

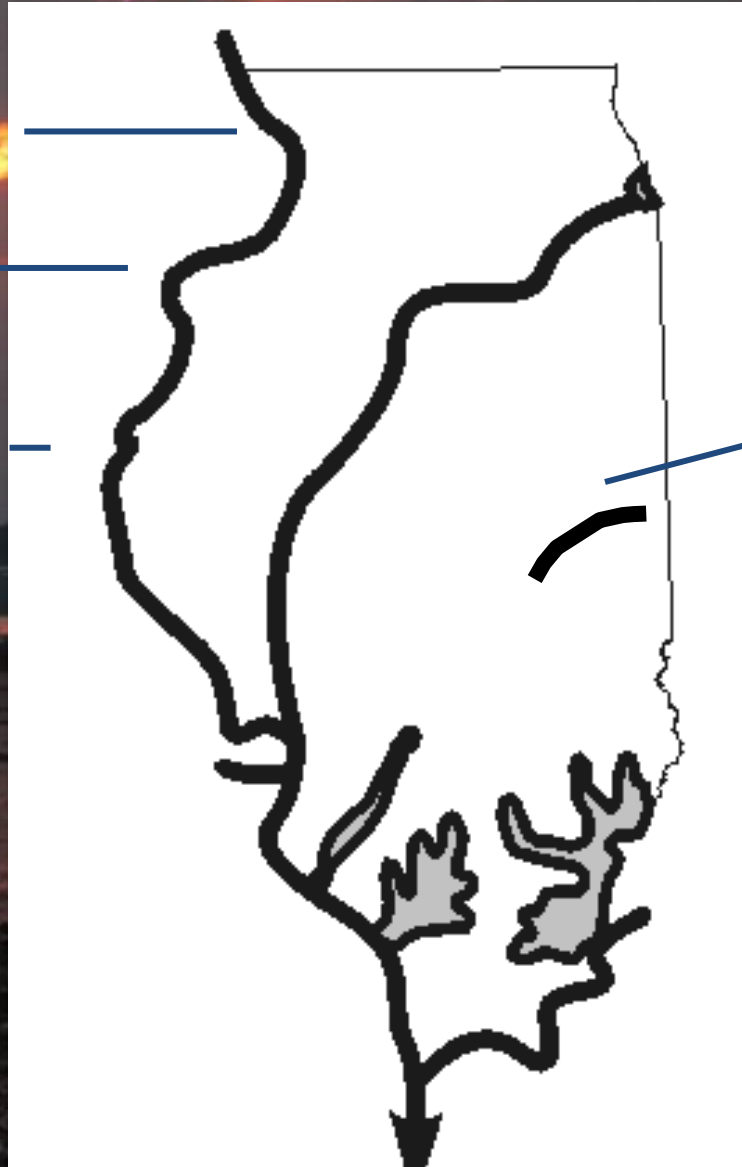
Emiquon: Restoring Wetlands in a Manmade Environment

Scott Arends, PE, CFM
IAFSM 2016 Annual Conference
10 March 2016

Ancient
Mississippi
River

Iowa River

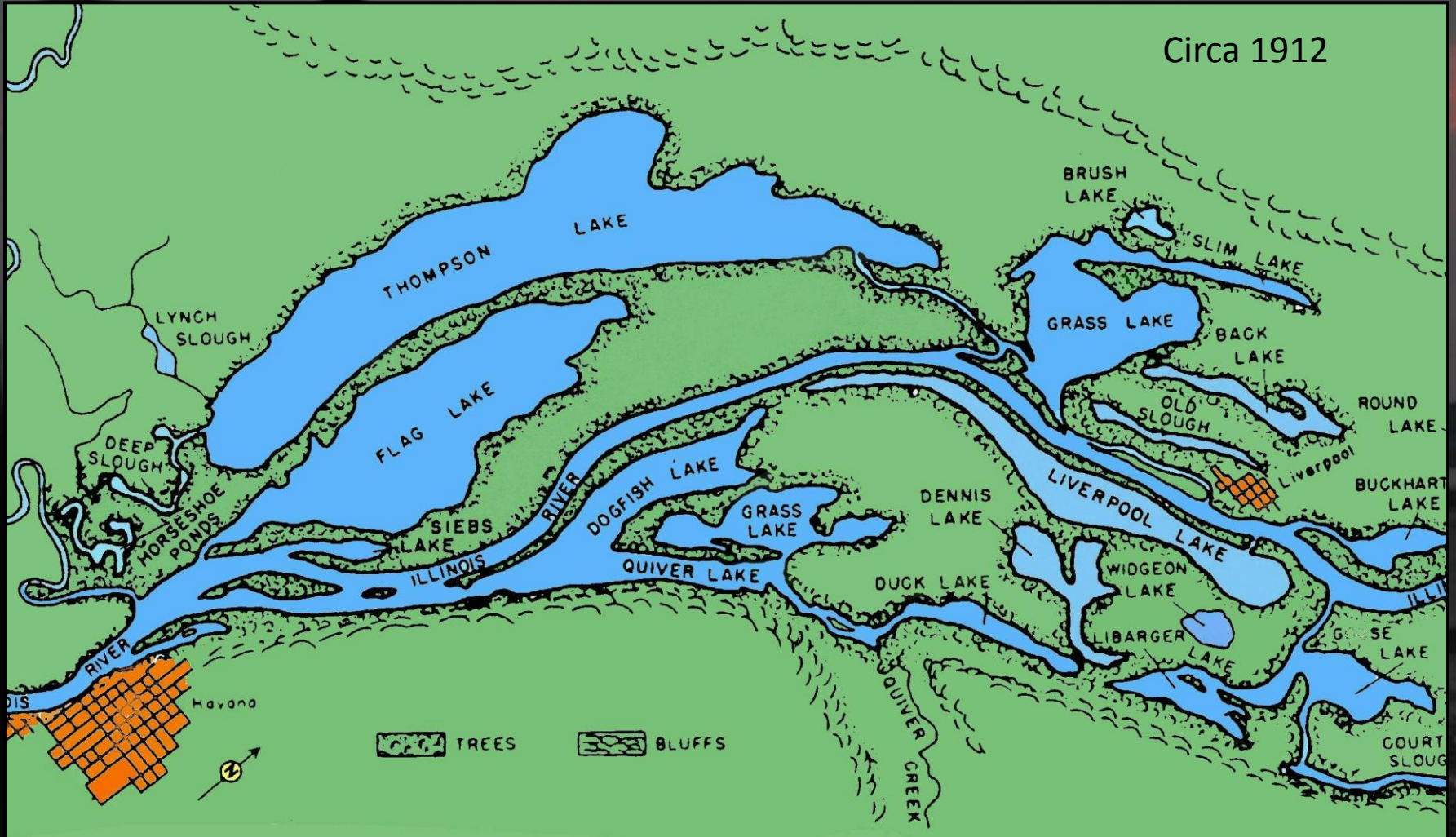
Des Moines River



Teays-Mahomet River

Adapted from figure provided by





Adapted from a figure by the Illinois Natural History Survey

Pere Marquette journal entry

August 1673:

“We have seen nothing like this river we enter for its fertility ...”



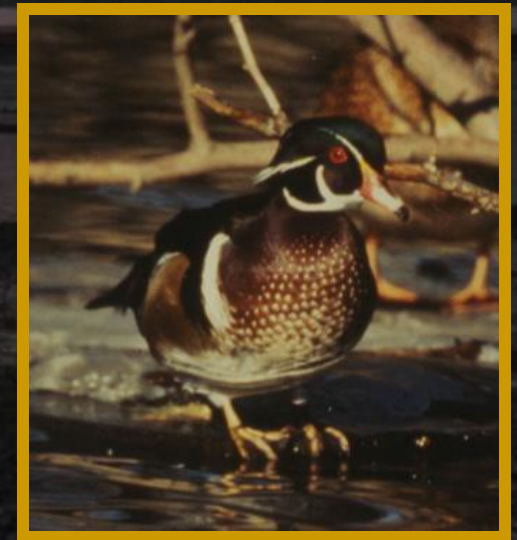
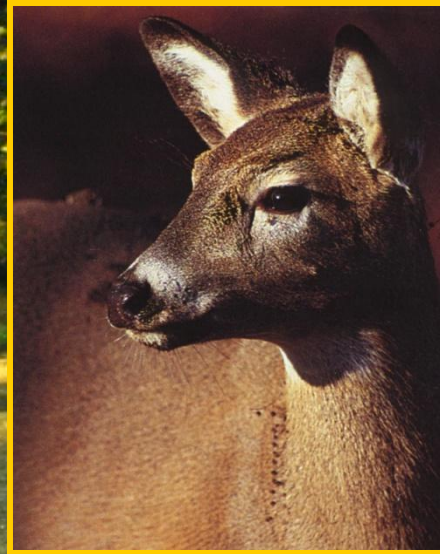
August 1673
journal entry:



“... it is made up of little lakes
and little rivers.”



