



Update on the Illinois River Flood of 2013 at two floodplain restoration sites of The Nature Conservancy

or

the 14th Biennial Governor's Conference on Management of the Illinois River System 1-3 October 2013, Peoria, Illinois

by

K. Douglas Blodgett
Director of River Conservation
The Nature Conservancy in Illinois



Restoration of Aquatic Ecosystems: Science, Technology, and Public Policy. National Research Council, National Academic Press. Washington, D.C. 1992. 662 pp.



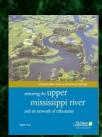
Illinois River Site Conservation Plan. The Nature Conservancy. 1998. 73 pp.



A River That Works and a Working River. Upper Mississippi River Conservation Committee. 2000. 40 pp.



Conservation Priorities for Preserving Biodiversity in the Upper Mississippi River Basin. Weitzell et al. NatureServe and The Nature Conservancy. 2003. 90 pp.



Restoring the Upper Mississippi River and its network of tributaries. The Nature Conservancy. 2004. 22 pp.



Integrated Feasibility and Programmatic Environmental Impact Statement for the UMR-IWW Navigation Feasibility Study. US Army Corps of Engineers. 2004. 606 pp.



Illinois River Basin Restoration Comprehensive Plan with Integrated Environmental Assessment. Main Report, Public Review Draft. US Army Corps of Engineers. February 2006. 452 pp.



Restoration of Aquatic Ecosystems: Science, Technology, and Public Policy. National Research Council, National Academic Press. Washington, D.C. 1992. 662 pp.



Illinois River Site Conservation Plan. The Nature Conservancy. 1998.



Restoration of functional floodplain is Jpper essential for restoring ecosystem health



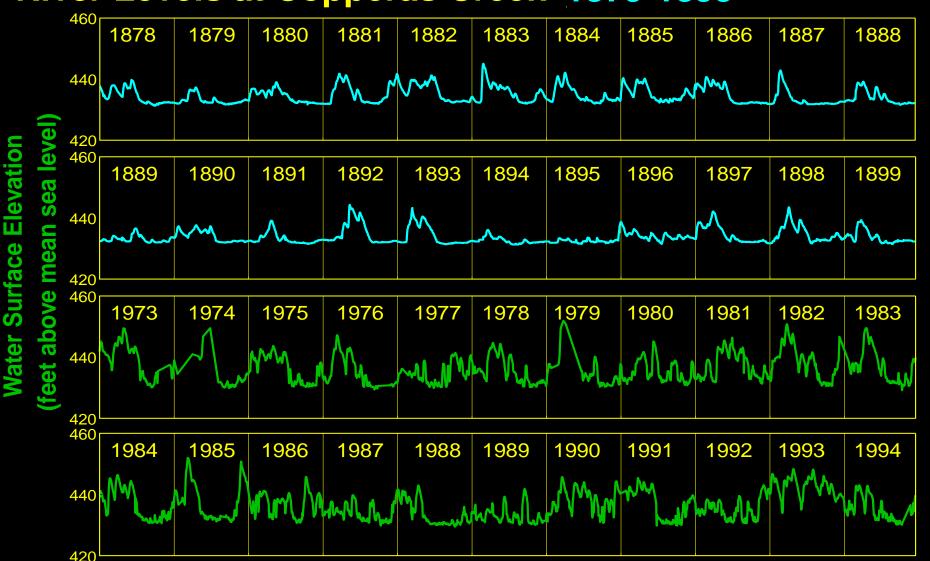
Impact Statement for the UIVIK-IVVVV Navigation Feasibility Study. US Army Corps of Engineers. 2004. 606 pp.



Illinois River Basin Restoration Comprehensive Plan with Integrated Environmental Assessment. Main Report, Public Review Draft. US Army Corps of Engineers. February 2006. 452 pp.

