

Using the Illinois River Floodplain to Reduce flood Damage and Naturalize Hydrology

by

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Hydrology of the Illinois River

Natural Factors

- Precipitation Fluctuations
- Watershed Characteristics

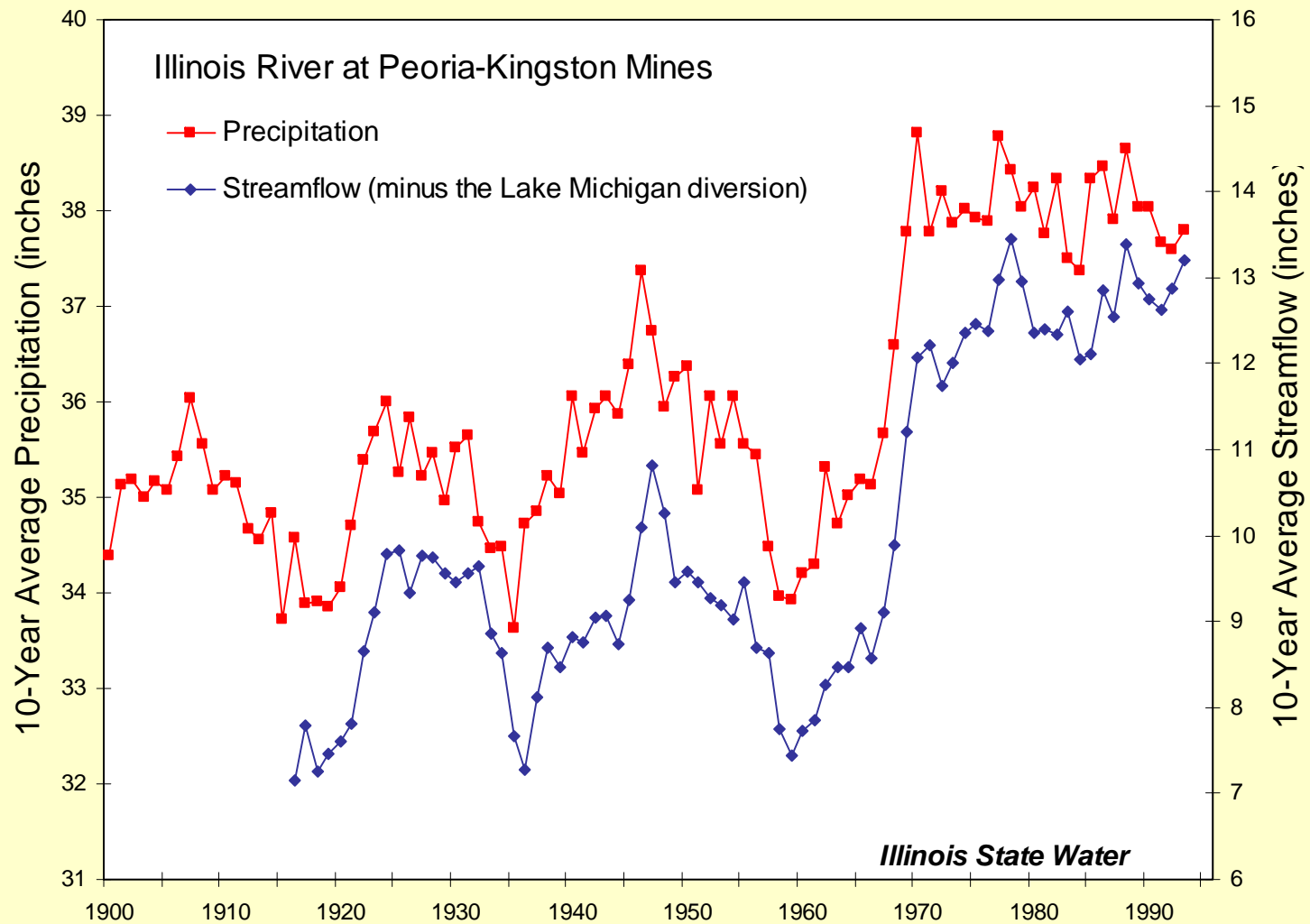
Human Induced Factors

- Land-Use Practices
- Hydraulic Modifications
 - Lock & Dams
 - Levees
- Water Diversions

