

# Watershed Planning for Restoring Sustainable Ecosystems in the Ohio River Basin

2011 National Conference on Ecosystem Restoration

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# Main Points

- Why the Ohio River Basin? Why Now?
- Ohio River Basin Reconnaissance Study – Brief Overview
- Basinwide Programmatic Management Plan
  - ▶ What is it
  - ▶ What will it do
  - ▶ Current Status
- Ohio River Basin Alliance
- Future Goals
- Summary

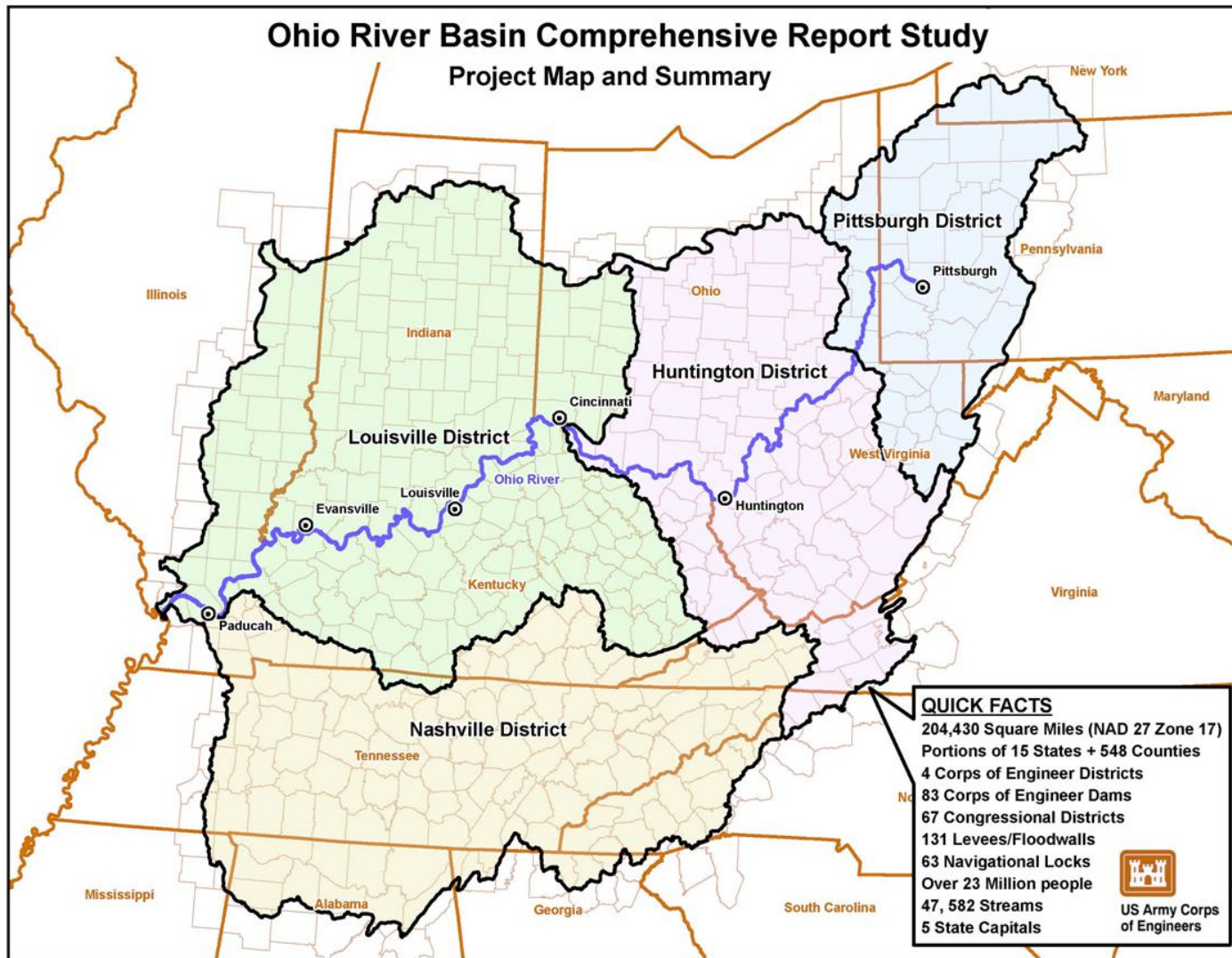


# Why this Place? – Why Now?

- Basin represents a collision of society and environmental resources
- The 1969 Ohio River Basin study was completed in several volumes.
- Sporadic implementation of 1969 study recommendations.
- 27 million residents are concerned about water resources issues.
  - ▶ Aging infrastructure (safety, sustainability, reliability...."Nawlins effect")
  - ▶ Adequate water supplies (out-of-basin poaching....."Lake Lanier effect")
  - ▶ Ecosystem deterioration (especially aquatic resources)
  - ▶ Deteriorating water quality and other significant issues
- We've had a fragmented approach to water resources planning since 1986 Water Resources Development Act – a project-centric process.
- A watershed approach to water resources planning has been re-emerging in Corps since 2000.....a gathering storm for holistic planning.
- Convergence of needs, ideas & resources (study \$\$\$\$\$).



