



Mississippi River Commission

2014 Executive Summary 391st & 392nd Sessions



Brig. Gen. Duke DeLuca
President-designee



Hon. Sam E. Angel
Senior Member



Hon. R. D. James
Member, Civil Engineer



Hon. Norma Jean Mattei, Ph.D.
Member, Civil Engineer



Rear Adm. Gerd F. Glang
Member



Brig. Gen. Margaret W. Burcham
Member



Brig. Gen. John S. Kem
Member

Listening, Inspecting, Partnering & Engineering since 1879



Mississippi River Commission

www.mvd.usace.army.mil/mrc/

The Mississippi River Commission has a proud heritage that dates back to June 28, 1879, when Congress established the seven-member presidential commission with the mission to transform the Mississippi River into a reliable commercial artery, while protecting adjacent towns and fertile agricultural lands from destructive floods.

In its current capacity, the Mississippi River Commission prosecutes the Mississippi River & Tributaries (MR&T) project authorized by the 1928 Flood Control Act. The MR&T project employs a variety of engineering techniques, including an extensive levee system to prevent disastrous overflows on developed alluvial lands; floodways and backwater areas that provide expansion room for the river so that the levee system will not be unduly stressed; channel improvements and stabilization features to



to protect the integrity of flood control measures and to ensure proper alignment and depth of the navigation channel; and tributary basin improvements, to include levees, headwater reservoirs and pumping stations, that maximize the benefits realized on the main stem by expanding flood protection coverage and improving drainage into adjacent areas within the alluvial valley.

Since its initiation, the MR&T program has brought an unprecedented degree of flood protection to the four million people living in the 35,000-square-mile project area within the lower Mississippi Valley. The nation has contributed \$14 billion toward the planning, construction, operation and maintenance of the project. To date the nation has received a 45 to 1 return on that investment, including \$639 billion in flood damages prevented.

The performance of the MR&T system during the Great Flood of 2011 validated this wise investment. Despite record high flows and stages, not a single life was lost as a result of the flood. Water lapped at the top of floodwalls and levees the length of the river, exerting unprecedented pressure on the backbone of the protection system, but the levees withstood the record stages and pressure due in large part to the operation of three floodways and the storage capacity provided by non-MR&T reservoirs in the Ohio and Arkansas-White basins. All told, the MR&T project prevented in

excess of \$234 billion in damages, not including potential losses from interrupted business activities and related impact. One year later, with much of the drainage basin under exceptional drought conditions and river stages plunging to near historic lows more than fifty feet lower than the 2012 highs

on the major gages between Cairo and Red River Landing, the performance of the MR&T system is again validating the nation's wise investment, as the navigation channel remains viable.

The Mississippi River Commission continued its 135-year process of listening to the concerns of partners and stakeholders in the Mississippi valley, inspecting the challenges posed by the river, and partnering to find sustainable engineering solutions to those challenges through the 2014 high- and low-water inspections (391st and 392nd sessions of the commission). The official record of the Proceedings of the Mississippi River Commission, complete with recorded hearings of public meetings, copies of signed formal statements provided by the public, executive summaries of the Proceedings, and other documents of significance, are kept on file in the Office of the President in Vicksburg, Miss.



High-Water Inspection Trip

April 6-11, 2014

The 391th session of the Mississippi River Commission took place from April 6-11, 2014. The annual high-water inspection of approximately 800 miles of the lower Mississippi River coincided with a minor spring flood crest emanating from heavy rains along the upper Mississippi River and Ohio River.

A total of 485 people, representing boards, agencies, and associations with memberships and constituencies numbering in the tens of thousands, partnered directly with the commission through various engagements during the high-water inspection.

The members of the Mississippi River Commission present during the 391th session were:

- Brig. Gen. Peter A. “Duke” DeLuca, designated as President on September 24, 2013
 - Hon. Sam E. Angel, reappointed as member on December 30, 2010
 - Hon. R. D. James, civil engineer, reappointed as member on April 6, 2003
 - Hon. Norma Jean Mattei, PhD, civil engineer, confirmed as member on December 3, 2012
 - Brig. Gen. Margaret W. Burcham, confirmed as member on May 28, 2013
 - Rear Adm. Gerd F. Glang, confirmed as member on September 19, 2013
 - Brig. Gen. John S. Kem, designated as a member on July 27, 2013
-
- Col. John Dvoracek served as Secretary of the Commission, a non-voting position.