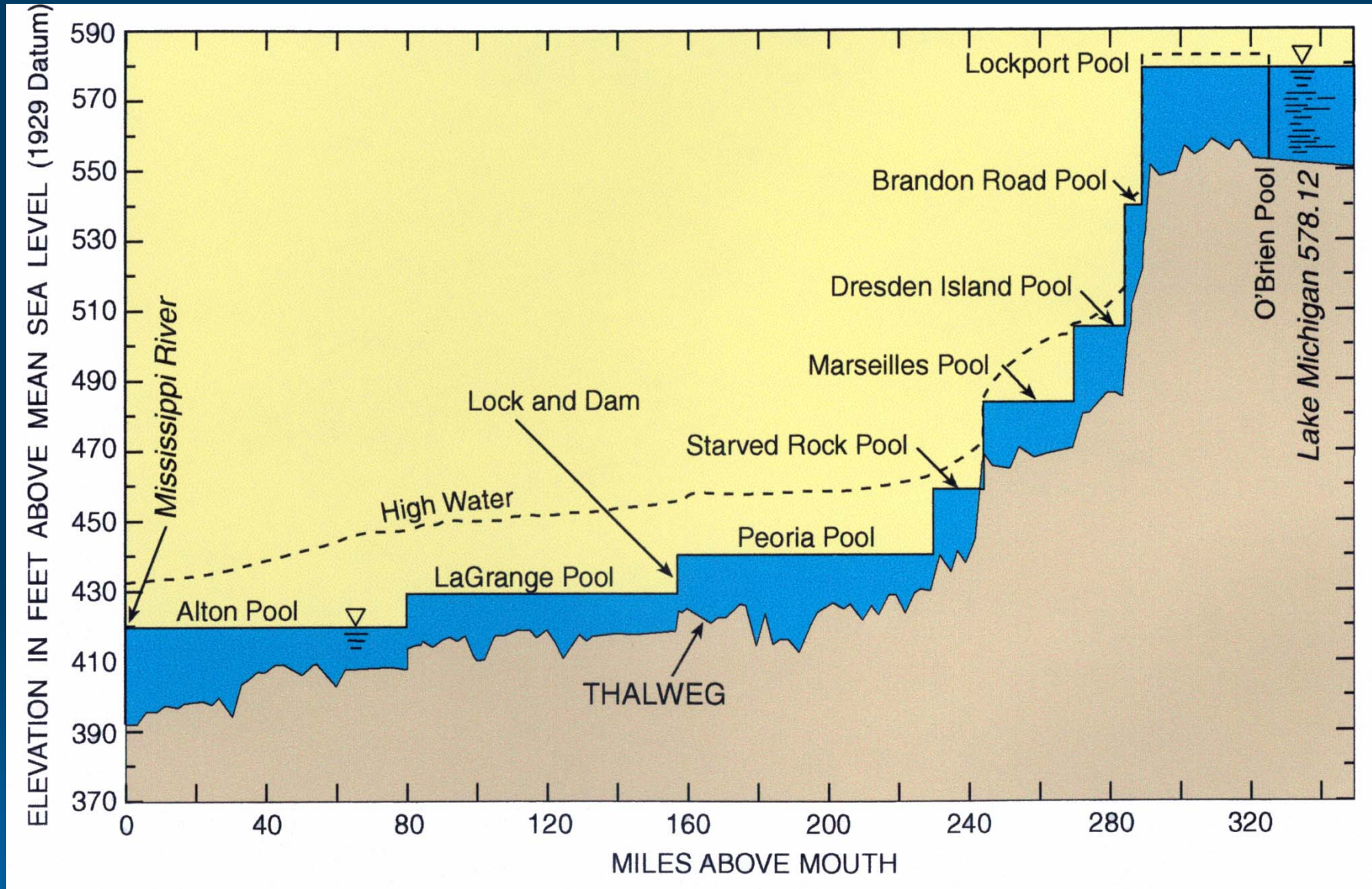
Illinois River Basin



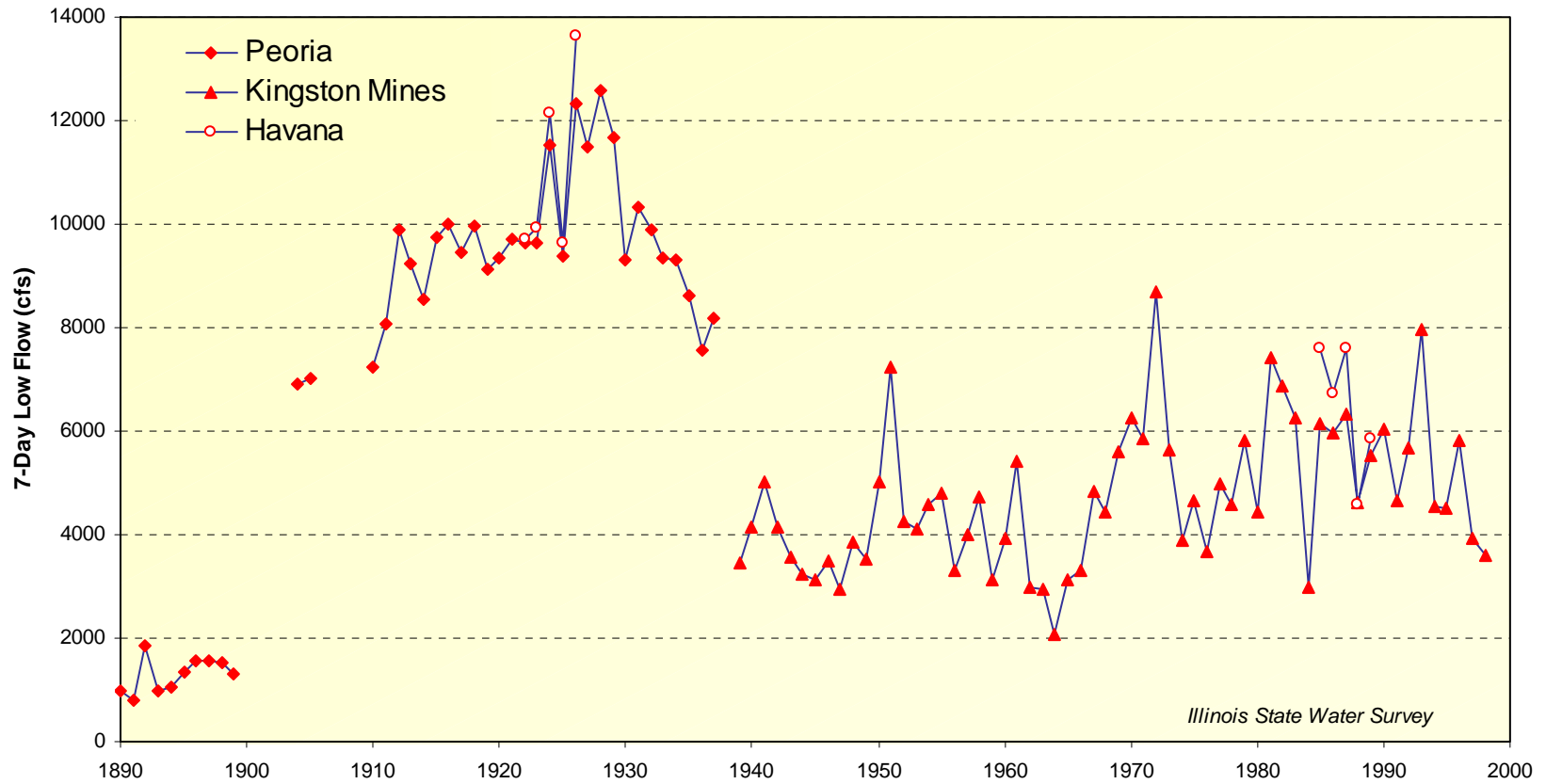
Average Precipitation and Average Streamflow