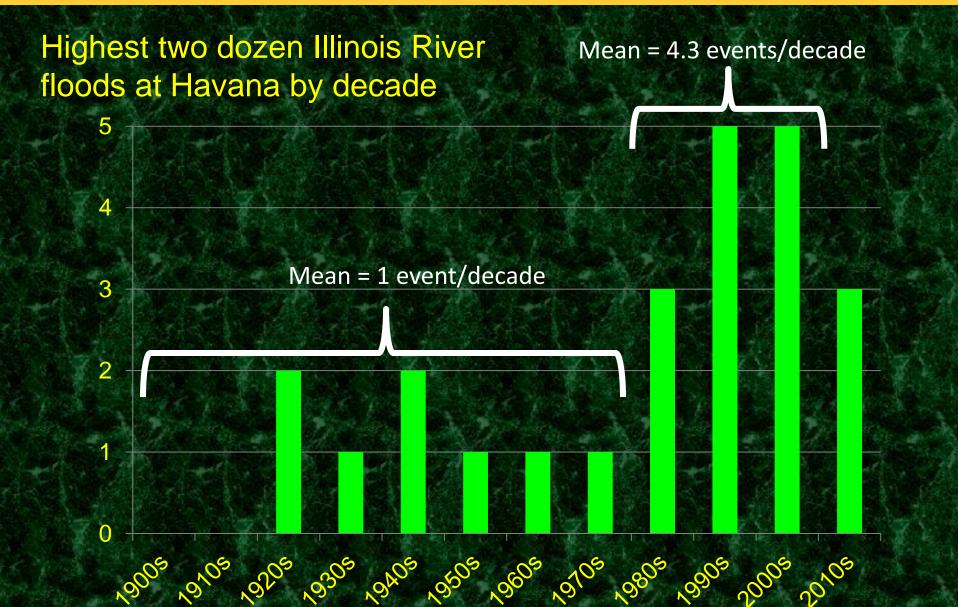
Changes in hydrology of the Illinois River

