

Sedimentation Impacts at the Confluence of the Sangamon and Illinois Rivers

**Regional Sediment Management Program
FY12 In-Progress Review**

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30 August 2012



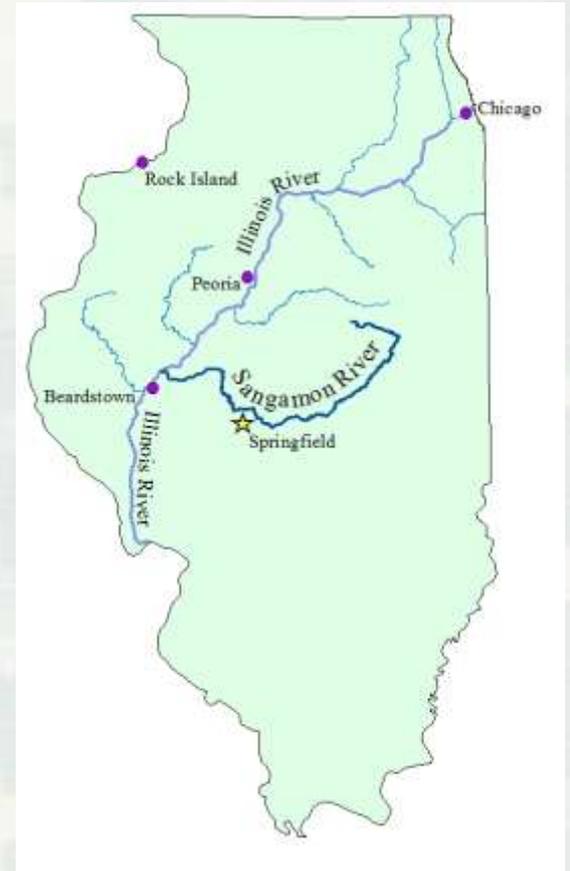
US Army Corps of Engineers
BUILDING STRONG®



Sedimentation Impacts at the Confluence of the Sangamon and Illinois Rivers

