Illinois River Levees: Sizing up Their Impact on Flooding and Risk

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Illinois River Levee Management

Key Factors for Decision Makers

- **Frequency**
  - Level of Protection

- **Severity**
  - Extent, volume, and depth of flooding

- **Economics**
  - Agricultural Impact
  - Impact to Built Environment

- **Population**
  - Demographics
Inundation Frequency

- National Levee Database
  - Top of Levee Survey
- Upper Mississippi River System Flow Flow Frequency Study
  - 2004 UNET Model
Severity

- 2009-2011 USACE Illinois River Corridor LiDAR
- Areal Extent
- Inundation Depth Grids
- Average Inundation Depth
- Storage Volume
Agricultural Economics

Structural Exposure and Damage

FEMA Hazus-MH Analysis
- Building Loss (Damages)
- Full Replacement Exposure

Inundation Depth Grids

Census Blocks
With General Building Stock
Population at Risk

- 2000 and 2010 US Census
  - Total Population
  - Age
  - Ethnicity
Management Tools

• Depth Grid Mapbook
• Comprehensive Summaries
  – Frequency of Inundation
  – Flooding Area, Depth, Volume
  – Crop Market Value
  – Crop Distribution
  – Building Loss and Exposure
  – Demographics
• Levee Fact Sheets
  – Detailed Crop Distribution
  – Detailed Crop Market Values
  – Detailed Demographics
Illinois River Levee Management

- Overtopping Frequency: 6.9% to 0.2% annual chance (14 - 500 year)
- Average Flooding Depth: 15.4 feet (5.3 to 24.1 feet)
- Acreage: 206,000 acres
- Volume: 3.1 million acre-feet
- Crop Market Value: $130 million per year
- Structural Exposure: $1.1 billion
- Projected Damages: $265 million
- Population at Risk: 9,500