# The Place - Ohio River Basin

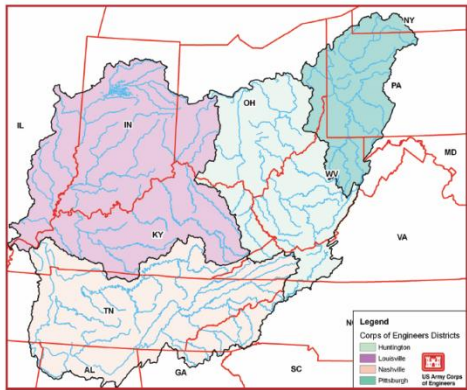


# Reconnaissance Report & Appendices



December 2009

## *Ohio River Basin Comprehensive Reconnaissance Report*



**US Army Corps of Engineers**  
Pittsburgh–Nashville–Louisville–Huntington  
Great Lakes and Ohio River Division



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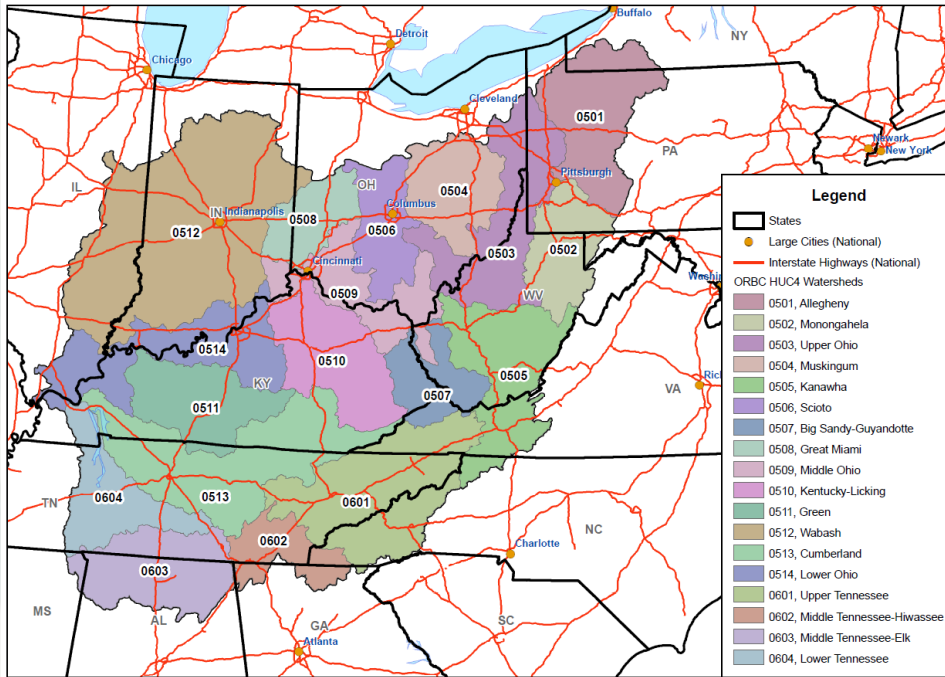
# Basin Land and Water Issues

- Water quality
- Adequate water supplies
- Aquatic ecosystem deterioration
- Infrastructure sustainability
- Stormwater management
- Land development practices
- Nutrient loading & sedimentation
- Energy resources development
- Reservoir operations
- Recurring flood damages
- Floodplain management
- Invasive species
- Affects of climate change on water resources management