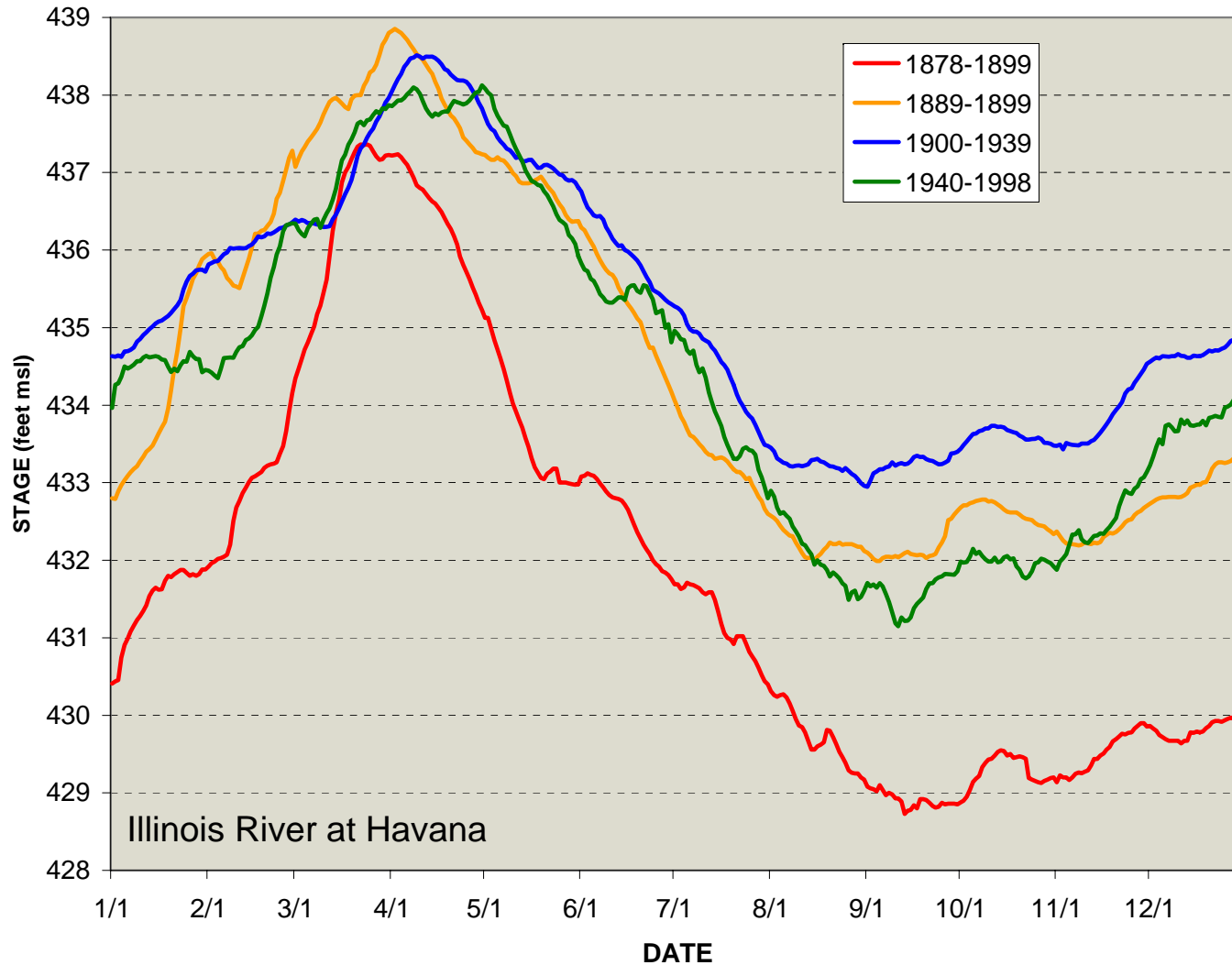
Profile of the Illinois River

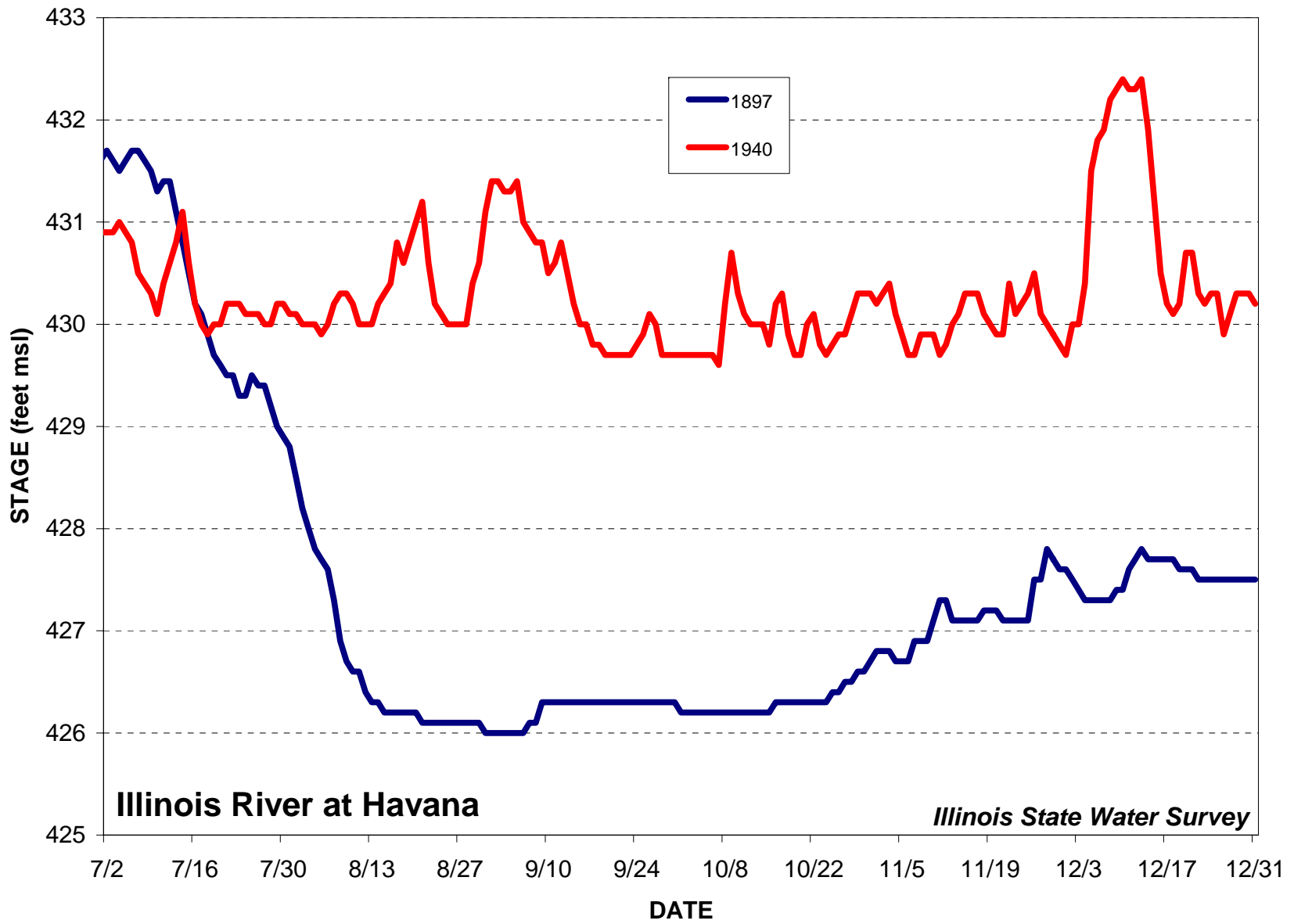


7-Day Low Flows



Average Annual Hydrographs





Illinois River at Havana

Illinois State Water Survey

Illinois River Basin Restoration Comprehensive Plan – USACOE & IDNR

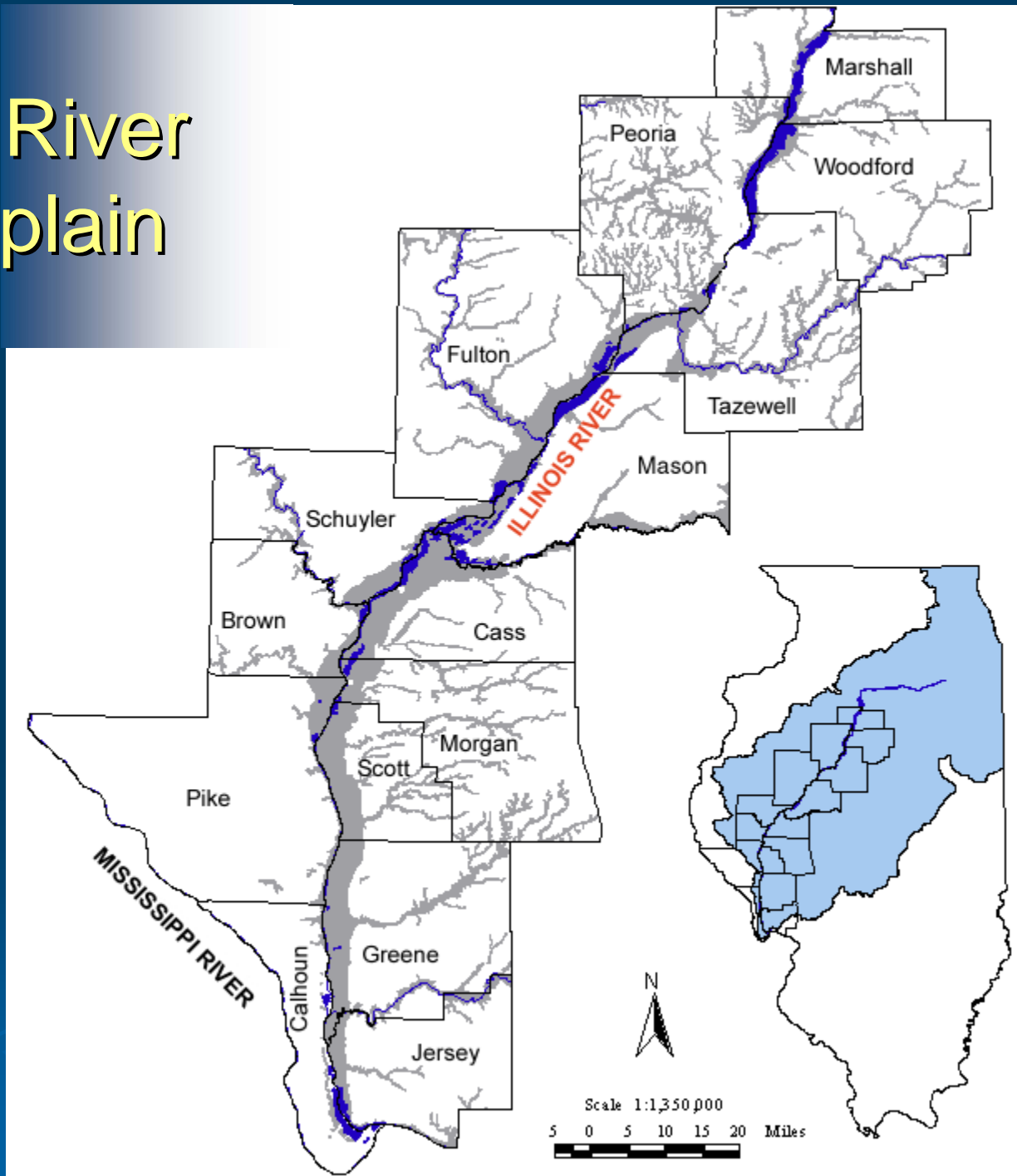
Vision: A naturally diverse and productive Illinois River Basin that is sustainable by natural ecological processes and managed to provide for compatible social and economic activities.

System Limiting Factors (Issues, Problems) and Goals

3. Loss of Floodplain, Riparian, and Aquatic Habitats, and Functions
 - **Goal 3.** Improve floodplain, riparian, and aquatic habitats and functions.

5. Altered Hydrology and Water Levels
 - **Goal 5:** Naturalize Illinois River and tributary hydrologic regimes and conditions to restore aquatic and riparian habitats.