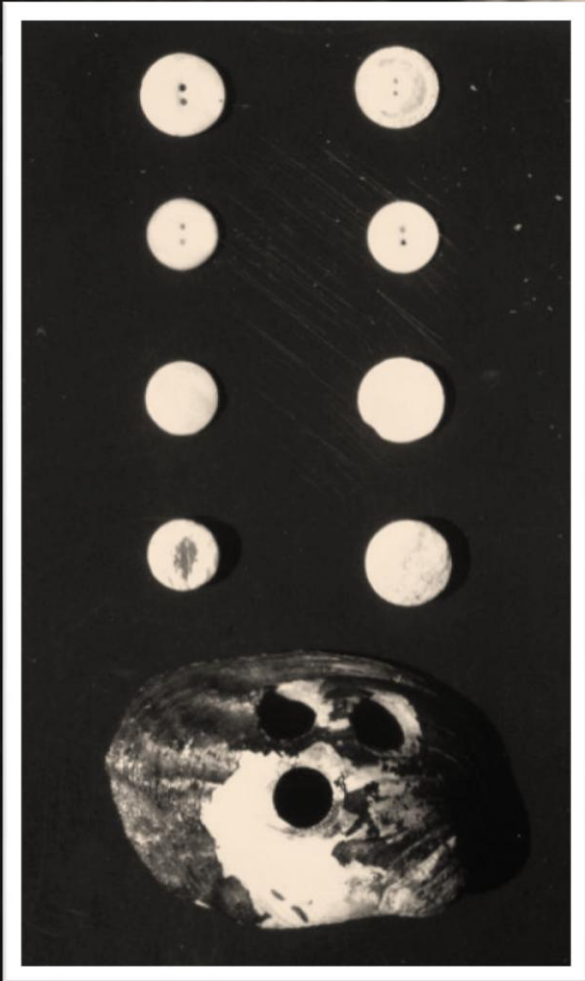
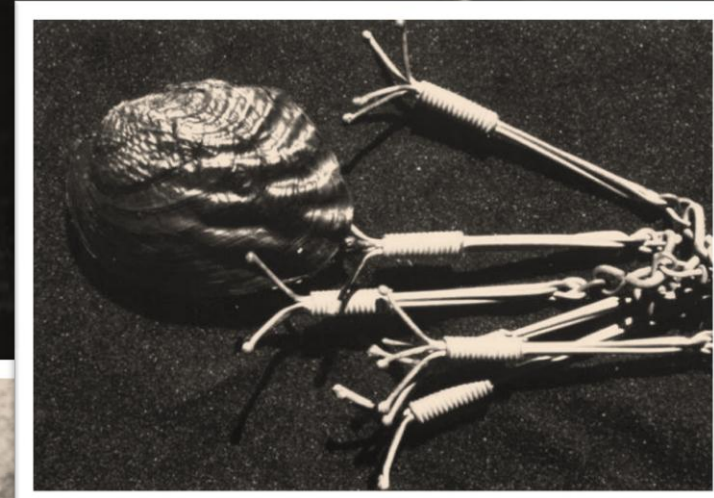
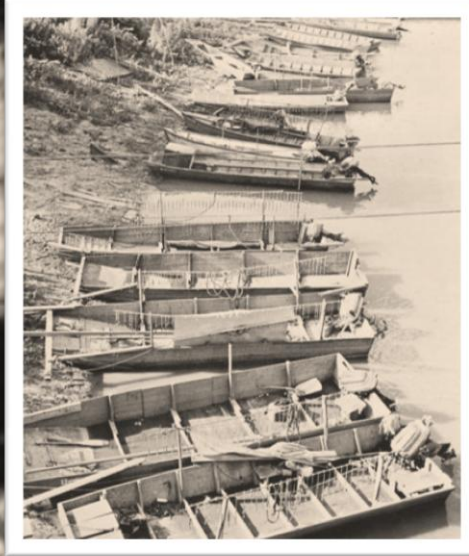
biological diversity and abundance of wildlife

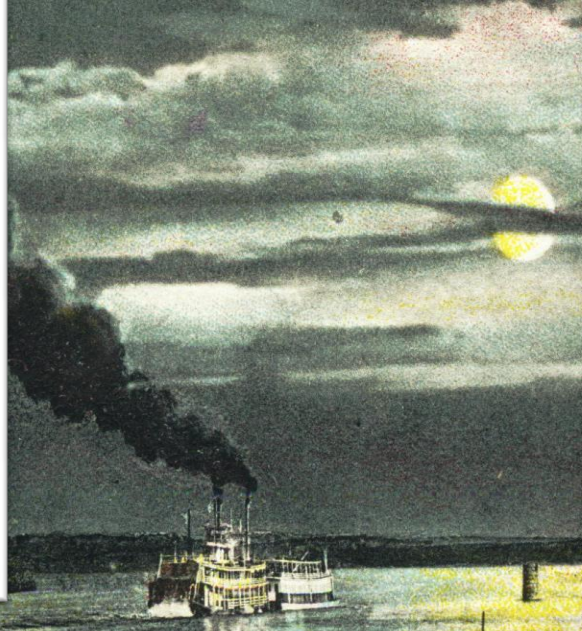




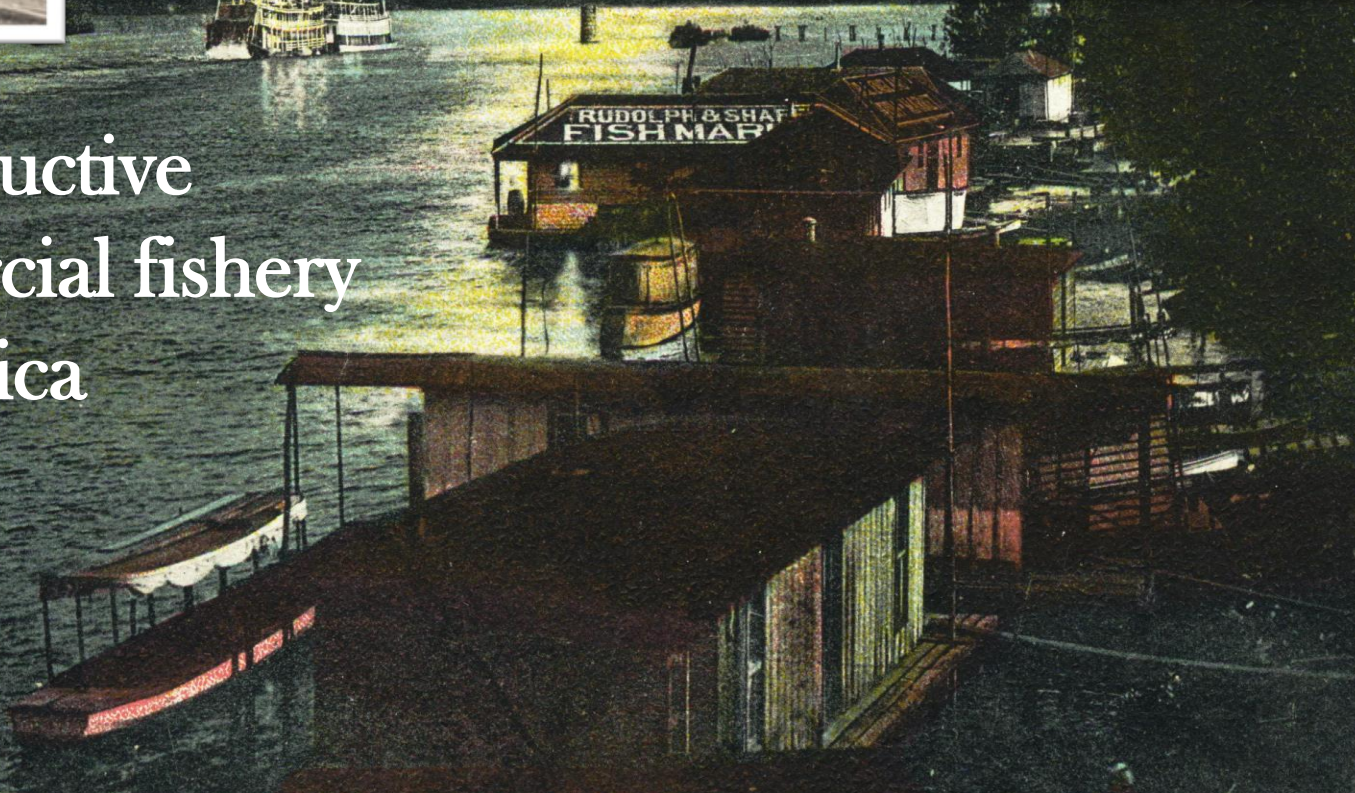
Once one of the most
noted sporting grounds
in the Midwest

The most productive mussel stream per mile in North America





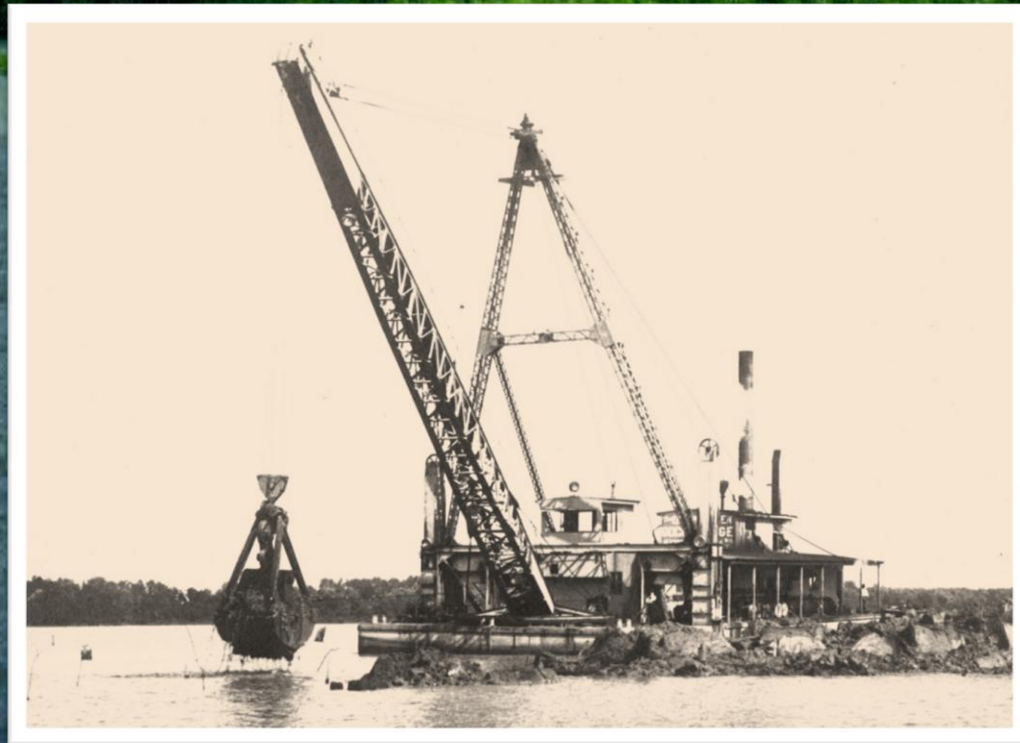
The most productive
inland commercial fishery
in North America