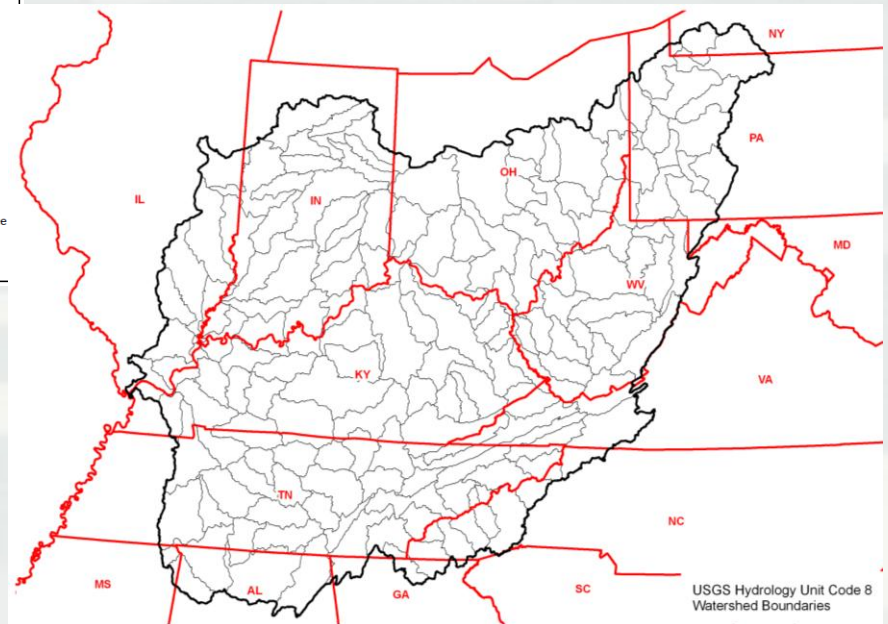
# Data Collection Framework

## HUC 4 Sub-basins and HUC 8 Watersheds



18 HUC 4 Sub-basins

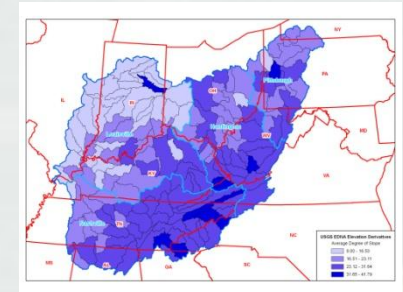
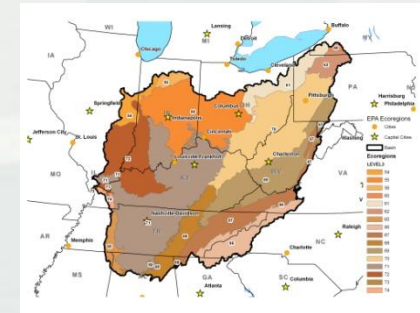
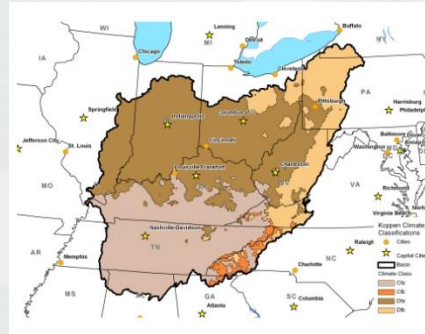
152 HUC 8 Watersheds



