would contribute to National Ecosystem Restoration (NER) goals consistent with the Corps policy and guidance by increasing the net habitat quality and quantity of the aquatic ecosystem within the Illinois River Basin.

The Comprehensive Plan found, that over the next 50 years, the Illinois River Basin Restoration Program, authorized in Section 519 of WRDA 2000, should be continued and expanded to more fully address the restoration needs of this nationally significant resource. Since Section 519 provides the necessary authority to begin implementation, no further activities are planned under Section 216.

While this report presents a Comprehensive Plan in response to Congressional direction, additional authority to implement the Comprehensive Plan is not being recommended nor requested at this time. To comply with Congressional direction contained in Section 519(b)(5) of WRDA 2000, the Secretary is requested to submit the Comprehensive Plan to Congress. It is further recommended that critical restoration projects continue to be pursued under existing Section 519(c) authority through the normal budget process. This decision may be revisited at a time when implementation of Section 519(c) Tier I and Tier II work has progressed sufficiently that their effectiveness and need for further action and authority can be evaluated.

### **A. PREFERRED PLAN AND OUTPUTS**

A series of eight alternatives were examined in the comprehensive plan study (seven action alternatives and the no-action alternative). All action alternatives would provide regional habitat and ecological integrity benefits by slowing, stabilizing or reversing the decline of ecological integrity in the Illinois River Basin. Alternatives 1, 2, 3, and 4 represent local to regional gains in ecological integrity, although system-wide ecological integrity would continue to decline over the 50-year period of analysis. Alternatives 5, 6, and 7 represent a range of gains that reverse the declining ecological trend, and provide system-wide improvements in ecological integrity over the 50-year period of analysis. Three types of outputs (acres benefited, stream miles benefited, and percent attainment of the objectives) were evaluated and utilized to conduct cost effectiveness and incremental cost analysis. Only Alternatives 6 and 7 were best buy plans under all three analyses. Alternative 6 was selected as the preferred Comprehensive Plan alternative, since it was more cost effective while still significantly addressing the key system limiting factors.

Alternative 6, if fully implemented over the next 50 years, would provide benefits to approximately 225,000 acres and 33,000 miles at a cost of approximately \$7.44 billion in funding from various Federal, state, and local partnering agencies. Other specific outputs include:

- provide a measurable increase in system ecological integrity
- reduce systemic sediment delivery by 20 percent
- restore 12,000 acres of backwaters
- restore 35 side channels
- protect 15 islands
- restore 75,000 acres of main stem floodplain

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- restore 75,000 acres of tributary floodplain and riparian areas
- restore 1,000 stream miles of aquatic habitat
- provide fish passage along the Fox, DuPage, Des Plaines, Kankakee, Spoon, and Aux Sable Rivers
- produce an 11 percent reduction in the 5-year peak flows in tributaries
- increase tributary base flows by 20 percent
- reduce water level fluctuations along the main stem during the growing season by 65 percent
- provide system level improvements in water quality.

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**B. TIERED IMPLEMENTATION**

While this report presents a Comprehensive Plan in response to Congressional direction, additional authority to implement the Comprehensive Plan is not being recommended nor requested at this time. Given the magnitude of the restoration needs, a collaborative and tiered implementation approach using the current authorization is proposed. The Corps of Engineers cost-shared restoration efforts would be limited to currently authorized activities and entail \$131,200,000 (\$85,280,000 Federal funds) in restoration funds through 2011 (Tier I) with the potential to expand to \$345,640,000 (\$224,670,000 Federal funds) in restoration efforts through 2015 (Tier II). The funding and activities would begin significant restoration consistent with the potential eventual implementation of Alternative 6 (preferred Comprehensive Plan alternative). These initial phases are proposed to demonstrate the benefits of the various practices and project components prior to seeking additional funding. If Tier I and Tier II efforts are successful, additional tiers could be developed.

Tier I efforts would result in the completion of 16 critical restoration projects cost shared 65 percent Federal (\$85.28 million) and 35 percent non-Federal (\$45.92 million). This funding level would provide approximately \$122.3 million for planning, design, construction, and adaptive management of restoration projects; \$3.5 million for site specific, pre- and post- project monitoring, and \$2.6 for additional studies and analysis including refinement of a Technologies and Innovative Approaches (TIA) component; and \$2.75 million for system management. The estimated annual Operation and Maintenance cost, once all features are in place, is \$125,000. If funding is available, a report to Congress will be submitted in the 2011 timeframe documenting the project successes and the results from Tier I restoration efforts.

While the sustainability of critical restoration projects would be highest with full implementation of Alternative 6, the individual projects implemented under Tier I and Tier II will be formulated to remain sustainable on their own, even if further restoration efforts do not continue. However, these projects will require some operation and maintenance as estimated in the report. We anticipate that the sustainability of the mainstem projects would continue to improve as additional tributary projects are undertaken. Tier I and II efforts would cover the entire range of potential project measures discussed in Section 4 –A, *Component Measures In Restoration Projects*. In addition to the success of system-wide efforts at improving project sustainability, site specific conditions affecting sustainability will be investigated and accounted for in site specific feasibility level Project Implementation Reports (PIRs) for each Critical Restoration Project.”

