

# ILLINOIS RIVER: BASIN RESTORATION

The principal habitat problems in the Illinois River Basin are the result of sedimentation of backwaters and side channels, degradation of tributary streams, water level fluctuations, loss of floodplain and tributary connectivity, and other adverse impacts caused by human activities. A restoration vision was developed for the Illinois River as part of the development of the State of Illinois Lt. Governor's *Integrated Management Plan for the Illinois River Watershed*.

The vision of this plan was 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.***

With the *Integrated Management Plan* providing context, the following list of Illinois River Basin systemwide restoration goals were developed during the Illinois River Ecosystem Restoration Study:

- 1. Reduce sediment delivery from upland areas and tributaries to the Illinois River,**
- 2. Selectively remove sediment, reduce sediment deposition, and improve sediment characteristics in backwaters and side channels,**
- 3. Restore floodplain habitat and function,**
- 4. Increase connectivity of aquatic and terrestrial habitats,**
- 5. Naturalize hydrologic regimes in tributaries and the mainstem Illinois River,**
- 6. Restore natural disturbance regimes,**
- 7. Protect high quality and restore degraded native ecosystems and habitats,**
- 8. Maintain viable populations of native species, and**
- 9. Improve water quality.**

The federal-state program for the restoration of the Illinois River Basin will provide for implementation of sub-basin watershed management projects under the leadership of the US Army Corps, the US Department of Agriculture, US Geological Survey and the State of Illinois. The framework for restoration included the following **target areas** on the main stem as well as tributaries of the Illinois River:

- side channel and backwater areas restoration
- floodplain function restoration
- more natural water level management
- tributary stream basins conservation and stabilization

## TARGET AREA - Side Channel and Backwater Areas

As some of the most biologically productive areas of the river system both on the mainstem as well as tributary rivers, the side channel and backwater areas have been severely damaged by the accumulation of sediment. Most areas have lost between 50 to 90% of their original depth. Restoration of natural flow, removal of accumulated sediment, construction of barrier islands, instream structures, and wetlands, and the restoration of depth and habitat lost are the primary objectives.

**Long term objective: Restore, naturalize, or enhance 14 backwater/sidechannel areas along the mainstem of the Illinois River. Restore flow connectivity to backwaters and sidechannels. Remove accumulated sediment in selected areas (identified below) and enhance available fish and wildlife habitat.**

Pool	Lake Name	River Mile	Water Storage (acre-feet)			rate in/yr	capacity % lost
			1903	1975	1990*		
Alton	Swan Lake	5	4,816	2,783	2,359	0.18	51
	Lake Meredosia	72	7,791	4,207	3,460	0.43	56
LaGrange	Muscooten Bay	89	1,459	184	0	3.12	100
	Patterson Bay	107	271	165	143	0.31	47
	Rice Lake	133	3,064	1,119	714	0.32	77
	Pekin Lake	153	323	226	206	0.08	36
Peoria	Peoria Lake	162	120,000	56,600	29,150	0.79	76
	Babb's Slough	185	1,377	625	468	0.14	66
	Weis Lake	191	450	110	39	0.15	91
	Sawmill Lake	197	2,110	381	21	0.47	99
	Lake Senachwine	199	9,240	2,468	1,057	0.30	86
	Lake DePue	203	2,837	778	349	0.59	88
Marseilles	Huse Slough	221	253	51	9	0.96	96
	Ballard's Slough	248	142	36	14	0.91	90

## TARGET AREA - Floodplain Function

Conversion of the land use in the floodplain to agriculture purposes was facilitated by the construction of levees. Over the years, the Illinois River has lost about one-half of its floodplain because of levee work by drainage districts. Many tributary streams have also been impacted by floodplain alterations which subsequently results in loss of floodplain function. Restoration of floodplain function in previously leveed areas and subsequent protection would restore the natural biological productivity. In order to identify the environmental benefits to be expected from these activities, biological and hydrologic models must be developed to demonstrate the expected results to the public.

**Long term objective: Develop a predictive model to qualify and quantify the environmental benefits from activities to restore, naturalize, or enhance floodplain function in selected areas in tributary watersheds and along the mainstem of the Illinois River.**

## TARGET AREA - Water Level Management

With the construction of the locks and dams, the loss of the natural hydrological cycle with the associated flood peaks in the spring and a lesser peak in the fall have been replaced with a more erratic on the short term, but more stable on the long term (loss of the fall natural peak and summer drawdown) water level through the management by the Corps lock masters.