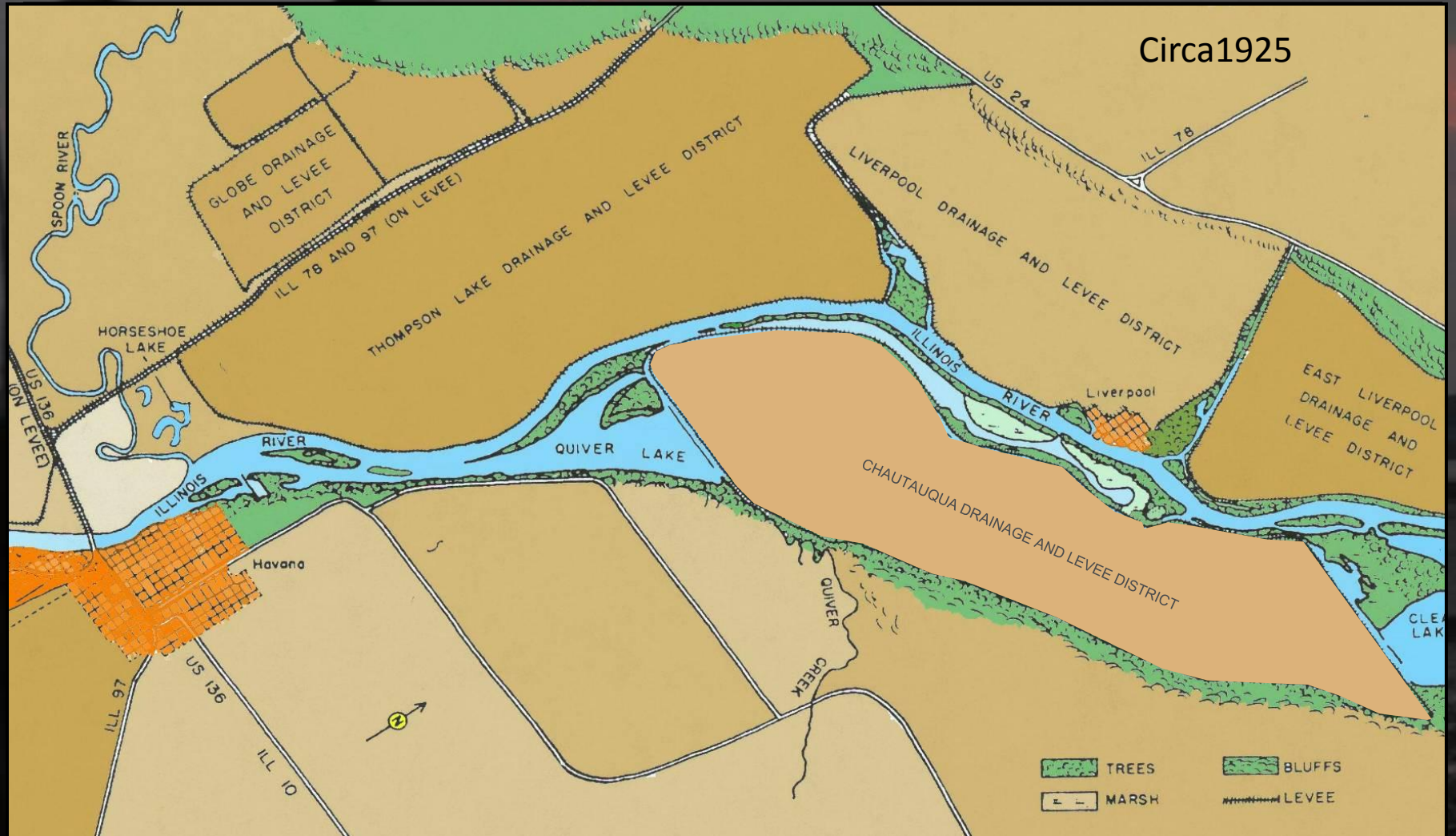


MOONLIGHT VIEW on ILLINOIS RIVER at HAVANA, ILL.



HAVANA — The three dredges that are working on Thompson Lake are throwing up a new levee in 'Dan Hole's Field'





Adapted from a figure by the Illinois Natural History Survey

Emiquon



Among the restoration and management challenges:

Altered hydrology

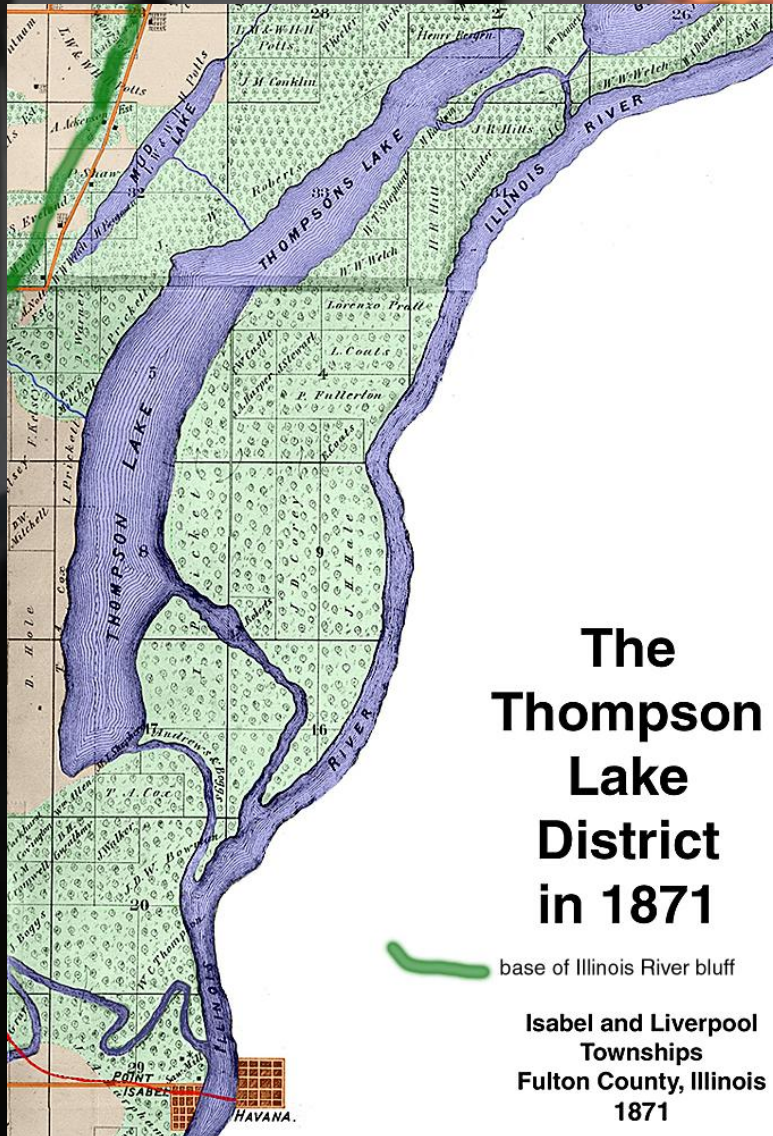
Excessive sediment

Invasive species

Perspectives, expectations and policies

"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)

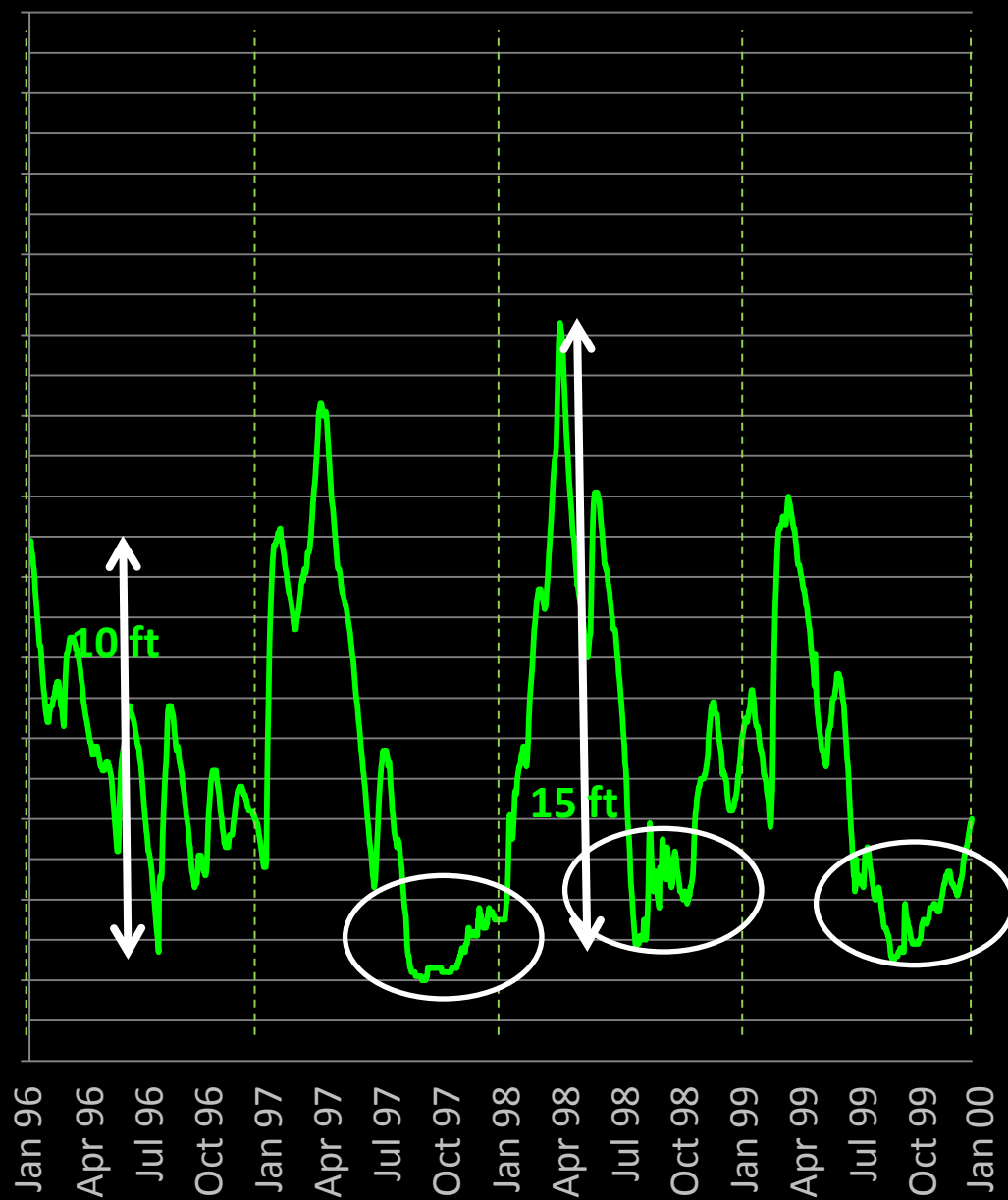
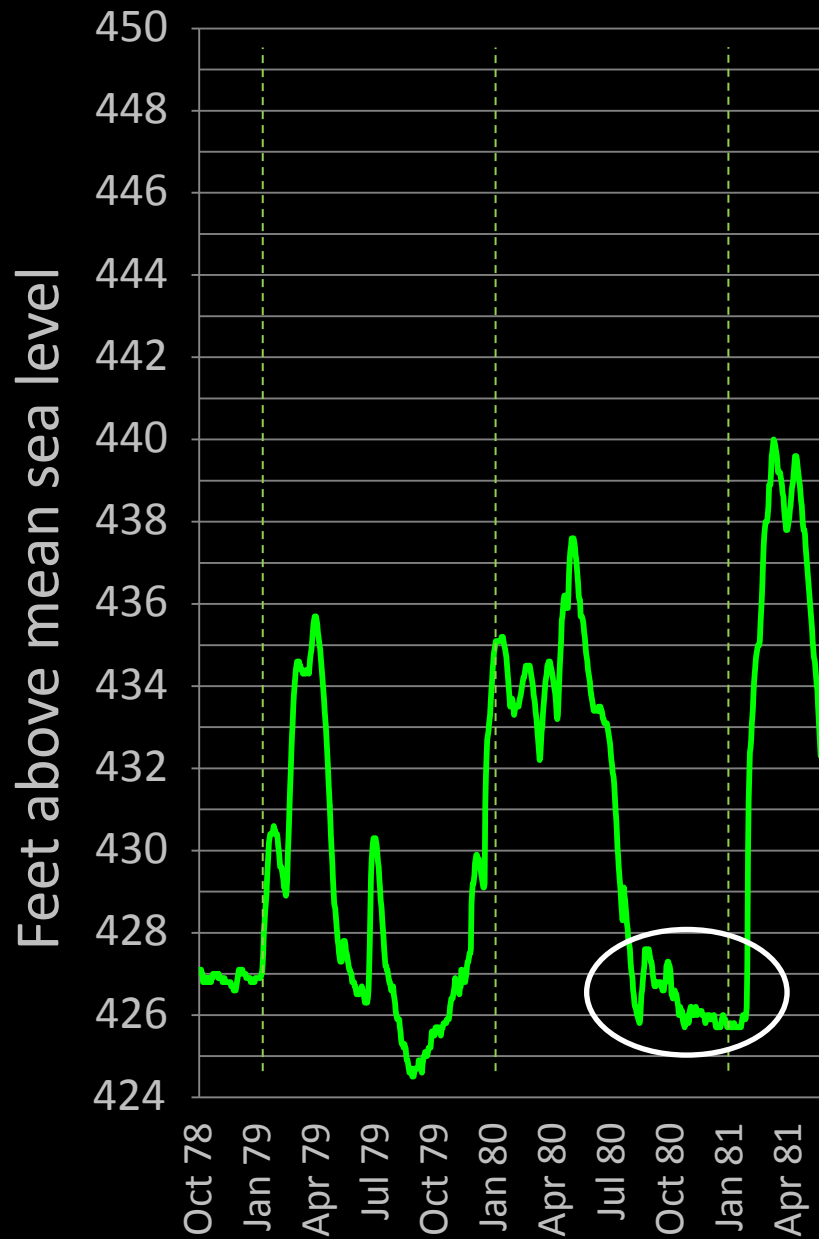
Hydrology: The dynamic processes of the water within an environment including the sources, timing, amount, and direction of water movement. California Coastal Commission