Lower Illinois River and its Floodplain



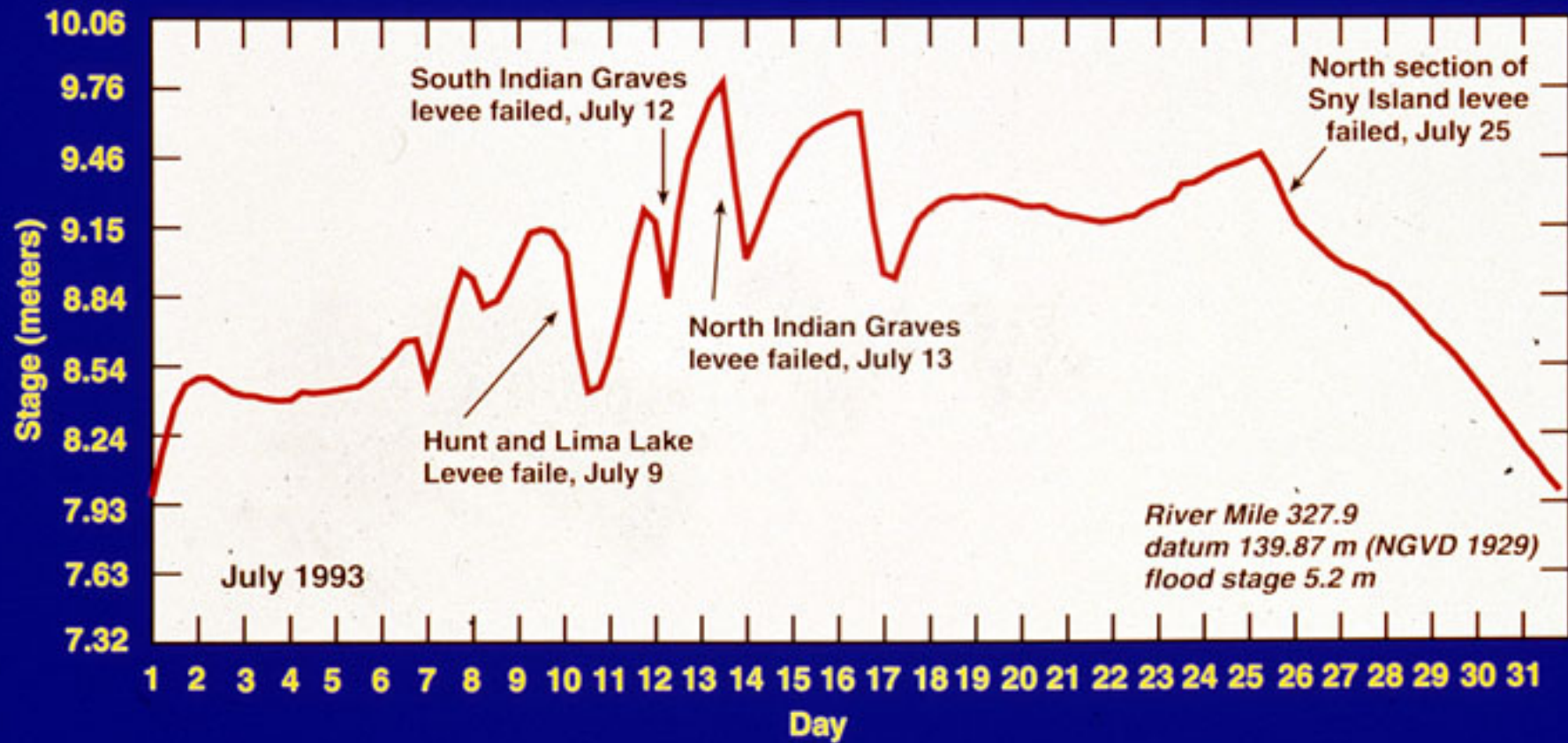
Levee and Drainage Districts



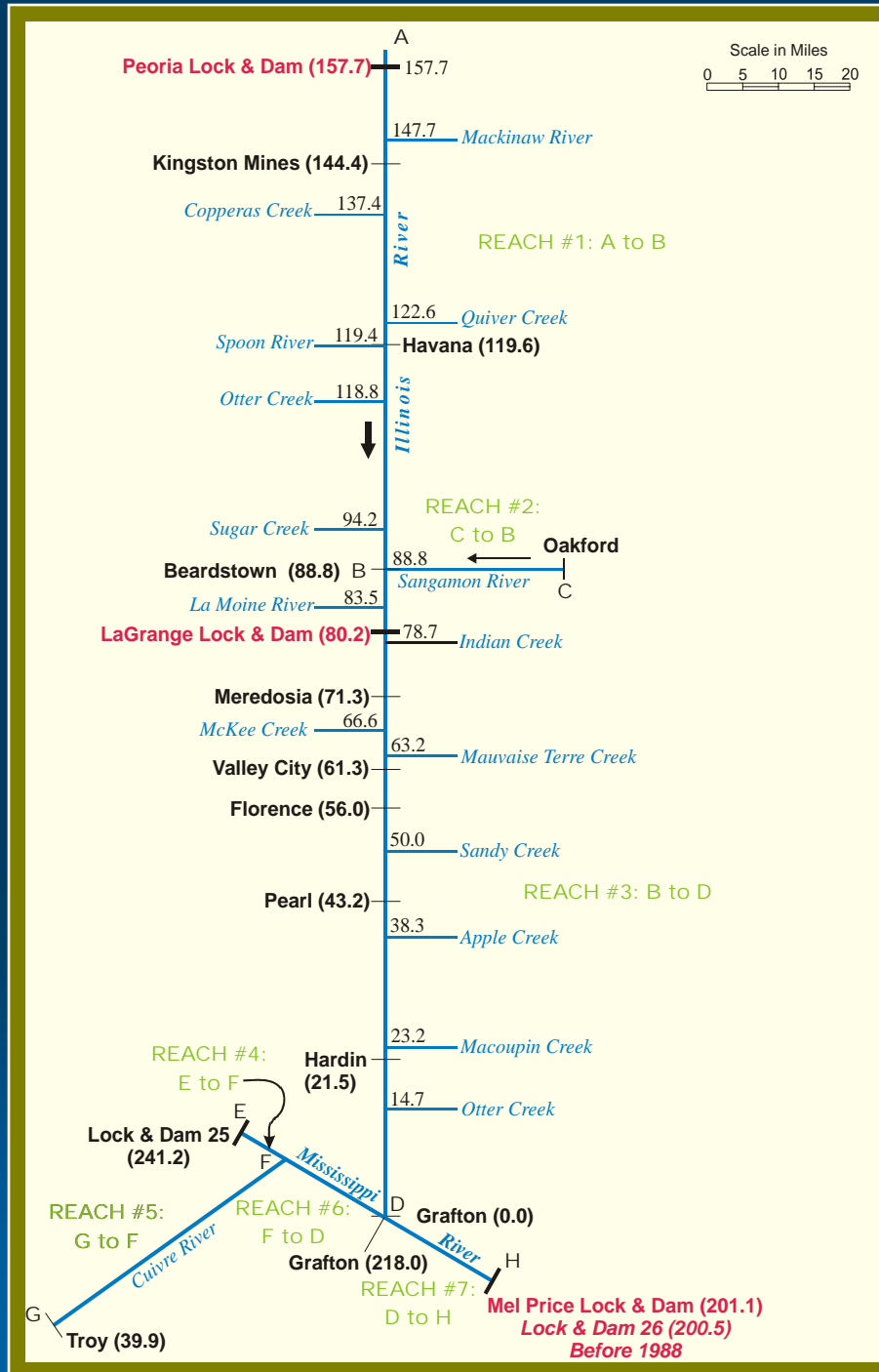
Impact of Levees during the 1993 Flood on the Illinois River



