

OPORD 2011-50 2011 Part 2: Performance Assessment

Status Overview

14 December 2011



US Army Corps of Engineers
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Part 2 Performance Assessment

OPORD 2011-50 2011

- *Performance and Risk*
- *Review of Decision Process*
- *Evaluate Communications*
- *Economic/Environmental Impact*
- *Operational Recommendations*
- *Additional Authority Needs*
- *Identify Water Control Manual Revisions*
- *Lessons Learned*



Main Stem Mississippi Levee – 1973 Flood



Part 2 Performance Assessment



A Satellite View of Hamburg, Iowa
On July 17, 2011

- ***Approach/Funding estimate presented to Steering Committee & ASA(CW) mid-November***
- ***Primary focus on Long-Term Operational and Policy Recommendations with recognition of need for immediate actions to mitigate risk this season***
- ***Agency Technical Review Team being assembled to include members external to Corps***



Part 2 Performance Assessment

Hamburg, Iowa Levee Breach (June 2011)

- ***Development of Immediate Risk Reduction Measures for 2012 Flood Season (FCCE) – Funding imminent (\$1.875M)***
- ***Long-Term Operational and Policy Improvement Recommendations (O&M) – Awaiting funding decision***



1927 Flood; Mississippi River



Water Control Management Board



Gavins Point Spillway at 160,000 cfs (2011)

- ***Mississippi River Water Control Management Board***
- ***ER 15-2-13***
- ***Immediate need to plan for operation and management of an impaired system***
- ***Inter-divisional operating committee chaired by the HQUSACE Senior Hydraulic Engineer***



Operation Watershed Responding to the Historic Mississippi River Flood of 2011

Status Overview

Scott Whitney

MVD REGIONAL FLOOD RISK MANAGER
20 October 2011



US Army Corps of Engineers
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IRTF Meeting #5

14 Dec St. Louis, MO



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IRTF Meeting #5

14 Dec St. Louis, MO

Agenda Items:

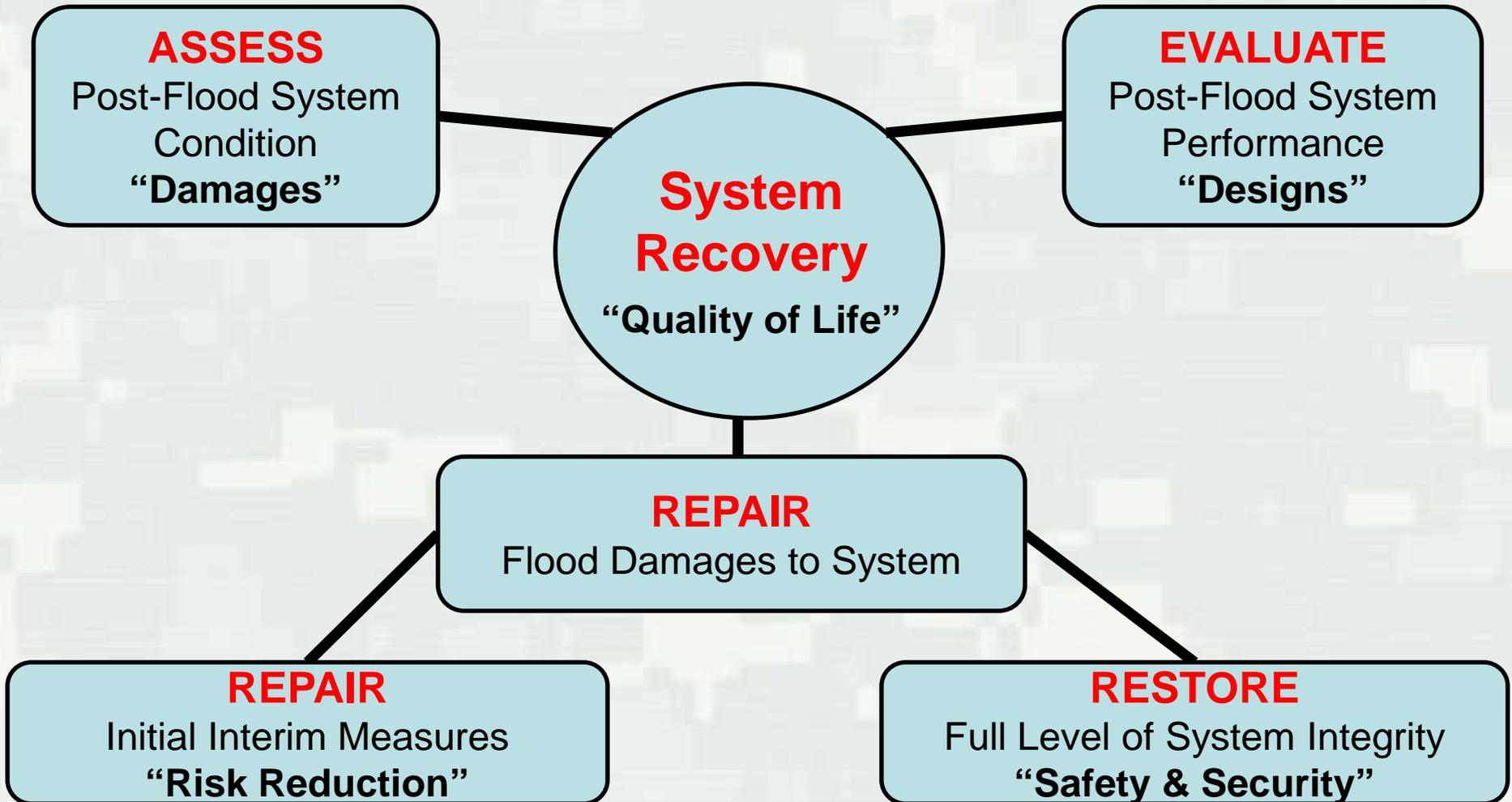
- ✓ **USACE NATIONAL PERSPECTIVES**
- ✓ **CRITICAL REPAIR PROJECTS**
- ✓ **SYSTEM PERFORMANCE EVALUATION**
- ✓ **2012 FLOOD POTENTIAL OUTLOOK**
- ✓ **STATES PERSPECTIVES**
- ✓ **FEMA RECOVERY AND MITIGATION EFFORTS**
- ✓ **NRCS FLOOD RECOVERY EFFORTS**
- ✓ **USCG FY12 WATERWAY ACTION PLAN**
- ✓ **NEXT MEETING (Late Feb?)**



Operation Watershed

Responding to the Historic Mississippi River Flood of 2011

RECOVERY OVERVIEW



Operation Watershed - Recovery

Responding to the Historic Mississippi River Flood of 2011

MVDs OPERATION WATERSHED - RECOVERY

MVD 2011 Critical Flood Repair Projects: Funded Projects

Last Update: 12 DEC 2011

Feature	Flood Damaged Site	CORPS DISTRICT	STATE	COUNTY / PARRISH	HQ AG Priority	Estimated Cost	FY11-12 Funds Allocated
MRL	BPNM Floodway - Make Safe and Stable	MVM	MO	Mississippi	I	\$25,000,000	\$25,000,000
CI	Cache-Cairo	MVM	IL	Alexander	I	\$26,110,000	\$26,110,000
MRL	City of Cairo, IL	MVM	IL	Alexander	I	\$4,600,000	\$4,600,000
MRL	Cairo Parcel 5	MVM	IL	Alexander	I	\$10,400,000	\$10,400,000
MRL	Above Cairo Parcel 2A - Relief Wells	MVM	IL	Alexander	I	\$6,769,221	\$6,769,221
MRL	Above Cairo Parcel 2 - Slurry Trench	MVM	IL	Alexander	I	\$1,900,514	\$1,900,514
MRL	Buck Chute	MVK	MS	Warren	II	\$2,640,000	\$338,375
MRL	Albermarle Slide	MVK	MS	Issaquena	II	\$1,006,000	\$207,400
MRL	Duncan Point	MVN	LA	E Baton Rouge	I	\$8,850,000	\$8,850,000
MRL	Baton Rouge Front	MVN	LA	E Baton Rouge	I	\$1,762,000	\$1,762,000
CI	Third District	MVN	LA	Orleans	II	\$11,400,000	\$6,375,000
Struct	Morganza Control, Piezometers and relief wells	MVN	LA	Pointe Coupee	II	\$2,420,000	\$2,420,000
CI	Merriwether-Cherokee, top bank and revetment	MVM	TN	Lake	IIIA*	\$24,115,000	\$2,200,000
CI	Presidents Island	MVM	TN	Shelby	IIIA*	\$26,689,000	\$2,200,000
PL84-99	Souris River	MVP	ND	Ward	I	\$5,000,000	\$2,030,000
PL84-99	Scott County Levee Breach	MVS	IL	Scott	II	\$1,716,000	\$1,716,000
Dredge	Deep Draft Projects - MR Baton Rouge to Gulf	MVN	LA	Multiple	IIIA*	\$10,000,000	\$6,000,000
Dredge	Gulf Intracoastal Waterway, LA	MVN	LA	Multiple	IIIA	\$3,000,000	\$3,000,000
FCCE	ToIna Coulee Advance Measures	MVP	ND	Nelson	I	\$5,680,250	\$5,680,250
Dredge	Miss River Btwn Mo River and Minneapolis, MN	MVR	MO/IL/IA/WI	Multiple	IIIA	\$500,000	\$500,000
Dredge	Miss River btn Ohio & MO River, IL	MVS	MO / IL	Multiple	IIIA	\$2,000,000	\$2,000,000
FCCE/O&M	OW-R System Performance Evaluation	multiple	multiple	multiple	I	\$8,000,000	\$1,750,000
TOTALS						\$189,557,985	\$121,808,760

OW-R Funding and Execution

(Construction and P&S)

As of 12 Dec 2011

MVD District	Projects	Amount Funded (\$)
ST. PAUL	2	\$7,710,250
ROCK ISLAND	1	\$500,000
ST. LOUIS	2	\$3,716,000
MEMPHIS	9	\$79,179,735
VICKSBURG	2	\$545,775
NEW ORLEANS	6	\$28,407,000
MVD TOTALS	22	\$120,058,760

NOTE: In some cases these FCCE funds have been leveraged with existing MR&T and O&M funds for project construction. Approx. \$10 million additional funds.



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OW-R Construction Funding Need

(Phase 1 & 2)

CRITICAL REPAIR SITES ASSOCIATED WITH STATES (# PROJECTS)	ESTIMATED COST
Upper Mississippi River States (12)	\$16,100,000
State of Kentucky (5)	\$26,586,000
State of Tennessee (10)	\$87,154,000
State of Missouri (6)	\$34,786,000
State of Arkansas (12)	\$25,960,000
State of Mississippi (25)	\$94,229,000
State of Louisiana (58)	\$557,219,800
TOTAL CONSTRUCTION FUNDING NEED (128)	\$842,034,800



Operation Watershed - Recovery

Responding to the Historic Mississippi River Flood of 2011

INFORMATION PAPERS & CONSTRUCTION FACT SHEETS



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Operation Watershed – Recovery

Responding to the Historic Mississippi River Flood of 2011

QUESTIONS?



Operation Watershed -Recovery

Responding to the Historic Mississippi River Flood of 2011

System Performance Evaluation

Project Status

Hank DeHaan

14 December 2011



US Army Corps of Engineers
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OW-R System Performance Evaluation

The System Performance Evaluation (SPE) will assess and document the performance of the MR&T system and how the entire Mississippi River Watershed was managed as a system during the historic Mississippi River Basin Flood Event that extended from March through July 2011.



Team Focus:

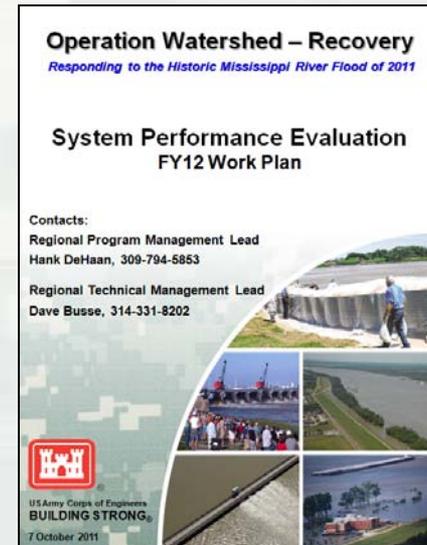
1. How did the MR&T System perform?
2. How could the MR&T System perform now?
3. What does the MR&T System need to perform in the future?



