

Corps Design and Operations Activities: Extreme Storm Event Considerations

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CAHMDA VI/DAFOH III

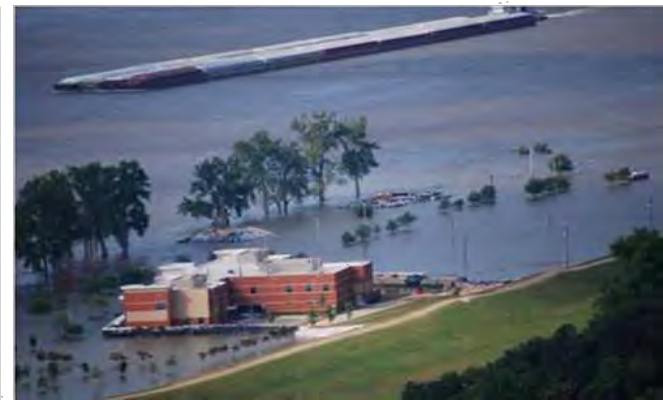
Joint Workshop

Austin, TX

September 11, 2014



US Army Corps of Engineers
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Presentation Outline

- USACE Missions
- Federal Interagency Collaboration
- Operational Forecast Modeling
- Summary



USACE Mission Areas

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Military Programs

- MILCON for Modular Force Global Positioning
- BRAC 05
- Field Force Engineering
- MILCON Transformation
- Environmental Restoration



Real Estate



- DOD Recruiting Facilities
- Contingency Operations
- Acquire, Manage and Dispose

Homeland Security



- Critical Infrastructure
- Anti Terrorism Plans
- Intelligence
- Facility Security Partnership

Interagency Support

- Federal
- State
- Local
- International

Civil Works



- **Flood Risk Management**
- Navigation, Hydropower
- Water Supply, Regulatory
- Recreation, Disaster Response
- Environmental Restoration

Research & Development

- **Water Resources**
- Environment
- Installations
- Warfighter



Civil Works Program

Preserving the Strength of the Nation

Delivering enduring, comprehensive, sustainable, and integrated solutions to the Nation's water resources and related challenges through collaboration with our stakeholders

(Regions, States, localities, Tribes, other Federal agencies)

(\$1.884 B) Navigation (39%)

**(\$1.370 B) Flood Risk (28%)
Management**

**(\$655 M) Ecosystem (14%)
Restoration & Stewardship**

(\$210 M) Hydropower (4%)

**(\$252 M) Recreation & Natural (5%)
Resource Management**

**(\$200 M) Regulatory Program: (4%)
Wetlands & Waterways**

(\$33 M) Water Supply (1%)

(\$35 M) Emergency Management (1%)

**(\$187 M) Expenses (4%)
(FY 2014 President's Budget)**



Lock and Dam 15 (Mississippi River, IL/IA)



Flood Wall, Williamson, KY



Florida Everglades



Dredge ESSAYONS (Coos Bay, OR)