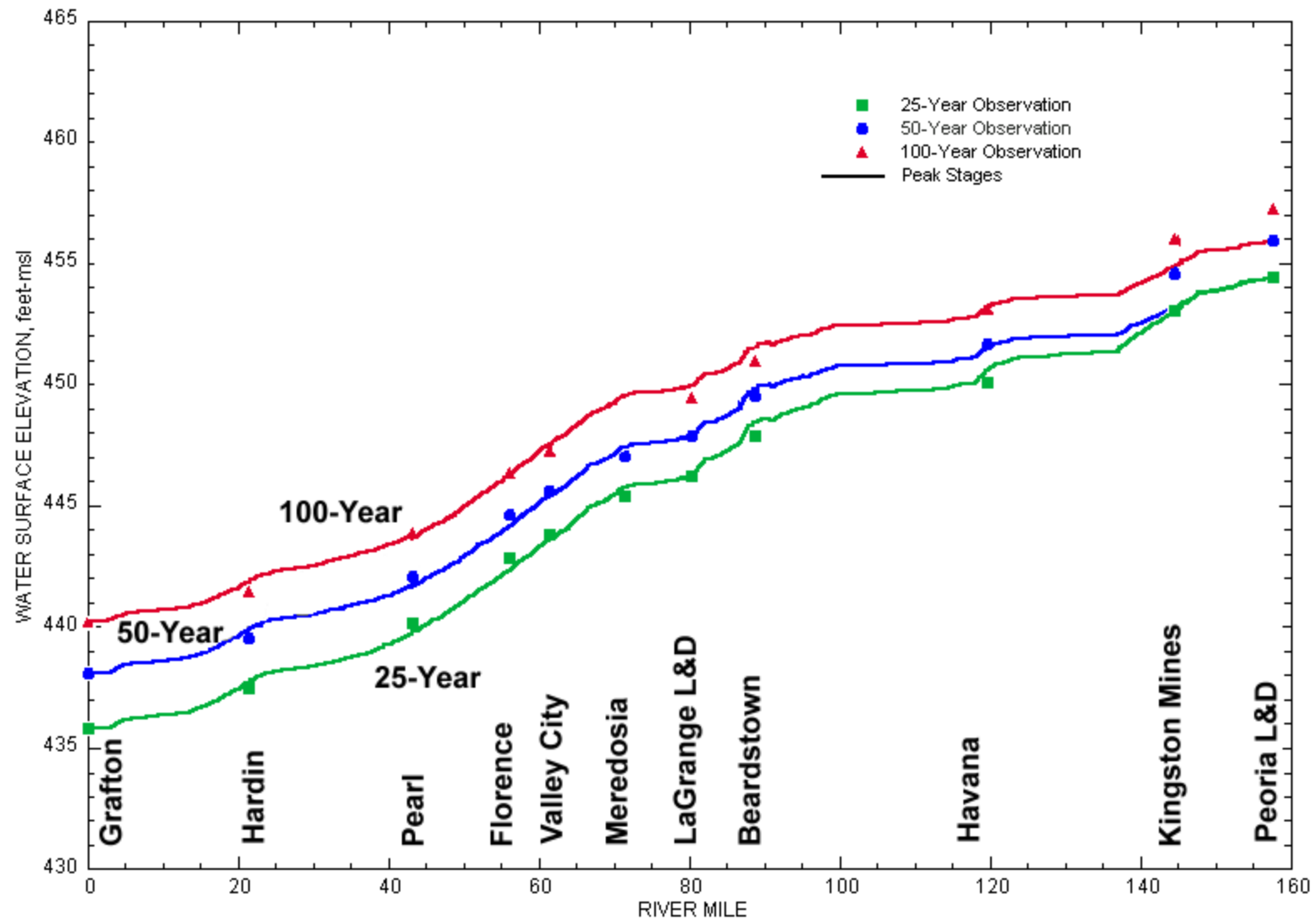
Mississippi River Stages for July 1 through July 31, 1993 for Quincy, IL



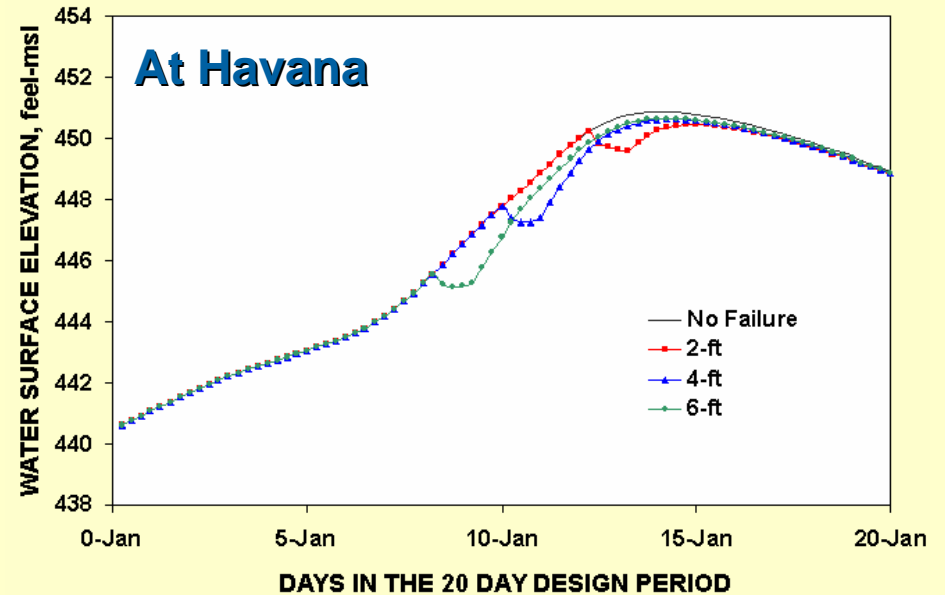
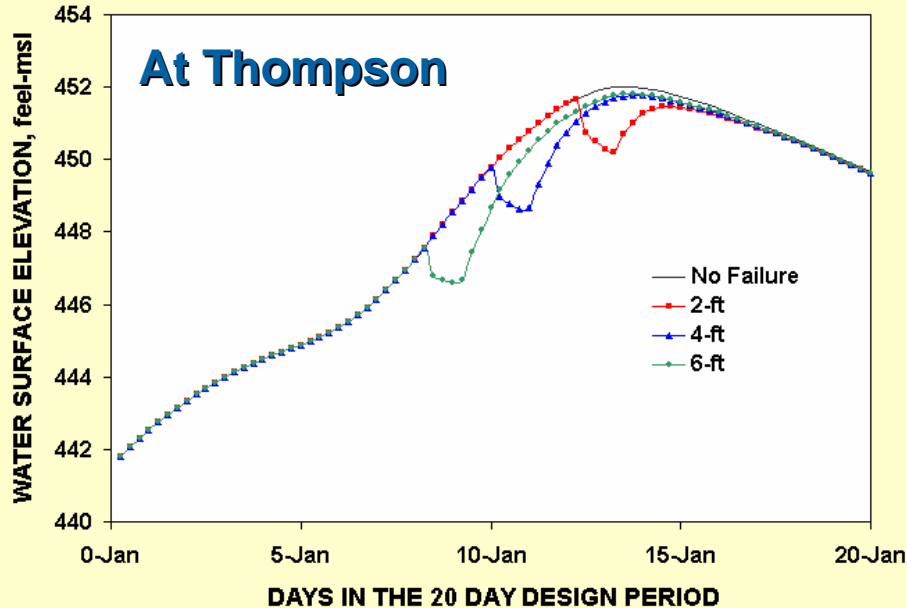
7-Reach Lower Illinois River UNET Model



Water Surface Profile

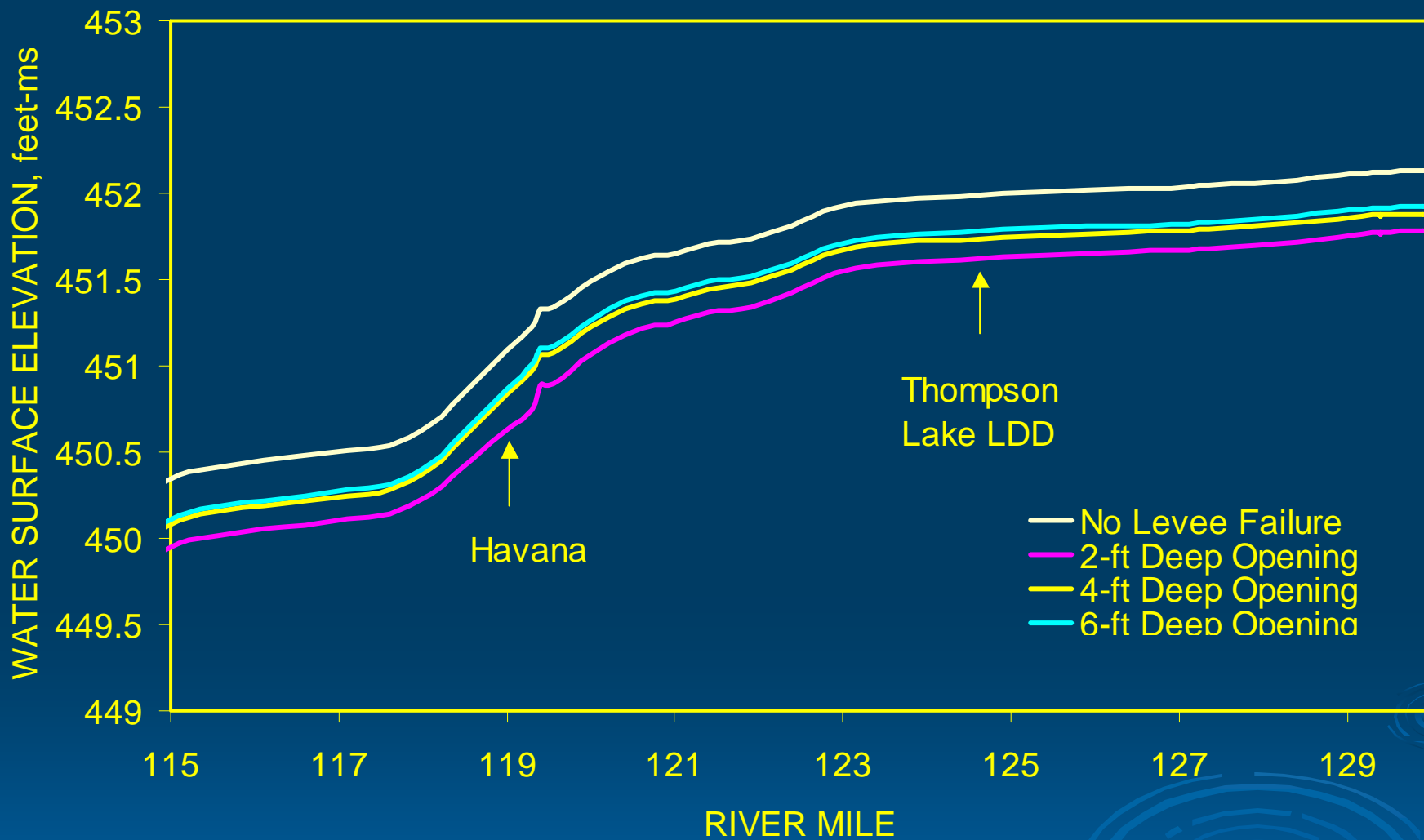


Simulated Hydrographs with and without Levee Breaching (50-year design)



