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Emiquon



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Havana, Illinois, United States

Installing a gravity-fed water control system for wetland restoration and flood prevention. In the early 1900s, the Illinois River formed one of North America's most ecologically and economically significant river systems, supporting the most productive inland commercial fishery and highest mussel abundance per kilometer of any stream on the continent. However, the land on and around what is today The Nature Conservancy's Emiquon Preserve was drained and converted for agriculture, denying this wetland its water, while the flood control pumps prevented access for aquatic species. A record flood in 2013 presented an opportunity: it left Emiquon without water management capabilities. So, the project team built a new connection between the floodplain and the Emiquon Preserve. This new water management structure, named *Ahsapa*, meaning *web* in Myaamian to honor one of the earlier cultures inhabiting the preserve lands, can use gravity to control flow between the wetland and the river, managing flood threat and restoring river-floodplain connectivity for over 2,700 hectares. These newly restored cyclical water flows will reestablish and sustain one

of the highest-quality floodplain complexes in the region, which will encourage healthy fish and wildlife communities throughout the system.

Article cover: Emiquon's water management structure reconnects the preserve to the Illinois River, attracting a wide variety of wildlife, such as these great egrets (*Ardea alba*). (Photo by Laura Stoecker Photography LTD)

Producing Efficiencies

The Ahsapa structure combined three features into one structure, making monitoring and future maintenance easier and more cost effective. The gated, concrete pathway through the levee will open or close to control the flow of water between the wetland and the river. Pumps will remove water from the preserve when the river is too high for gravity drainage. And the facility includes scientific instruments, nets, and other devices to monitor and possibly restrict the sizes or types of organisms moving through the gates when they are open. This could prevent undesirable, nonnative invasive species from passing while allowing multiple routes for other fish.

Using Natural Processes

Depending on the water level differences between Emiquon and the Illinois River, opening gates allows water to flow into or out of Emiquon as needed using only natural gravitational forces. This reduces, and in day-to-day flow eliminates, the need for pumps to move the water, reducing Ahsapa's energy usage and carbon footprint. Because the structure will be restoring a more natural hydrology to the wetland complex, a wide variety of plant and animal communities will benefit, including submergent and emergent plants.





The structure facilitates the restoration of a more natural hydrology that is essential for restoring and sustaining the diversity of wetland habitats and the many benefits they provide.

(Photo by Doug Blodgett, The Nature Conservancy)

Broadening Benefits

The Ahsapa water management structure will help drain neighboring agricultural lands and protect nearby infrastructure, such as levees and roadways. It will reinstate a more natural rise and fall of the annual water cycle that occurred before the draining of the floodplain almost a century ago. The connection between Emiquon and the Illinois River benefits the agricultural sector, the transportation sector, and the environmental sector, balancing the needs of all three. Further, the water's movement now provides more stable water levels during the summer growing season.



The new structure provides a managed connection between the restored floodplain complex of the Emiquon Preserve (upper right) and the Illinois River (lower left).

(Photo by Doug Blodgett, The Nature Conservancy)

Promoting Collaboration

At Emiquon, The Nature Conservancy partnered with the Illinois Natural History Survey, the University of Illinois, and its own staff and trustees, some of whom have lifelong experience working on the Illinois River. The

design and construction of Ahsapa itself would not have been possible without Maurer-Stutz Inc. and Laverdiere Construction Inc. Overall, project's success is a result of this collaboration between the nature preserve, other nonprofit organizations, the university, and the private sector; and research gained will be available to other floodplain scientists and managers throughout the Upper Mississippi River and around the world.



Conservancy staffer explaining the multiple functions of the structure to two of the forty thousand visitors who visit the Emiquon Preserve annually.

(Photo by Laura Stoecker Photography LTD)



Water flowing through the structure and into Emiquon (foreground) from the Illinois River(background) provides fish access for spawning, feeding, and wintering.

(Photo by Doug Blodgett, The Nature Conservancy)



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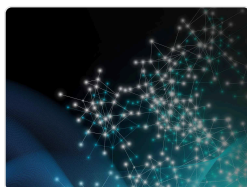
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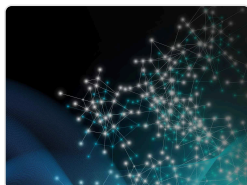
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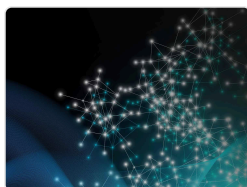
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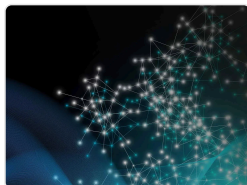
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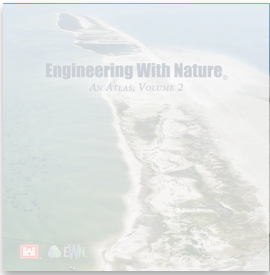
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