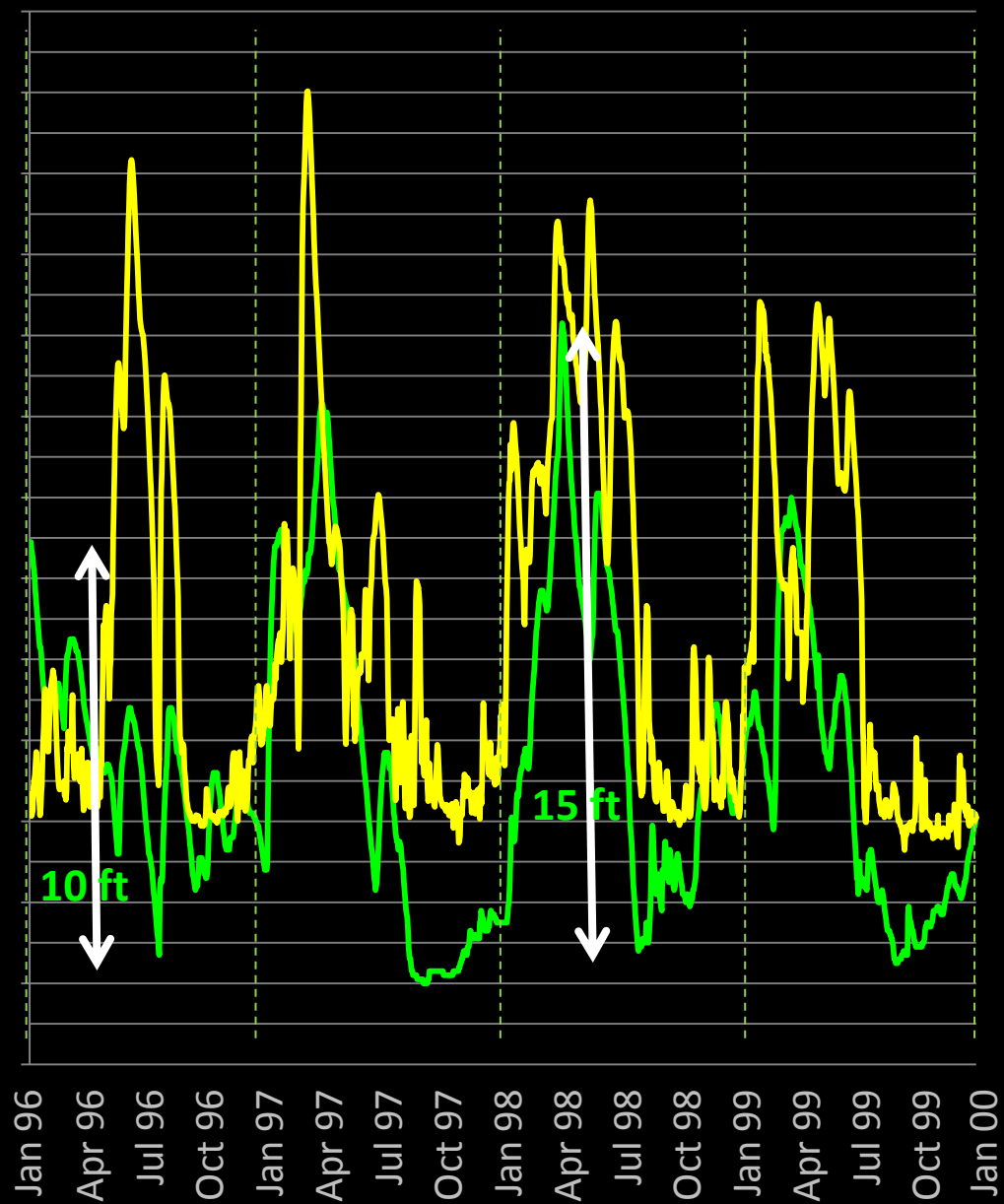
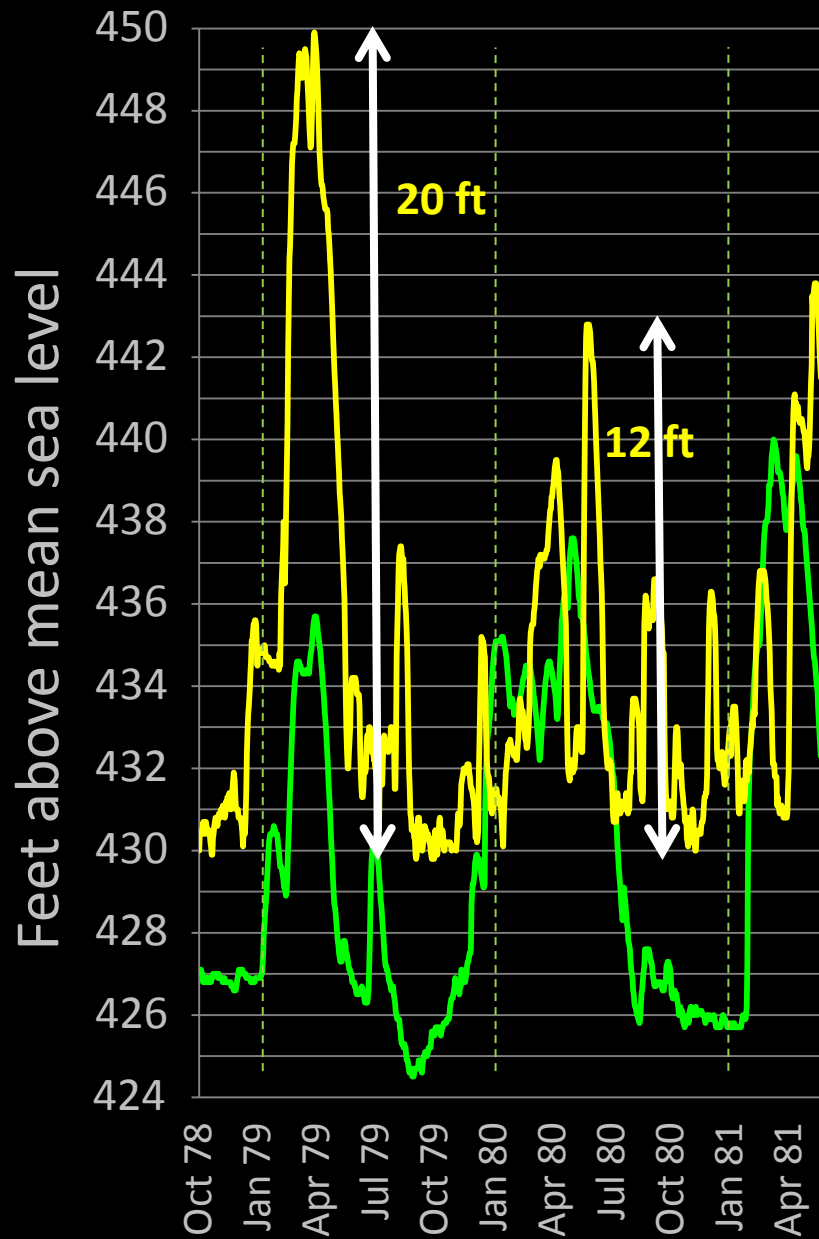
“Some of these, as, for example, Thompson’s Lake, retain at all times their connection with the river, and receive their water supply wholly or in large part from it.”