Levee Breaching at Thompson Lake District

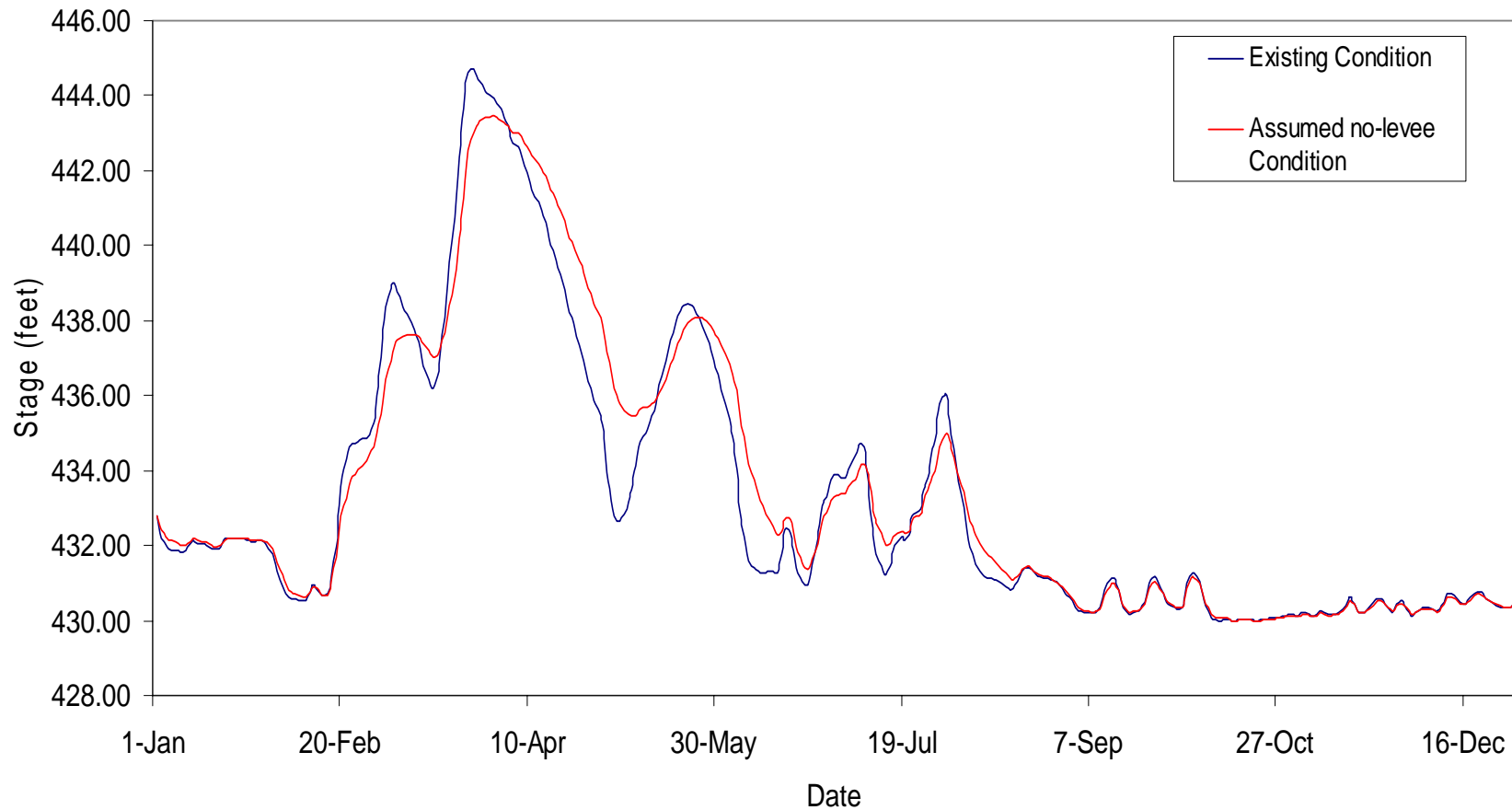
Only



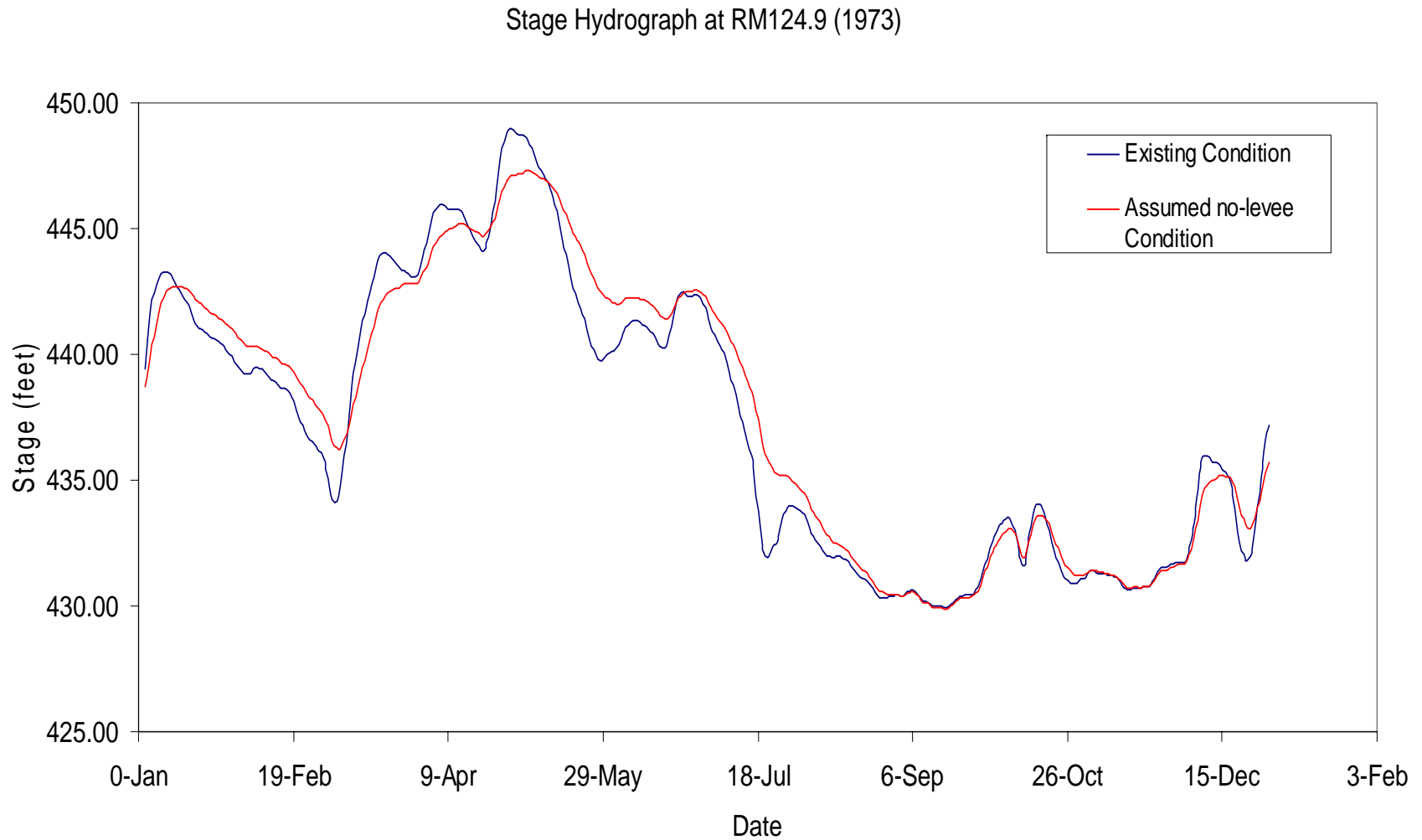
Water surface elevation profiles with and without levee breaching at Thompson Lake Levee District

