Integrated Water Resources Science and Services (IWRSS) Stakeholder Forum

with the

Delaware River Basin Commission

December 13, 2012

Outline

- **Integrated Water Resources Science and Services (IWRSS)**
- **Grand Challenges**
- **Forum Objectives**

IWRSS Partners and Missions

- ***Water Science*** **- to collect and disseminate reliable, impartial, and timely information needed to understand the Nation's water resources in order to minimize loss of life and property from natural disasters**

- ***Water Management*** **- to strengthen our Nation's security, energize the economy, and reduce risks from disasters**

- ***Water Prediction*** **- to provide weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy**

IWRSS Five Point Strategy

IWRSS: Innovative Partnership

- New business model for interagency collaboration
- Share technology, information, models, best practices
- Address complex, multidisciplinary issues collaboratively
- Leverage Investments through joint planning and development
- Common Operating Picture

Enriched Stakeholder Participation

- Strengthen participatory processes
- Understand and document growing information needs
- Quantify value of new/improved services
- Develop social capital
- Inform design, development and implementation activities

New Digital Information Products

- Summit to Sea
- Floods to Droughts
- Coherent Past, Present and Future information
- Extend forecast range, improve accuracy, quantify uncertainty
- Enhanced mapping capabilities linked to impact information

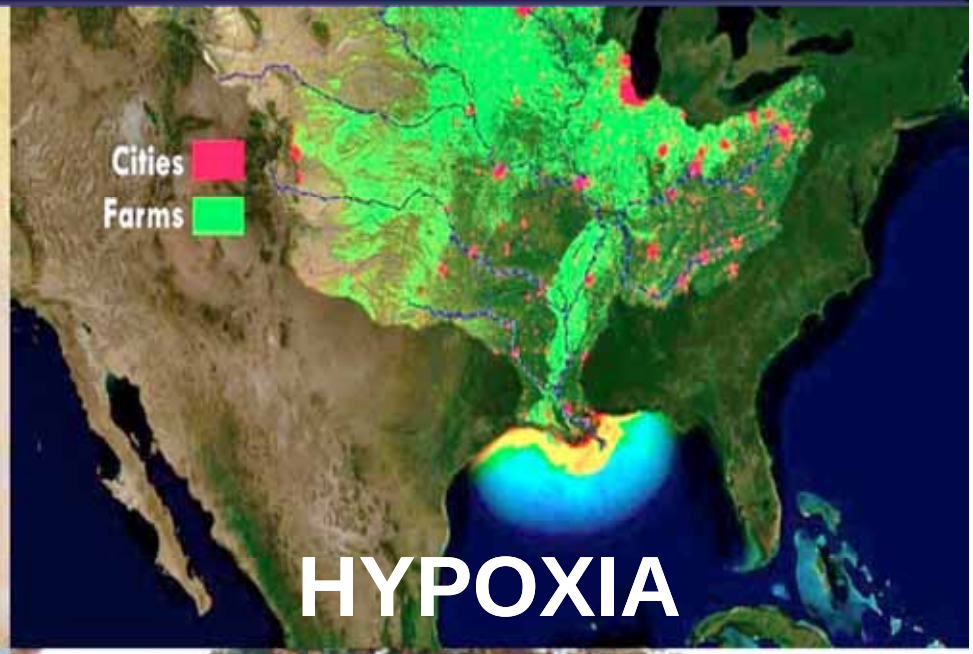
Improved Supply and Distribution

- Interoperable Systems
- Data Synchronization
- Enterprise Geo-Intelligence
- Single Portal for Water Information

National Water Center

- New bricks and mortar facility
- Catalyst for synthesis and integration
- Proving Ground for accelerated R2O
- National water forecasting operations center
- Multi-agency staffing

Grand Challenges



Grand Challenge #1

Ensure water security by:

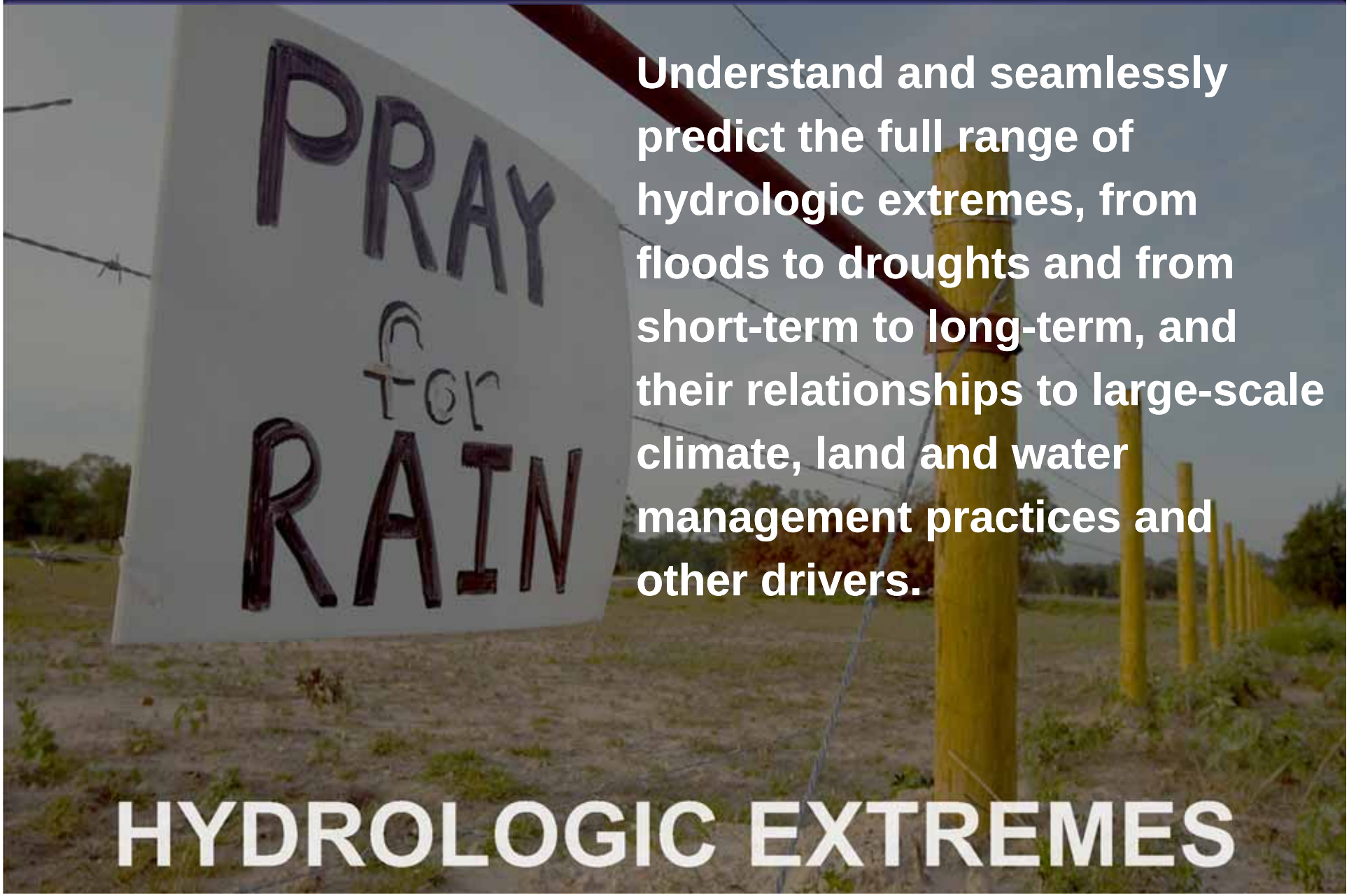
a) **Predicting surface and groundwater availability in all watersheds to enable water users to determine the least-cost source and plan for droughts,**

b) **Predicting water flow and depth in all rivers to permit optimal operation of multiple-use reservoirs, facilitate navigation and fully inform flood fighting efforts on levees, and**

c) **Tracking and predicting movement of hazardous contaminants accidently or deliberately released into the water supply to enable effective operation of control structures and issuance of notifications.**

WATER SECURITY

Grand Challenge #2



Understand and seamlessly predict the full range of hydrologic extremes, from floods to droughts and from short-term to long-term, and their relationships to large-scale climate, land and water management practices and other drivers.