OW-R System Performance Evaluation

FY12 Work Plan

- Purpose and Scope
- SPE Scope Questions
- SPE Team
- Team Responsibility Assignment Matrix
- SPE Team / Scope Question Relationship
- Study Cost & Schedule
- Primary Product - SPE Report
- Detailed Work Plan Breakdown



OW-R System Performance Evaluation

SPE Team

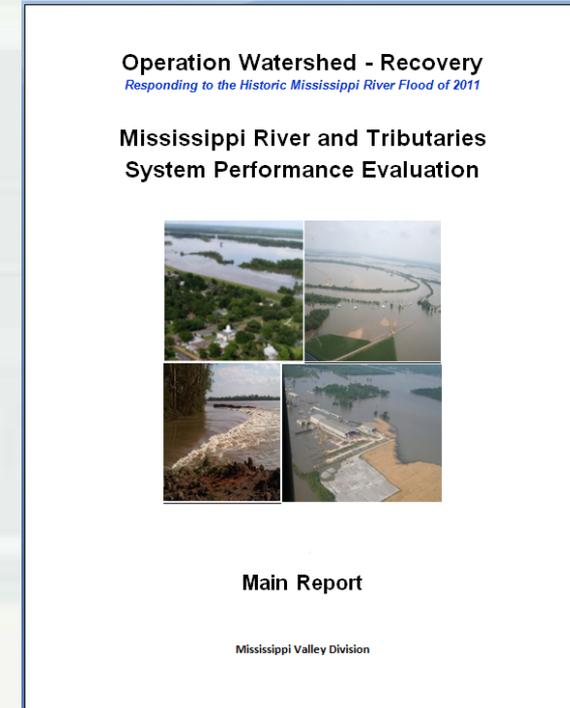
Regional Management Team	
	Regional PM Regional TM
	TM Leads: (Structural, Hydraulics, Economics, Environmental)
	PM Leads: (MVS, MVM, MVK, MVN)
Project Delivery Teams	
Team Leader	1. Reservoirs (Fusion Team)
Team Leader	2. Levee/Floodwall/Outlet Structures
Team Leader	3. Floodways
Team Leader	4. Channel Improvements
Team Leader	5. Communications/Collaboration
Team Leader	6. Environmental
Team Leader	7. Economics
Team Leader	8. Flow Lines/Design Flood
Team Leader	9. Data Management
Team Leader	10. Reports



OW-R System Performance Evaluation

System Performance Evaluation Report

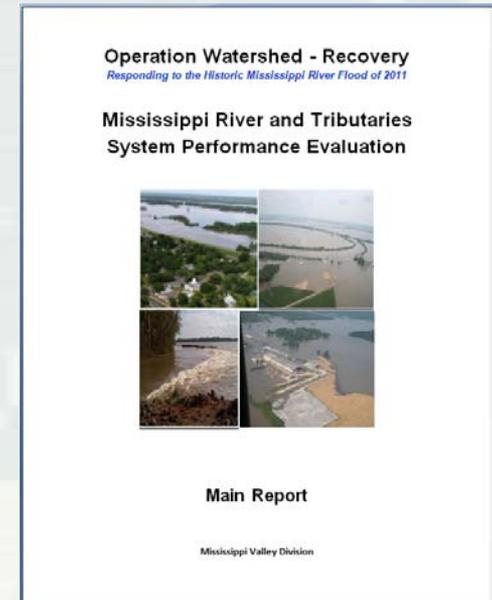
1. Executive Summary
2. Study Purposes
3. The MR&T Project
4. The 2011 Flood
5. MR&T System Hydraulic and Economic Analysis
6. MR&T System Operational Performance during the 2011 Flood
7. MR&T System Recovery after the 2011 Flood
8. Conclusions and Recommendations



OW-R System Performance Evaluation

SPE Report – Primary Uses:

- **MR&T System Recovery and Improvement**
- **Future System Management and Operation**
- **Reference for Flood Risk Management**



OW-R System Performance Evaluation

Study Schedule:

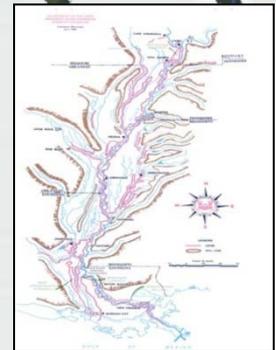
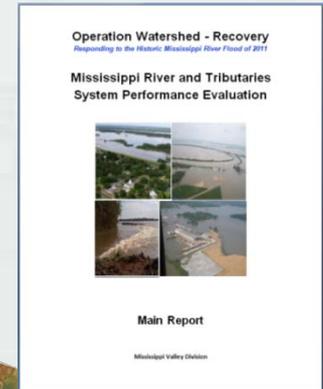
<u>SPE Schedule</u>	
<u>Activity/Milestone</u>	<u>Date</u>
ATR #1, ATR kick-off, review methodologies	13 Oct
Submit initial inputs for Interim Report to Reports PDT	23 Nov
DQC Review of Interim Report	5-9 Dec
Complete Initial Model Runs (Hydraulics)	31 Dec
Submit final inputs for Interim Report to Reports PDT	20 Jan
ATR #2, Review (Review Interim Report)	23-27 Jan
MVD Review of Interim Report	13-24 Feb
Submit final inputs for Draft Report to Reports PDT	22 Mar
DQC Review of Draft Report	2-6 Apr
ATR #3 Review (Review Draft Report)	16-19 Apr
Submit final Inputs for Draft Final Report to Reports PDT	30 Jun
Submit Draft Final Report to MVD	31 Jul
Submit Draft Final Summary Report to MVD	30 Aug



OW-R System Performance Evaluation

Milestones Completed this Fiscal Year

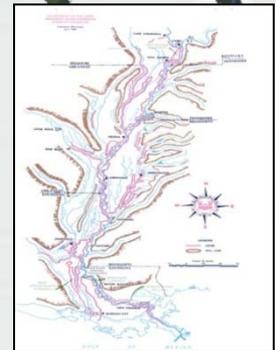
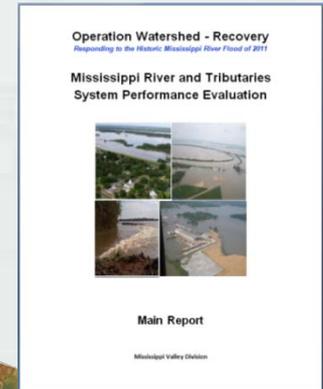
- 7 Oct – FY12 Work Plan
- 12-13 Oct – Team IPR and ATR #1
- 21 Oct – Draft Report Outline
- 30 Oct – Team Writing Assignments
- 23 Nov – Team Submittals for Interim Report



OW-R System Performance Evaluation

Current SPE Status and Next Steps

- 28 Nov – SPE Effort Paused
- Dec/Jan – USACE HQ Securing SPE Funds
- Dec/Jan – Assemble & Review Interim Report
- Dec/Jan – Align MR&T and National SPE Efforts
- Jan – Update SPE Scope, Schedule, and Budget
- Jan – Restart SPE Efforts



Operation Watershed -Recovery

Responding to the Historic Mississippi River Flood of 2011

Flood Season Preparedness

Risk Identification, Management and Communication

Hank DeHaan

14 December 2011



US Army Corps of Engineers
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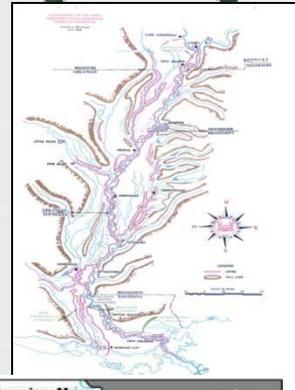


OW-R Flood Season Preparedness

Preparing for the 2012 Flood Season:

Scope: Proceed with key efforts to mitigate risks caused by 2011 flood damages before the next flood season

- HQ concurred with completing these efforts
- Focused on tasks related to life safety
- Funding: \$1.3M FCCE funds
- Completion by 30 March 2012
- Currently developing scope and identifying team

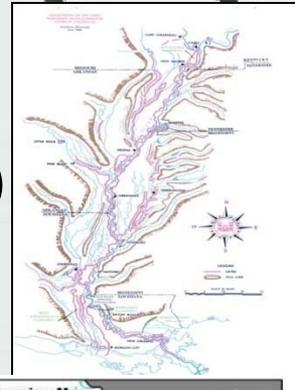


OW-R Flood Season Preparedness

Preparing for the 2012 Flood Season:

Process:

- Establish how damaged MR&T system will perform
- Identify operational/physical issues (in AARs, DARs)
- Identify key risks in the system
- Develop interim measures for construction projects

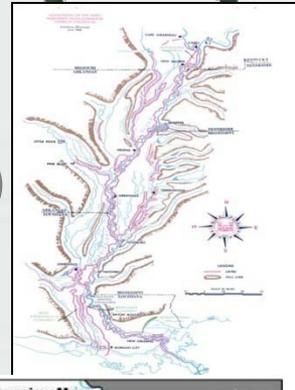


OW-R Flood Season Preparedness

Preparing for the 2012 Flood Season:

Process:

- Establish how damaged MR&T system will perform
- Identify operational/physical issues (in AARs, DARs)
- Identify key risks in the system
- Develop interim measures for construction projects
- Identify flood-fight actions to reinforce weak points
- Assess design changes on select MR&T structures
- Improve risk communication processes/tools

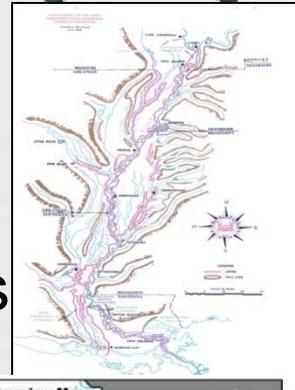


OW-R Flood Season Preparedness

Preparing for the 2012 Flood Season:

Products:

- List and summary of key MR&T system risks
- Recommended construction interim measures
- Recommended design changes for recovery projects
- Standardized inundation mapping process

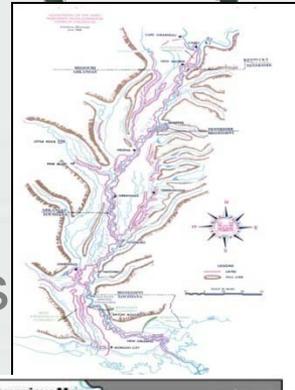


OW-R Flood Season Preparedness

Preparing for the 2012 Flood Season:

Products:

- List and summary of key MR&T system risks
- Recommended construction interim measures
- Recommended design changes for recovery projects
- Standardized inundation mapping process
- Regional Emergency Response Plan
- Regional Risk Communication Plan
- Flood preparedness workshops / tabletop exercise

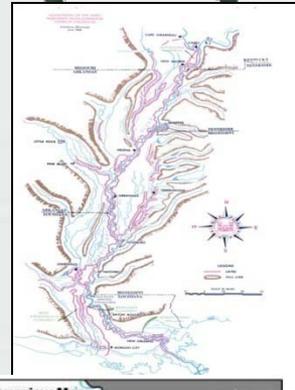


OW-R Flood Season Preparedness

Preparing for the 2012 Flood Season:

Next Steps:

- Finalize Scope and Work Plan
- Identify and activate team
- Coordinate efforts with SPE, Silver Jackets, IRTF



2011-2012 Winter/Spring Outlook

Mississippi River Basin
Interagency Recovery Task Force
December 14, 2011

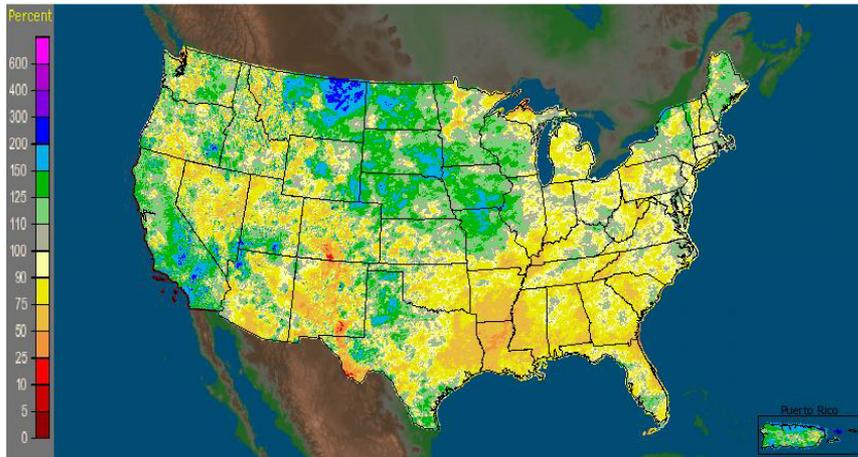
*Ben Weiger, Chief, Hydrologic Services Branch
National Oceanic and Atmospheric Administration
National Weather Service, Southern Region
ben.weiger@noaa.gov*