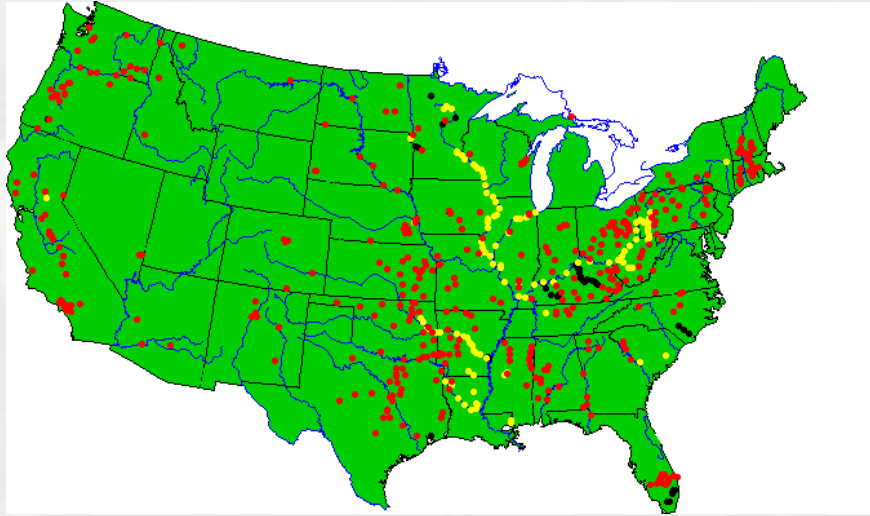


Greers Ferry Lake, AR



Bonneville II Powerhouse, WA

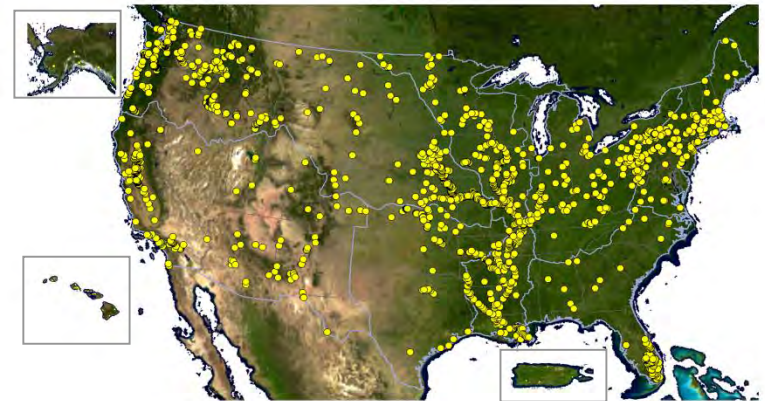
Infrastructure in USACE



702 Dams

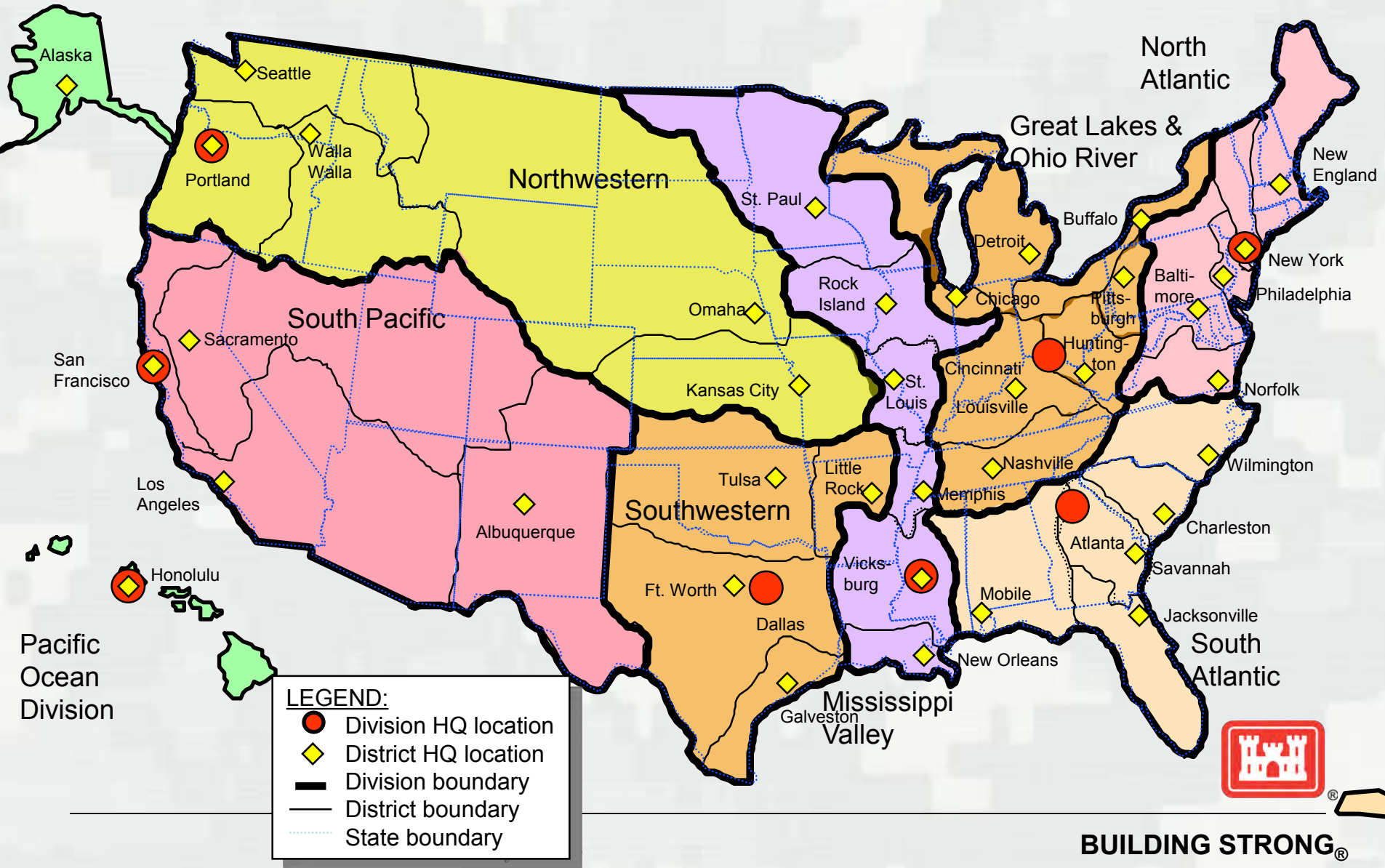
***“Infrastructure follows Floods,
People Follow Infrastructure”***