# Data Collection

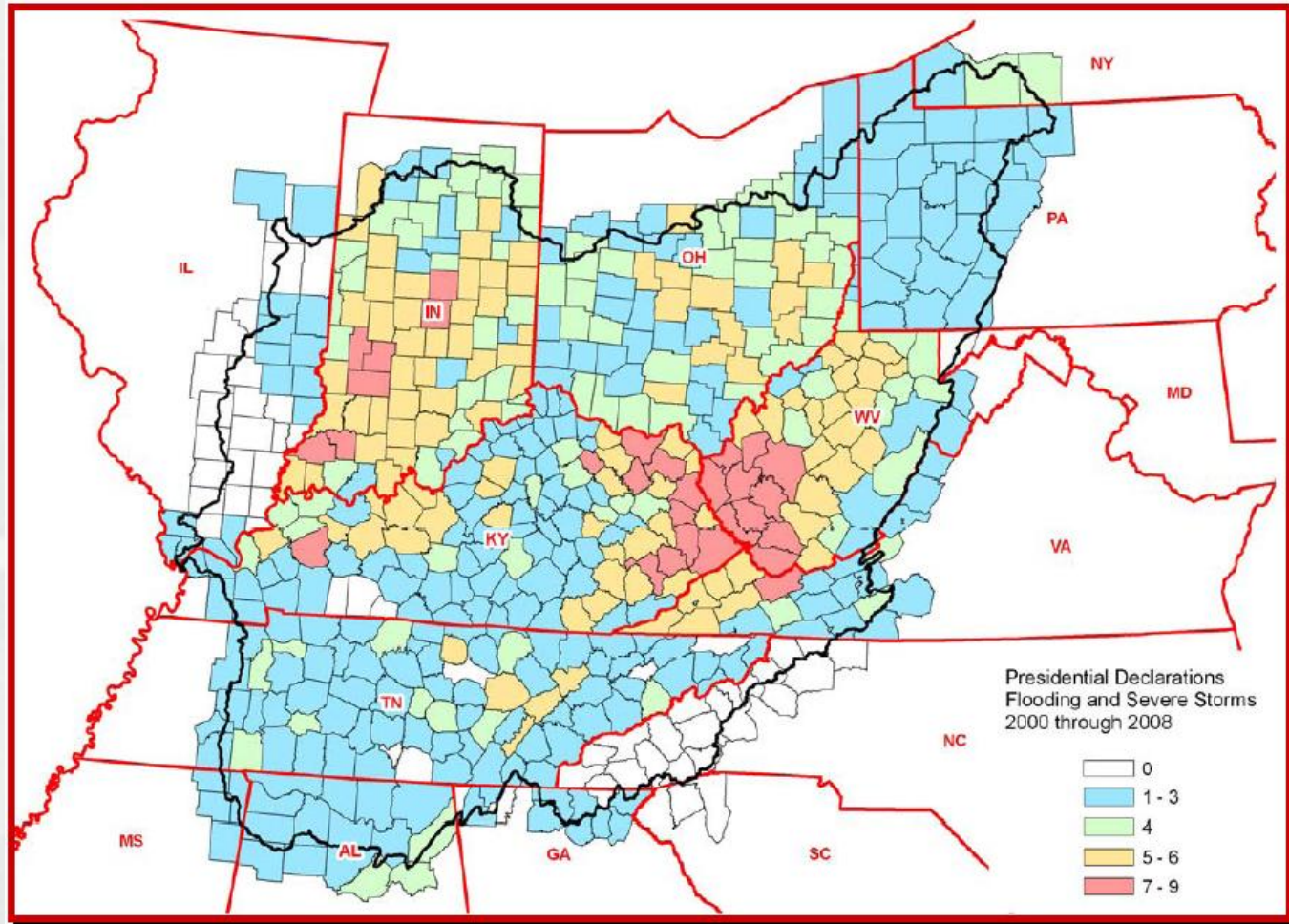
## Geospatial Investigation of Conditions

- Existing Conditions
  - ▶ Land Use/Land Cover
  - ▶ Demographics
  - ▶ Hydrology
  - ▶ Ecological components
  - ▶ Climate
  - ▶ Historical/Archeological/Cultural
  - ▶ Transportation & Public Infrastructure
  - ▶ Water Supply
  - ▶ Energy & Resource Production
  - ▶ Politics & Political Subdivisions
- Apportionment of county data to HUC 8 watershed framework
- Analyze & display data at multiple HUC levels
- Use the geospatial database and map layers to analyze problems
- Creation/publication of the Ohio River Basin GIS Atlas