Annual Precipitation Comparison to last year

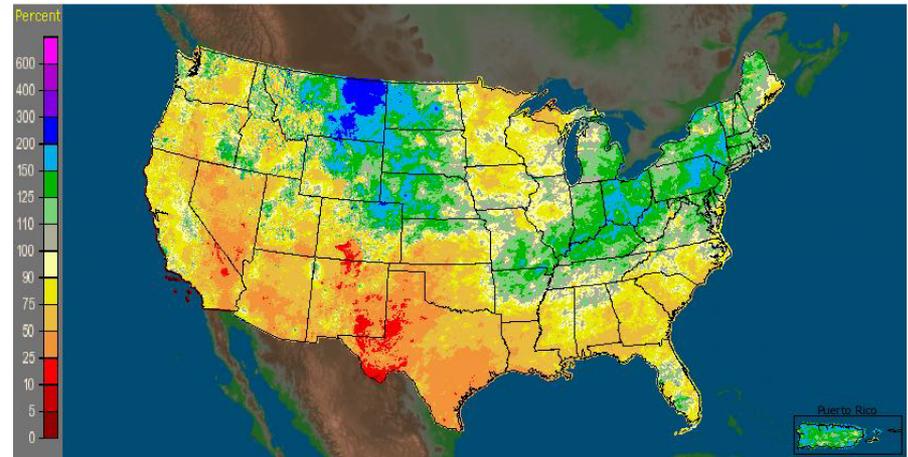
2010

CONUS + Puerto Rico: Full Year 2010 Percent of Normal Precipitation
Valid at 1/1/2011 1200 UTC- Created 1/3/11 21:36 UTC



2011

CONUS + Puerto Rico: Current Year to Date Percent of Normal Precipitation
Valid at 12/12/2011 1200 UTC- Created 12/12/11 17:37 UTC



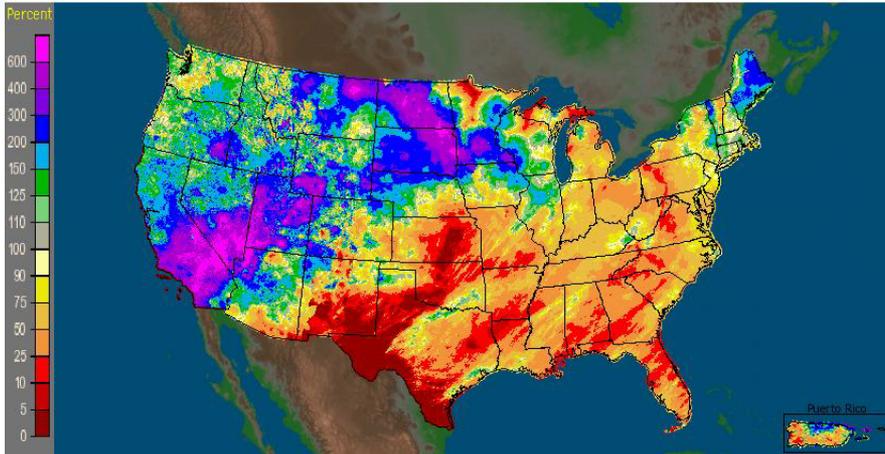
<http://water.weather.gov/precip/>



December Precipitation Comparison to last year

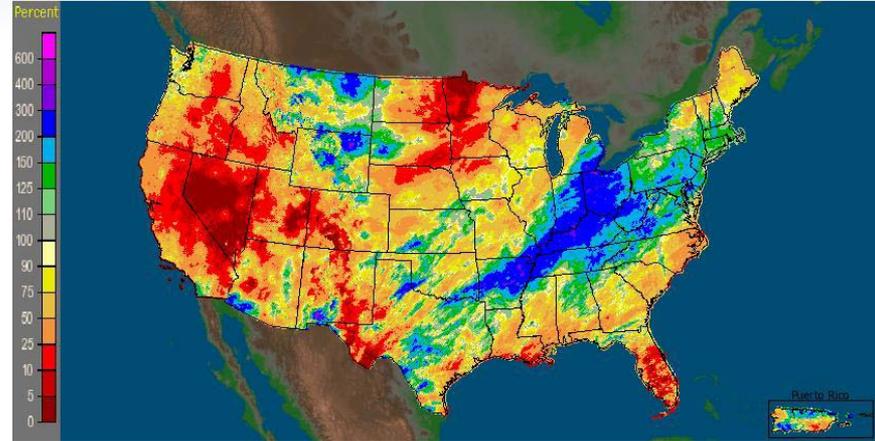
2010

CONUS + Puerto Rico: December, 2010 Monthly Percent of Normal Precipitation
Valid at 1/1/2011 1200 UTC- Created 1/3/11 21:36 UTC



2011

CONUS + Puerto Rico: Current 30-Day Percent of Normal Precipitation
Valid at 12/12/2011 1200 UTC- Created 12/12/11 17:38 UTC



<http://water.weather.gov/precip/>

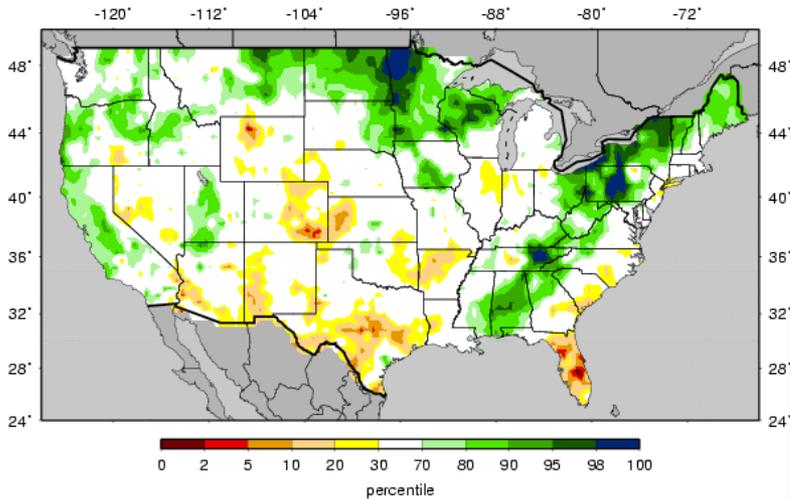


Modeled Soil Moisture Comparison to last year

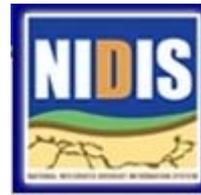
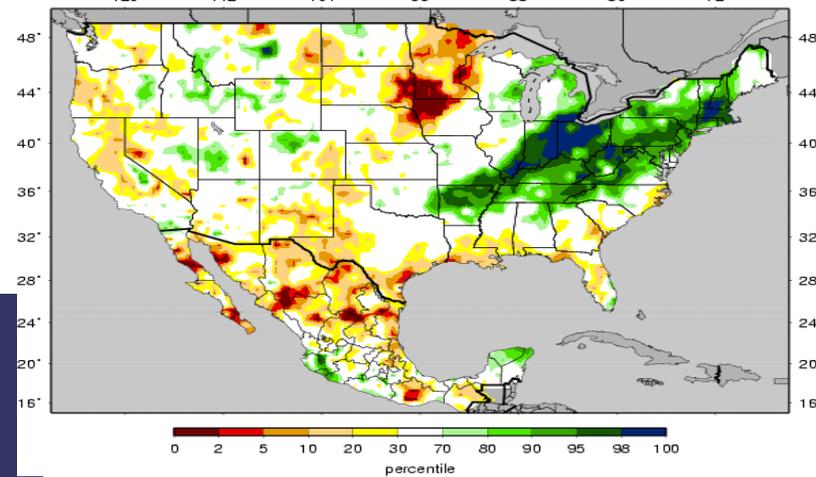
2010/12/01

2011/12/11

VIC Soil Moisture Percentiles (wrt/ 1916-2004)
20101201



VIC Soil Moisture Percentiles (wrt/ 1916-2004)
20111211



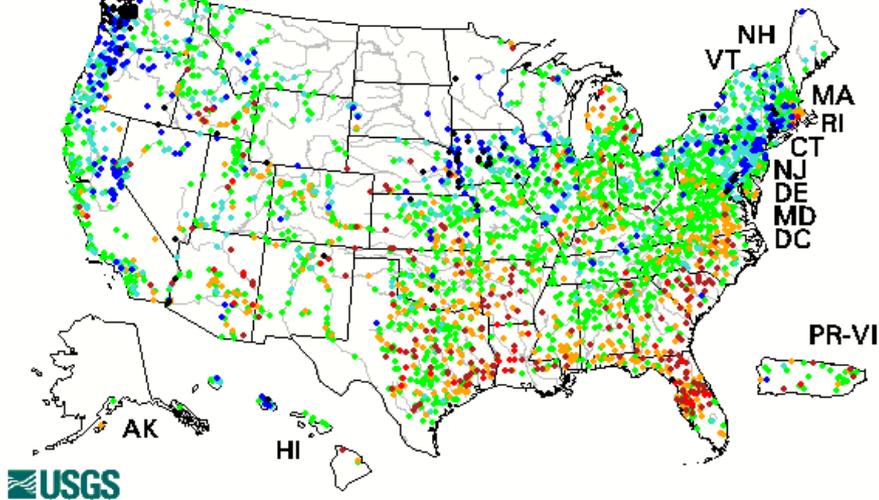
http://www.drought.gov/portal/server.pt/community/drought_indicators/223/soil_moisture/



Streamflow Conditions

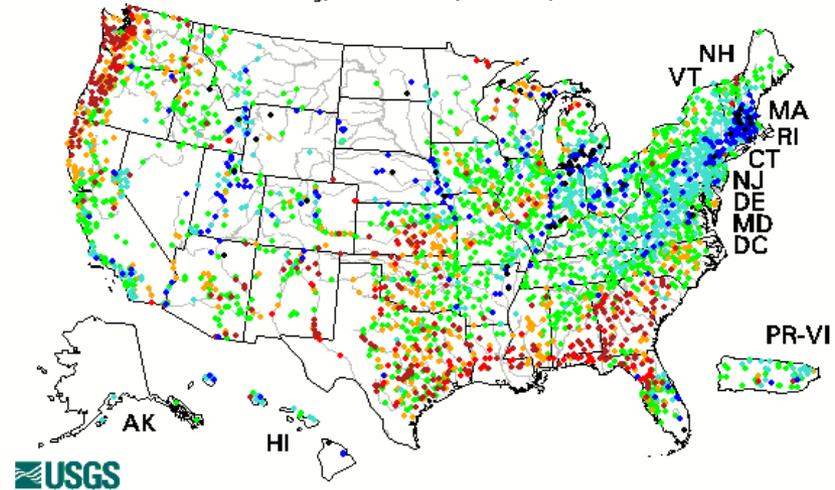
2010/12/12

Sunday, December 12, 2010 19:30ET



2011/12/12

Monday, December 12, 2011 12:30ET



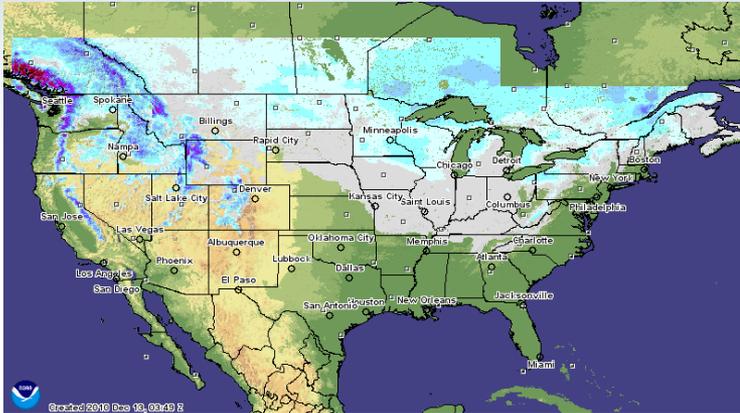
<http://waterwatch.usgs.gov/new/?id=pamap>

<http://waterwatch.usgs.gov/new/>

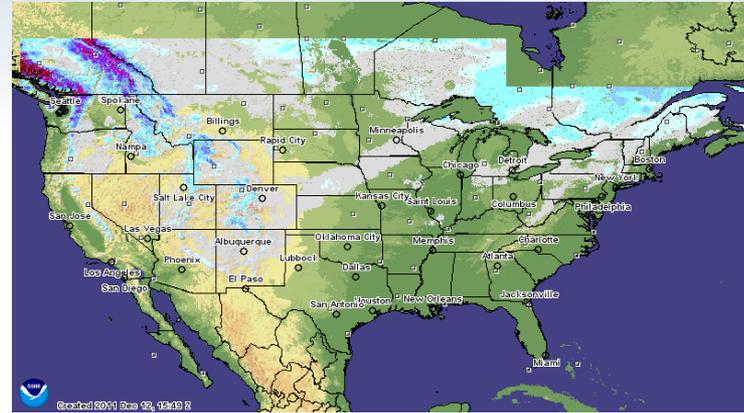
Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