Impact of Levees on Flood Peaks

Stage Hydrograph at RM124.9 (1948)

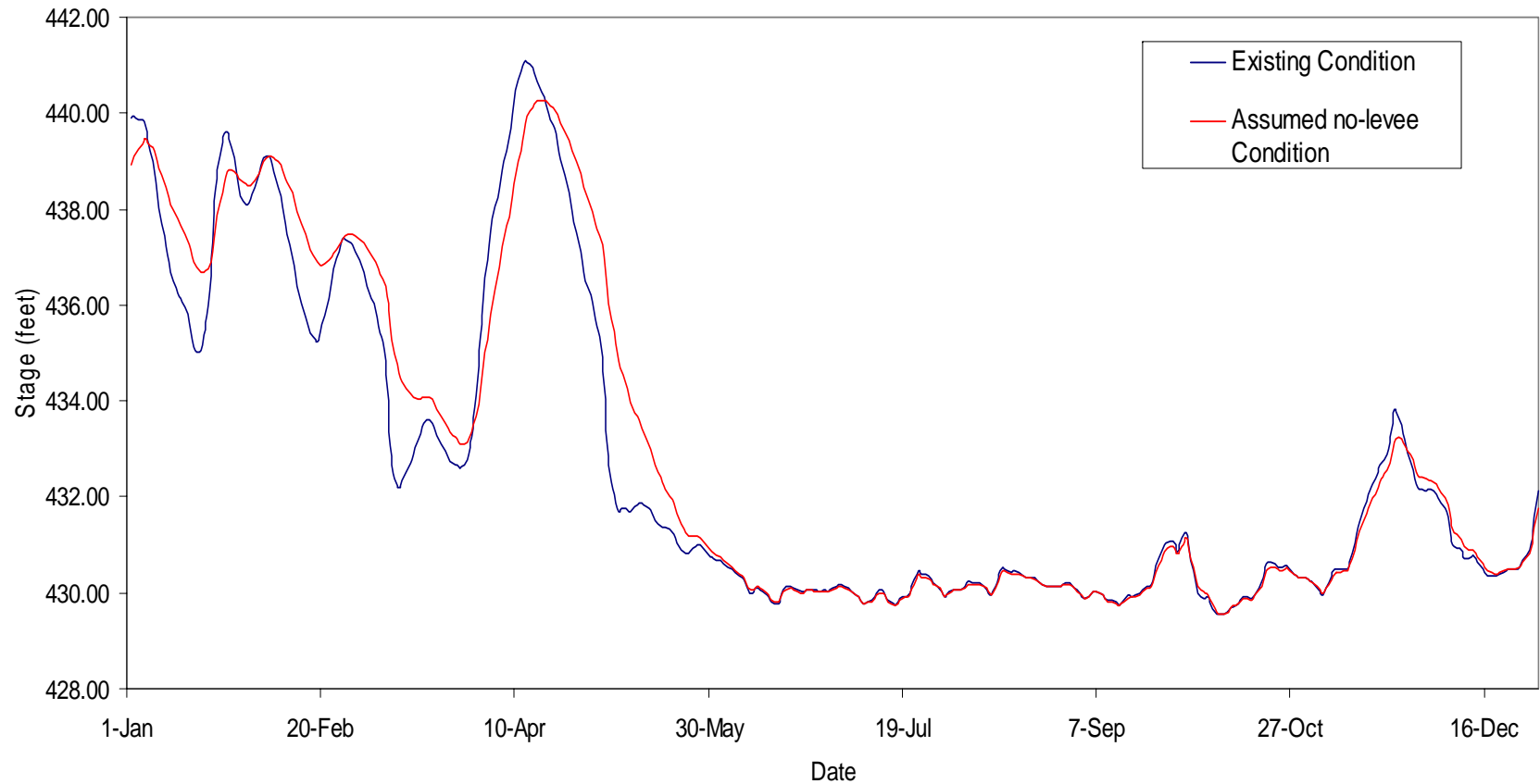


Impact of Levees on Flood Peaks



Impact of Levees on Flood Peaks

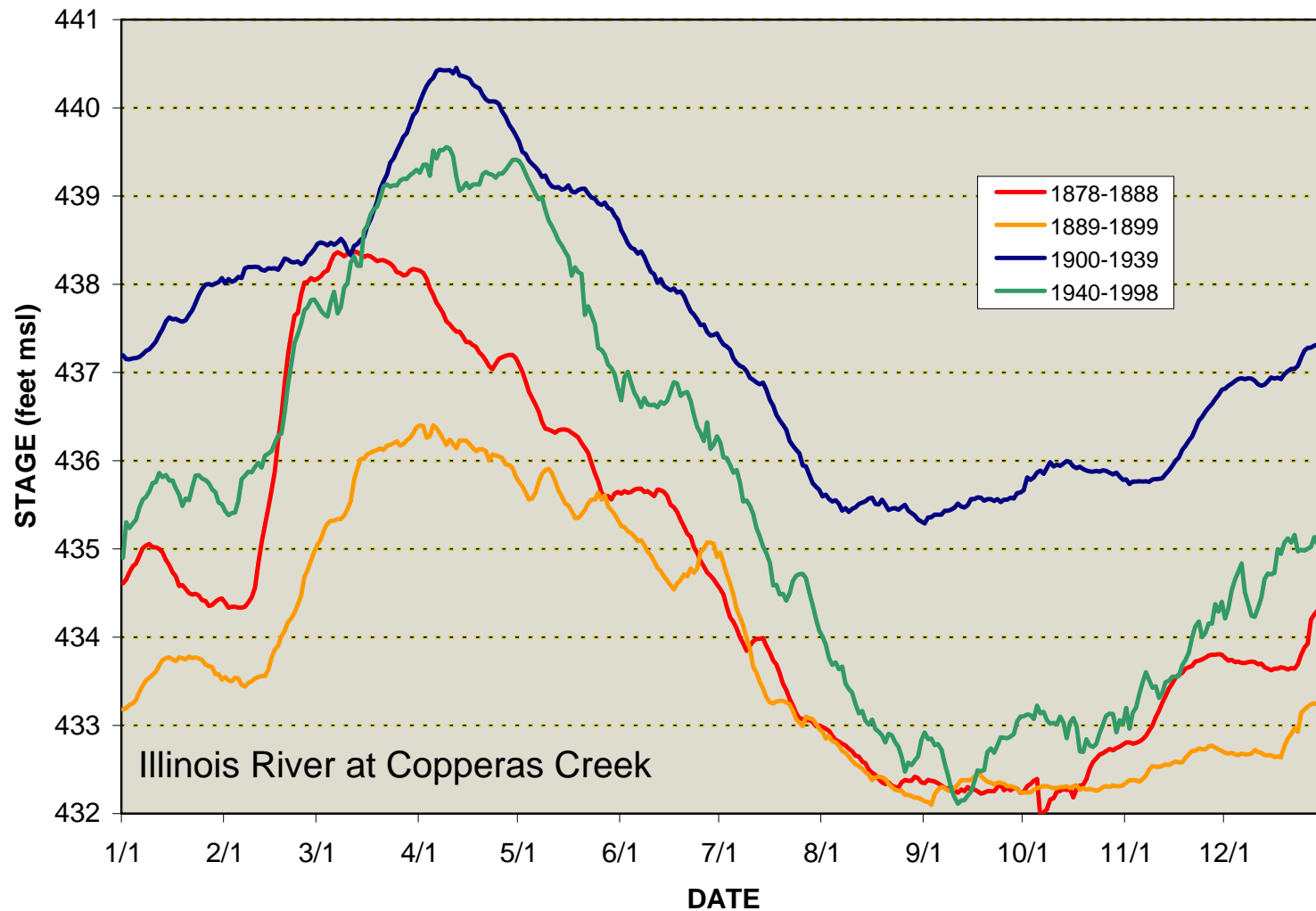
Stage Hydrograph at RM124.9 (1988)