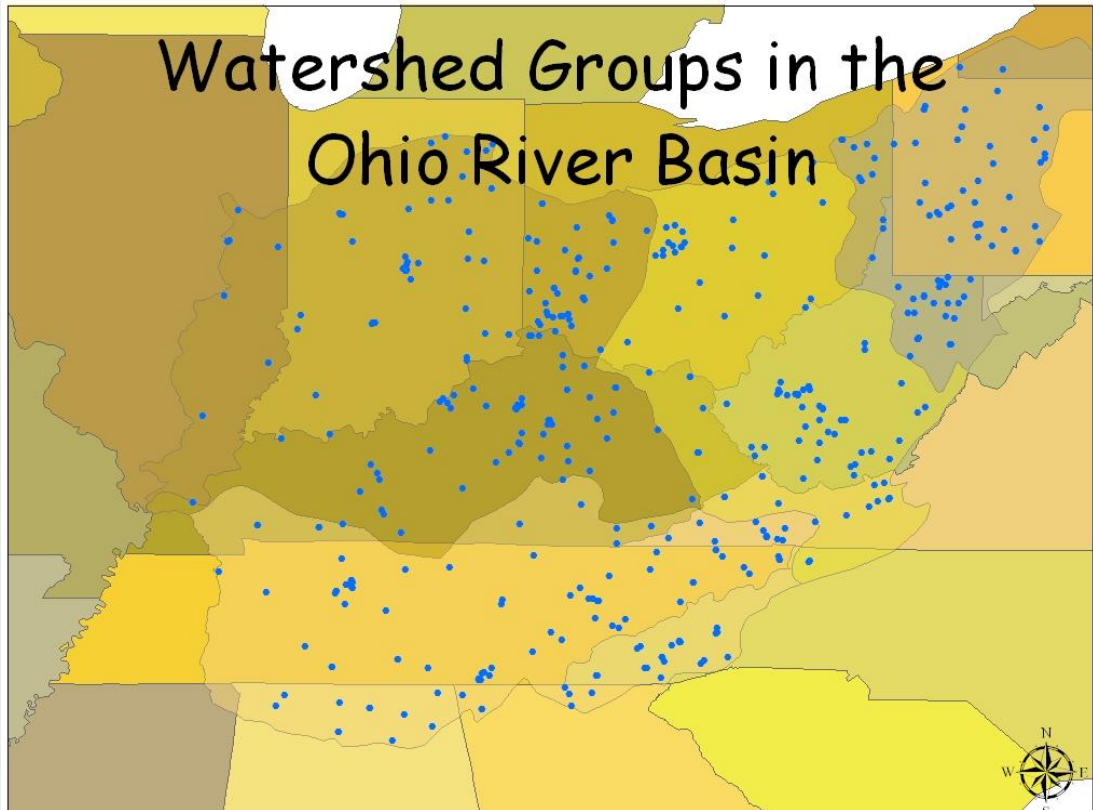


# Presidential Declarations for Flooding and Severe Storms



# Watershed Associations Basinwide

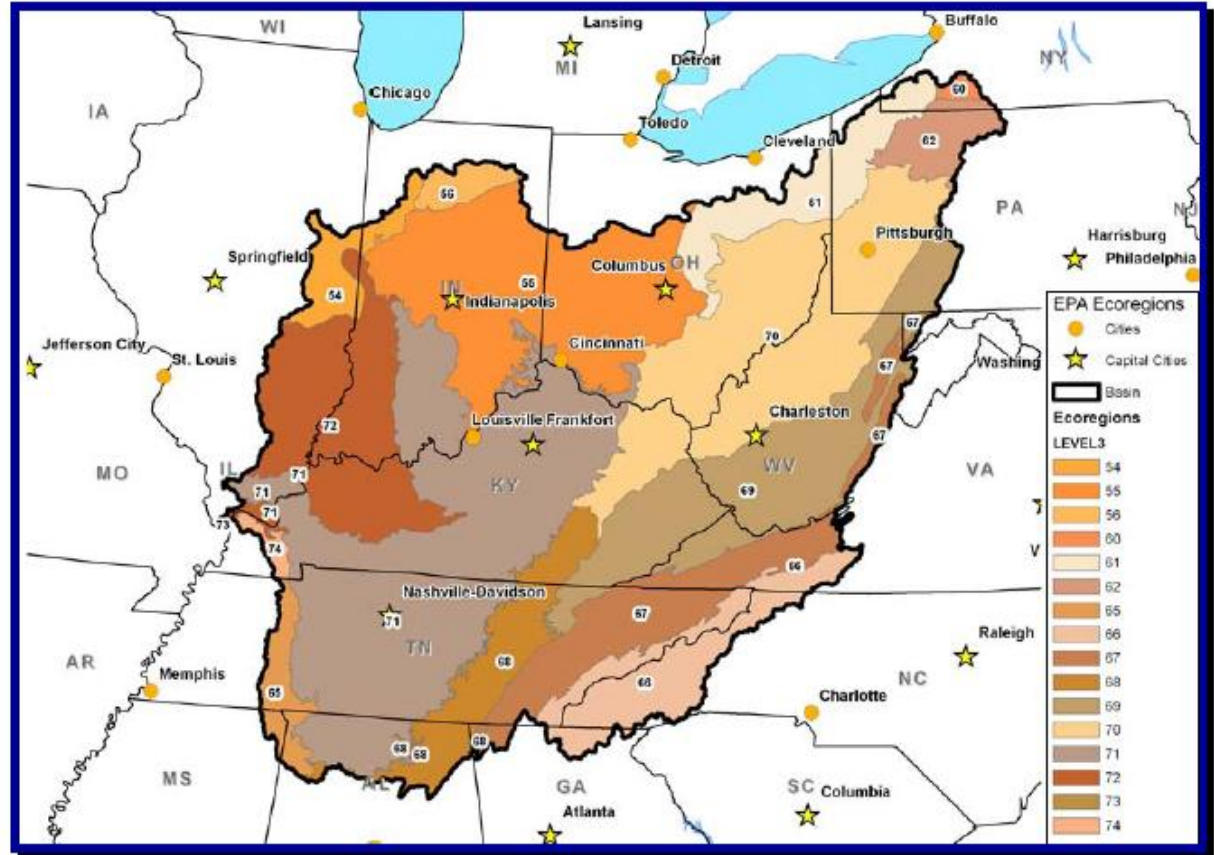
- The map is based upon a USEPA database showing the array of watershed associations in the basin.
- These grassroots organizations have their collective finger on the ecological pulse of the watershed.
- Great sources of local and historic information and can be enlisted to assist in planning and implementation.