*From left to right:
Hon. Dr. Norma Jean Mattei,
Brig. Gen. John Kem,
Hon. Sam Angel,
Brig. Gen. Duke DeLuca,
Hon. R.D. James,
Brig. Gen. Margaret Burcham
and
Rear Adm. Gerd Glang.*





High-Water Inspection Trip

MRC Strategic Messages - Four Revolutions

Four ongoing revolutions will drive changes in the greater Mississippi River basin. How the nation responds to the revolutions and invests in potential solutions will dictate the level of future economic prosperity of the valley and the greater watershed.

Revolution 1: Explosive Growth of Agricultural Productivity

- Yields per acre doubling and tripling over the past few decades
- World population expected to grow by 2 billion in the next few decades
- Ability to feed the world will impact American security and global stability



Video of
BG DeLuca
talking Four
Revolutions

Revolution 2: Increase in U.S. Natural Gas and Oil Production

- 2013 US became top producer of natural gas
- 2015 U.S. expected to pass Saudi Arabia as largest producer of oil
- U.S. energy prices cheaper than European energy (by as much as 75%)
- Production increase impacts all manufacturing costs.





High-Water Inspection Trip

MRC Strategic Messages - Four Revolutions (continued)

Revolution 3: Return of Manufacturing to the U.S. and the Mississippi Valley

- Growth in manufacturing investment driven by hydrocarbon production revolution.
- United States remains world leader in manufacturing output due to past infrastructure investment.
- Using the United States model, other nations are investing more in infrastructure and closing the manufacturing gap.



- ### Revolution 4: Accelerating Impacts of Climate Change
- Intense precipitation falling in more volume in less time.
 - Increased runoff from development.
 - More prolonged droughts.

Revolution #1: Explosive Growth in United States Agricultural Productivity

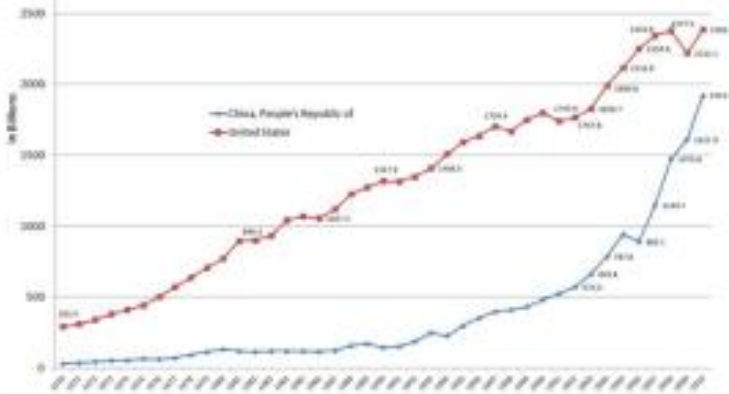


Revolution #2: Hydrocarbon Production Revolution

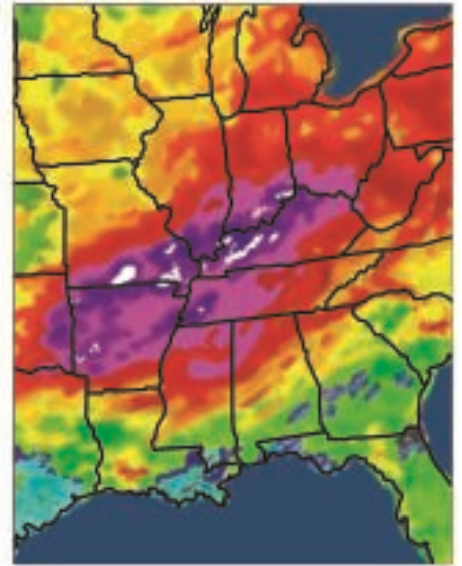
- Unconventional oil and gas production methods
 - Horizontal drilling, hydraulic fracturing of shale
- United States oil production:
 - Grew 18% in last year alone
 - United States will be world #1 producer in 2015 (more than KSA)
- United States natural gas production:
 - US is world #1 producer as of 2013 (more than Russia)
- Affects many other industries including chemical, plastics and all manufacturing

Revolution #3: Return of Manufacturing to the US and the Mississippi Valley

United States manufacturing output vs China manufacturing output 1970 - 2009



30-Day
Rain Totals
(April 5 -
May 5, 2011)