- Portfolio Stats:
 - ▶ Very Large
 - ▶ Aging (+55 years)
 - ▶ Relatively untested
 - ▶ Geotechnical Challenges Dominate



+2,500 Levee Systems

Civil Works Divisions & Districts



INTERAGENCY COLLABORATION



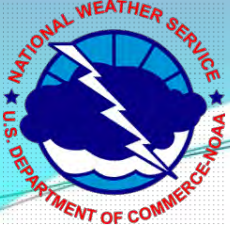
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USGS
science for a changing world



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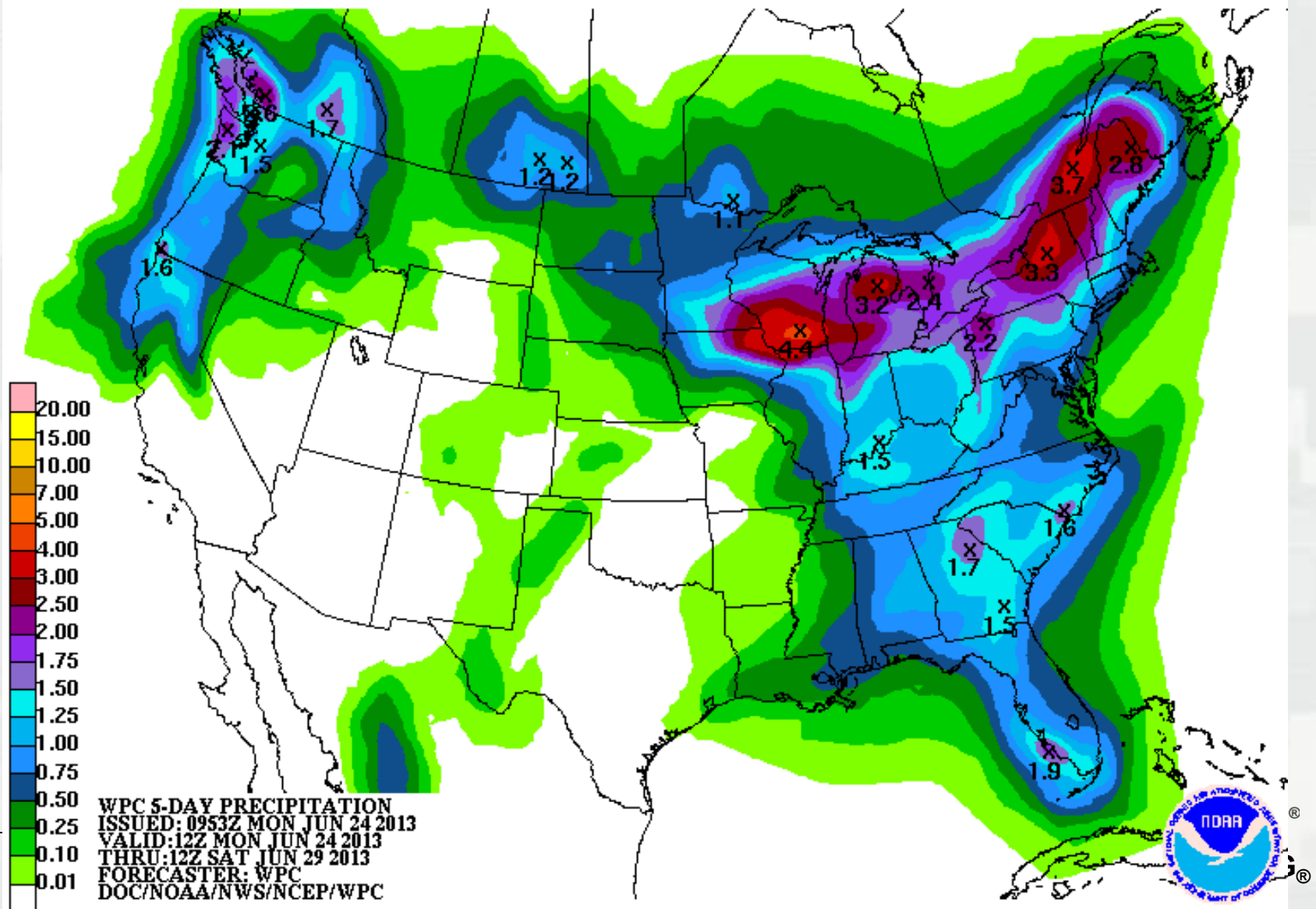