Modeled Snow Water Equivalent (SWE)

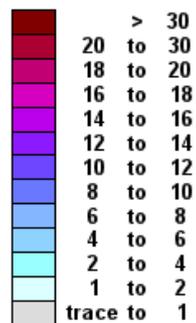
2010/12/12



2011/12/12



Inches of water equivalent



Not Estimated

Elevation in feet

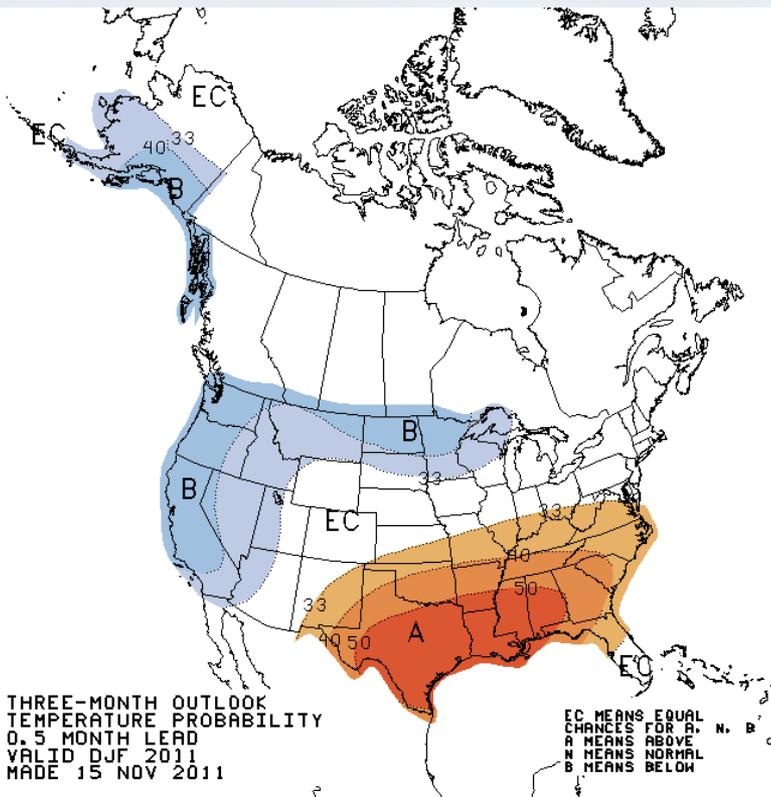


<http://www.nohrsc.noaa.gov/interactive/html/map.html>

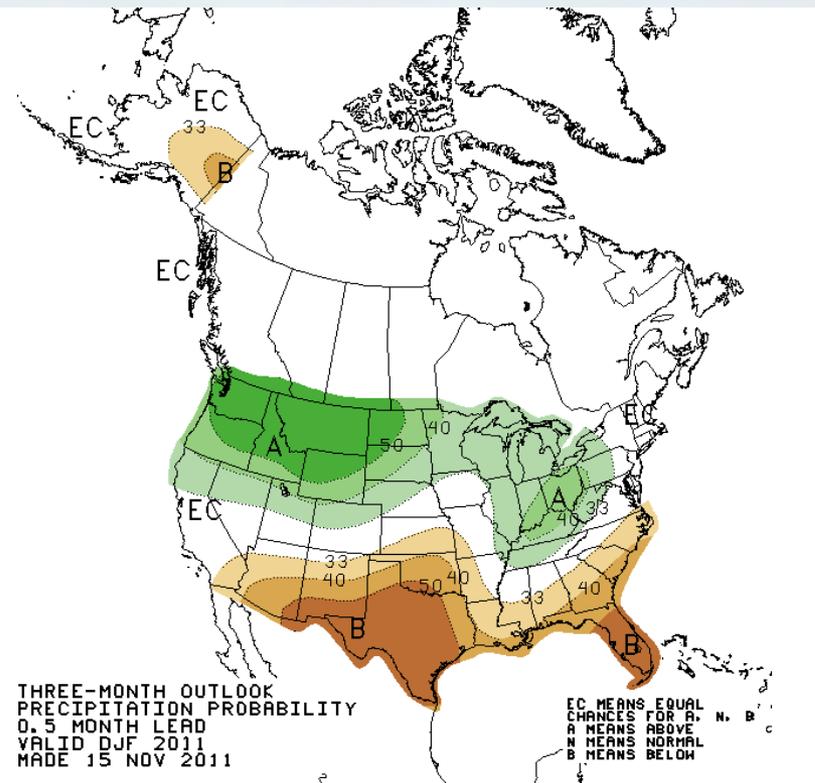


3-Month Outlooks Dec-Jan-Feb

Temperature



Precipitation

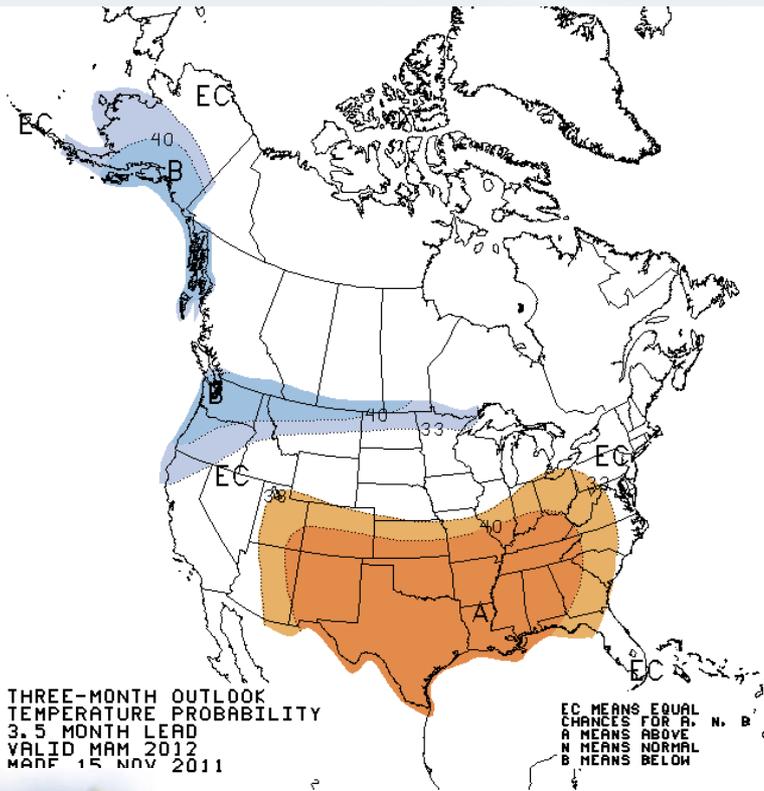


[http://www.cpc.ncep.noaa.gov/products/predictions/
long_range/seasonal.php?lead=2](http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=2)

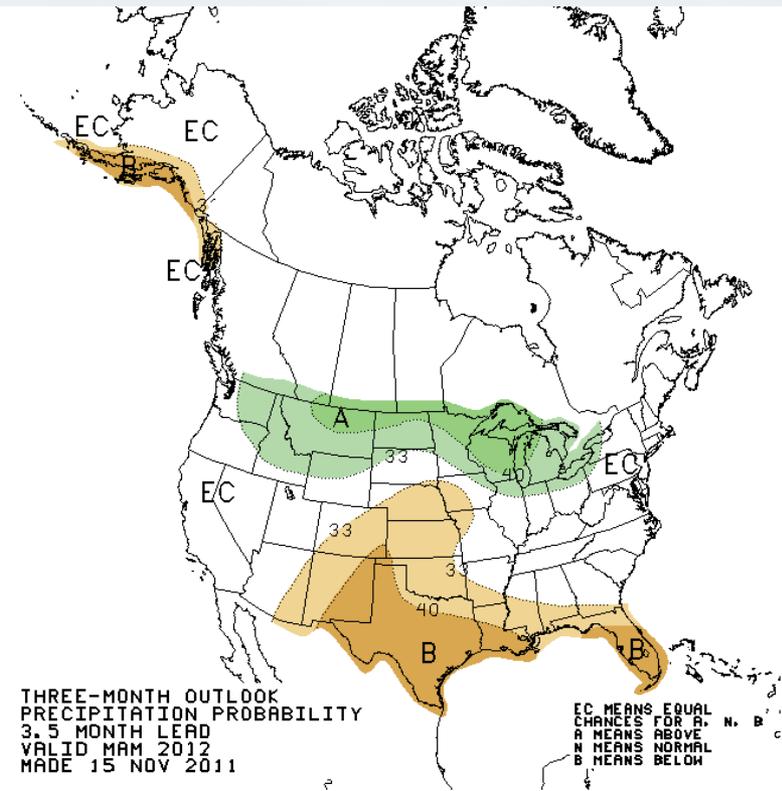


3-Month Outlooks Mar-Apr-May

Temperature



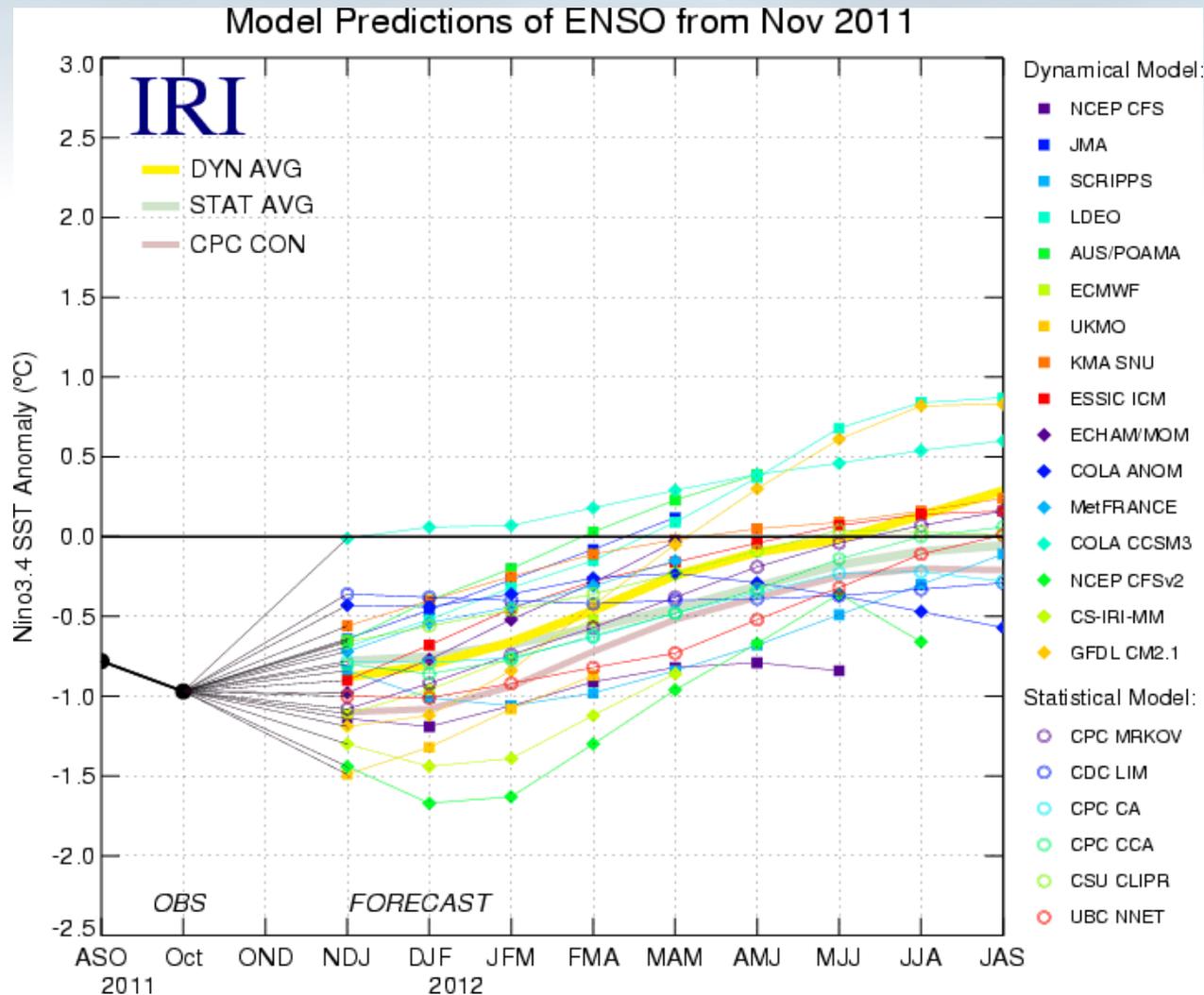
Precipitation



[http://www.cpc.ncep.noaa.gov/products/predictions/
long_range/seasonal.php?lead=5](http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=5)



Sea Surface Temperature Anomaly Forecast Projection



Flood Potential

- **La Niña conditions are present across the equatorial Pacific**
- **La Niña is expected to continue over the Northern Hemisphere winter 2011-12**
- **Based on antecedent conditions and seasonal forecasts, potential exists for another significant flood event in the MS River Basin in 2012.**



Questions?