# Level III Ecoregions

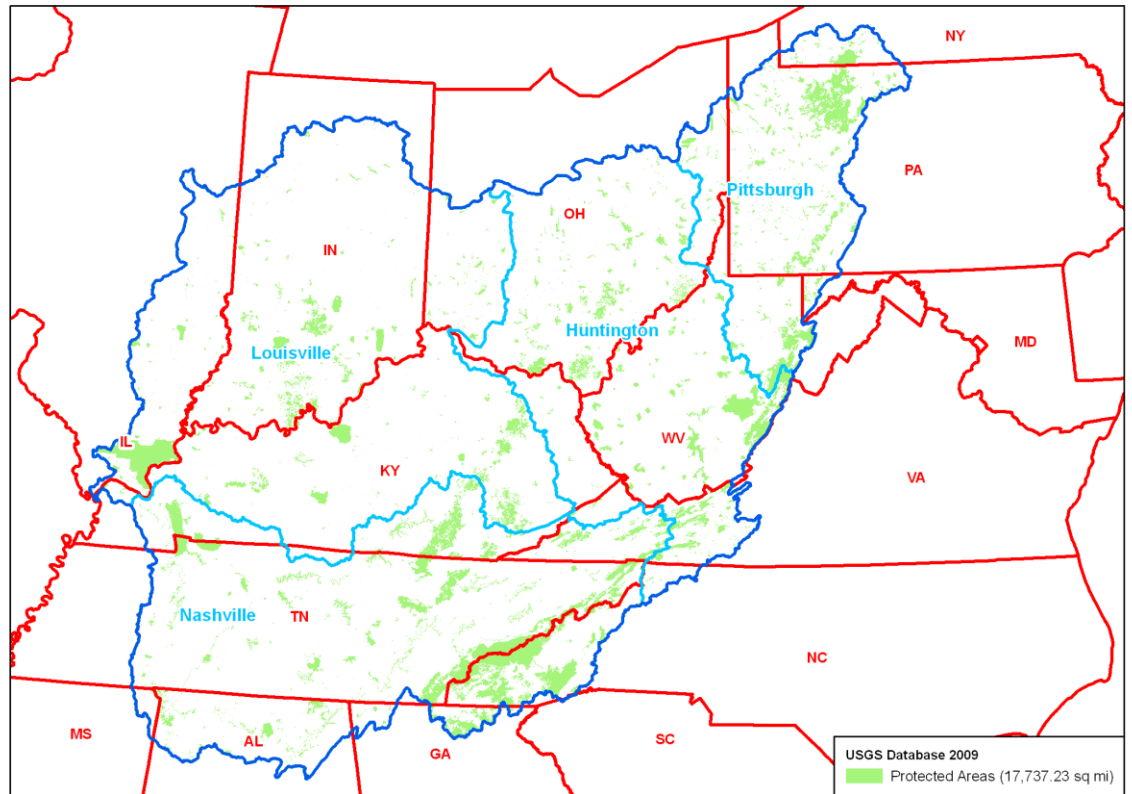
- The diversity of the ORB ecology is exemplified in the presence of 16 separate ecoregions (Level III EPA data)

- Aquatic diversity is displayed by the presence of an estimated 80 species of mussels, 154 species of fishes and between 35 and 39 species of freshwater snails.



# Protected Areas in the ORB

- New initiative through the USGS GAP analysis program.
- Identifies all “protected areas” in the US.
- Within the Ohio River Basin there are 17,737 square miles of protected lands (2009 data)
- Protected lands includes miles of protected streams, lakes and wetlands.



# Planning Process

## Define Future Without Action Condition

- Forecasting Future Conditions
  - ▶ Basinwide Driving Forces – Historic Trends
    - Population growth
    - Energy demand and regional production
    - Transportation improvements
    - Federal investment
    - Environmental awareness and concern
  - ▶ Future Scenarios
    - Business as Usual – Projection of existing trends
    - Perfect Storm – Climatic changes
    - Shifting Winds – Economic changes
    - A New Paradigm – Actions moving towards sustainability and resilience in the face of changes



# Planning Process

## Formulation and Evaluation of Alternatives

- Aggregated the 240+ issues into 12 themes
  - ▶ Aggregated independently of Corps business lines
  - ▶ Used issues to focus GIS data collection & analysis
- Used GIS database layers to identify and analyze key system relationships within and among issue categories.
- Formulated 124 separate alternatives targeting the issues
  - ▶ Four geographic scopes (basinwide, sub-basin/state, watershed, project or local)
  - ▶ Systems-based and watershed level prevailed over project-centered options
  - ▶ Not all Corps-related (other Federal agencies, NGO's, & local governments)
- Alternatives evaluation primarily used qualitative measures
- Identified 20 separate recommendations...all approved and can be viewed at <http://www.orboutreach.com> (download recon report).