Frequent dredging is required in the navigation channel on the Illinois downstream of the confluence of the Sangamon and Illinois Rivers

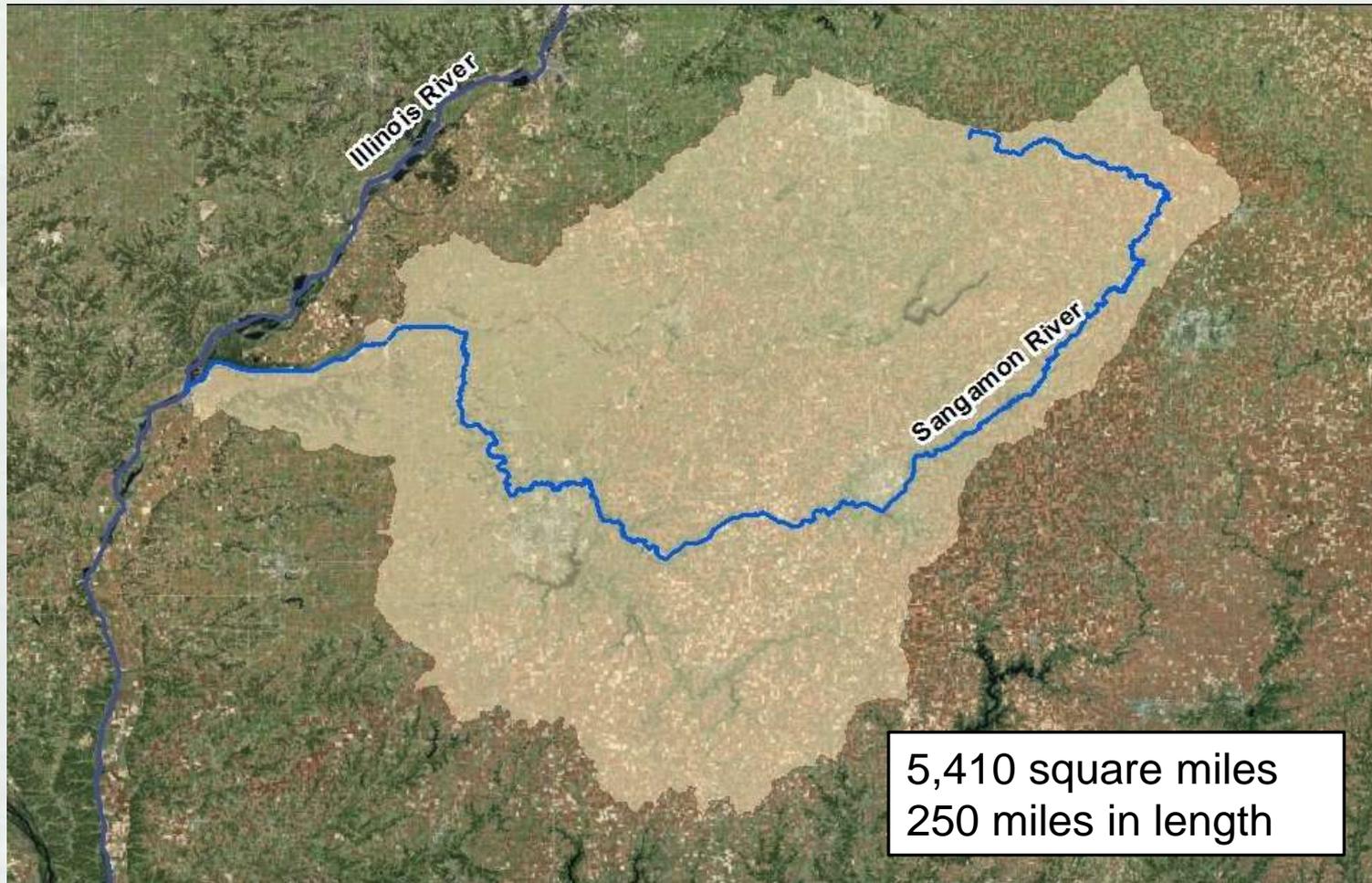
- Dredging requirements have increased over time (with the exception of this year due to drought)
- Muscooten Bay has been almost completely filled with sediment
- Beardstown Community Boat Harbor has almost completely filled with sediment
- 2005 emergency dredging costs
- On average, dredging is required every other year