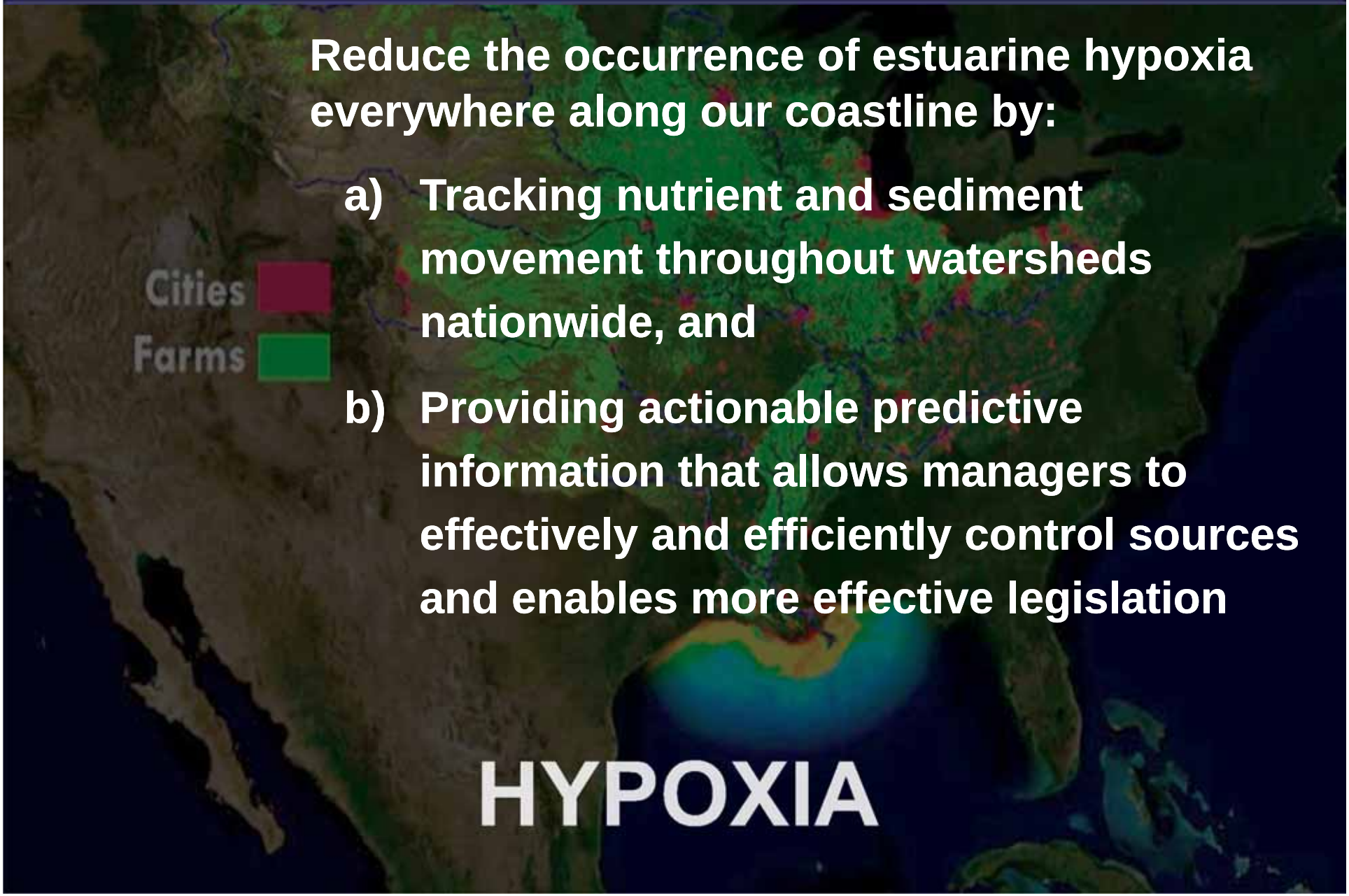
HYDROLOGIC EXTREMES

Grand Challenge #3

Reduce the occurrence of estuarine hypoxia everywhere along our coastline by:

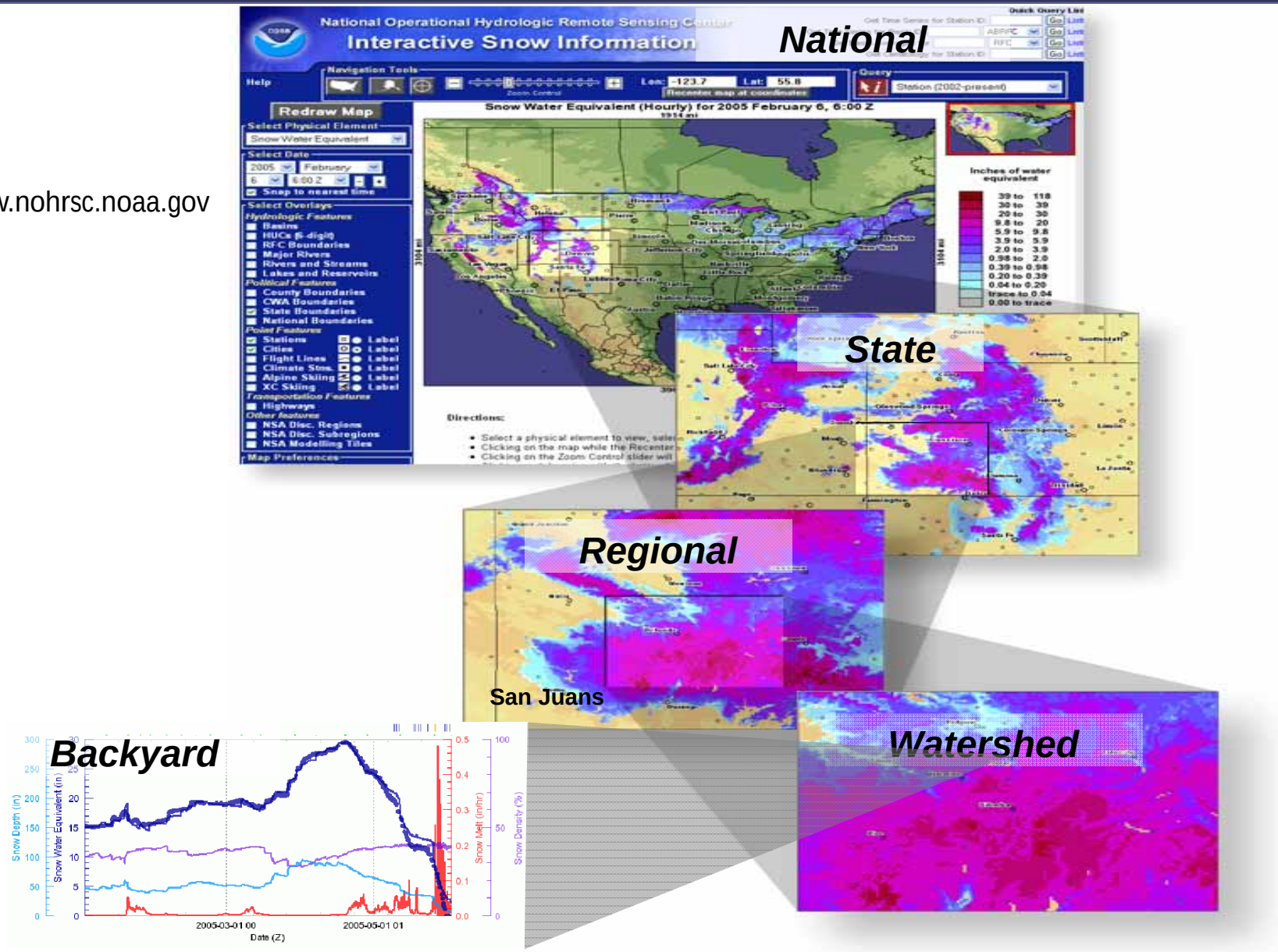
a) **Tracking nutrient and sediment movement throughout watersheds nationwide, and**

b) **Providing actionable predictive information that allows managers to effectively and efficiently control sources and enables more effective legislation**