River Levels at Copperas Creek 1879-1899















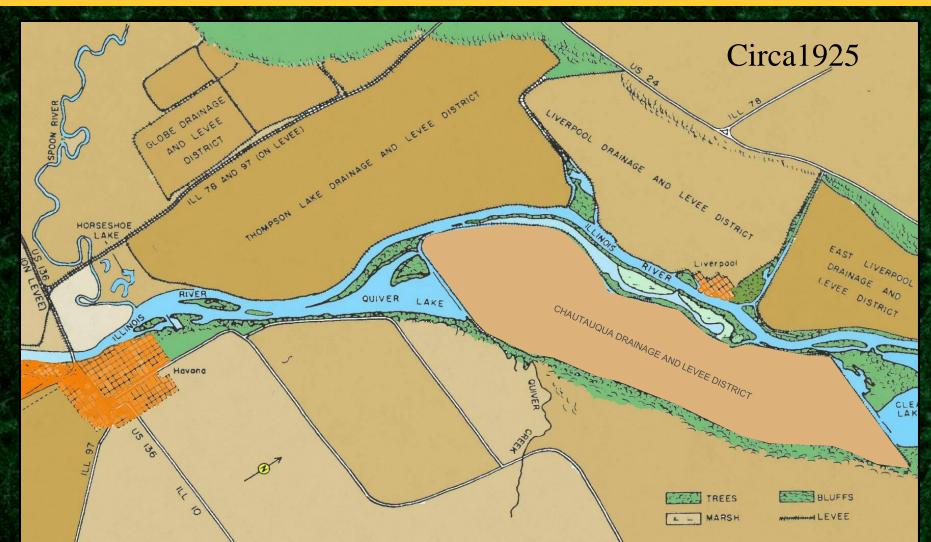


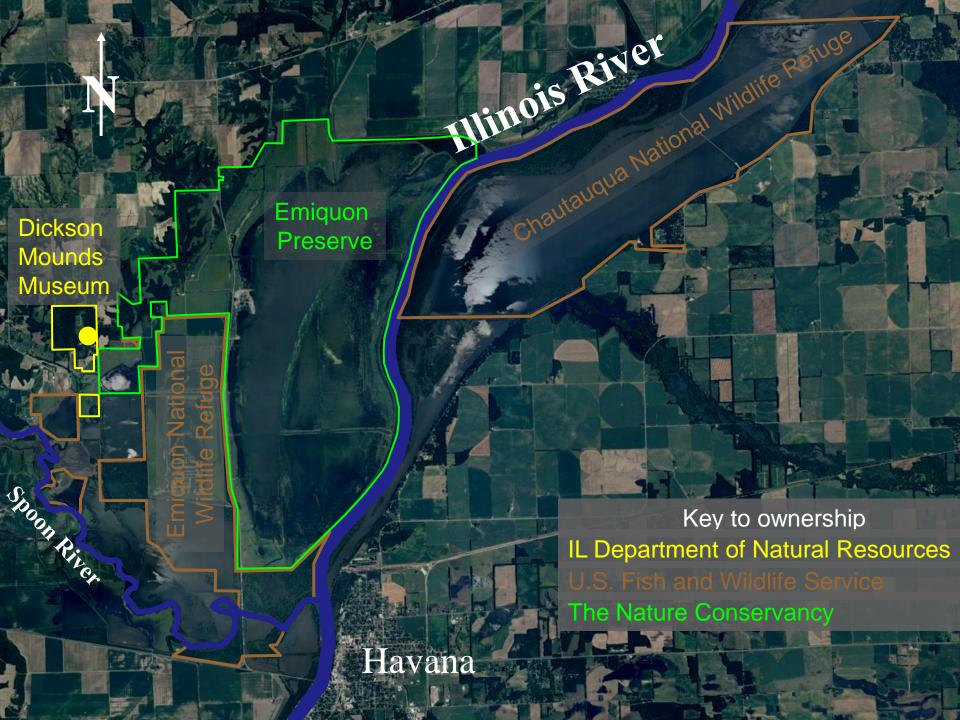