BLUF: This effort achieves greater understanding of the consequences of channelization and other land use activities in the Sangamon River watershed and explores opportunities for addressing sediment delivery to the Illinois River.



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Goals

- Understand watershed characteristics
 - Past Corps projects only addressed the area near the confluence
- Understand changes in the watershed
 - Channel Straightening
 - Tiling of the Fields
 - Change in Vegetation from Prairie Grass to Row Crop Agriculture
 - Removal of Natural Buffer Strips
 - Mouth of the Sangamon project
 - Construction of Wicket Dam at LaGrange
- Inventory existing data
 - Past reports
 - Dredging records
 - Sediment data
 - Stream gages
 - Land use
 - Hydraulic models
- Sediment budget



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Approach

- Research past work in the watershed (multi-agency)
- Research available data in the watershed
- Evaluate historical vs. current sediment carrying capacity
- Research potential measures to reduce sediment delivery to the Illinois River/dredging requirements

Models, Tools, Databases, etc Used

- ArcGIS
- HEC-RAS (from HEC-2 and UNET)
- MVR suspended sediment database
- USGS National Water Information System
- SBAS



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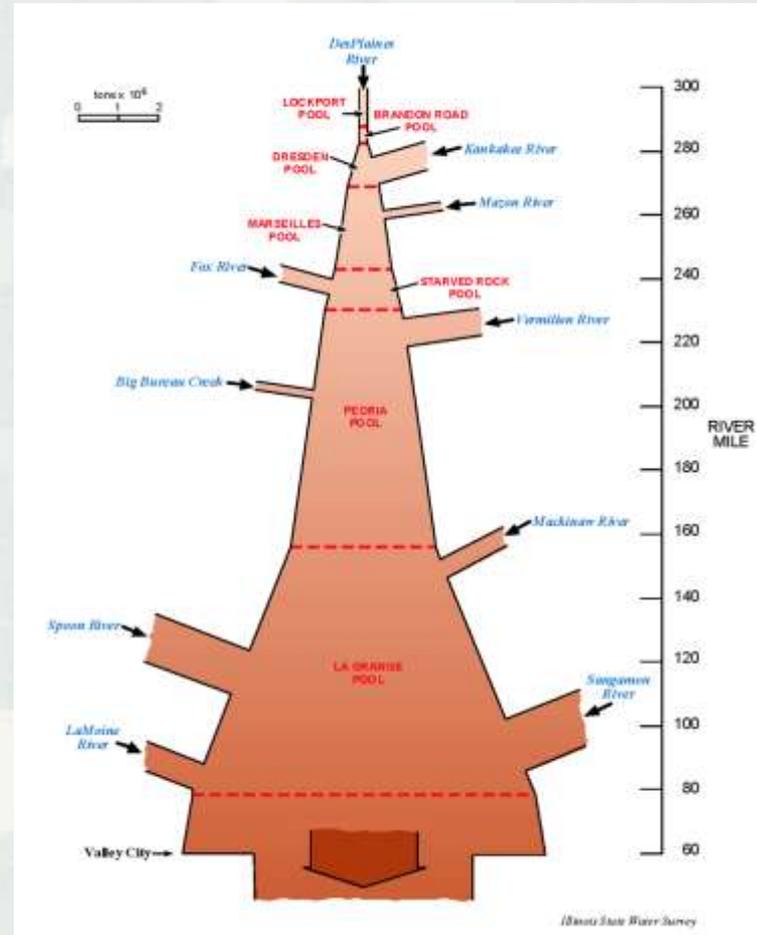
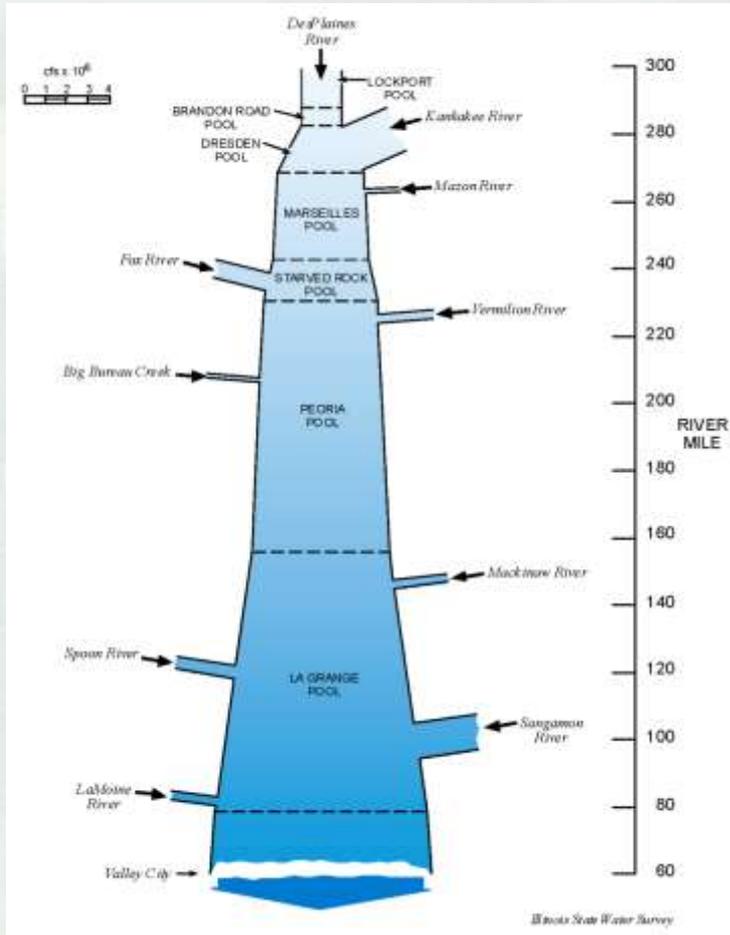
Historical Length = 63 miles
Historical Slope = 0.5'/mile

Current Length = 36 miles
Current Slope = 1'/mile



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Annual Sediment Yield of the Sangamon River from 1981 – 2000 = 1,738,200 tons