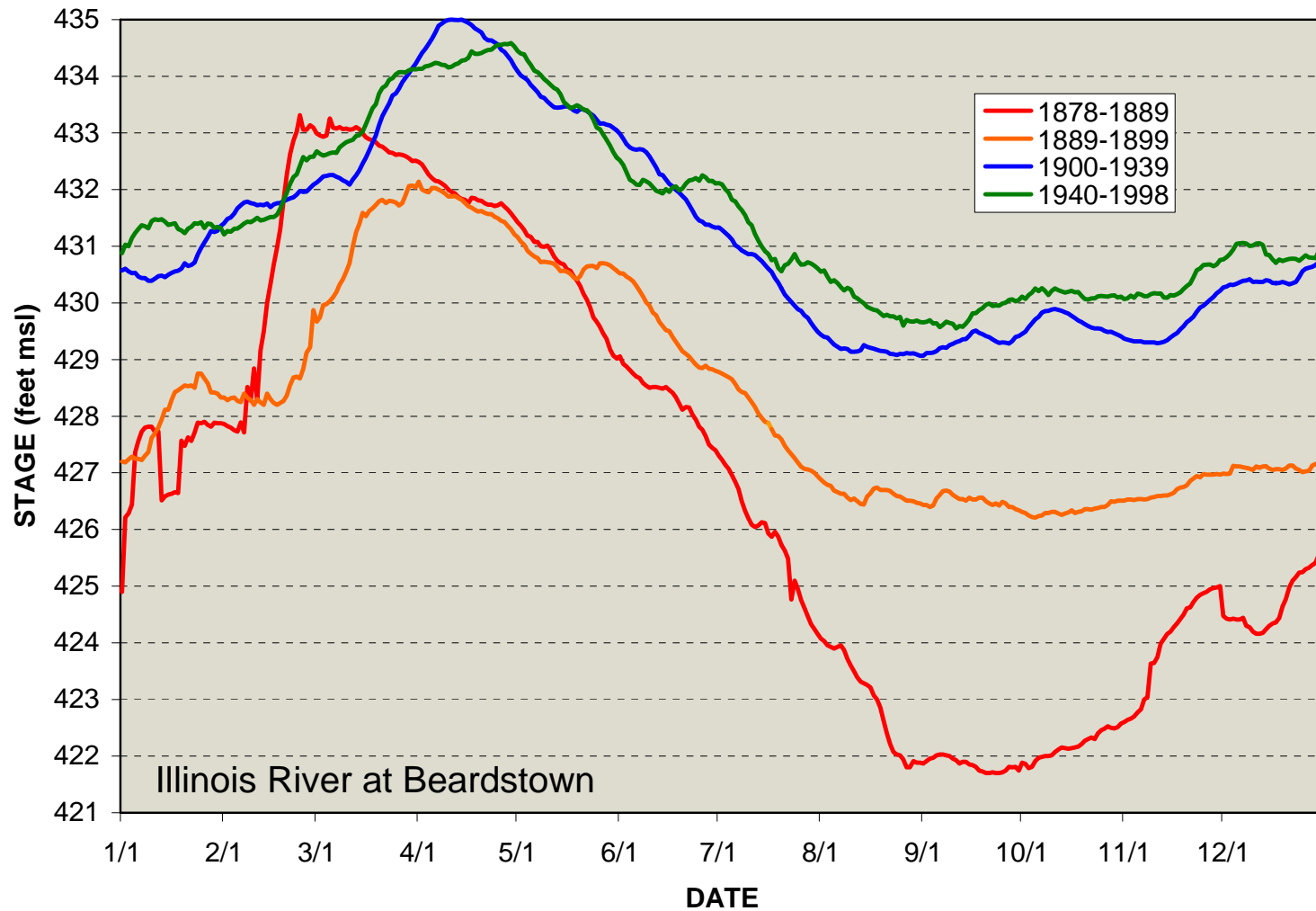
In Conclusion

- Sound Policy and Management should be Based on Sound Science.
 - Accurate and Reliable Data
 - Calibrated and Verified Models
 - Stakeholders Participation throughout the Whole Process
 - Reduces Mistrust and Potential Conflicts
- The Illinois State Water Survey is always available to cooperate and work on scientific issues related to the management of our water resources.

Average Annual Hydrographs



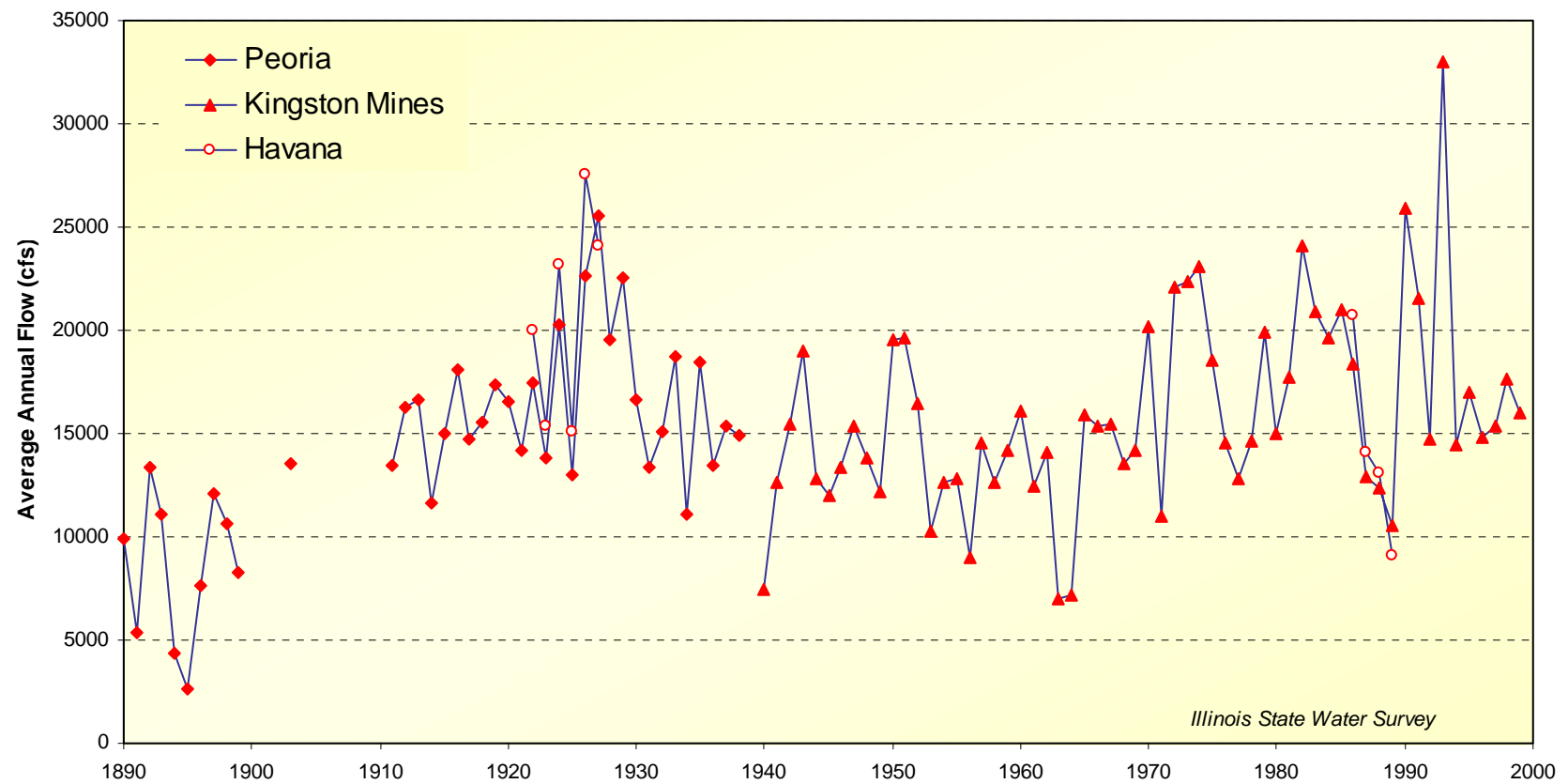
Average Annual Hydrographs



Outline

- Background on the Illinois River
 - Hydrology of the Illinois River
 - Natural Factors
 - Human Induced Factors
 - Water Quality Trends
 - Restoration initiatives
 - Issues & Goals
 - CREP
 - Illinois River Ecosystem Restoration

Average Annual Flows



Illinois State Water Survey

High Flows