National Weather Service Support

- Provide Weather, Rain and Climate Forecasts:
 - Short-term (24-, 48- and 72-hour, 5-day)
 - Long-term (30-day and 90-day outlook)
- Provide River Flood Forecasting (a collaborative effort between agencies)
- *Rainfall Data Analysis - Publications*
 - *100-, 500-, 1000-year return period (Atlas 14, TP40)*
 - *Probable Maximum Precipitation - PMP (HMRs)*

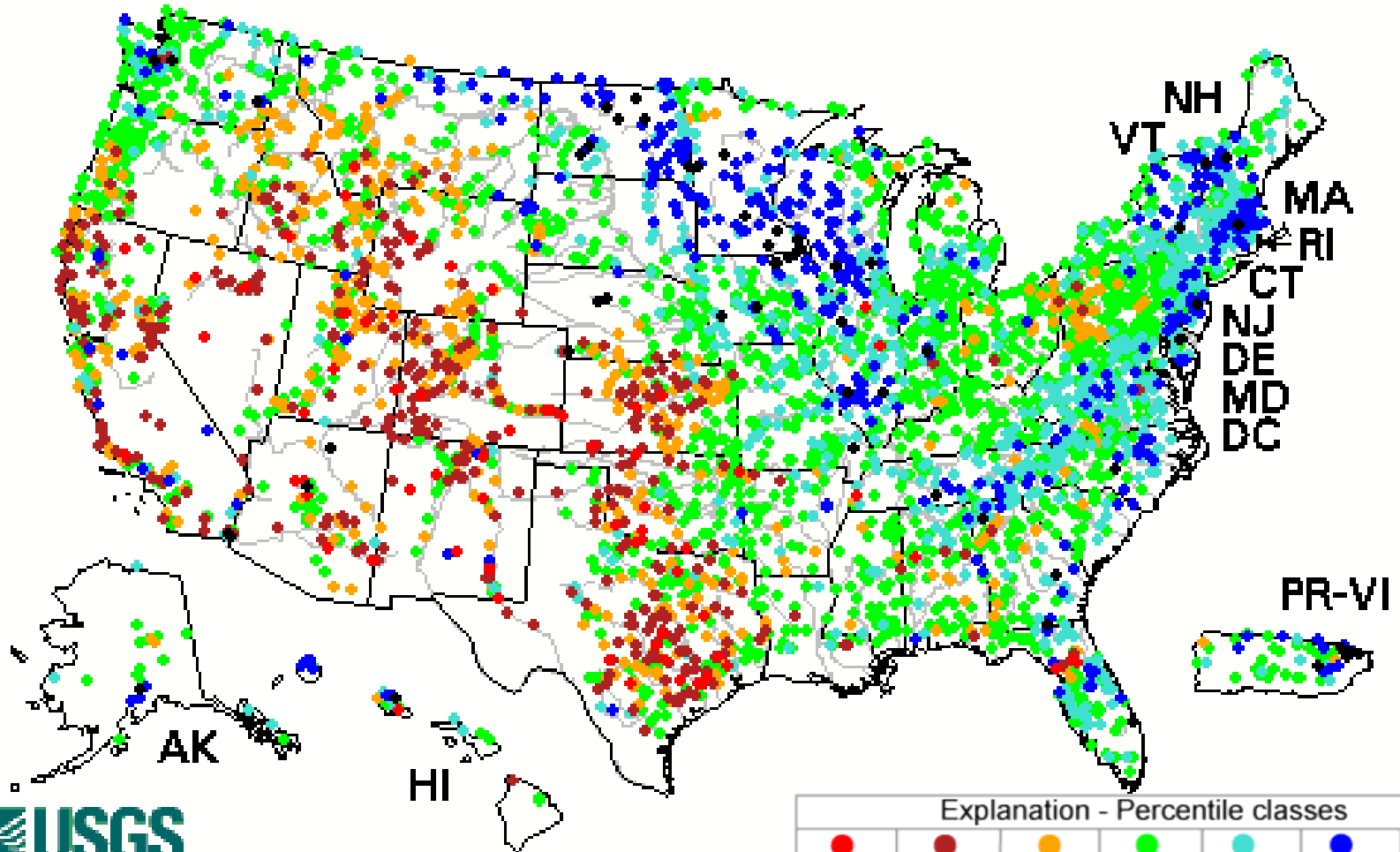


Quantitative Precipitation Forecasting (QPF)



US Geological Survey (USGS) National Stream Gauging Program

Monday, June 24, 2013 11:30ET



Explanation - Percentile classes						
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High

RDG Deployment Prior to Flood



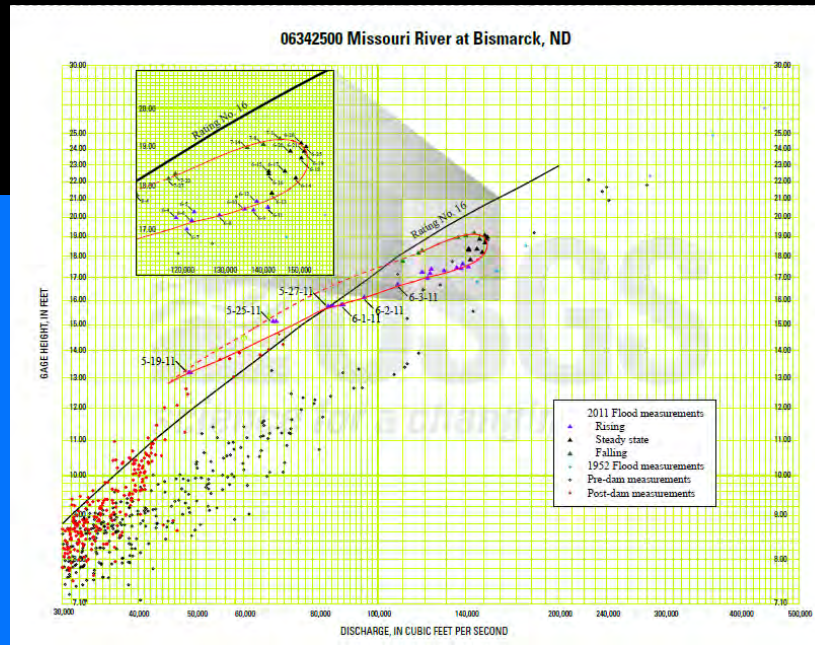
Minnesota River at Granite Falls, MN.

Special Measurements



Natchez, MS

- * Installation of Rapid Deployment Gages (RDG)
- * Special Streamflow Measurements (extreme events)
- * Flow Rating extensions



IWRSS

INTEGRATED WATER RESOURCES SCIENCE AND SERVICES



IWRSS

Framework aligning the capabilities of multiple agencies with complementary water-related missions to address major water resource challenges and stakeholder needs

MOU – USACE, NOAA, USGS

“Collaborative Science, Services and Tools to Support Integrated and Adaptive Water Resources Management”

May 11, 2011

Assistant Secretary of the Army for Civil Works
Deputy Undersecretary of Commerce for Oceans and Atmosphere
Director of the U.S. Geological Survey



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Integrated Water Resources Science and Services (IWRSS)

*An Integrated and Adaptive Roadmap for
Operational Implementation*



February, 2009

IWRSS: Two Charters

1. National Flood Inundation Mapping
2. System Interoperability and Data Synchronization



National Flood Inundation Mapping

Purpose: to support the collaborative actions required to develop common flood inundation maps, products and services that will help the USACE, USGS, and NWS fulfill their missions.