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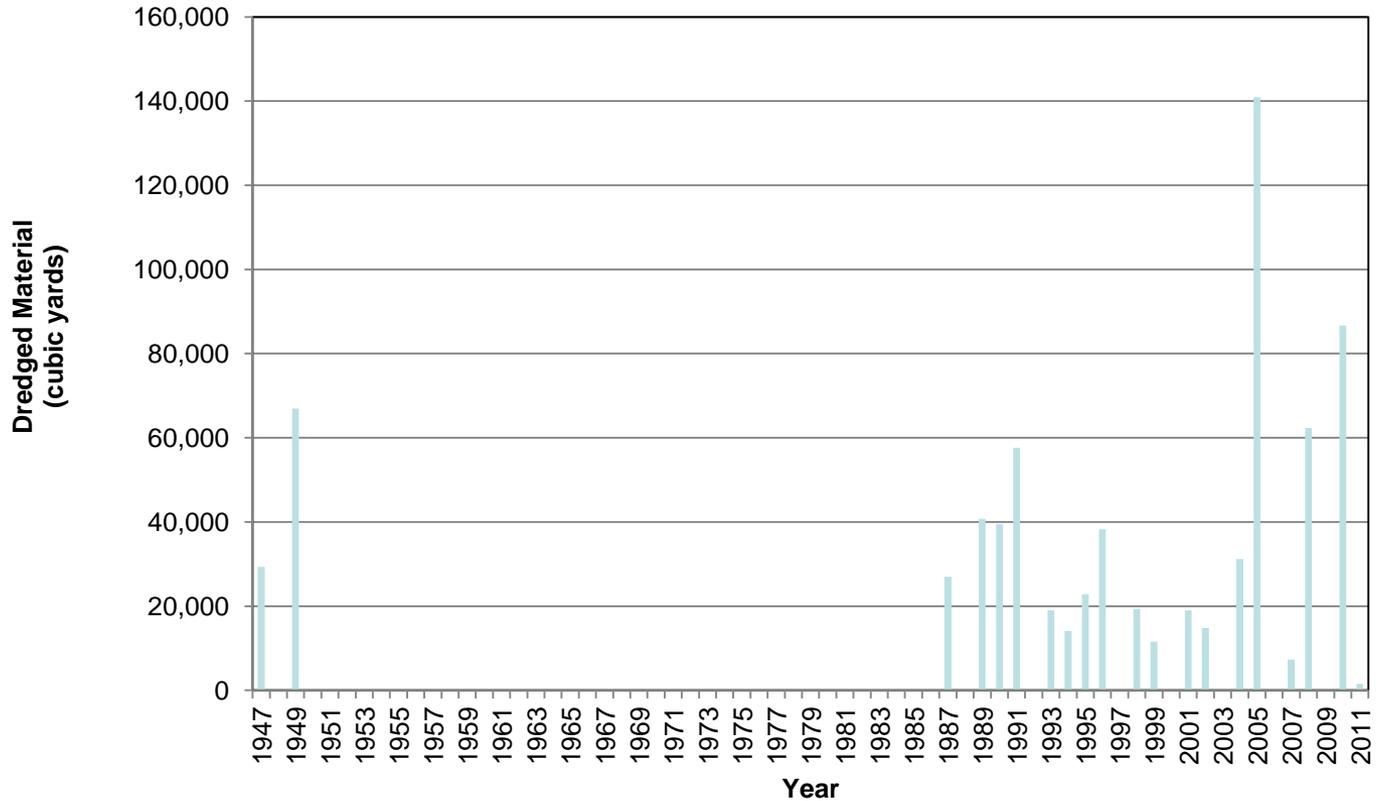
Pre-Diversion
Illinois Historical Aerial Photography
1937-1947



Current
Bing Maps



Beardstown and Grape Island Dredge Cuts





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Potential Benefits if Sediment Transport within the Sangamon River Watershed is Reduced

- Reduce dredging in the Illinois River
- Improved access to Beardstown small boat harbor and riverfront
- Ecological Benefits



Sedimentation Impacts at the Confluence of the Sangamon and Illinois Rivers

District PDT Members

- Nicole Manasco, Operations
- Toby Hunemueller, Engineering
- Heather Bishop, Engineering
- Elizabeth Bruns, Engineering

Leveraging/Collaborative Opportunities

- Illinois River Basin Restoration Program (IL 519)
- Navigation (Operations Division)
- Environmental Management Program (EMP)
- Navigation and Ecosystem Sustainability Program (NESP)

Current and Potential Stakeholders and Partners

- Illinois State Water Survey, Sediment Budget
- Illinois Department of Natural Resources
- USGS – Illinois Water Science Center
- Local Communities
- Natural Resources Conservation Service (NRCS)

Milestones/Deliverables

- Assessment and Analysis of Existing Data, 95% complete
- Evaluation of the Potential for Corrective Action, 75% complete
- Final Report, due 30 Sept 2012, 60% complete



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Opportunities to take action:

- Partner with Federal, State, and Local Agencies to create a watershed based solution
- Leveraging opportunities: IL 519, NESP

Accomplishments

- Developed an understanding of the history of the watershed and current conditions
- Assimilated existing data upon which future studies can be built
- Developed Conceptual Sediment Budget



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Lessons Learned

- System-wide approach is required
- Many stakeholders with varied interests – coordination is key
- Sangamon River Watershed has historically been rich with sediment
- Channelization and watershed changes can drastically affect sedimentation