# Ohio River Basin Comprehensive Recon Outcomes

- Serves as the approval document to move into feasibility phase(s)
- Create a Ohio River Basin Programmatic Management Plan (ORB PgMP)
  - ▶ Regional Business Strategy
  - ▶ Useful in aligning with partners' strategic plans
  - ▶ Programming tool for Corps by a watershed approach
- Approved multiple watershed assessments under Section 729 authority



[www.orboutreach.com](http://www.orboutreach.com)



# New Operating Reality

## Traditional USACE Role



Era of large federal, single-purpose water projects is over.

.....  
Role of USACE as sole decision maker and technical expert for water solutions is changing

.....  
Water resources community recognizes need for more transparency and engagement in water resources Planning

.....  
There is a need and more desire for collaborative regional planning

## New / Renewed USACE Role



Steve Stockton  
Orlando Planning CoP





# How We Achieve Our Goals



## **Integrated Water Resource Management**

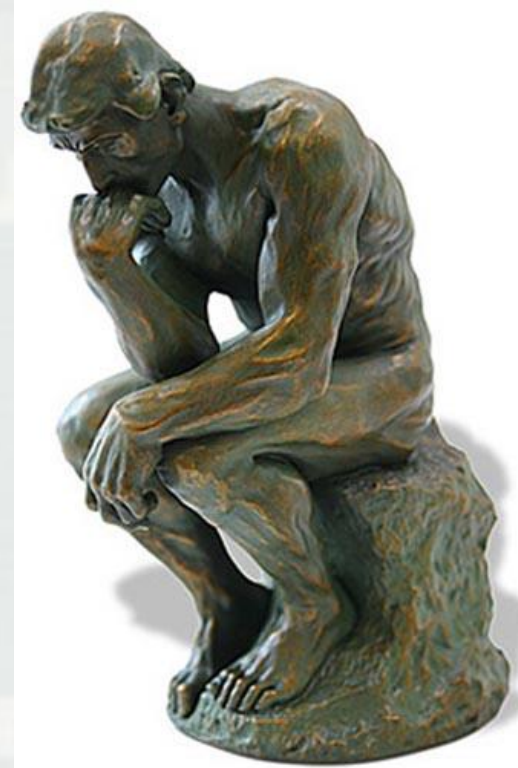
- **Systems Approach**
- **Collaboration & Partnering**
- **Risk-Informed Decision Making & Communication**
- **Adaptive Management**
- **State-of-the Art Technology**

*Steve Stockton*  
*Orlando Planning CoP*



# Something to Think About

- **What can we do now, within existing authorities, to foster Integrated Water Resource Management (IWRM) ?**
- **What are the products of such planning? How they compare with how we define success?**
- **What is the Federal role in watershed-system planning as an approach under IWRM?**



*Steve Stockton  
Orlando Planning CoP*



# Ohio River Basin Alliance

- Vision & Mission
  - Steering Committee
  - 4 Working Groups
  - [www.OhioRiverBasin.org](http://www.OhioRiverBasin.org)
  - Over 80 Agencies & Organizations
  - 4 Successful Conferences
- **Guiding Principles**
    - ▶ Inclusiveness
    - ▶ Leverage existing authorities, resources and capabilities
    - ▶ Capitalize on existing collaborations
    - ▶ Do not impede or infringe on the mission of any organization



Indianapolis, IN  
March 14-16, 2011

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# Ohio River Basin Alliance

## ■ Working Groups

- ▶ Water Availability & Management (Lead: Muskingum Watershed Conservancy District, Priority: Diversions)
- ▶ Restoration & Protection (Lead: TNC, Priority; SRP)
- ▶ Enterprise & Infrastructure (Lead: URS Consultants, Inc., Priority: Combining green and gray)
- ▶ Sustainability, Growth, & Competitiveness (Lead: Battelle, Priority: Define value of water transport/total footprint. )

- Ohio River Basin Congressional Caucus
- Governors
- Federal Agency Coordination

**Vision:** The Ohio River Basin Collaboration Initiative will support and implement integrated management of the Ohio River Basin's resources to achieve sustainable economic growth, ecological integrity and public safety.