Thank you!



Missouri

STATE EMERGENCY MANAGEMENT AGENCY

IRTF REPORT

RANDY SCRIVNER

**LOGISTICS, RESOURCES, MITIGATION & FLOODPLAIN MANAGEMENT BRANCH CHIEF
MISSOURI STATE EMERGENCY MANAGEMENT AGENCY**

DECEMBER 14, 2011

**PAUL PARMENTER
DIRECTOR**

Missouri

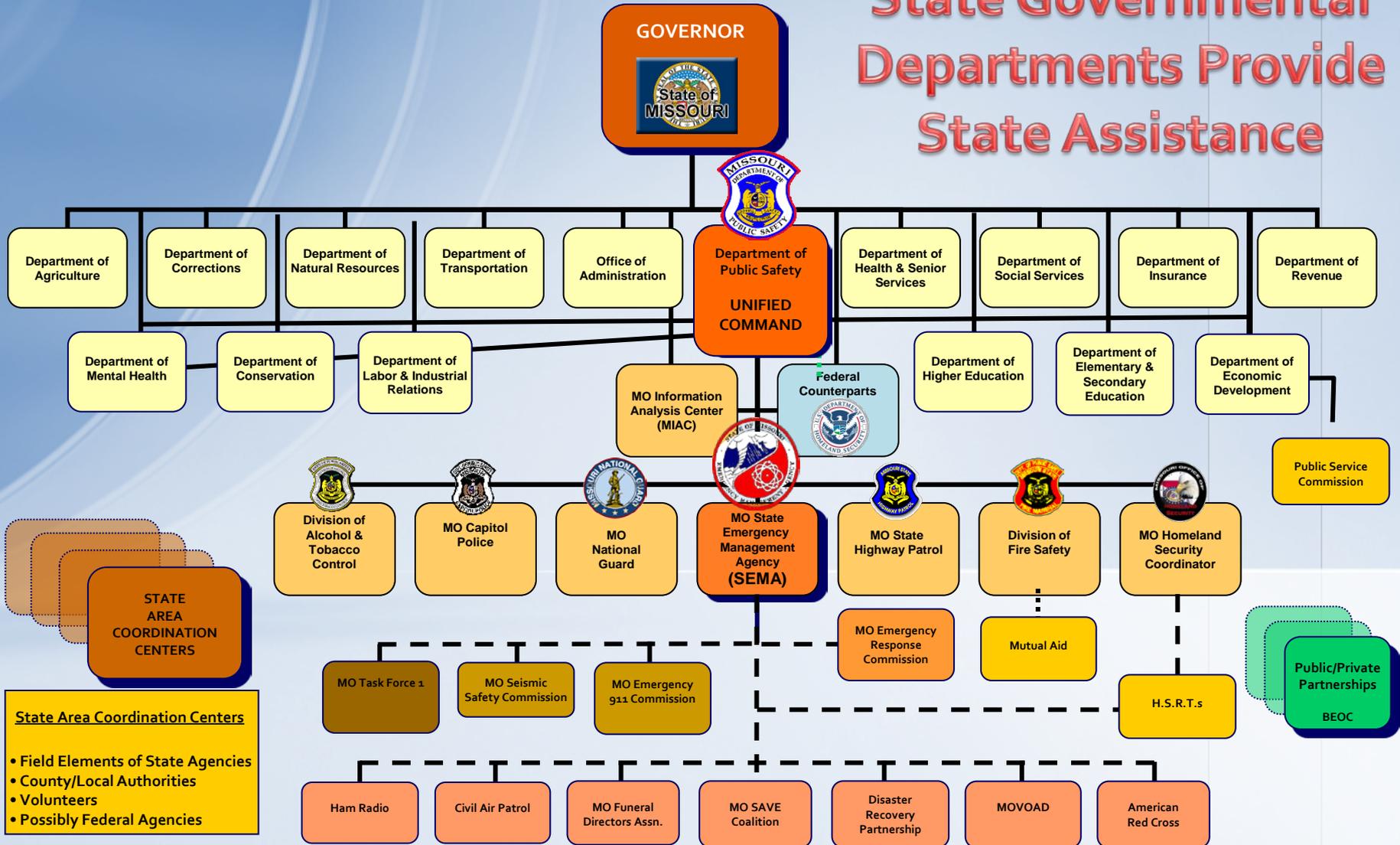
The basic enabling legislation for SEMA is RSMo 44.

44.020. There is hereby created within the department of public safety, the "State Emergency Management Agency," for the general purpose of assisting in coordination of national, state and local activities related to emergency functions by coordinating response, recovery, planning and mitigation. This agency shall also serve as the statewide coordinator for activities associated with the National Flood Insurance Program.



State Emergency Operations Center (SEOC)

State Governmental Departments Provide State Assistance

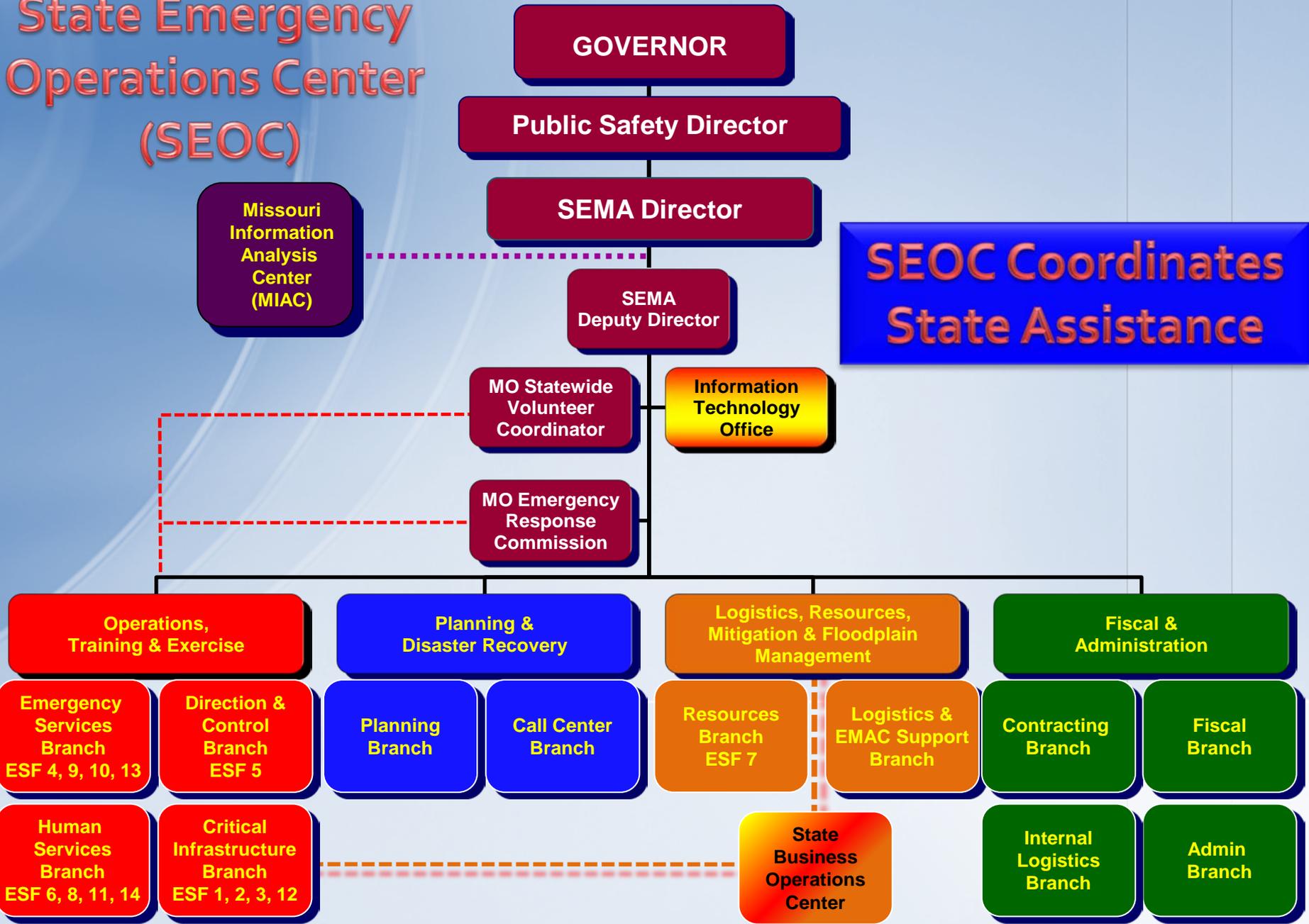


STATE AREA COORDINATION CENTERS

State Area Coordination Centers

- Field Elements of State Agencies
- County/Local Authorities
- Volunteers
- Possibly Federal Agencies

State Emergency Operations Center (SEOC)



Missouri

Upon receiving a Governor's emergency declaration, SEMA coordinates State, Volunteer & Private Sector support.

- **MODOT** – Traffic rerouting, technical assistance, limited heavy equipment
 - **Highway Patrol & Fire Safety** – Water rescue, law enforcement, security, traffic rerouting, firefighting, Mutual Aid, Incident Management Teams (IMT), Search & Rescue, technical assistance
 - **National Guard** – Military Flood Fight support
 - **DNR** – Various permit issues & tech assistance - quality, dam safety, HAZMAT
 - **Mental Health** – Crisis counseling
 - **Health & Senior Services** – Technical assistance, vaccines
 - **Social Services & Volunteer Organizations** – Mass Care (sandbagging volunteers, food & water, sheltering, pet rescue)
- Corrections** – Sandbagging assistance, some transport
- Agriculture** – Agriculture Disaster Assistance & Food Programs



Missouri

SEMA Logistics/Resources/ESF 7 Response Support

Coordinates W/USACE – Flood fight-sandbags, plastic sheeting, de-watering pumps, technical assistance

Performs emergency contracting –

Refueling services (for emergency vehicles & equipment), de-watering pumps, generators, heavy earthmoving equipment, light towers, portable radios & mobile phones, flashlights, shovels, leather work gloves, coveralls, life vests, sandbags, plastic sheeting, rock, sand, gravel, bales of straw, transport, fuel, portalets, water, ice, food, shelters, portable showers, services, facilities (forward coordination centers, staging areas, warehousing) , equipment (office furniture, forklifts), office supplies, Personal Protective clothing & Equipment, medical supplies, engineering services, emergency management/technical staff augmentation (EMAC or Contracted)



SEMA PHOTO: 18" Pumps @ St Johns Bayou; May 12th 2011

SEMA PHOTO- Discharge @ St. Johns Bayou Levee, May 12th, 2011



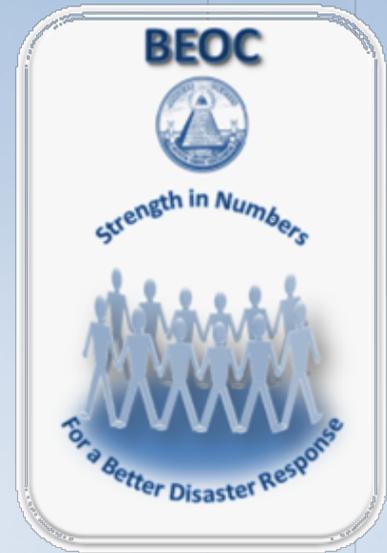
SEMA PHOTO: Pumps & Earth Moving Equipment @ Clarksville; June 2008



SEMA PHOTO: State Generator POD Farmington, Missouri

Missouri

2005 – Hurricane Katrina
2006 – SEMA Logistics Created
2006 – MOP₃/BOC Organized
2010 – BEOC Created/Exercised
2011 – BEOC in NLE & Joplin



BEOC

Business Emergency Operations Center

**Missouri
SEMA**



External Resource
Assistance Cell
(ERAC)

Critical Infrastructure &
Key Resources Cell
(CIKRC)



**Public
Private
Partnership**

Business Disaster
Response Cell
(BDRC)