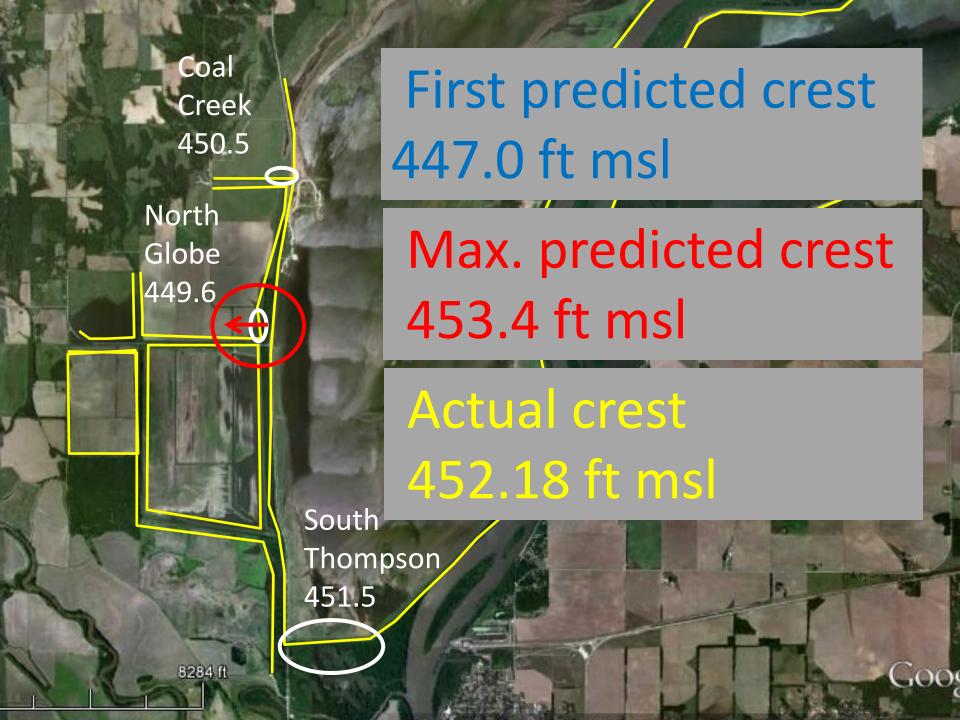












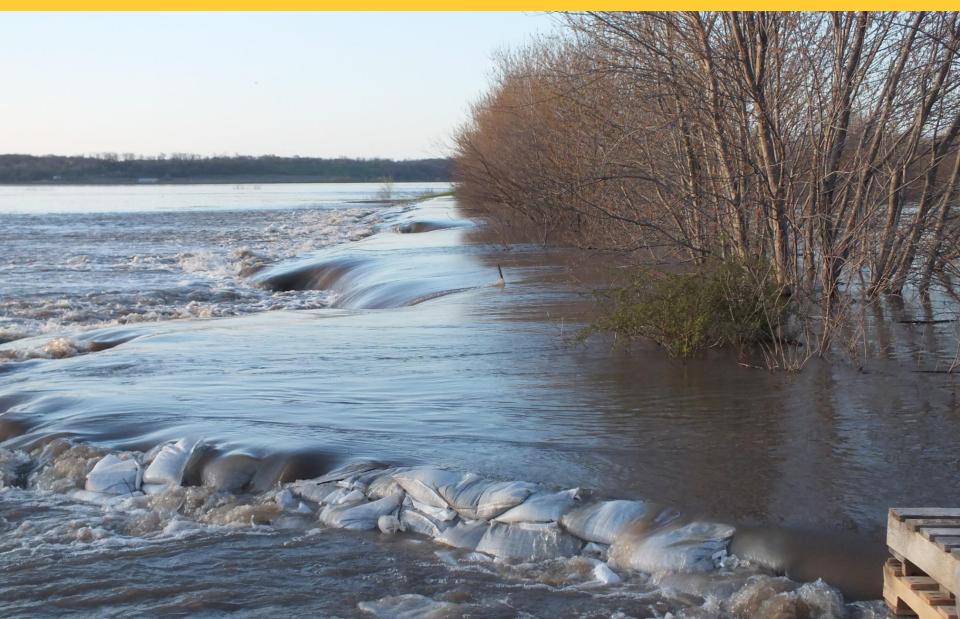
