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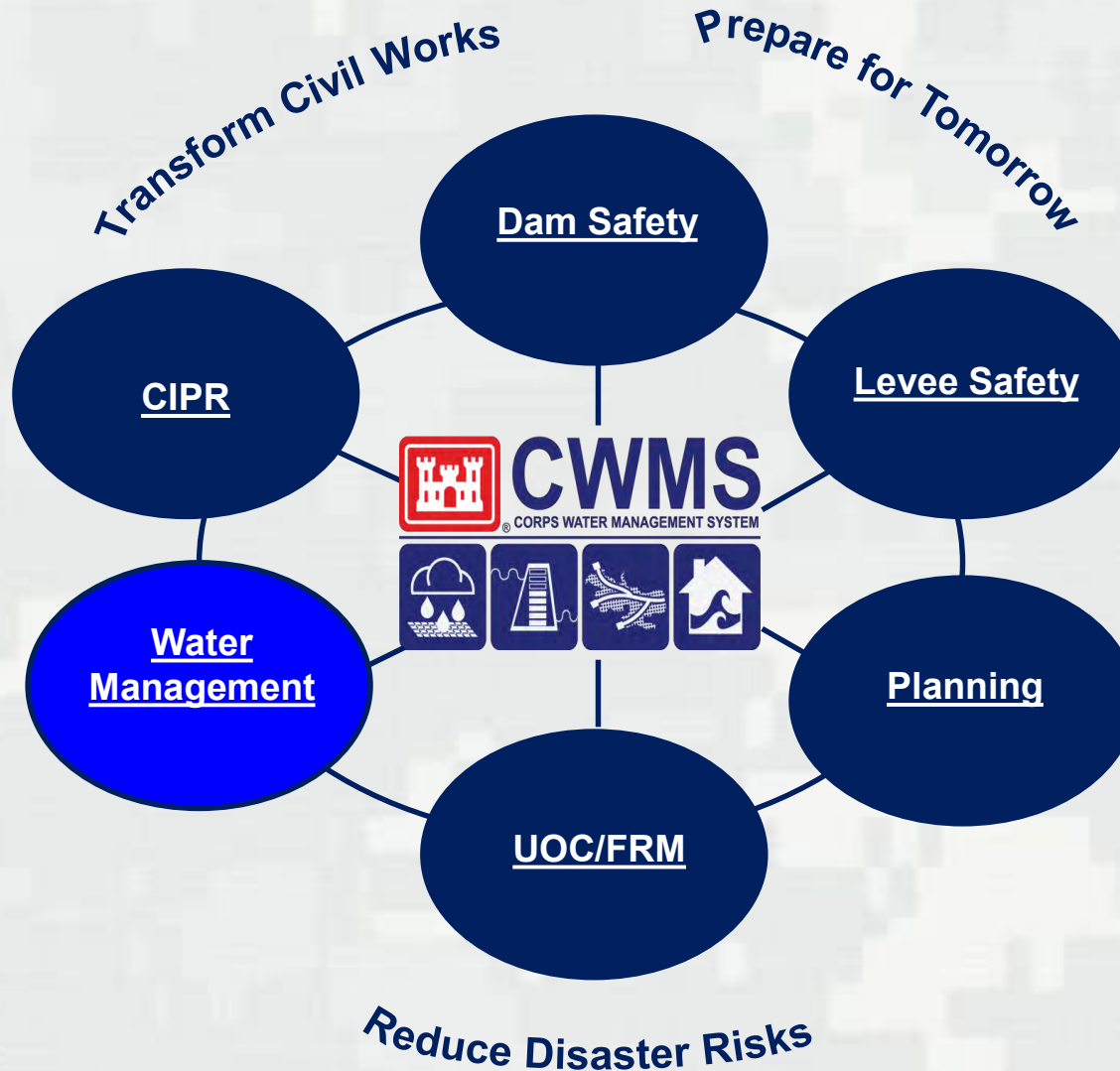
System Interoperability and Data Synchronization

Major systems used across the 3 agencies will be made interoperable, i.e., data and information will be able to flow between them seamlessly.