The Plankton of the Illinois River, 1894-1899, with Introductory Notes upon the Hydrography of the Illinois River and Its Basin. By C.A. Kofoid. Bulletin of the Illinois State Laboratory of Natural History. 1903.

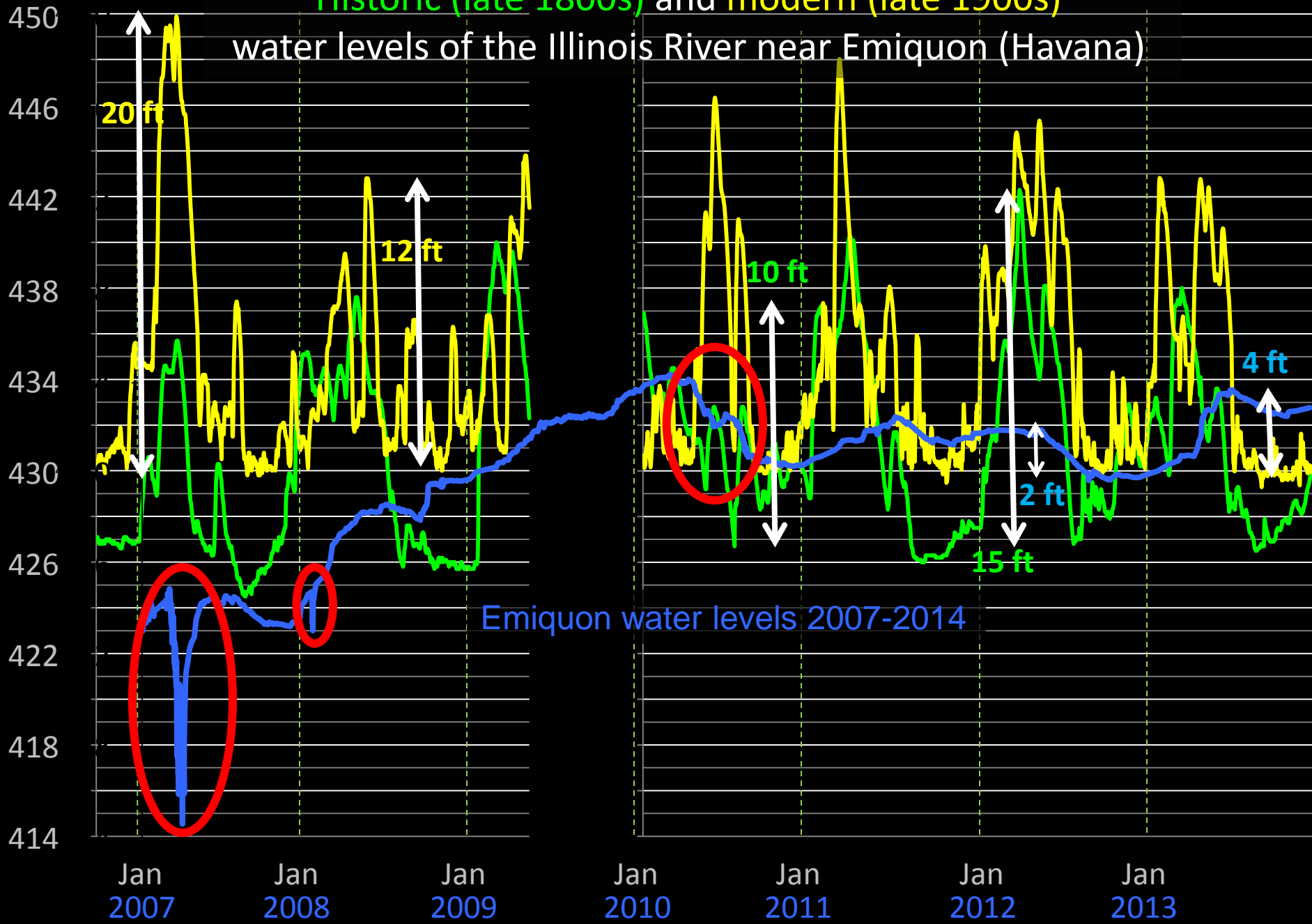
Historic (late 1800s) water levels of the Illinois River near Emiquon (Havana)



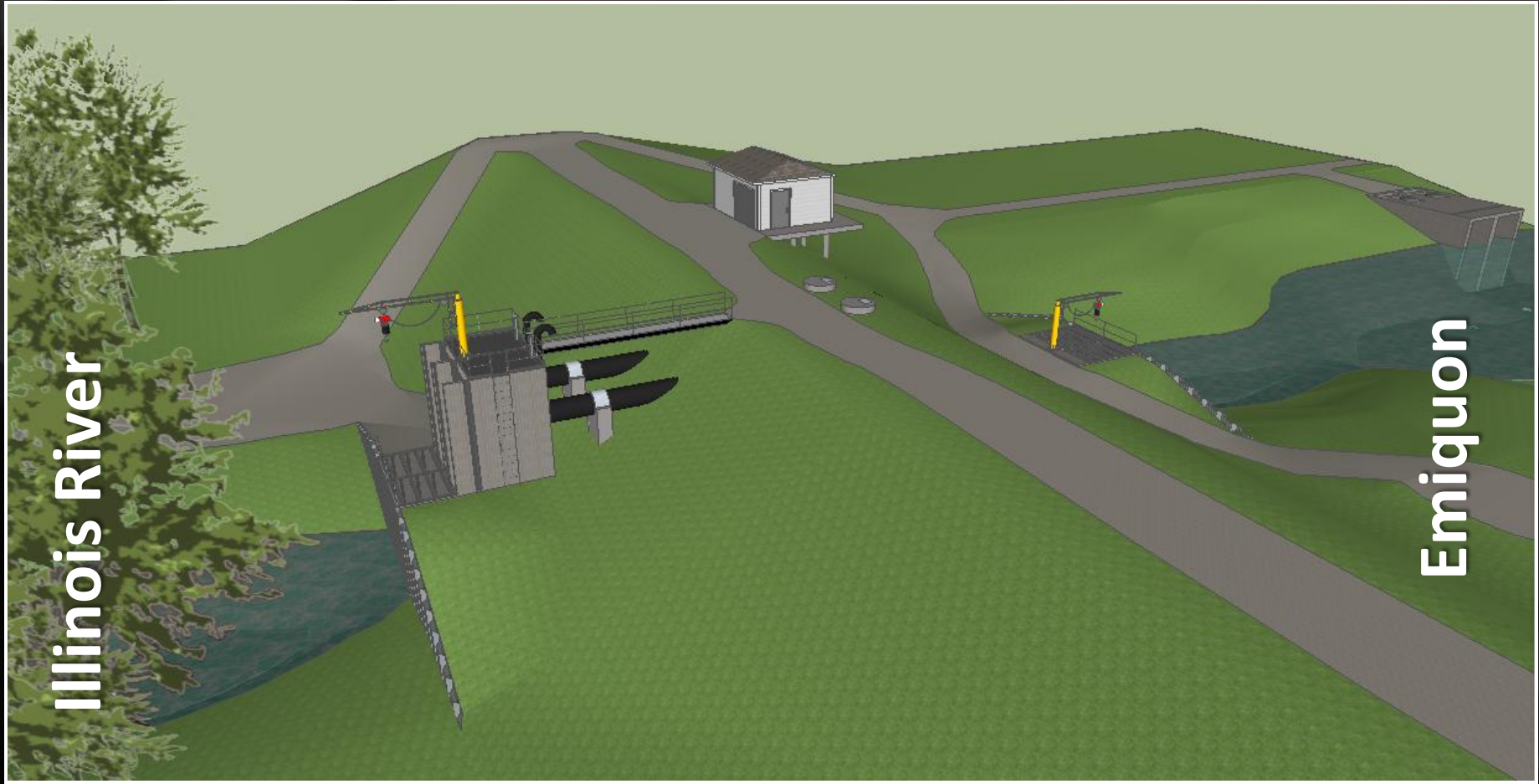
Historic (late 1800s) and modern (late 1900s) water levels of the Illinois River near Emiquon (Havana)