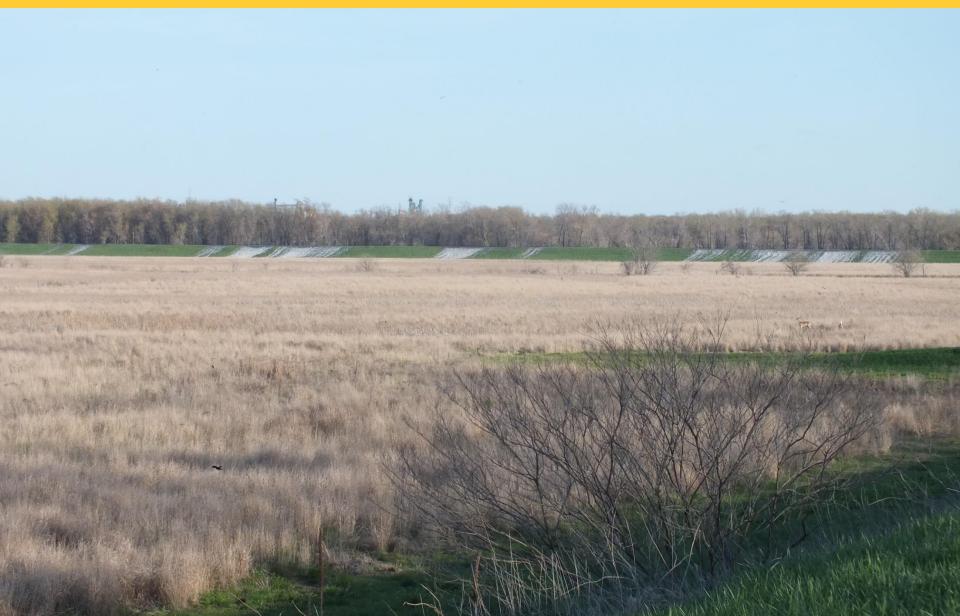






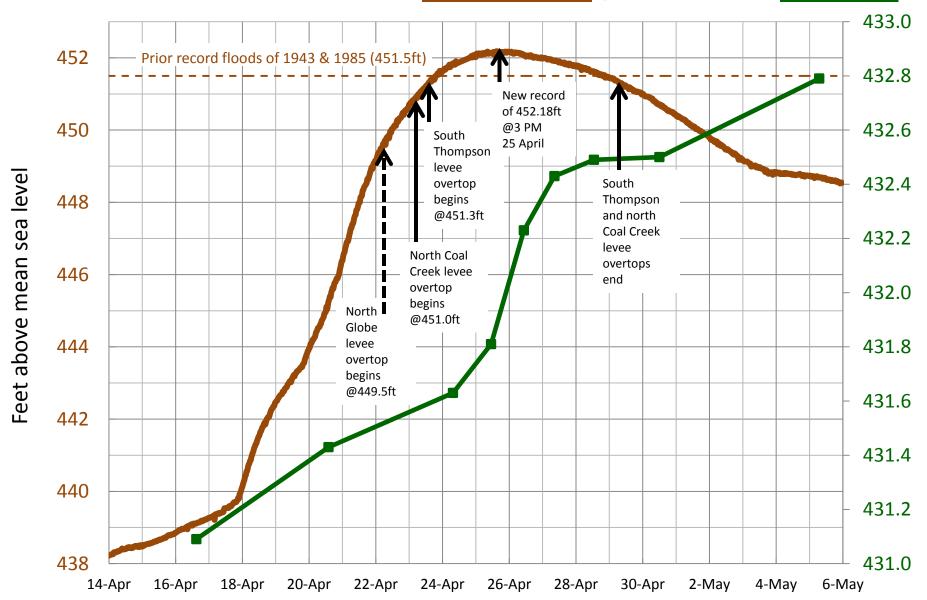


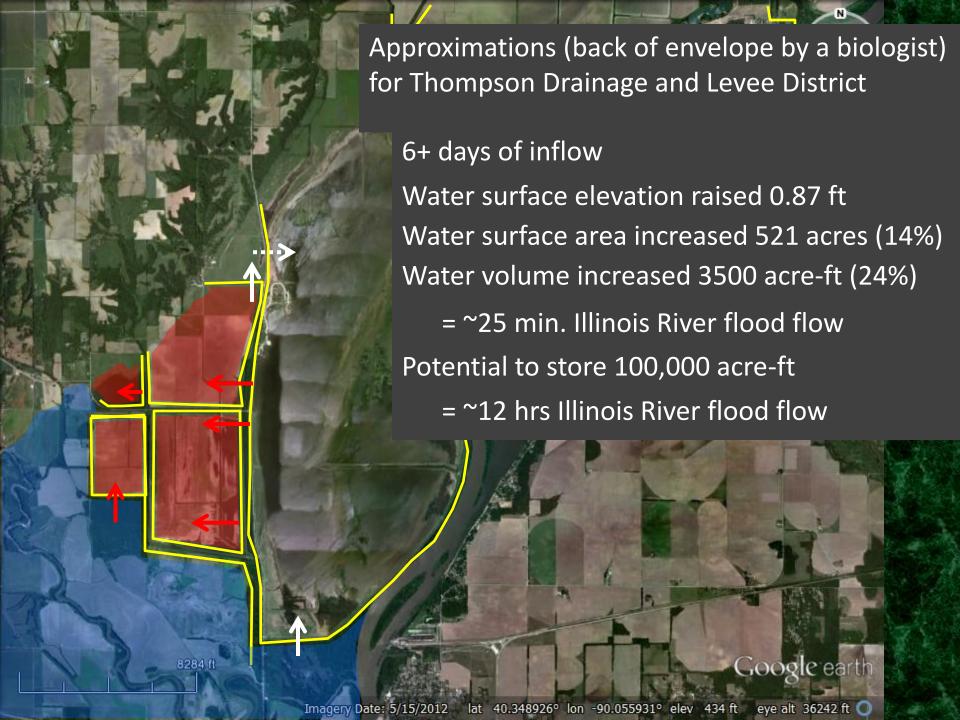