**C. RISK AND UNCERTAINTY**

As a comprehensive plan for an area of over 30,000 square miles looking at a 50 year planning horizon, there are a number of risks and uncertainties. Some of the major uncertainties relate to the lack of existing models and scientific data to relate sediment reductions to system habitat improvement and sustainability gains and defining the most effective approaches to restore a more natural hydrologic regime. A particular area of uncertainty is defining the specific amounts of restoration required to improve these system limiting factors to the point where necessary biological thresholds are exceeded and significant ecosystem recovery occurs. Some other areas of risk and uncertainty include development patterns, agricultural programs/practices, and climate change. The recommended Tier I and Tier II projects along with additional studies and analysis activities will provide valuable information needed to better understand and address these risks should further implementation of the comprehensive plan be undertaken in the future..

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#### **D. AREAS FOR ADDITIONAL INVESTIGATION**

While Section 3 documents a large number of potential additional studies that would be beneficial to restoration efforts, some of the key issues relate to continued development and refinement of a systemic monitoring program and report card, improved models, and information on the ability of restoration projects to provide systemic sediment and hydrologic restoration. Another need for further study is to explore opportunities to naturalize hydrology and restore native aquatic vegetation. While existing programs have worked to define methods to sample large rivers, a critical need is to determine the best methodology and approach for monitoring large tributaries and small watersheds. These specific areas are proposed for additional study and analysis concurrent with the implementation of Tier I and Tier II to help reduce the risk and uncertainty over time. When the full Program is authorized, these additional studies and activities would be pursued as part of the TIA component, working to continually reduce the risk and uncertainty in the program.

Should the further implementation of the comprehensive plan occur in the future, additional studies related to the TIA component could provide valuable information toward such implementation. The TIA component would also prove useful in implementing the Tier I and Tier II projects.

Additional studies related to the TIA could

- better define ways to combine, consolidate, and build upon existing monitoring data sets (e.g. attempt further consolidation of existing state, Federal, and local monitoring data to further leverage existing data);
- refine the monitoring plan to seek the most efficient approaches to gathering additional necessary data;
- better define representative system metrics (e.g. evaluate the use of various species/processes to serve as system indicators); and
- conduct special studies to collect data to increase our understanding of various processes that could reduce future restoration costs (e.g. detailed study of fish use of tributaries throughout the year and selected evaluations of sediment technologies and applications).

A final area of activity would be monitoring of key focus areas to establish pre-project data for use in more completely evaluating problems, opportunities, and project success.

#### **E. ROLE OF OTHER FEDERAL, STATE AND LOCAL AGENCIES**

In recognition of the technical expertise of the other Federal, state, and local partner agencies, as well as the continued limitations on the Federal budget, we have worked collaboratively with our partners to evaluate the various programmatic authorities of each agency and investigate opportunities for synergy in implementing the proposed Illinois River Basin restoration initiatives. While the process of full multiple agency implementation will continue to be refined over the initial years of the program, based on collaboration to date the following breakdown of work is anticipated.

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**U.S. Army Corps of Engineers (USACE).** The USACE could take the lead role in Illinois River main stem restoration utilizing the existing EMP program and proposed NESP programs to fund the majority. These programs, which are authorized to do restoration on the mainstem and adjacent floodplains, are estimated to address approximately 75 percent, of main stem work and much of the main stem system monitoring activities. The Section 519 authority, which is authorized for the entire basin, could focus primarily on watershed restoration addressing approximately 40 percent of the identified need for work in the tributaries, riparian, and floodplain areas with a focus on restoring the structure and function of aquatic and wetland areas, but would also provide a mechanism to conduct some additional main stem work,. The Section 519 authority could be utilized to develop and implement an integrated basin-wide monitoring program utilizing existing data collected by other Corps programs, other Federal agencies, and state and local groups.

**U.S. Department of Agriculture (USDA).** The USDA has a number of programs and experience and history in restoration throughout the basins. It is estimated that roughly 40 percent of the identified watershed and floodplain work could be addressed by existing and expanded USDA programs.

**U.S. Environmental Protection Agency (USEPA).** The USEPA has some restoration funding available. It is estimated that roughly 15 to 20 percent of the watershed work could be addressed by USEPA with a particular focus on water quality related issues. The USEPA also has active monitoring programs that could be integrated and help serve as a basis for future systemic monitoring.

**U.S. Fish and Wildlife Service (USFWS).** The USFWS has some limited restoration authorities and funding. It is estimated that up to 5 percent of the watershed work could be addressed by USFWS using existing and expanded programs, with a particular focus on private lands habitat restoration projects.