**Long term objective: Naturalize the current hydrologic cycle to mimic more natural conditions which were present prior to navigation dams. Operate commercial navigation structures to maximize benefits to fish and wildlife habitat produced by more stable water conditions.**

## TARGET AREA - Tributary Stream Basins

Treatment of sediment transport by tributary streams must include efforts by both public and private landowners in the entire Illinois River basin including all tributaries. Stabilization and conservation of watersheds including both stream channels and land areas can be accomplished in a complementary fashion to the existing state and federal government programs under the Farm Bill i.e. Environmental Quality Incentives Program (EQIP), Conservation Reserve Program (CRP), Wetlands Reserve Program (WRP), Wildlife Habitat Incentive Program (WHIP), Farmland Protection Program (FPP), and Conservation Reserve Enhancement Program (CREP).

A complementary program under the WRDA authorization for Illinois Rivers 2020 with cooperating landowners will “fill in the gaps” for implementing needed land and stream conservation practices on upland and bottomland areas which are currently not eligible or not covered by existing Farm Bill programs within the entire Illinois River basin.

Under the WRDA authorization, existing USDA conservation practices (with revisions) identified below will be implemented by the volunteer landowners within the Illinois River basin. Any of the Category 1 projects could be implemented by the Corps as part of Section 519, individually or in conjunction with other practices. Restoration practices in Category 2 could be implemented in association with Category 1 practices. Category 2 practices could not be constructed as stand-alone projects. Category 3 projects would likely be implemented using Federal or state funds other than WRDA Section 519 funding.

### CATEGORY 1

Restoration Practices to be conducted by Corps under authority of Section 519 of the Water Resources Development Act.

#### **Stream/River Restoration Practices**

- Fish passage
- Streambank stabilization (NRCS Practice 580)
- Stream channel stabilization (NRCS Practice 584)
- Dechannelization/Meander
- Flow obstruction removal (NRCS Practice 326)
- Backwater/side channel restoration
- Island creation
- Sediment collection and removal
- Instream structures
- Floodplain restoration

### **Wetland Restoration/Creation Practices**

Shallow water management (NRCS Practice 646)  
Wetland restoration (NRCS Practice 657)  
Lateral wetlands

### **Water and Sediment Retention Practices**

Pond/water retention structure (NRCS Practice 378)  
Sediment basin (NRCS Practice 350)  
Non-cropped water and sediment control basins (NRCS Practice 638)  
Grade stabilization/dry dam (NRCS Practice 410)  
Tile drainage water management

## **CATEGORY 2**

*Supplemental restoration practices can be implemented in conjunction with Category 1 restoration practices.*

### **Supplemental Restoration Practices (can be implemented in conjunction with above practices)**

Conservation cover (NRCS Practice 327)  
Early successional habitat development/management (NRCS Practice 647)  
Filter strip (NRCS Practice 393)  
Vegetation plantings (NRCS Practice 643)  
Riparian forest buffer (NRCS Practice 391)  
Direct seeding/Mast tree planting (NRCS Practice 652)  
Tree planting (NRCS Practice 612)  
Upland wildlife habitat management (NRCS Practice 645)  
Timber stand improvement

## **CATEGORY 3**

*Restoration practices to be conducted under other Federal or state programs.*

### Other Restoration Practices

Field border (NRCS Practice 386)  
Grassed waterway (NRCS Practice 412)  
Terraces (NRCS 600)  
Cropped water and sediment control basins (NRCS Practice 638)

### **Long term objectives:**

- **Restore, enhance, naturalize, and stabilize hydrologic conditions and natural resource values in the 12 major tributary watersheds and direct tributaries along the Illinois River mainstem.**
- **Reduce soil erosion to “T” or tolerable levels on 3 million acres of land within the Illinois River Basin.**
- **Reduce the soil loss in the Illinois River Basin by 20 percent annually.**
- **To obtain a “full use support” water quality designation on 15 miles of rivers and streams within the Illinois River Basin.**
- **To stabilize, restore, or enhance 50,000 acres of fish and wildlife habitat within the Illinois River Basin.**