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

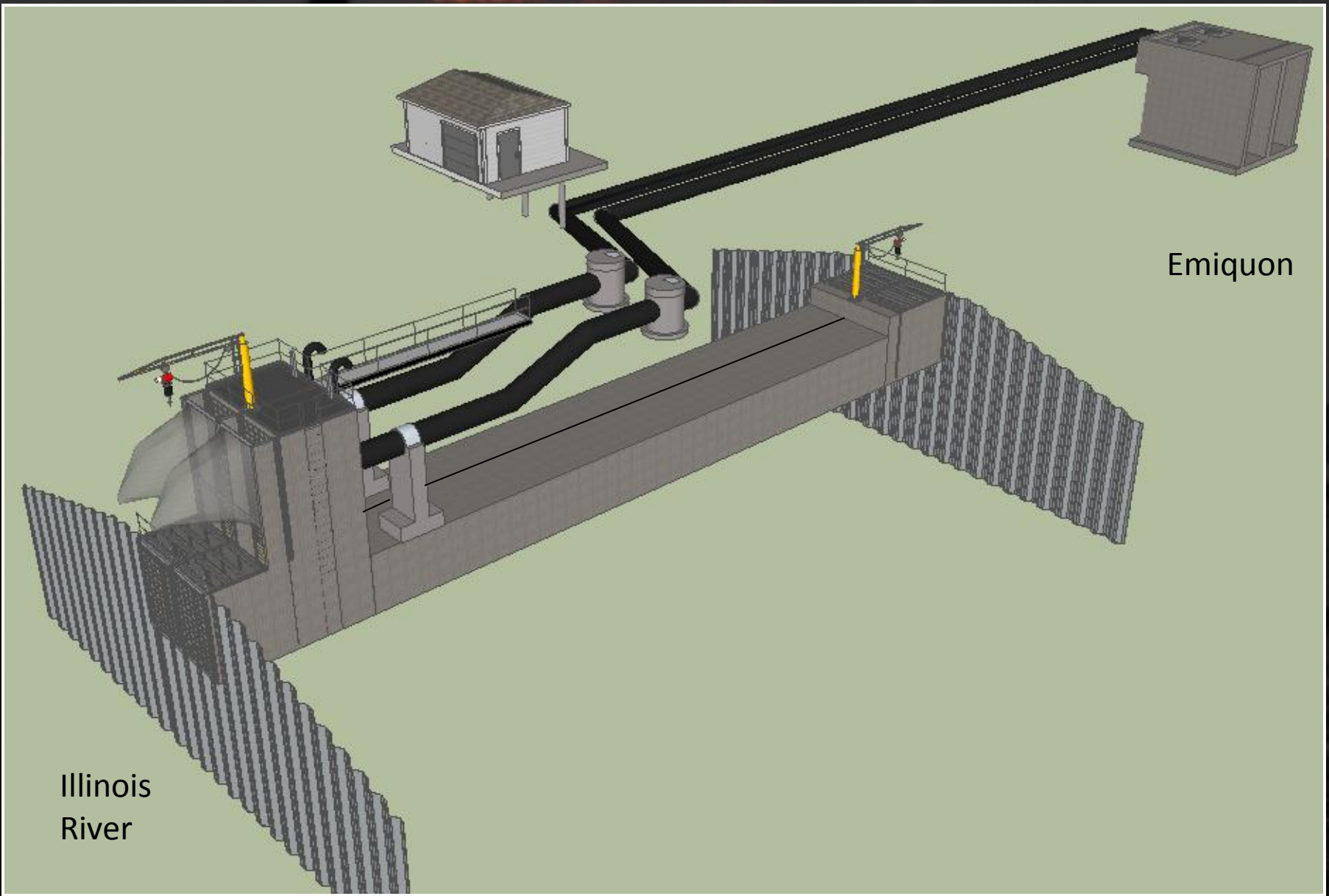


Emiquon water levels 2007-2014



Illinois River

Emiquon



Emiquon

Illinois
River

Among the restoration and management challenges:

Altered hydrology

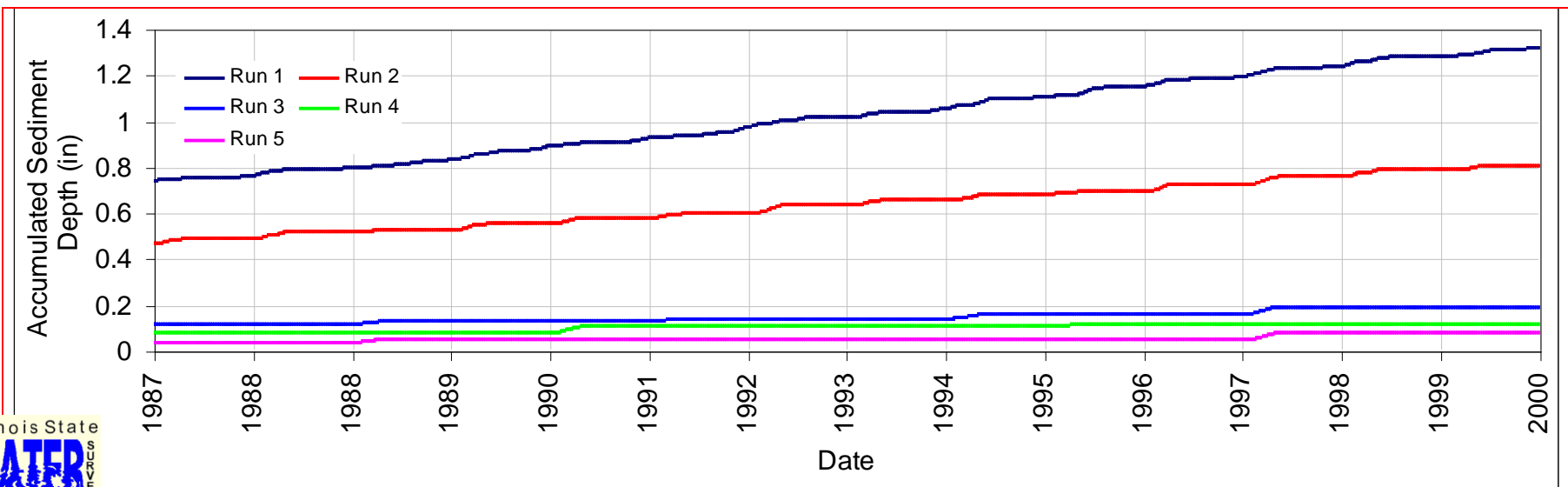
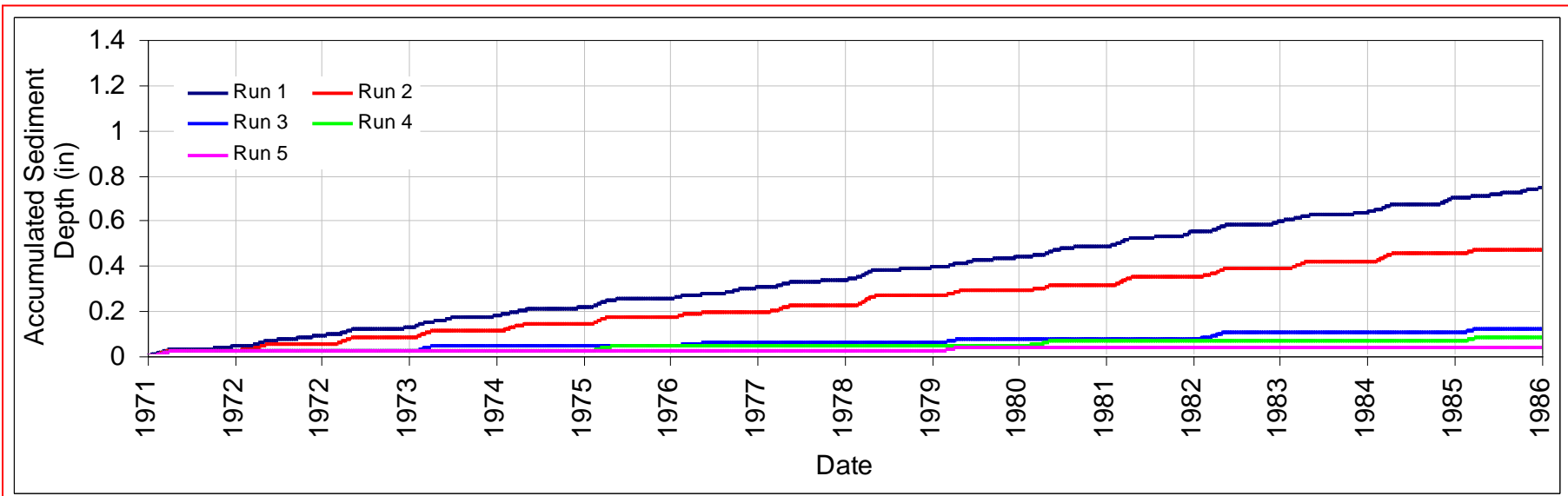
Excessive sediment