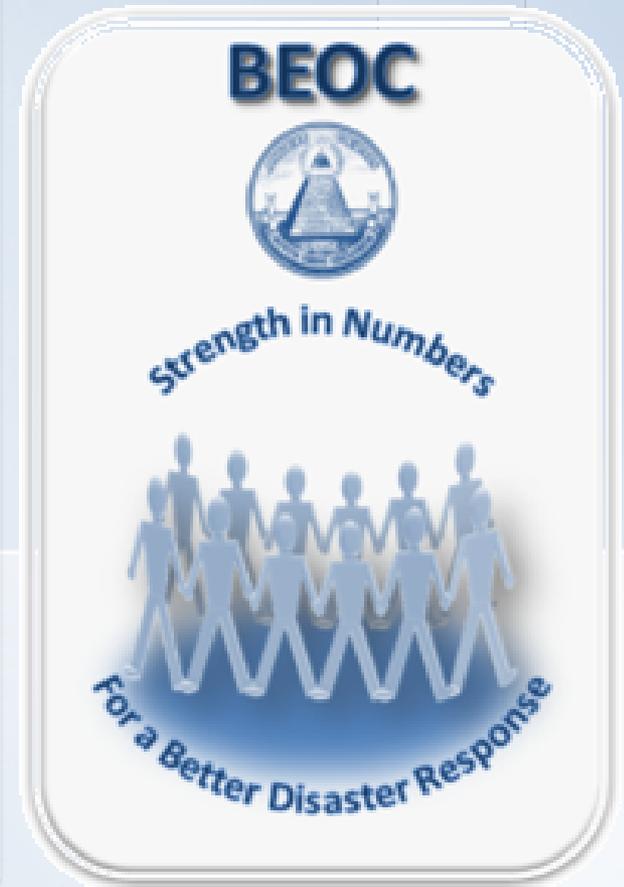
**BEOC
Co-Managers**

Missouri

Businesses Involved w/State BEOC

Business Executives for National Security (BENS), AT&T, Sprint, Verizon, Ameren, Empire Gas, KCPL, Association of MO Electric Cooperatives, MO Public Utility Alliance, American Petroleum Institute, AMEC Earth & Environmental Engineers, Michael Baker, Jr. Inc., Commerce Bank, Wells Fargo, Bank of America, Farmers Insurance, Bayer Crop Science, Monsanto, Wal-Mart, Sears/K-Mart, Coca Cola, Culligan of Mid-MO, Schaefer Water Centers, Central States Bottled Water Assoc., MO Valley Ice Producers Association, Missouri Grocers Association, MO Motor Carriers Association, Kettering/Tetra Tech, Elliott Data Systems, Lowes, Home Depot, MFA Oil, Kelly & Company, Garner Environmental, Deployed Resources, Baker Pumps, Sun Coast Pumps, United Rentals, Dean Engine Systems/Caterpillar, Grainger, Fastenal

2011 NLE, Floods & Joplin Participants



Missouri



Volunteer Coordination Program & Disaster Recovery Partnership

Provides Public & Private Resources to provide mass care/individual & family case management/assistance during disasters and subsequent recovery assistance

State & Federal Department Participants: Agriculture, Conservation, Economic Development, Elementary and Secondary Education, FEMA Region VII, Health and Senior Services, Insurance, Labor and Industrial Relations, Mental Health, Missouri Community Service Commission, Missouri Housing Development Commission, Missouri National Guard, Natural Resources, Office of Administration, Social Services, SEMA and USDA Rural Development

Non-Governmental Organization Participants: American Red Cross, AmeriCorps, Convoy of Hope, Church World Service, Missouri AFL-CIO, Missouri Association for Community Action, Missouri Association for Social Welfare, Missouri Baptist Disaster Relief, Missouri Catholic Conference, Missouri Interfaith Disaster Response Organization Missouri Legal Services Support Center, Missouri Voluntary Organizations Active in Disaster, Salvation Army and University Outreach and Extension

Missouri



Disaster/Public Assistance Program
(currently working about \$440 million in projects)



Area Coordinators provide emergency planning, training, exercise, response and recovery technical assistance to local officials and emergency managers

Public Assistance Provides Disaster Assistance funding to local, county, & state Governments & certain private, non-profit organizations in declared counties with disaster related emergency services, or to repair or replace damaged infrastructure.

Divided into different types and categories:

Emergency Work includes debris removal and emergency protective services.

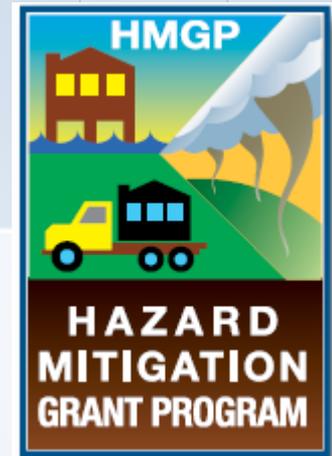
Permanent Work categories include: Roads and Bridges, Water Control Facilities, Buildings and Equipment (fire, police, City Hall), Utilities, and Parks, Recreational Facilities, etc.

Missouri

Hazard Mitigation Program

(currently working about \$190 million in projects & plans)

Provides Technical Assistance with Benefit-Cost-Analyses, grant applications, project management, reimbursements, audit preparations & project close outs



Missouri

Hazard Mitigation Program

(currently working about \$190 million in projects & plans)

Flood Projects: Flood buyouts (4,500 + residences), elevations, minor flood control projects such as bank stabilizations & small berms, local government owned small bridges, culverts & low water crossings replaced w/bridges

Other Projects: Tornado safe rooms (85 large safe room projects built, in design or construction & a large number of applications pending), electric service line burials

Planning Projects: Local Hazard Mitigation Plans (all but two counties have or are developing plans in partnership with the 19 member regional offices of the Missouri Association of Councils of Government [MACOG])



Missouri

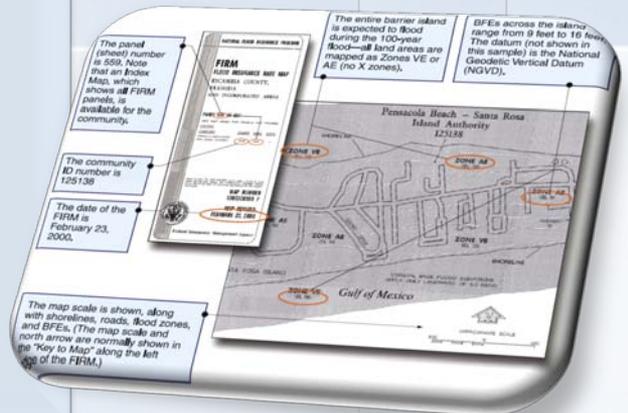
Floodplain Management Program (currently about \$5 billion in flood insurance coverage)

Provides Technical Assistance/Evaluations to enable counties, communities, citizens to participate in the National Flood Insurance Program (NFIP)

Provides Training (in partnership with the Missouri State Floodplain & Stormwater Managers Association [MFSMA]) for local floodplain administrators, building inspectors, FDIC backed lenders, insurance representatives, realtors, engineers

Prepares Flood Maps: Cooperating Technical Partner (CTP) to produce Digital Flood Insurance Rate Maps (DFIRMs) and Risk Map products

Prepares State Permits: State Floodplain Development Permits to all Missouri Executive Branch Departments per Executive Order 98-03



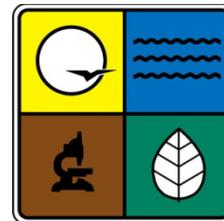
Missouri

Questions?



Missouri Department of Natural Resources-IRTF Report

Dru Buntin, Deputy Director



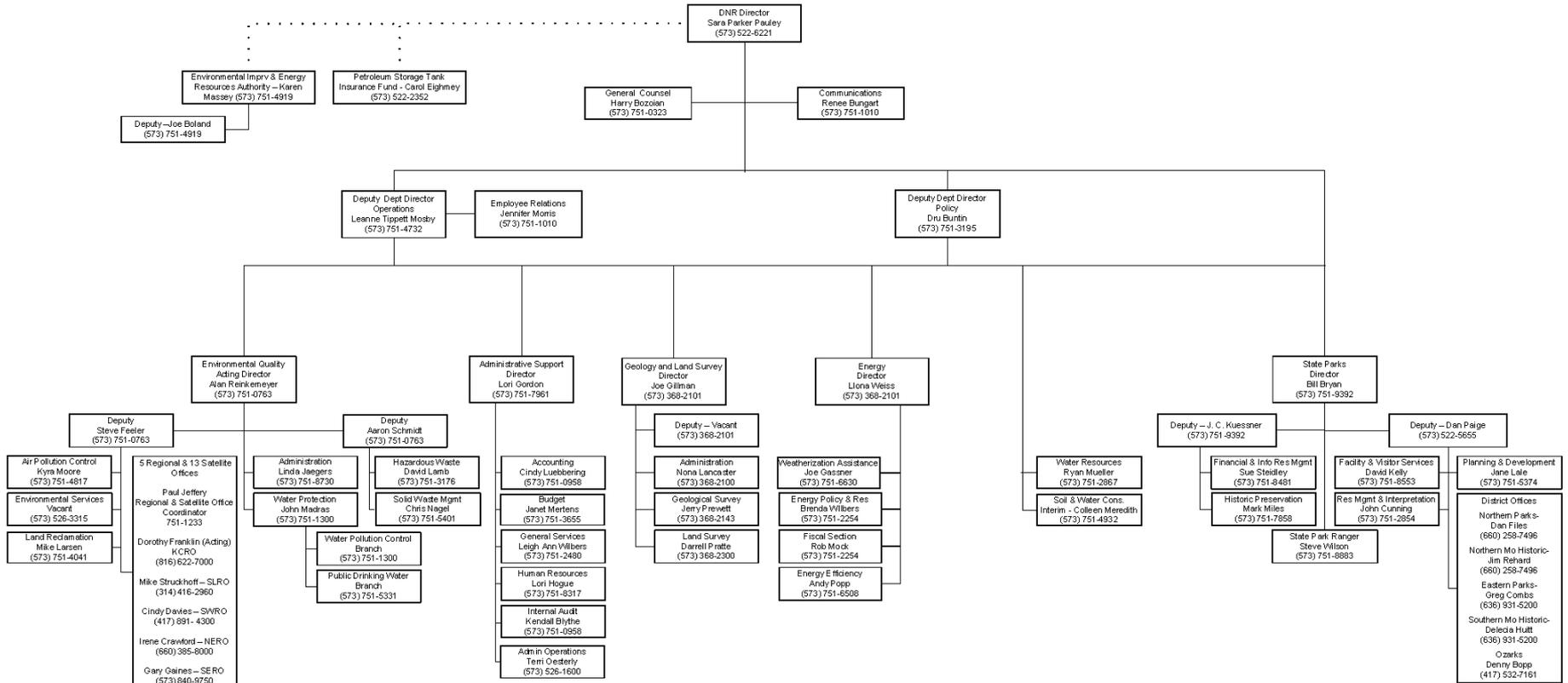
MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Missouri Department of Natural Resources



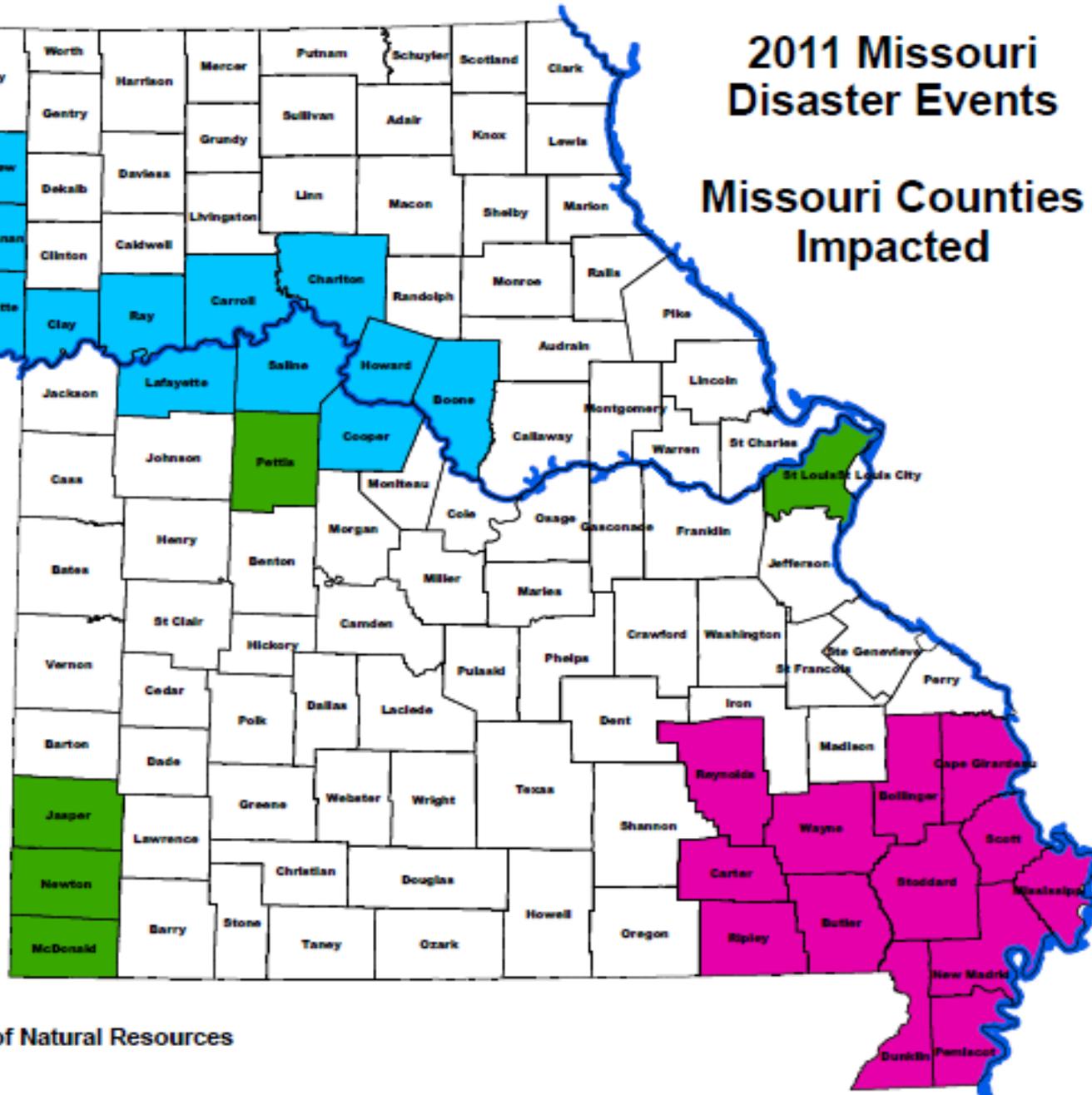
MISSOURI
DEPARTMENT OF NATURAL RESOURCES