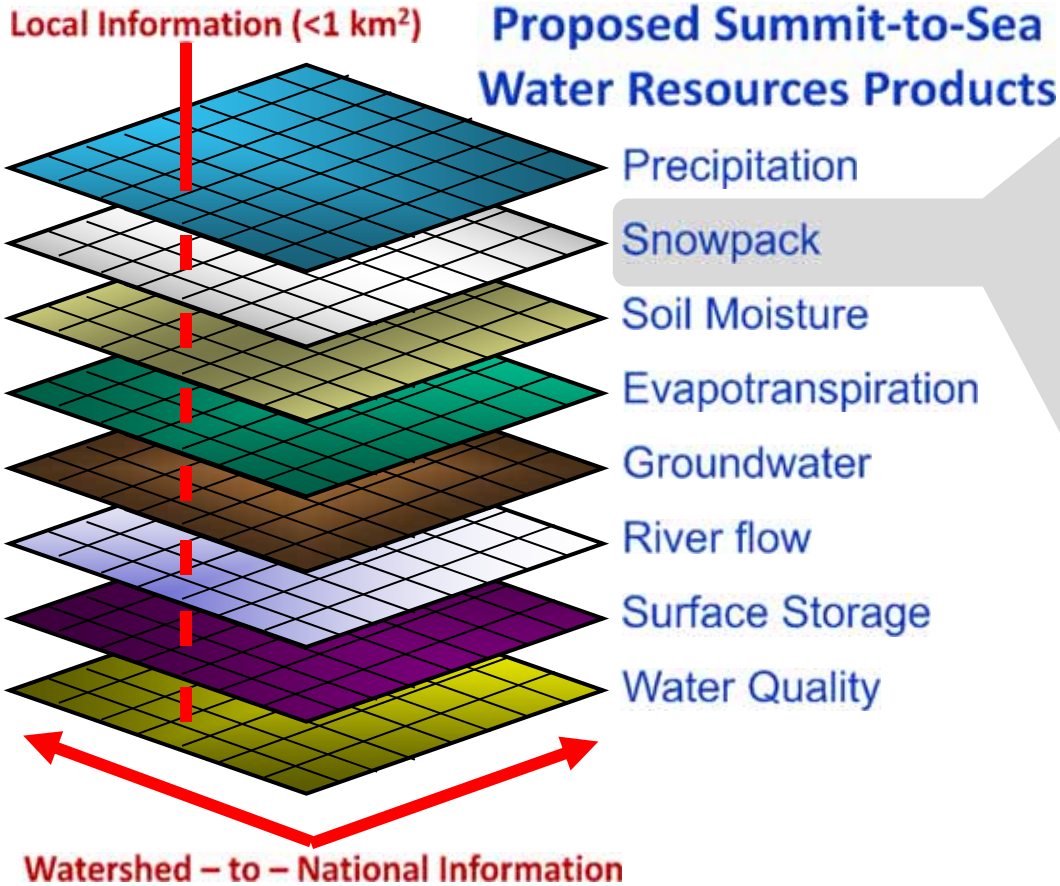


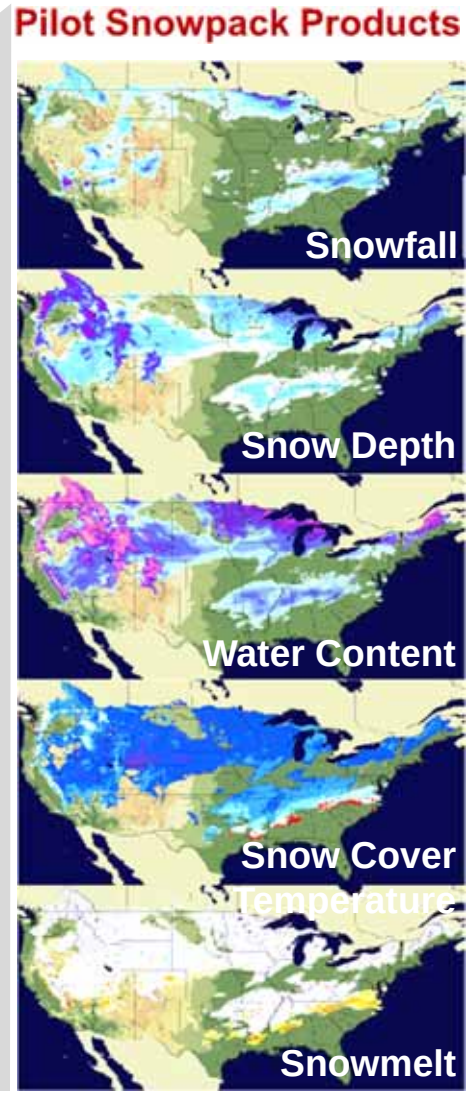
High-Resolution Water Budget Products

www.nohrsc.noaa.gov



New Digital Information Products



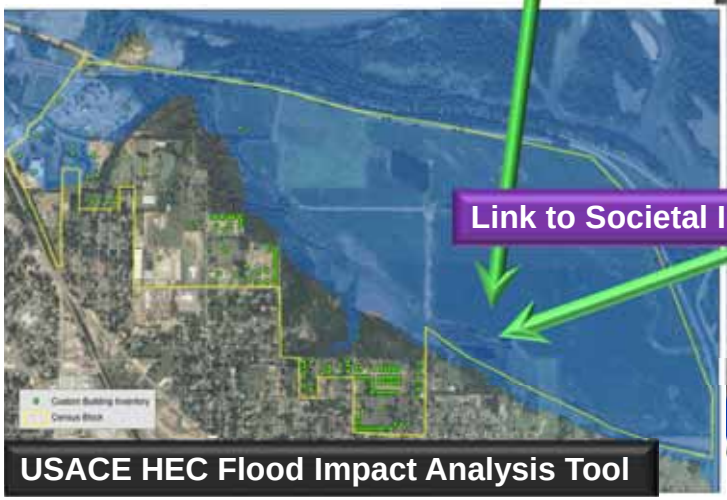


Past — USGS WaterSMART Initiative — Present — IWRSS Forecasts — Future

www.nohrsc.noaa.gov

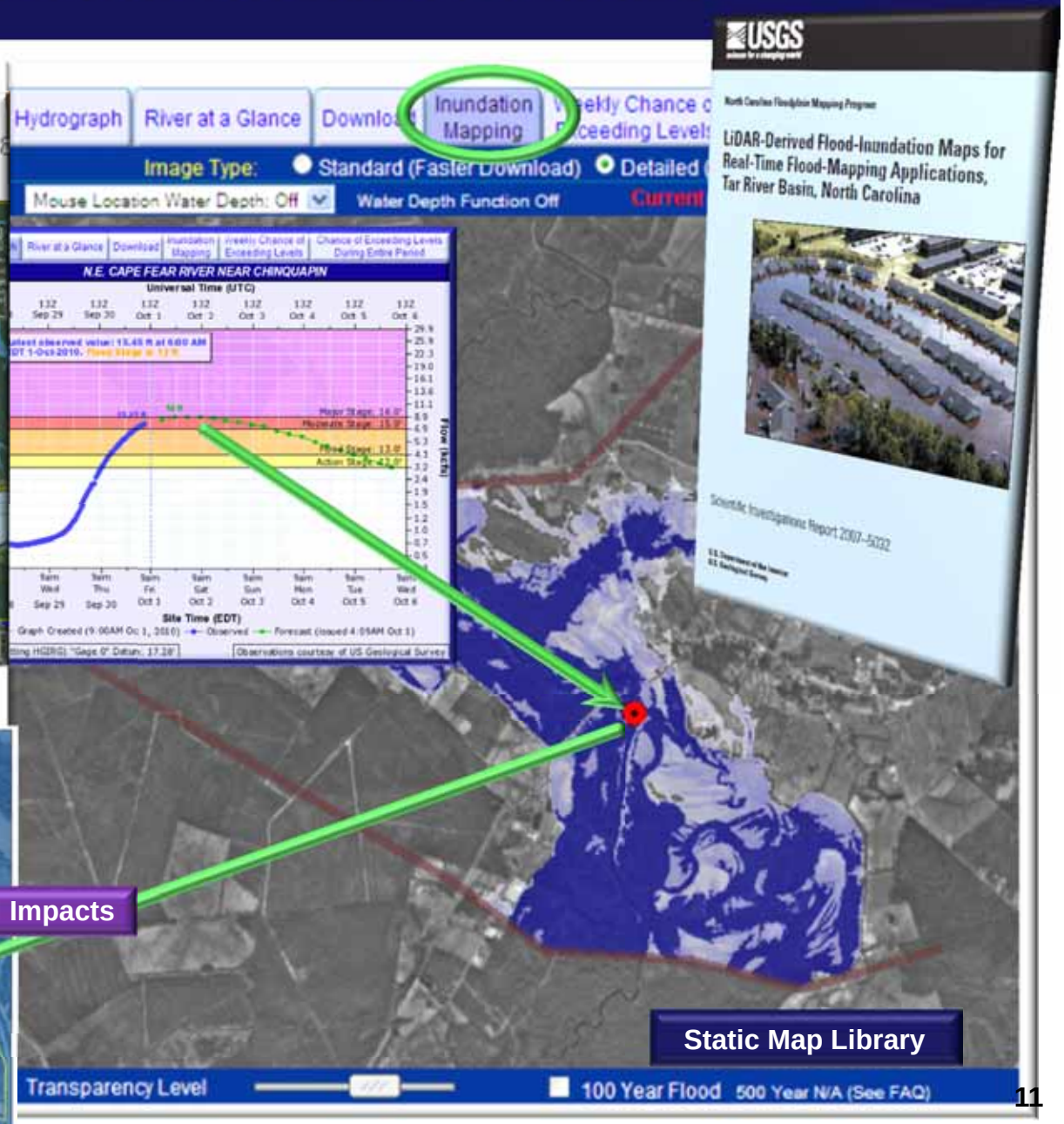
New Digital Information Products

Dynamic Mapping in Real-Time



Link to Societal Impacts