**U.S. Geological Survey (USGS).** The USGS Illinois Water Science Center (IWSC) performs various monitoring and study activities in the Illinois River Basin, and could serve as a key partner agency in the development and implementation of any long term monitoring.

**State Agencies.** The Illinois Department of Natural Resources (DNR), Illinois Environmental Protection Agency, Illinois Department of Agriculture, Indiana DNR, Wisconsin DNR could continue to expand their ongoing restoration efforts as well as to serve as sponsors providing the required matching for many of the Federal programs.

**Local Agencies.** Local governments and non-governmental organizations are critical to future restoration efforts. In particular, they could play key roles in ensuring proper zoning and protection of sensitive areas, storm water management, land owner interaction, and protection and restoration of habitat areas. They also have the ability to match Federal funding sources.

**F. POTENTIAL AMENDMENTS TO SECTION 519 OF THE WATER RESOURCES DEVELOPMENT ACT (WRDA) OF 2000, PUBLIC LAW 106-541**

The current authorization provides ongoing authority to evaluate and implement Critical Restoration Projects under Section 519(c) conduct associated project-specific monitoring; and conduct additional studies and analyses. The current authority does limit some types of restoration due to the per project

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cost limits (e.g. not able to perform some larger backwater restorations and watershed efforts, etc.). The technologies and innovative approaches component could not be implemented without further authority, which currently limits the collection and analysis of systemic monitoring and evaluation of dredging technologies and beneficial use. In addition, collaboration could be improved if non-profit organizations were authorized to act as non-Federal sponsors for these projects. Finally, rather than following normal procurement laws and regulations, there is the potential for improved implementation efficiency with the use of methods similar to the NRCS. The NRCS is authorized to provide funding directly to landowners to undertake certain structural and land management conservation practices. In addition, NRCS assistance is often tied to shorter term measures. No recommendation is being provided at this time on whether to seek similar authority for the Corps. In summary, although the existing authorization provides adequate authority to implement much of the restoration plan, additional authority may be sought in the future to improve the efficiency of program implementation.

The following text highlights some potential legislative updates identified in the study process as areas of consideration to improve the future efficiency in implementing Section 519. These potential opportunities for legislative updates to Section 519 were developed in cooperation with the State of Illinois DNR, other Federal and state agencies, local governments, and various non-governmental organizations.

- Increasing the per project Federal cost limit for Critical Restoration Project from \$5 million to \$20 million. Increasing the per project cost limit would allow implementation of a wider range of critical restoration projects more directly matching the scale identified in the Comprehensive Planning efforts. Without modification, many larger projects could not be implemented as effectively or at all. Section 5071 of the Water Resources Development Act of 2007, which became law on November 8, 2007, provides for this increase in the maximum per project Federal cost limit for Critical Restoration Projects.
- Authorize implementation of a Technology and Innovative Approaches (TIA) Component as a component of the Comprehensive Plan that complements the Critical Restoration Project activities. Activities would include initiatives called for in Section 519 (b).(3).(A) development and implementation of sediment removal technology, sediment characterization, sediment transport, and beneficial uses of sediment; (C) long term resource monitoring; and (D) and a computerized inventory and analysis system. The addition of a TIA component would add the collection and analysis of critical data and investigations of innovative approaches. These items will help address and reduce the risk and uncertainty associated with implementation and work to improve the efficiency of restoration efforts over time.
- Authorization allowing the development of cooperative agreements and fund transfers between the Corps and the State of Illinois; State of Indiana; State of Wisconsin; and scientific surveys at the University of Illinois and between the Corps and units of local government—counties, municipalities, and Soil and Water Conservation Districts—to facilitate more efficient partnerships. The efficiency and cost effectiveness of the program would be improved, based on the improved collaboration and involvement of appropriate state and local organizations that may not have adequate funding to participate any other way.

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- Authorization to allow the Corps of Engineers to deviate from normal procurement laws and regulations and to provide funding directly to landowners to undertake shorter-term structural and land management conservation practices. As indicated above, in paragraph F, no decision has been made on whether to seek such authority. If in the future the Corps decides to pursue, and Congress provides, such authority, it is likely that the Corps would work closely with the NRCS in the provision of such assistance. Watershed based ecosystem restoration projects highlight the need to work closely with other agencies and in some cases jointly implement solutions. In particular, restoration in the upper reaches of watersheds would benefit from an ability to partner with the NRCS and utilize their established procedures to deliver projects to local landowners in the most cost-efficient manner. The practicality and policy implications of this approach will be evaluated during more detailed feasibility studies. Following these additional studies an agency position will be finalized.
  
- Authorization to allow non-profit organizations to serve as sponsors and sign Project Cooperation Agreements for restoration projects implemented under the Illinois River Basin Restoration program. The addition of NGOs as potential sponsors, many of whom are actively pursuing restoration projects in the basin, could provide improved opportunities for collaboration and effectiveness in implementing restoration.