11/22/2011



2011 Missouri Disaster Events

Missouri Counties Impacted



Legend

- Disaster Counties - MO River Flood
- Disaster Counties - SE MO Flood
- Disaster Counties - 2011 Tornadoes



Missouri Department of Natural Resources
October 19, 2011

Joplin Tornado



- **Developed maps of regulated sites within impact area such as Tier II sites, underground storage tanks sites, above ground storage tanks and hazardous waste generator sites.**
- **Staffing support of regional emergency response centers**
- **On-scene responders coordinating disposal of hazardous materials, household hazardous waste, debris management, etc.**
- **Facilitation of temporary and long-term solid waste management strategies**
- **Facilitated rapid permit issuance to support recovery**

Birds Point levee and South East Missouri Flooding



- **DNR responded to concerns related to hazardous materials and orphaned containers.**
- **Support for generator and pump transportation.**
- **DNR Water Resources staff deployed to area to help determine appropriate pump placements.**
- **Support for debris management and technical guidance on disposal of homes destroyed by floodwaters.**
- **Removal of materials from the floodway prior to detonation (several thousand gallons of fuel and removal of multiple propane tanks inside the floodway)**

Missouri River Flooding



- **Providing technical assistance to communities with affected drinking water and wastewater systems**
- **Currently expediting permitting to support impacted facilities or support recovery efforts**
- **Responding to concerns related to hazardous materials and orphaned containers.**

Note * Flood waters have only recently begun to recede and impact assessments and support are on-going

DNR Disaster Response

The Department of Natural Resources provides environmental technical assistance to communities and residents that have been affected by severe weather and tornados, floods and other natural disasters regarding issues such as drinking water, wastewater, solid waste, hazardous waste, air pollution and environmental emergencies. Additional technical support regarding flooding events is also provided by the DNR Water Resources Center.

Rapid Permit Issuance and Waivers

- **Open Burning (Woody Debris)**
- **Landfill Operations**
- **Wastewater Bypass Events, etc.**



Containment and Disposal of Hazardous Materials



Orphan Container Management

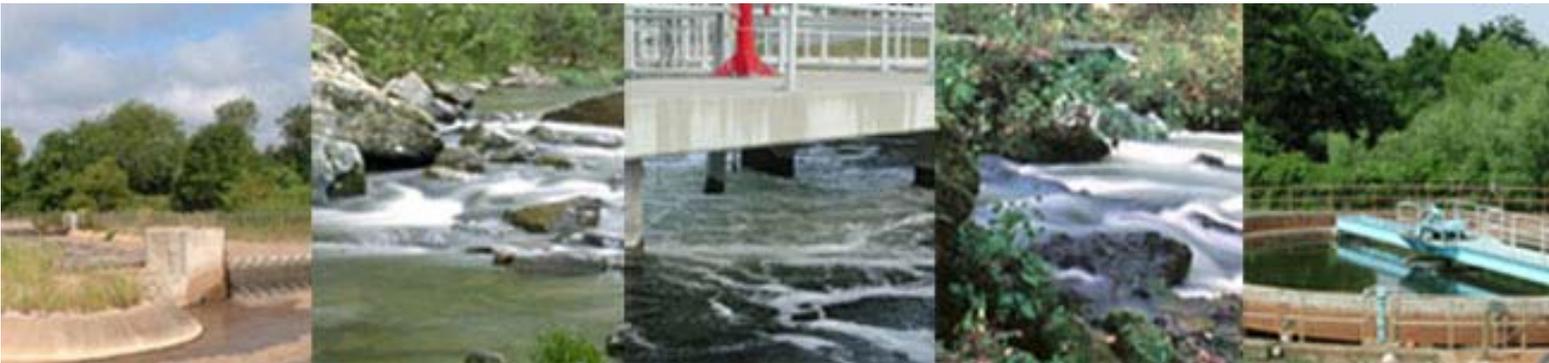


Technical Support and Guidance to Municipal Infrastructure Protection



State Revolving Fund

The State Revolving Funds provide low-interest loans to municipalities, counties, public water and public sewer districts and political subdivisions for wastewater and drinking water infrastructure projects. The State Revolving Fund is a federally capitalized, low-interest loan program. Projects may be new construction or the improvement or renovation of existing facilities.



Missouri Challenges

- **Facilitating and coordinating the recovery of multiple disasters across the state.**
- **Concerns regarding repair of damaged levees to at least pre-flood conditions.**
- **Repair of transportation infrastructure damaged by flooding event.**
- **Prompt repair of public drinking water and wastewater systems impacted by flood.**
- **Funding to repair and recover from multiple major state disasters this year.**

Interagency Recovery Task Force

FEMA's Post-2011 Flood Recovery Efforts

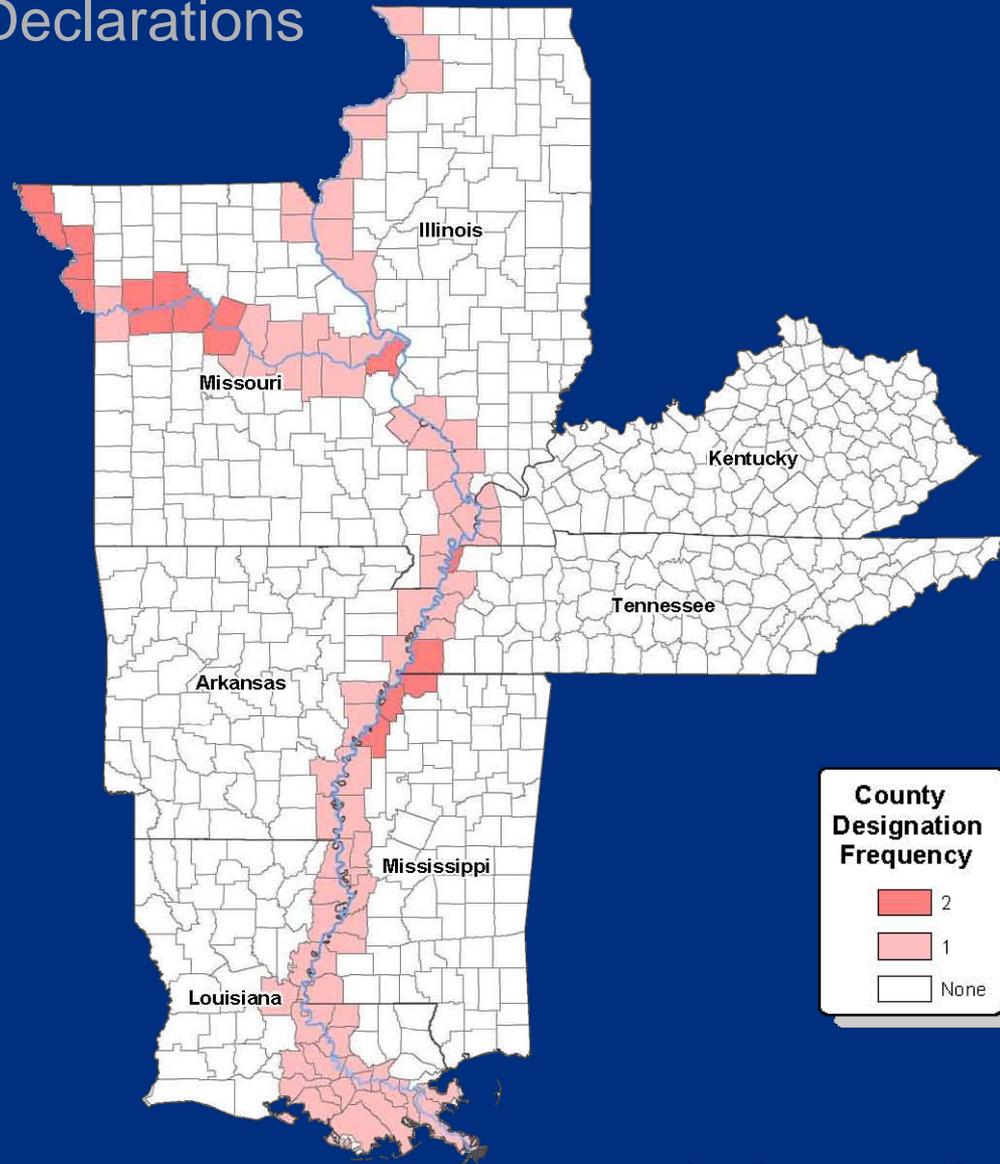


FEMA

December 14, 2011

Mississippi River Flooding

Federal Disaster Declarations



FEMA

Property Acquisitions

DEFINITION

The voluntary acquisition of an existing at-risk structure and, typically, the underlying land, and conversion of the land to open space through removal of the structure.

BASIC FACTS

- Most projects are funded using FEMA's Hazard Mitigation Grant Program.
- Government-funded buyouts are voluntary and always start at the local level.
- Under FEMA programs, properties must be deed-restricted in perpetuity to open space.
- Projects must be cost effective



FEMA

Property Acquisitions

ELIGIBLE APPLICANTS

Emergency management agency or similar office of the 50 states

ELIGIBLE SUBAPPLICANTS

In general, state agencies, local governments/communities, and certain private, non-profit organizations with a *current, FEMA-approved Local Hazard Mitigation Plan*

ALL SUBAPPLICANTS MUST APPLY THROUGH THE STATE



FEMA

Property Acquisitions

PROCESS

Individual homeowners and businesses cannot apply directly to the program; however a community may apply on their behalf.

1. If a community decides to pursue a project under HMGP, they prepare a Notice of Interest (NOI) and submit by the state's deadline.
2. The state notifies the local applicant to proceed with developing a full application.
3. The state reviews the full application for eligibility and completeness and forwards to FEMA for review and approval.



FEMA

Expediting Property Acquisitions

It's important to realize the buyout process is not quick. It is not uncommon for property buyouts to take 18 to 24 months to get to the demolition stage.