Revolution #4: Accelerating Impacts of Climate Change

- Changes to weather
 - Precipitation more intense – more volume in less time
 - Increased runoff from this and development
 - Significant storm events of high intensity
 - Record number of >\$1 billion events in 2013 (41 - 7 in US)
 - Increasing high damage weather events ... 151 since 1980
- Changes to watershed functioning – part climate change
 - Higher stages with same or less flow as in the past (need new flow line for Mississippi River – underway)
 - Bottom changes (geomorphology study underway)
 - Accelerating sea level rise (SLR)
 - Louisiana coastal land loss is relative SLR



High-Water Inspection Trip

MRC Strategic Messages - Call to Action

- Protecting productive farmland, manufacturing, refineries, pipelines and overland commerce through reliable flood control.
- Inland water transportation is the only economic game-changing transportation system with the capacity capable of handling the increase in moving agricultural, energy and manufacturing products to the coasts for export.
- Water infrastructure makes delivery of domestic stability and security possible.
- We are losing hard-fought ground earned by prior generations through their financial and personal sacrifices.
- Our economic prosperity, standard of living and environmental quality are increasingly vulnerable to threats posed by aging infrastructure and increase potential for failure.
- We have benefitted from the investments of our forefathers but have done little to assure this heritage will be passed on to our children's children.



- Our sense of resolve to secure a sound economic and environmental footing for future generations should be no less than that of those who sacrificed to provide us with the same.





High-Water Inspection Trip

MRC Strategic Messages - Wise Investment (payback)

- The economic expansion of the United States economy from the 1980's through the dawn of the 21st century rested largely on the nation's wise investment on infrastructure, especially the investment on the inland water transportation system and reliable flood control in the Mississippi valley that commenced during the Great Depression and continued through the 1960's.
- The nation's investment of ~ \$7 billion a year would help sustain the current infrastructure investment.
- The Corps' water resource budget is ~\$5 billion annually, yet, the nation receives pay back in less than two months each year through direct fees and economic benefits.



U.S. Population Spends Annually:

- \$96 billion on beer
- \$32 billion on pizza
- \$38 billion on cosmetics

Can we afford to upgrade our infrastructure?



- ~\$5 billion - USACE annual appropriations
- \$15 billion per year - direct payment to U.S. Treasury as the result of water infrastructure
- \$55+ billion - direct economic benefits per year



High-Water Inspection Trip

Listening

Mississippi River Commission held formal public hearings at Tiptonville, Tenn., Helena, Ark., Greenville, Miss., and New Orleans, La. The hearings, engagements and dialogue help maintain a consistent connection — an exchange of viewpoints and ideas among the public, partners, stakeholders, elected officials, the Mississippi River Commission, the Corps of Engineers and agencies from the private, state and federal sectors. This process allows the people who live and work in the region a greater voice in shaping federal management and policy on the river and for the watershed.

Approximately 250 members of the public attended the public meetings and listened to the testimony presented by 50 individual speakers. The major themes from the testimony included:

Small Ports/Harbors

- Important to regional economies, rural communities and balance of trade.
- Establish a continual funding source for dredging small ports/harbors.
- Metrics used to determine tonnage leading to dredging demand are unrealistic based on port director's information.



Water Supply/Aquifer Depletion

- Wasting an abundant supply of surface water that can be used for irrigation, agriculture, manufacturing without further taxing the aquifers.
- Complete water supply and irrigation projects to combat aquifer depletion.
- Make aquifer depletion/ground water protection/water supply a federal mission.





High-Water Inspection Trip

Listening *(continued)*

Flood Control

- Requests for assistance with local and regional flood control and drainage improvements.
- Improve the periodic levee inspection program (less focus on minutia and volumes of paperwork).
- Recognize districts for proper maintenance based on their mandated roles found in the officially signed levee assurances.
- Support for the St. Johns Bayou-New Madrid Floodway project.
- Aging flood control and drainage infrastructure.



Navigation

- Aging inland waterway infrastructure.
- Dredging needs for inland water transportation systems on the Mississippi, Arkansas, Red, Ouachita and White rivers.
- Manage the entire drainage basin as one watershed for both high and low water.



Coastal Restoration

- Support for diversions by the state to sustain and build coastal wetlands.
- Beneficial use of dredged material for economic development.
- Diversion science needs to be advanced to help answer uncertainties.