The record flood of 2013

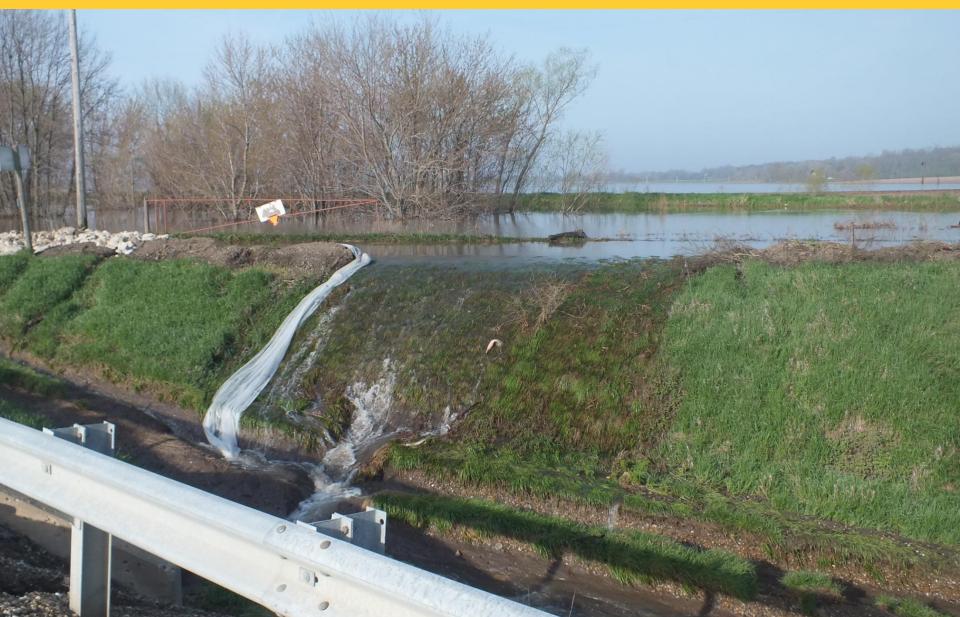
Water surface elevations of the **Illinois River** @Havana and **Emiquon**