Purpose: to define requirements and technical specifications for system interoperability and data synchronization.

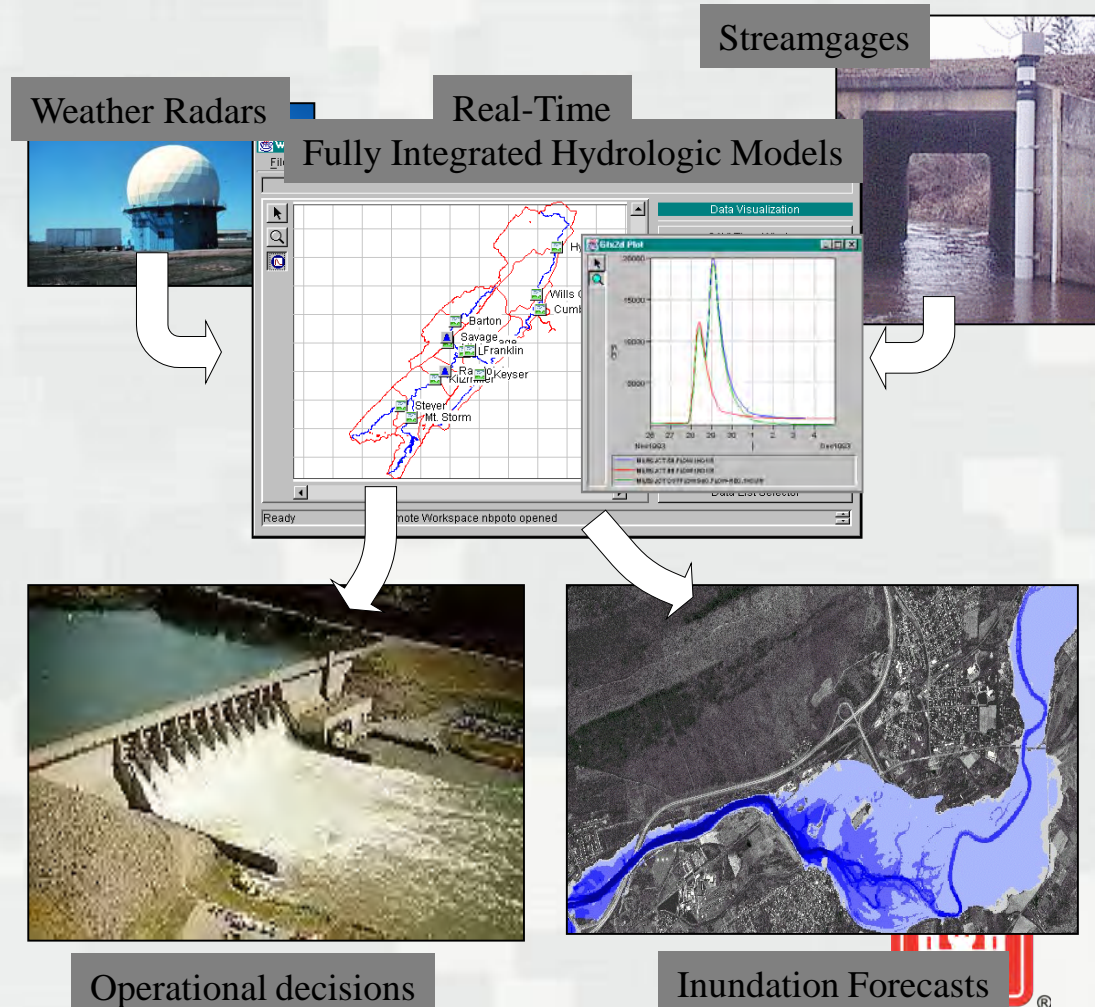


OPERATIONAL FORECAST MODELING



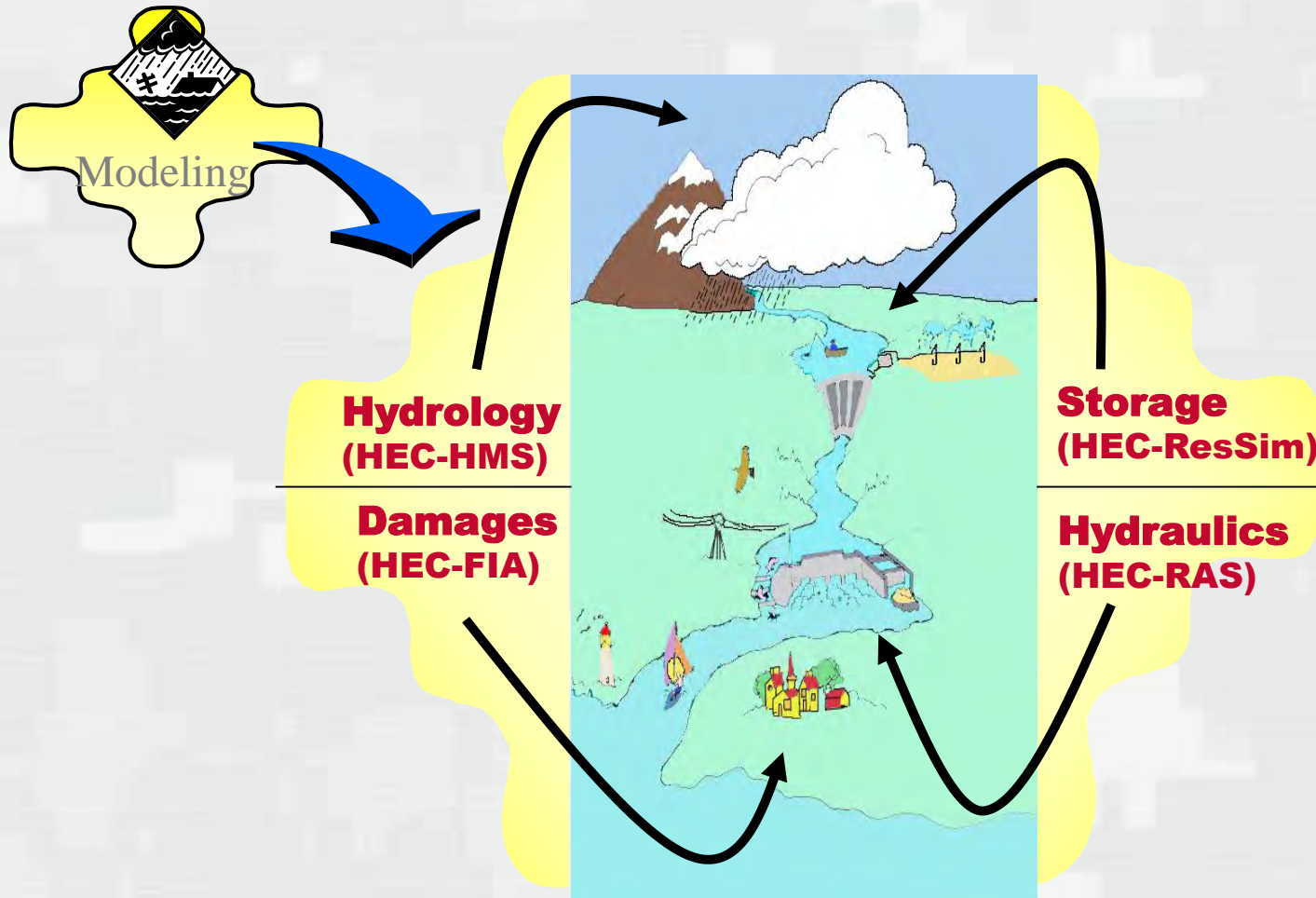
Corps Water Management System (CWMS)

- Improved Real-Time Water Management Decision Support for over 700 Multipurpose Reservoirs, Control Structures and Thousands of miles of Levees.
- An integrated suite of real-time water resources software
- Standard Corporate Centrally Supported Hardware/Software.
- From 40 Existing Unique Systems to one CWMS.



Inundation Forecasts

CWMS Watershed Modeling



Summary

- Interagency collaboration on flood and extreme storm related activities with USACE, NOAA, and USGS
- Developments in Operational Decision Support Software





Questions

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