SOME COMMON 'HOLD-UPS'

1. Incomplete project applications
2. Lack of a current, FEMA-approved local mitigation plan for the subapplicant
3. Local contracting issues
4. Asbestos abatement or other environmental/historic preservation issues



FEMA

Expediting Property Acquisitions

IDEAS FOR STREAMLINING

- Ensure the subapplicant has a current, FEMA-approved Local Hazard Mitigation Plan.
- Be familiar with the program guidance and application requirements
- Early coordination with the state agency responsible for oversight
- Attendance of state or FEMA sponsored training
- Early coordination with appropriate state agencies
- Identification of at-risk structures in the community both pre-event and post-event



FEMA

Other Mitigation Measures

- Removing, relocating, or elevating at-risk structures
- Strengthening or protecting critical public buildings and infrastructure
- Flood-proofing buildings



FEMA

Mitigation Best Practices

- Pre-identify hazard mitigation projects
- Portfolio Management
- Changes in building codes and land use
- Homeowner involvement



FEMA

FEMA Public Assistance

ELIGIBLE WORK

Emergency Work (examples)



Debris removal



Search and Rescue

Permanent Work (examples)



Roads & Bridges



Buildings



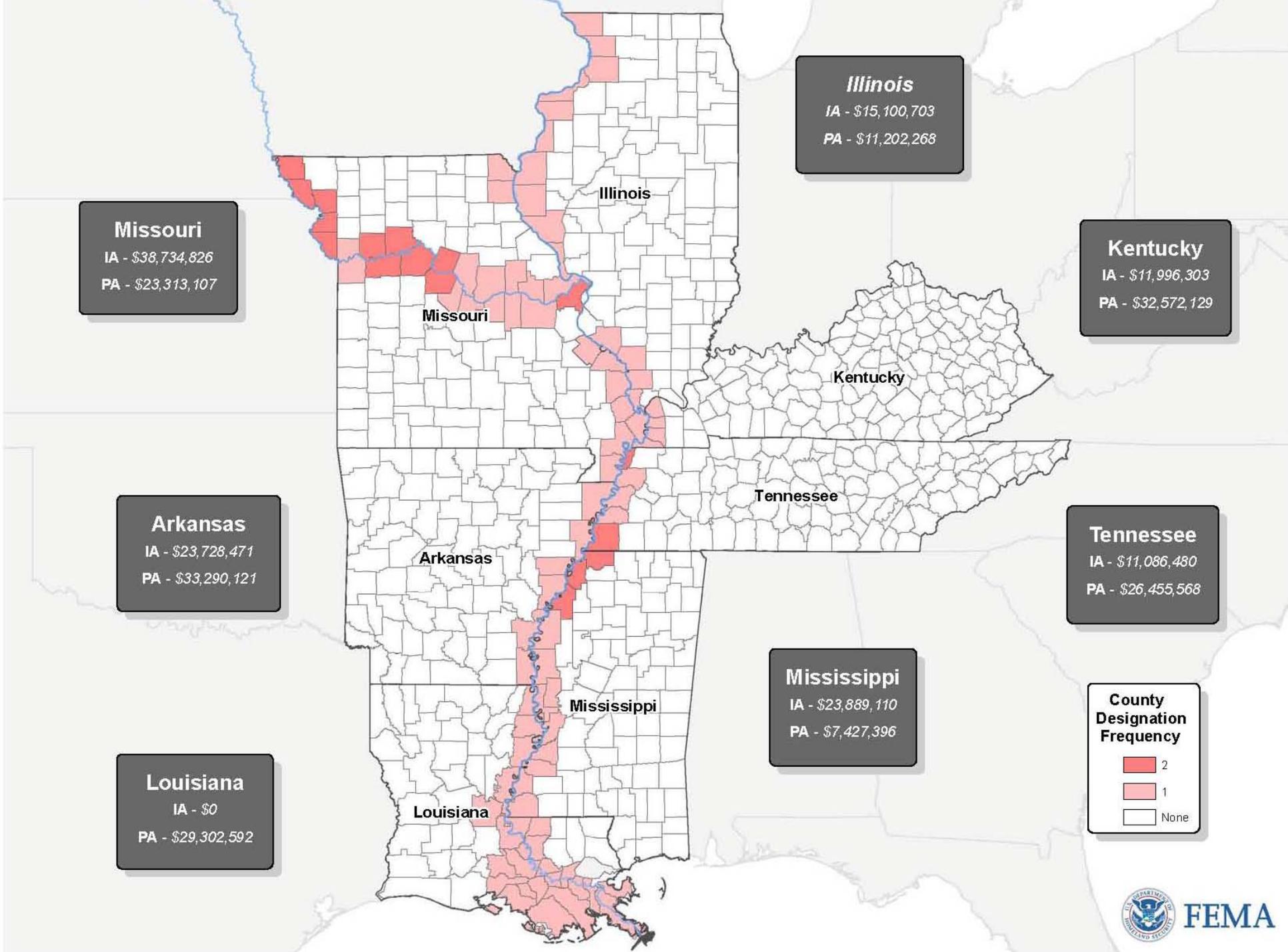
Utility Systems



Public Parks



FEMA



Illinois
IA - \$15,100,703
PA - \$11,202,268

Missouri
IA - \$38,734,826
PA - \$23,313,107

Kentucky
IA - \$11,996,303
PA - \$32,572,129

Arkansas
IA - \$23,728,471
PA - \$33,290,121

Tennessee
IA - \$11,086,480
PA - \$26,455,568

Louisiana
IA - \$0
PA - \$29,302,592

Mississippi
IA - \$23,889,110
PA - \$7,427,396

County Designation Frequency

- 2
- 1
- None



FEMA

Recovery Best Practices

ALABAMA HOUSE BILL 549

- State Law passed on April 30, 2012
- Enacts a requirement for **any new** public school to include a Building Commission-approved safe space or hallway (safe room)
- Safe spaces shall comply with building code requirements for tornado shelters
- Following the tornado outbreak in 2011, FEMA provided Alabama and other states that received a Presidential Declaration with funding for safe rooms when students are in temporary facilities
- Cost share of 75/25



FEMA

Recovery Best Practices

JOPLIN TORNADO SAFE ROOMS

- Similar to Alabama, and following the Joplin tornado, the State of Missouri and FEMA provided safe rooms to temporary facilities (schools and fire stations) and housing group sites
- A total of 37 safe rooms were provided to Temporary Housing Unit (THU) group sites
- A total of 67 Safe Rooms were provided to temporary school facilities



FEMA

Status of FEMA Funding

FEMA has the funding needed to help survivors and affected states and communities across the country, respond to and recover from presidentially declared disasters.

- Earlier this year, FEMA enacted Immediate Needs Funding to extend the remaining balance of the Disaster Relief Fund (DRF).
- Immediate Needs Funding was lifted on October 1 when Congress appropriated additional resources for the DRF
- FEMA does not foresee any funding issues that would hamper the recovery along the Mississippi River



FEMA



FEMA

NRCS Flood Assistance for Missouri

Harold Deckerd
Assistant State Conservationist WR
December 14, 2011

United States Department of Agriculture



Emergency Watershed Program

- EWP is USDA's primary method of providing financial and technical assistance for repairing measures damaged by floods and other natural occurrences.
- Typical repairs include:
 - levee repair
 - logjam removal
 - streambank stabilization near roads, bridges and buildings
 - sediment removal from drainage ditches

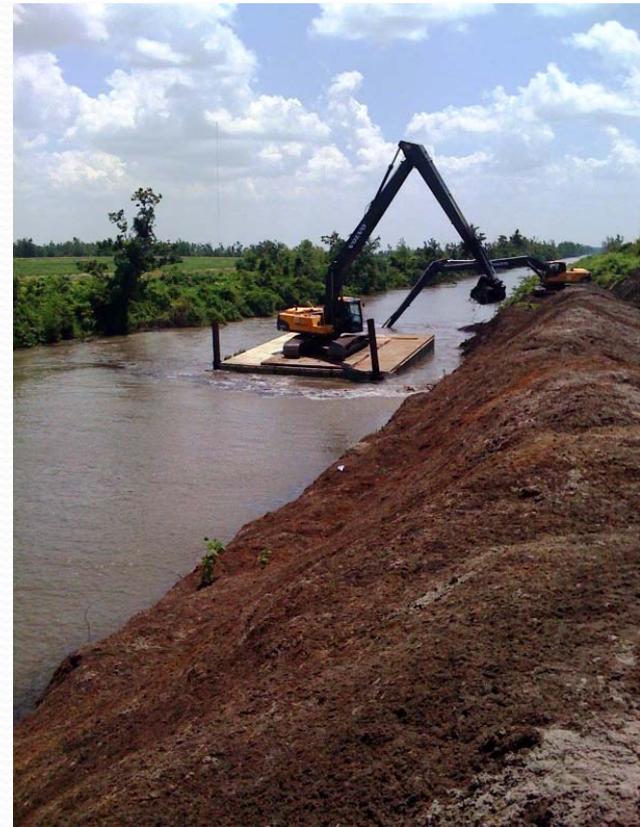
EWP Cost-Share Rates

- Federal funds may cover up to 75 percent of the construction costs for most restoration measures.
- Projects range in size from small ditches to very large.



EWP Projects Must Have a Local Sponsor

- Any legal subdivision of state government or a state agency
- Cities
- Counties
- Levee Districts
- Drainage Districts



EWP Sponsor Requirements

- Have a legal interest in or responsibility for the areas threatened by watershed impairment
- Capable of obtaining the necessary land rights and required permits
- Capable of carrying out Operations and Management
- Administer contract
- Have power of eminent domain

EWP Eligible Measures

- Must be economically, socially, and environmentally defensible and technically sound
- Are limited to only measures necessary to reduce threats to a stable condition and to the prior event condition



Wetlands Reserve Program

- WRP provides technical and financial assistance to private landowners to restore, protect and enhance wetlands in exchange for retiring land from agricultural production.

Reserved Rights by Landowner

- Title
- Quiet Enjoyment
- Control of Access
- Undeveloped Recreational Use
- Subsurface Resources

Easement Prohibitions

- Haying, mowing, seed harvest, or harvest crop
- Burning, disking, plowing, digging
- Dumping of refuse, waste or debris
- Harvesting wood products
- Draining, dredging, channeling, filling, etc.

WRP

Wetland Benefits:

- Provide habitat for fish and wildlife
- Improve water quality
- Reduce flooding
- Recharge groundwater
- Protect biological diversity
- Provide educational, scientific and recreational opportunities

WRP Eligibility Requirements

- Farm Bill rules apply
 - Federal income limits
 - Seven-year ownership
 - Must be hydric soils

WRP Enrollment Options

- **Permanent easement** – USDA pays 100 percent of easement value and up to 100 percent of restoration costs
- **30-year easement** – USDA pays up to 75 percent of easement value and up to 75 percent of restoration costs
- **Restoration cost-share agreement** – USDA pays up to 75 percent of the restoration costs; no easement on enrolled acres

WRP Acreage

- Statewide – 136,000 acres
- Eight Bootheel counties
 - 141 easements
 - 30,000 acres (all flooded)
 - 22 percent of statewide WRP acres

EWP Floodplain Easements

- Amendment to EWP to provide for purchase of floodplain easements as an emergency measure.
 - Expand the floodplain
 - Reduce long-term federal disaster assistance
 - Safeguard lives and property
 - Eligible for floodplain lands impaired within the last 12 months or with history of repeated flooding (at least two times within past 10 years).

EWP Floodplain Easement

- Easement provides NRCS authority to restore and enhance floodplain's functions and values.
- NRCS may pay up to 100 percent of the restoration costs.
- NRCS may pay up to 75 percent of the cost of removing buildings when appropriate.
- Landowners retain rights

Program criteria - differences

WRP

- Hydric soils
- Wetland hydrology
- Wetland plants

EWP-FPE

- Subject to frequent flooding
- Past damages
 - scour
 - sediment deposition



For More Information

www.mo.nrcs.usda.gov

"The U.S. Department of Agriculture (USDA) prohibits discrimination in all of its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD)."

Waterways Action Plan (WAP)

Fall 2011 Review



CDR Tim Wendt
13 Dec 2011





Waterways Action Plan

- Joint Coast Guard, Army Corps and Maritime Industry Plan
- Current WAP stemmed from 2005 High Water Lesson Learned
- Base Plan with 6 Annexes
 - www.uscg.mil/d8/westernrivers
- Sample High Water Action Plan
 - Carruthersville to Memphis



Section 4a – Action Plan (HIGH WATER)

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION												
<p>Caruthersville to Memphis</p> <p>LOWER MISSISSIPPI RIVER</p> <p>MM 869-730</p> <p>Reference Gages:Cairo, IL</p> <p>Trigger Reading Memphis, TN</p>	20 feet	Rising	Normal Operations	Watch	<ul style="list-style-type: none"> Initiate communications plan. Issue advisory; indicate high water, exercise extreme caution; discuss voluntary horsepower and tow size restrictions 												
	25 feet	Rising	High Water	Action	<ul style="list-style-type: none"> Assess need for daylight/visibility/one way traffic restrictions. Activate pre-established Safety Zone limiting upbound transits to minimum of 3.0 mph; downbound transit to 												
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	<ul style="list-style-type: none"> Assess need for companies to use wheelman with recent experience handling current conditions. Reduce tow sizes based on following constraints, not to exceed 36 total: 																
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2011 WAP Updates

- 2011 High Water Lessons Learned & WAP Updates
 - WAP and annexes worked very well
 - Minor changes (e.g. names) in many cases
 - Added Green River to WAP
 - Created Tennessee-Cumberland Industry Committee
 - Added “Extreme High Water” condition to Lower MS River annex
 - Lower MS River annex geographic boundary changes



Questions?