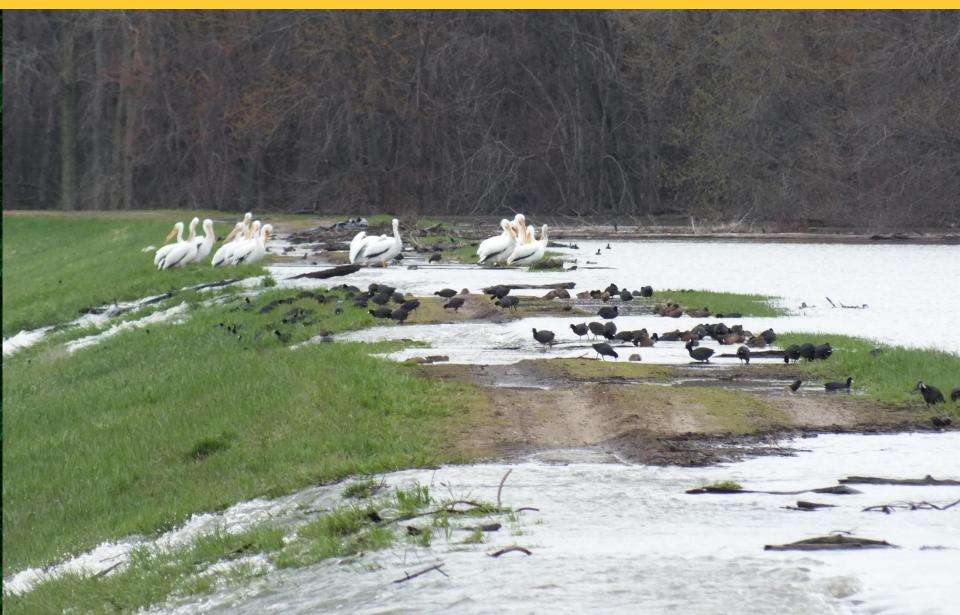


















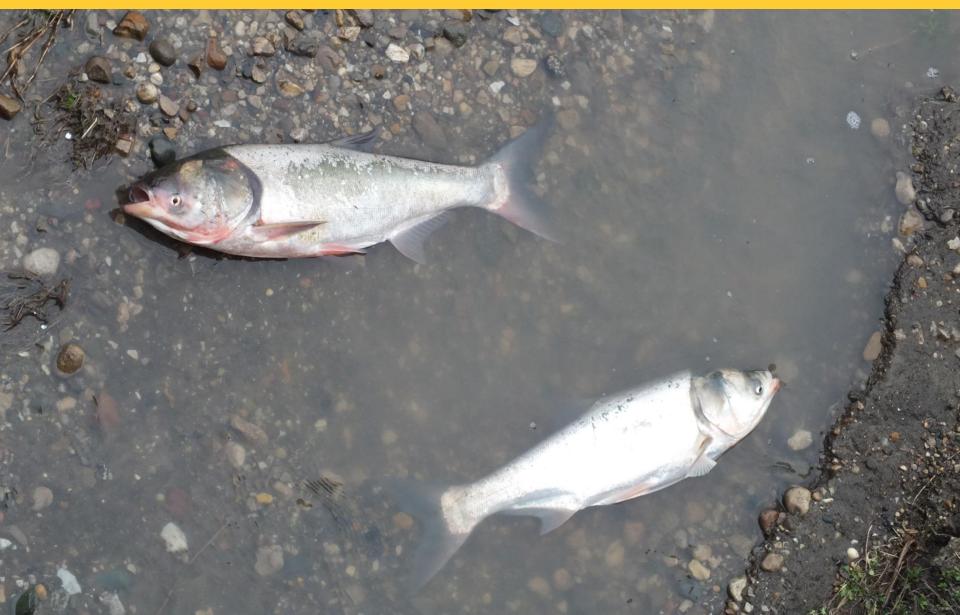
















Immigrants

Documented

Common carp

Shortnose gar

Mosquito fish

Suspected

Silver carp

Grass carp

Emerald shiner

Red shiner

Silver chub

Bigmouth buffalo

Smallmouth buffalo

Black bullhead

Largemouth bass

Gizzard shad



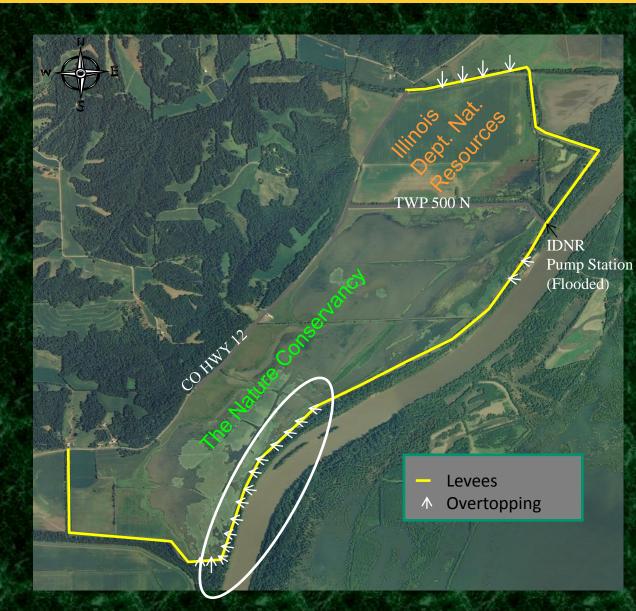








The Great Flood of 2013 at Spunky Bottoms





















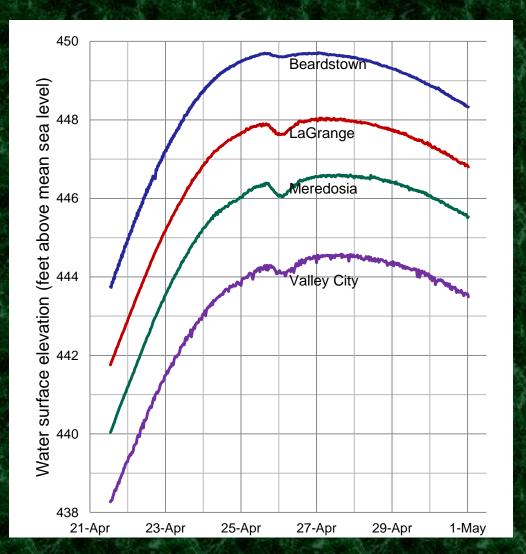




Effect of the Spunky Bottoms levee breach on the Illinois River

Rough approximations (by a biologist):

17 ft head 8 hrs to fill 22,500 acre-ft stored = 2 ½ hrs of IR flood flow IR level dropped 0.3 ft Effects down- and upriver



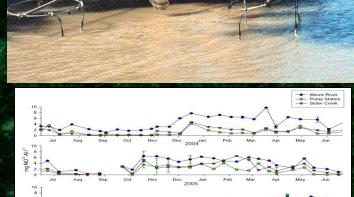




Post-flood investigations

University of Illinois Springfield Illinois Natural History Survey The Nature Conservancy













Effects on Illinois River water surface elevation

	Spunky Bottoms	Emiquon	
	April 2013	April 2013	Potential
Situation	Levee failure	Overtopping	2
Duration (days	0.3	6+	?
Stored (acre-ft)	22,500	3,500	100,000
IL River flow equivalent (hrs)	2 ½	0.4	12
IR level drop (ft) 0.3 ft	0	?