Invasive species

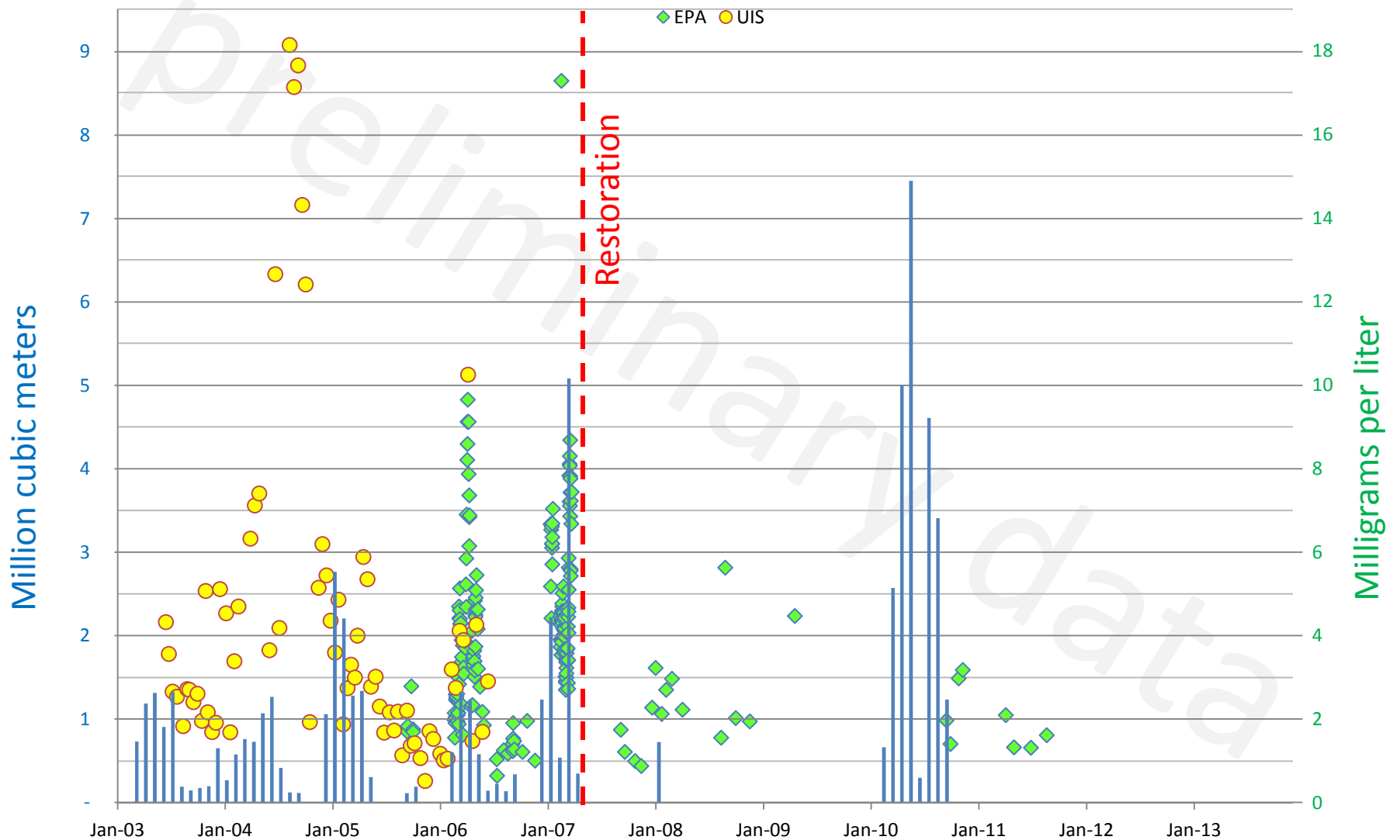
Perspectives, expectations and policies



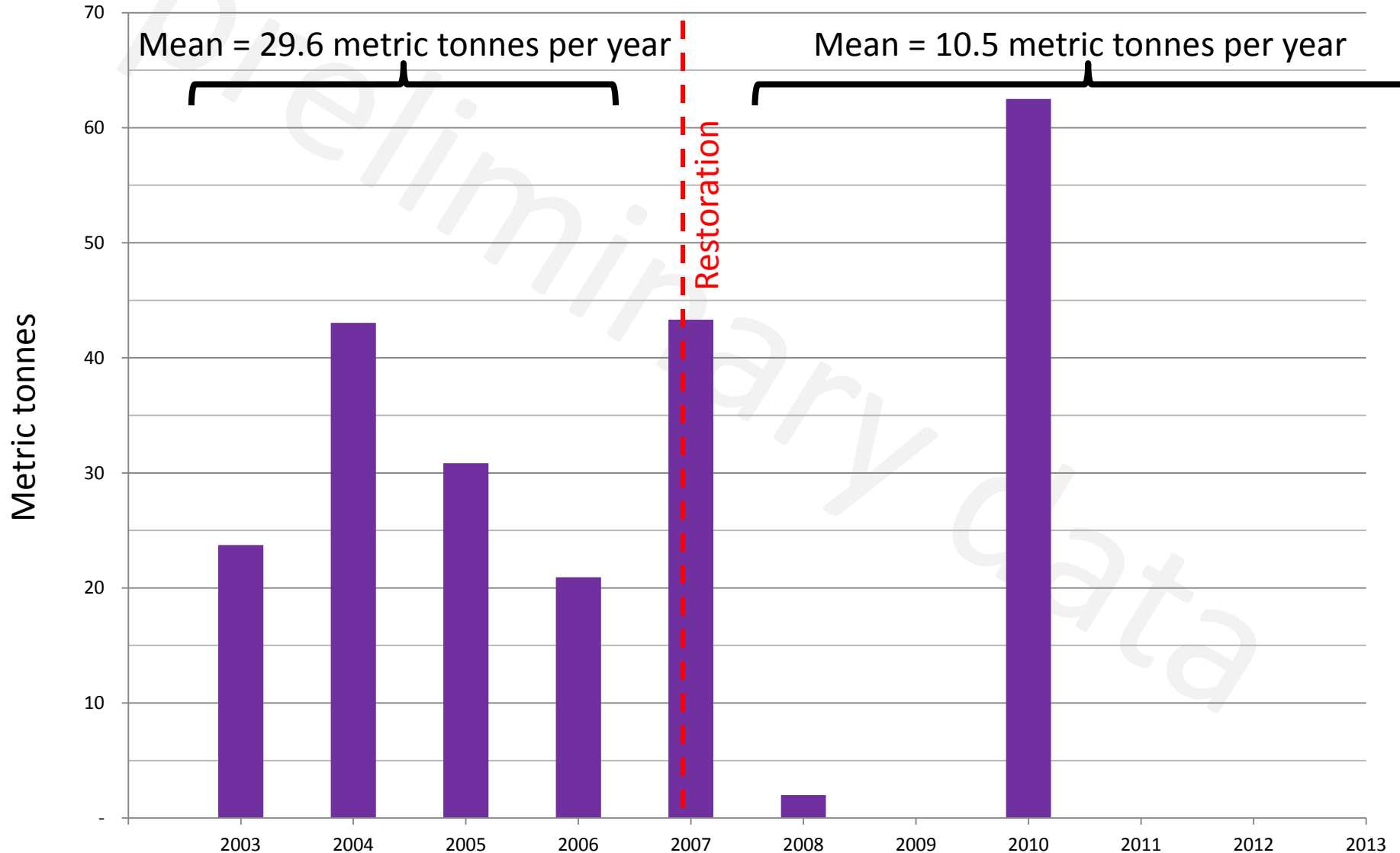
Modeling by Illinois State Water Survey Accumulated Sediment Depth (inches)



Discharge and total Nitrogen concentrations at Emiquon



Annual discharge of nitrogen from Emiquon to the Illinois River (estimated total of 226 metric tonnes)



Among the restoration and management challenges:

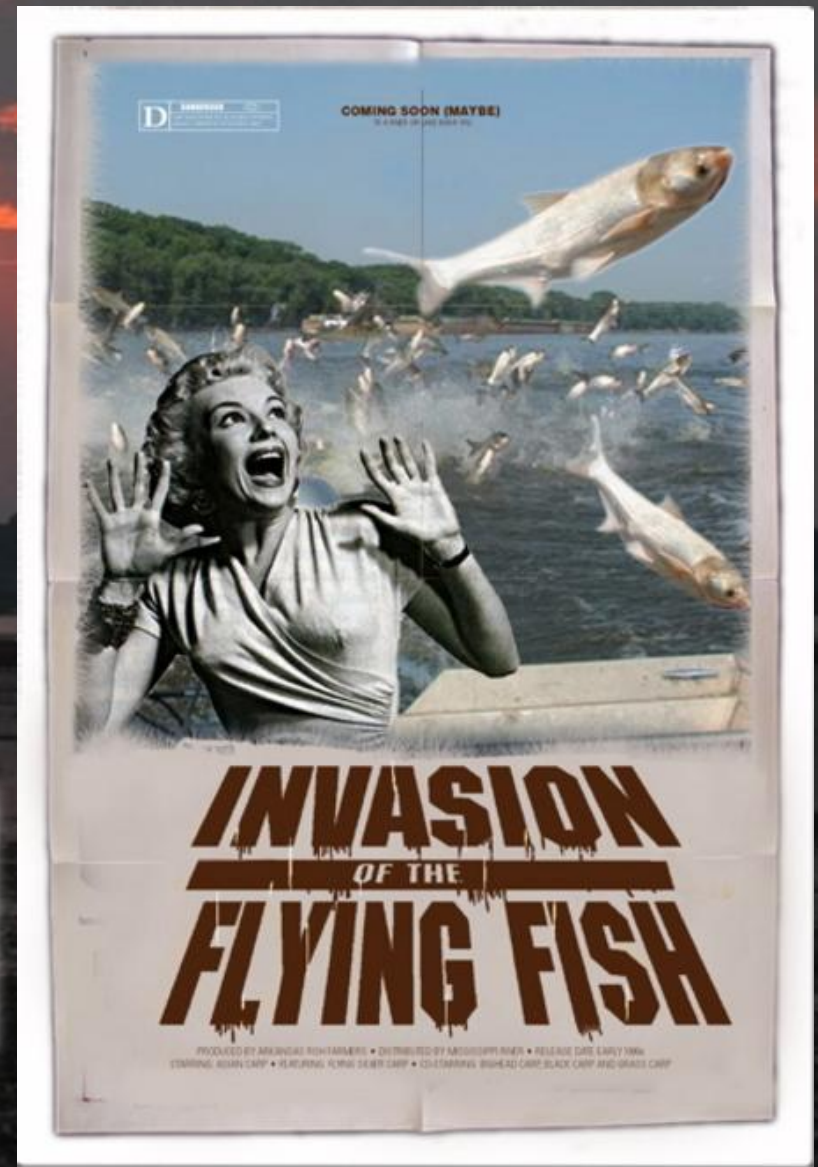
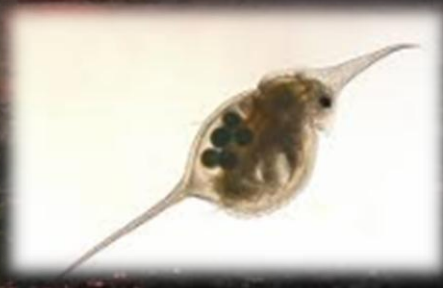
Altered hydrology

