A water control structure to advance floodplain management and science at The Nature Conservancy’s Emiquon Preserve

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"Hydrology is probably the single most important determinant of the establishment and maintenance of specific types of wetlands and wetland processes." Mitsch and Gosselink (1993)

Hydrology: The dynamic processes of the water within an environment including the sources, timing, amount, and direction of water movement. California Coastal Commission
Adapted from a figure by the Illinois Natural History Survey
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Some benefits of functional floodplain wetlands …

• Provide habitat for native plants and animals (aquatic and terrestrial, resident and migratory)

• Contribute to a more natural hydrology 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 nutrients (e.g., nitrogen, phosphorous) and sediments

• Improve water quality

• Sequester carbon (helps reduce global climate change)

• Provide opportunities for recreation, education, and economic development


**Restoration of functional floodplain is essential for restoring ecosystem health**


“Some of these, as, for example, Thompson’s Lake, retain at all times their connection with the river, and receive their water supply wholly or in large part from it.”

Historic (late 1800s)
water levels of the Illinois River near Emiquon (Havana)

Feet above mean sea level

10 ft
15 ft
Historic (late 1800s) and modern (late 1900s) water levels of the Illinois River near Emiquon (Havana)

Feet above mean sea level

- 20 ft
- 12 ft
- 10 ft
- 15 ft
Historic (late 1800s) and modern (late 1900s) water levels of the Illinois River near Emiquon (Havana)
A science-friendly water control structure for The Nature Conservancy’s Emiquon Preserve
Emiquon
Illinois River
Ultimately, the hydrology at Emiquon will result from an adaptive management approach that attempts to balance perceived habitat and animal needs and their responses with meteorology, altered river hydrology and water quality (including heavy sediment loads), invasive species and numerous other practical considerations including water management capabilities, economics, stewardship of archaeological resources, protection and drainage of adjacent landowners, and maintenance of infrastructure including levees.
But is it replicable?
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