Contract Report 645

An Analysis on Managed Flood Storage Options for Selected Levees along the Lower Illinois River for Enhancing Flood Protection

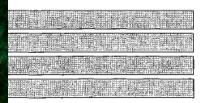
Report No. 4: Flood Storage Reservoirs and Flooding on the Lower Illinois River

bv

Abiola A. Akanbi, Yanqing Lian, and Ta Wei Soong

Prepared for the Office of Water Resources Illinois Department of Natural Resources

June 1999



Illinois State Water Survey Watershed Science Section Champaign, Illinois Utilizing 17.6% (25,800 acres) of the drainage and levee district area on the lower Illinois River for flood storage could protect 40.7% (59,845 acres) of the drainage district area from overtopping during a 100-year flood event.





Great Flood of 2013 on the Illinois River













Some benefits of functional floodplain wetlands ...

- •Provide <u>habitat</u> for native plants and animals (aquatic and terrestrial, resident and migratory)
- •Contribute to a more natural <u>hydrology</u> by storing storm water (moderates unnatural water level fluctuations, reduces flooding and associated damages, and provides base flow)
- •Facilitate infiltration and groundwater recharge
- •Store and process <u>nutrients</u> (e.g., nitrogen, phosphorous) and <u>sediments</u>
- Improve water quality
- Sequester carbon (helps reduce global climate change)
- •Provide opportunities for recreation, education, and economic development



Protecting nature. Preserving life."





We're working with you to make a positive impact around the world in more than 35 countries, all 50 United States and your backyard. Support our work > Sign up for our e-newsletter!

Enter Email Address

Get Involved

Where We Work How We Work Blogs Photos & Video

Membership

Donate

Home ▶ Where We Work ▶ Habitats ▶ Rivers and Lakes

Habitats

Rivers and Lakes +

Places We Protect

How We Work

Explore

Threats and Impacts

Signature Programs +

Newsroom

Multimedia

Contact Us

Ways of Giving

Other Ways to Help

Get Involved:

Email Address

Donate Now



Floodplains By Design

A new Floodplains by Design video illustrates ways of harnessing these ecosystems for humans and wildlife.

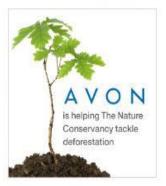




Floodplains - or relatively flat areas that border a river and are prone to flooding - are some of the most valuable places on Earth, both for people and wildlife. Fertile soils deposited by rivers make these areas extremely productive for agriculture. Floodplain forests and marshes are among the richest habitats for wildlife, both in terms of diversity and numbers. Within these areas, species like fish and waterfowl thrive, benefiting important commercial and recreational industries, too. (Floodplains provide lots of benefits to people and nature.)

The goal of Floodplains by Design is to ensure floodplains are used and managed in ways that enable them to provide these valuable services, while maintaining or even improving flood protection. Read more about this in Disastrous Spending: Federal Disaster-Relief Rises amid more Extreme Weather, from the Center for American Progress. Many of the principles presented here are also supported by this scientific report.

Listed below are features that help explain what Floodplains by Design is, what it looks like on the ground, and its benefits



Donate to Rivers and Lakes

Features.





Nuts & Bolts

This is what we're talking about.

Watch A Video Let us show you what we mean.





On the Ground

These places are paving the way.

A Call for New Solutions

A Nature Conservancy staffer reports from the scene of a flood.





Renefits

Healthy floodplains come with perks.

Valuing Floodplains

What are floodplains worth?





Illinois River Flooding

Read a Q&A with a member of our



Video Blog

The Concervancy's Michael Reuter says we can work with nature to