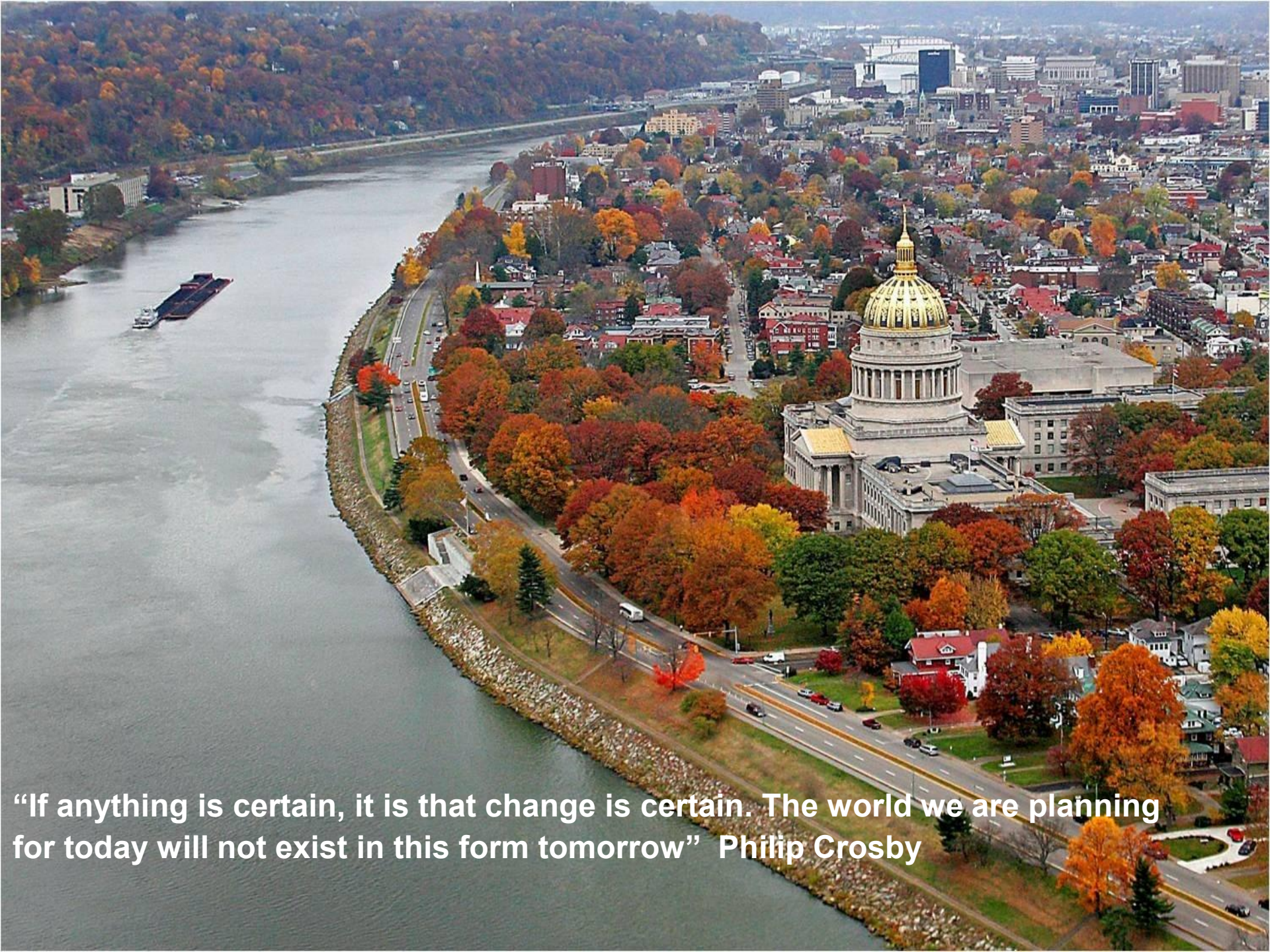
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*Lead Program Mgr.*  
*Huntington District*  
*304-399-5083*



# Main Points

- ***What was old is now new again***
- ***Embrace the new operating reality***
- ***Engage stakeholders on a regional/watershed level***
- ***Be part of the solution – we are not on an island. (COLLABORATE)***
- ***Challenge “we have always done it that way” mentality***





**“If anything is certain, it is that change is certain. The world we are planning for today will not exist in this form tomorrow” Philip Crosby**