High-Water Inspection Trip

Partnering, Dialogue and Feedback Developing Sustainable Engineering Solutions

Ports and Harbors

- Northwest Tennessee Port Authority
- Hickman-Fulton County Riverport, KY
- Pemiscot County Port Authority, MO
- Southeast Missouri Regional Port Authority
- Mississippi County Port Authority, MO
- Port of Rosedale, MS
- Madison Port, LA
- Port of Greenville, MS
- Port of Helena, AR
- Port of Greater Baton Rouge, LA
- Lake Charles Harbor & Terminal District, LA
- Port of Morgan City, LA

Industry

- Consolidated Grain & Barge
- Big River Coalition
- American Waterways Operators
- Nucor Sheet Mill Group, AR
- American General Contractors, Mississippi Valley Branch
- Cross Oil, AR
- Free Flow Power, MS
- Entegra/Union Power
- T. Baker Smith, LA
- Coastwide Electric, Inc, LA

River Basin Associations

- West Tennessee River Basin Authority
- Red River Waterways Association, LA
- Ouachita River Valley Association, LA
- White River Coalition, AR
- Gulf Intracoastal Canal Association
- Upper Mississippi, Illinois, and Missouri Rivers Association

Agriculture and Economic Development

- Arkansas Cotton Council
- Mississippi County Economic Development, AR
- Vicksburg Chamber of Commerce, MS
- Delta Council, MS



Educational and Research

- National Great Rivers Research & Education Center, IL
- Center for Earthquake Research, TN
- Arkansas Water Science Center
- Coasts, Oceans, Ports, Rivers Institute (ASCE)
- Harvard University, Cambridge, MA
- University of California, Davis, CA
- University of Illinois



High-Water Inspection Trip

Flood Control

- Mississippi Valley Flood Control Association
- Sny Island Levee District, IL
- Little River Drainage District, MO
- St. Francis Levee District of Missouri
- St. John Levee District, MO
- Fulton County Levee Board, KY
- Lake County Levee and Drainage District, TN
- Madrid Bend Levee District, TN
- Reelfoot Levee District, TN
- St. Francis Levee District of Arkansas
- Drainage District No. 16, AR
- White River Drainage District, AR
- Laconia Levee District, AR
- Cotton Belt Levee District, AR
- DeValls Levee Board, AR
- Southeast Levee District of Arkansas
- Yazoo-Mississippi Delta Levee Board, MS
- Bridge, Phillips, Elam Drainage District, MS

- Elam Creek Drainage District, MS
- Mississippi Levee Board, MS
- Fifth Louisiana Levee District
- Tensas Basin Levee District, LA
- Atchafalaya Basin District, LA
- Southeast Louisiana Flood Protection Authority
- St. Mary Levee District, LA
- South Lafourche Levee District, LA

Water Supply/Water Management Entities

- Bayou Meto Water Management District, AR
- White River Irrigation District, AR
- Union County Water Conservation Board, AR
- Yazoo-Mississippi Delta Joint Water Management District, MS
- Boeuf-Tensas Water District, LA and AR
- Amite River Basin Drainage & Water Conservation, LA





High-Water Inspection Trip

Partnering, Dialogue and Feedback Developing Sustainable Engineering Solutions (Governmental Agencies)

Federal Agencies

- U.S. Fish & Wildlife Service
- U.S. Department of Agriculture
- U.S. Geological Survey
- U.S. Coast Guard
- Assistant Secretary of the Army for Civil Works Jo Ellen Darcy
- Chief of Engineers Environmental Advisory Board



State Agencies

- Missouri Department of Natural Resources
- Missouri Department of Transportation
- Arkansas Parks, Recreation & Travel Commission
- Arkansas Game and Fish Commission
- Tennessee Emergency Management Agency
- Mississippi Department of Fish & Wildlife
- Louisiana Department of Transportation
- Louisiana Department of Natural Resources





High-Water Inspection Trip

Partnering, Dialogue and Feedback Developing Sustainable Engineering Solutions (Congressional and Elected Officials)

U.S. Senate

- Sen. Roy Blunt, MO (Tom Schulte)
- Sen. Claire McCaskill, MO (Christy Mercer)
- Sen. Mark Pryor, AR (Russell Hall)
- Sen. John Boozman, AR (Chris Caldwell)

U.S. House of Representatives

- Rep. Stephen Fincher, TN-8
(Scott Golden, Ivy Fultz)
- Rep. Tom Cotton, AR-4 (Vanessa Moody)
- Rep. Gregg Harper, MS-3
(Chip Reynolds, Bob Hawley)
- Rep. Jason Smith, MO-8 (Darren Lingle)
- Rep. Rick Crawford, AR-1 (Jay Sherrod)

Governors

- Arkansas Governor Mike Beebe
(Clark Hall)
- Louisiana Governor Bobby Jindal
(Joel Stewart)