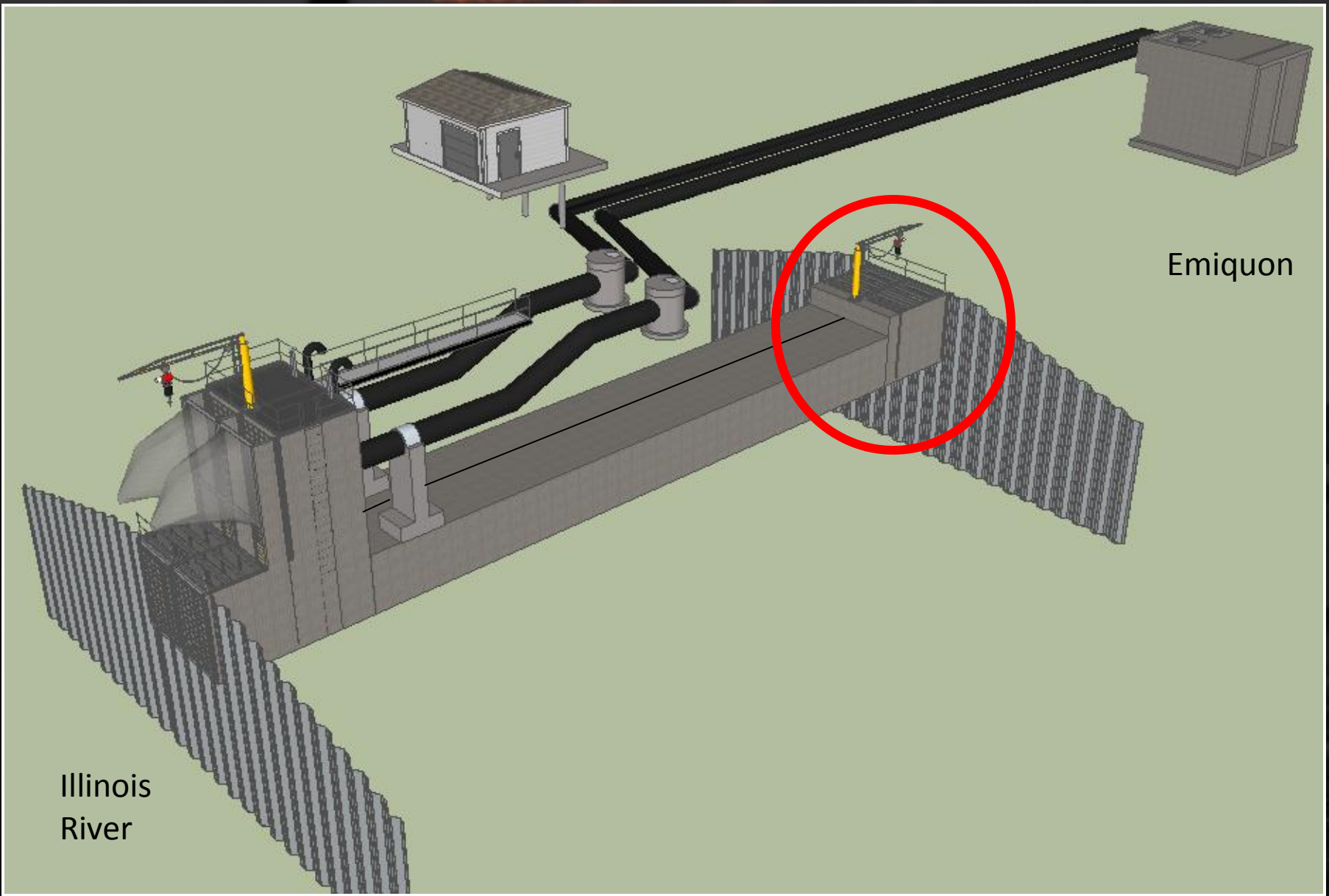
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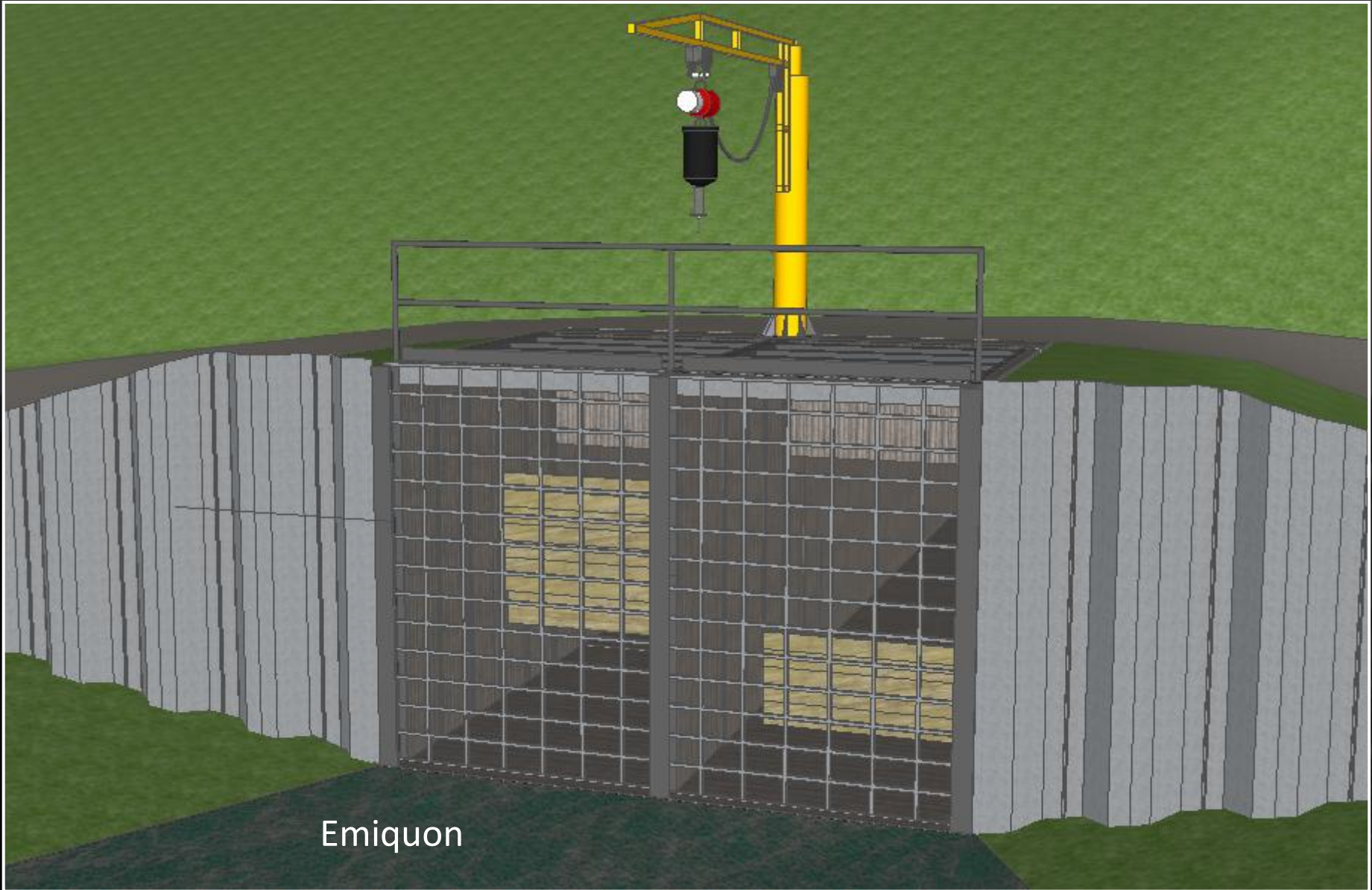
Invasive species



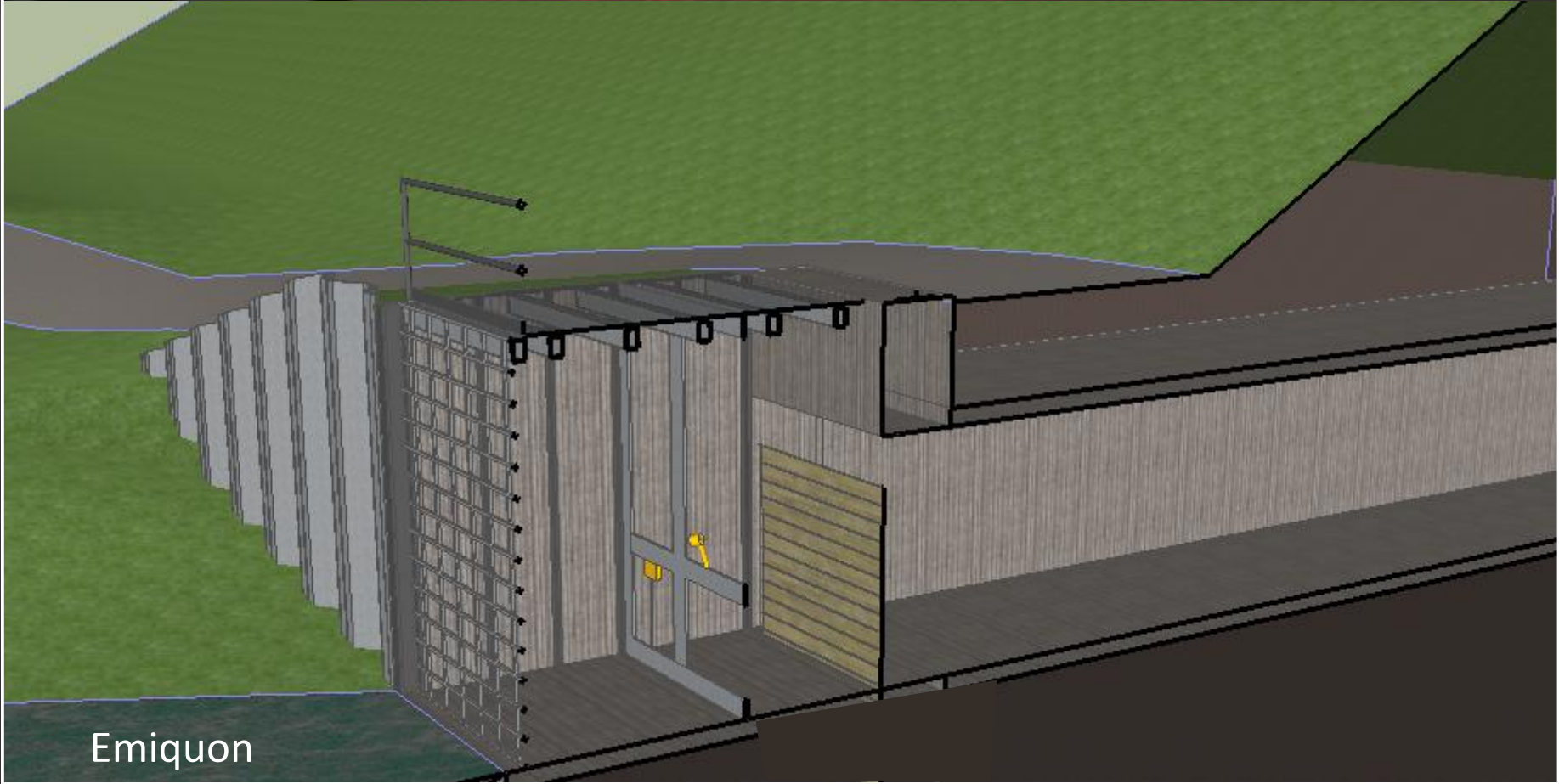


Emiquon

Illinois
River



Emiquon



Emiquon

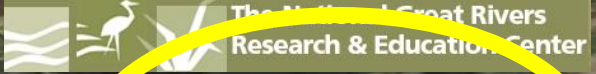
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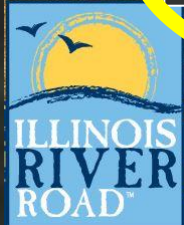
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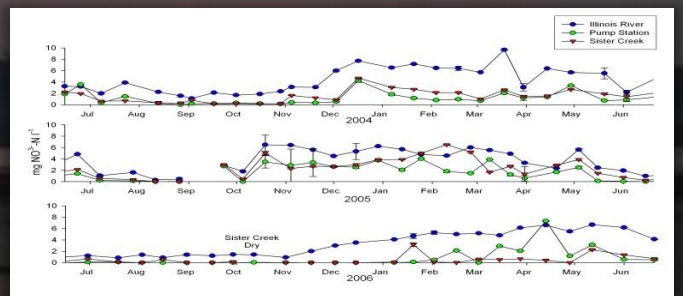


Thompson Drainage
and Levee District



Science at Emiquon

Illinois Natural History Survey
University of Illinois Springfield
The Nature Conservancy
et al.



The Nature
Conservancy 
Protecting nature. Preserving life.™

 **HANSON**

 **MAURER-STUTZ**
ENGINEERS SURVEYORS