USACE HEC Flood Impact Analysis Tool

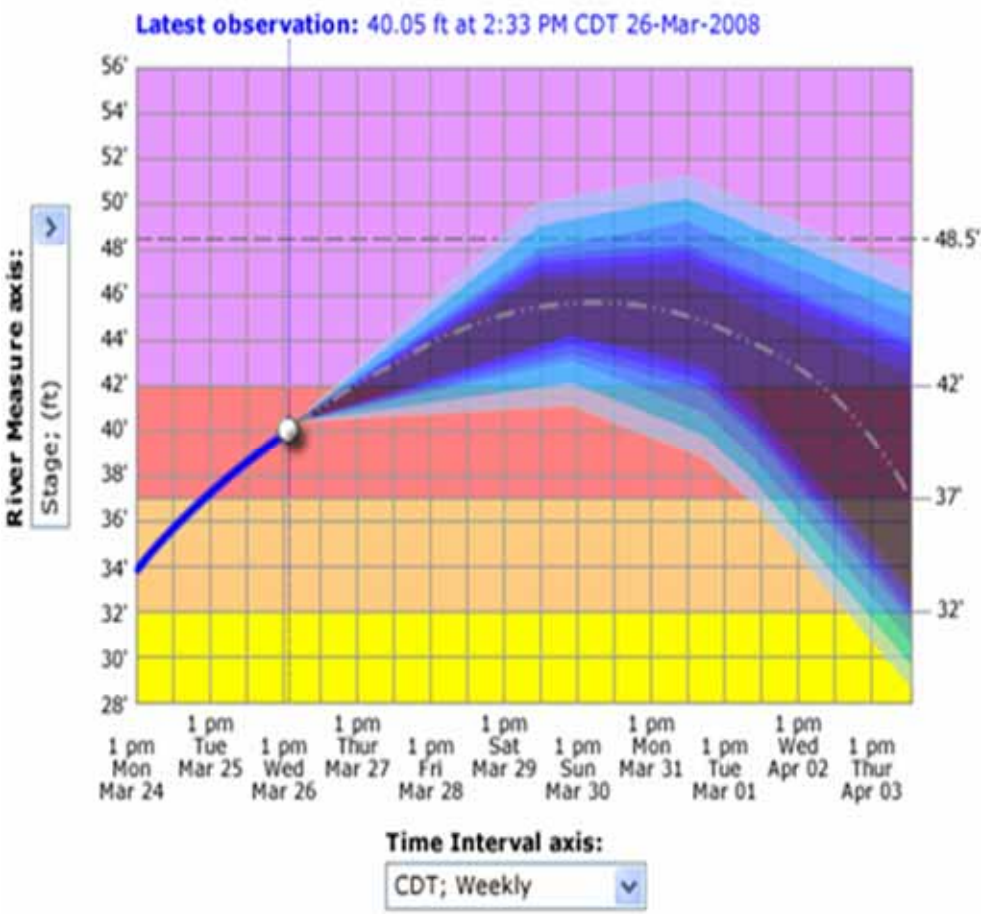


Static Map Library

New Digital Information Products

Hydrologic Ensemble Forecast System (HEFS)

- **Probabilistic information to support risk-based decisions**
- **Seamless short- to long-term ensemble forecasts within the Community Hydrologic Prediction System (CHPS)**
- **Incorporates both atmospheric and hydrologic uncertainties**



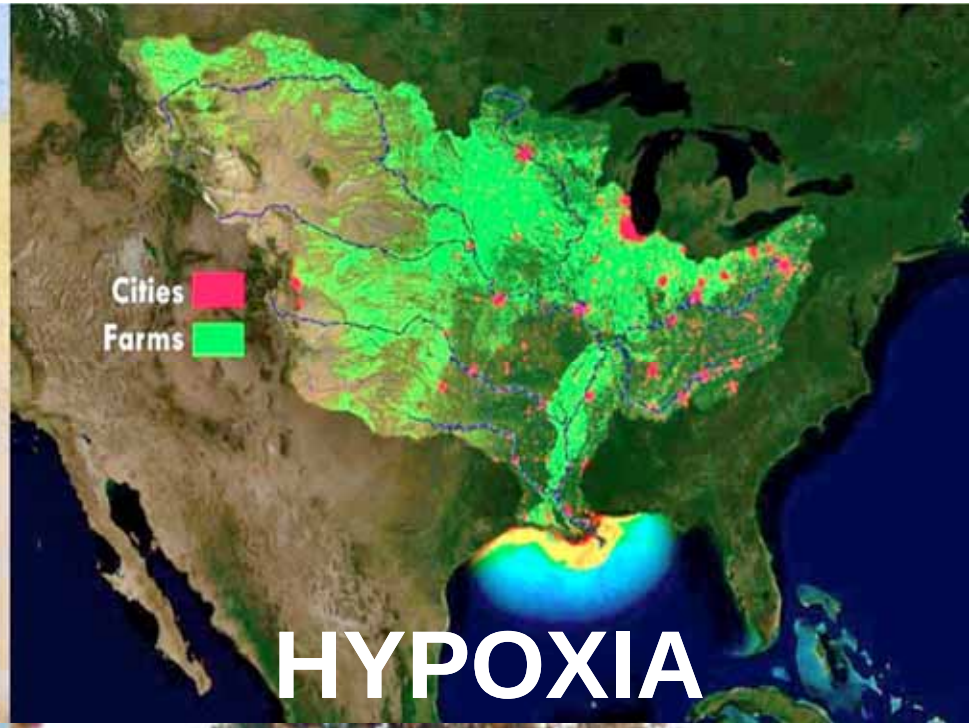
- Implementation Status:

✓ ***Demonstrating components of short-term capability at 6 RFCs***

✓ ***Will deploy additional prototypes during the next 2 years***

✓ ***Initial version of full capability in 2014***

WATER SECURITY


Cities
Farms
HYPOXIA

PRAY
for
RAIN

HYDROLOGIC EXTREMES

Stakeholder Engagement Forum

Primary Objectives and Planned Outcomes:

- Listen and Learn
- Define, document, and prioritize the water resource information and service requirements and identify gaps of key stakeholders
- Document the water resource decisions made and quantify the socioeconomic benefit of addressing these gaps
- Develop a demonstration project plan which enables the IWRSS partners to address these stakeholder requirements/gaps through the provision of new IWRSS information and services
- Develop business case to garner resources necessary to conduct demonstration

Geographic Scope:

- Delaware, Susquehanna, Potomac, and Hudson River Basins