Mayors and Parish Presents

- Mayor David Lattus, Hickman, KY
- Mayor William Foresythe, Hornersville, MO
- Mayor Richard Hill, Dyer County, TN
- Mayor Allen Latimer, Horn Lake, MS
- Mayor Bobby Hardrick, Madison, AR
- Mayor Lawrence Owens, Hughes, AR

- Mayor Macie Roberson, Lake County, TN
- Mayor Benny McQuire, Obion County, TN
- Mayor Butch Brown, Natchez, MS
Mayor John Cox, Greenville, MS
- Mayor Frank Hash, El Dorado, AR
- Mayor George Flagg, Vicksburg, MS
- Paul Naquin, St. Mary Parish President, LA
- Mayor Rodney Grogan, Patterson, LA
- Michel Claudet, Terrebonne Parish
President, LA
- Mayor Luttrell, Shelby County, TN
- Mayor Wharton, Memphis, TN





High-Water Inspection Trip

Briefings During the Inspection



- District commanders from the Memphis, Vicksburg and New Orleans districts provided overview discussions on strategic topics within their respective areas of operation and provided detailed status updates on key MR&T features to include the channel improvement program, the Mississippi River levee system, MR&T ports, dredging, St. Johns Bayou-New Madrid Floodway project, the Bayou Meto Basin and Grand Prairie projects.



- Brig. Gen. Burcham and Brig. Gen. Kem discussed expected challenges and opportunities for the next decade in the Ohio and Missouri basins.



- RDML Gerd Glang discussed hypoxia, long-term forecasting and mapping of the coasts along with other areas related to estuaries.

- Charles Shadie, chief of Watershed Management, delivered a detailed analysis of current river conditions, the spring flood outlook, long range precipitation forecasts and reservoir storage capacity in the basin.

- Dennis Norris, chief of Operations, provided a status update on the draft environmental impact statement for the St. Johns Bayou-New Madrid Floodway project. Norris also provided a comprehensive overview of the MR&T project that laid out the physical completion percentage of the various MR&T features and funding requirements to complete those unfinished features.



- Dr. Barb Kleiss, director of Science and Technology, provided updates on the Mississippi River Delta Management Study and the Mississippi River Hydrodynamic Study, complete with discussion of the latest science on outlets, diversions and sediment transport. Kleiss also discussed conservation plans formulated for the MR&T channel improvement program for the treatment of endangered species and the status of the Mississippi River Geomorphology and Potamology program.





High-Water Inspection Trip

Briefings During the Inspection *(continued)*

- Col. Rick Hansen briefed the commission on potential modifications to the water control manuals for the Old River Control structures, the Morganza control structure and the Bonnet Carré spillway intended to allow for greater operational flexibility to safely pass future flood events. The revised flood control plans should be completed by the close of fiscal year 2014.
- Charles Shadie, chief of Watershed Management, provided an update on the ongoing MR&T Project Flood Flow line study. The last study was adopted in 1976 in the aftermath of the 1973 flood. To date, the study team has reviewed the meteorology of the 1954 project design flood in comparison to the 2011 storm events that resulted in the 2011 flood. The next step is to review the hydrology. The National Weather Service is working to develop new inflow hydrographs for the project design flood.





An aerial photograph of a wide river, likely the Mississippi, with several large barges and industrial structures along the banks. The text is overlaid on the image in a large, bold, red font with a 3D effect.

392nd Session of the Mississippi River Commission Low-water Inspection Trip

OKLAHOMA: Tulsa, Catoosa, Muskogee

**ARKANSAS: Ft. Smith, Fayetteville, Russellville,
Little Rock, Bayou Meto, Wilson**

MISSOURI: Caruthersville

MISSISSIPPI: Rosedale, Vicksburg

TENNESSEE: Memphis

LOUISIANA: Morgan City, Krotz Springs, Houma



Low-Water Inspection Trip

Sunday, August 11, 2014

The Mississippi River Commission conducted its 392nd session August 11-22, 2014. The session commenced with an inspection trip covering 400 miles of the McClellan-Kerr Arkansas River Navigation Systems (MKARNS). Upon leaving the MKARNS, the commission held its traditional low-water inspection of the Mississippi River and Tributaries (MR&T) project. The low-water inspection trip covered 540 miles of the Mississippi River from Caruthersville, Mo., to the Old River Control Complex, 99 miles of the Atchafalaya River and 50 miles of the Inner Coastal Waterway between Morgan City, La., and Houma, La.

Altogether the Mississippi River Commission partnered directly with a total of 1,500 people during the 392nd session. The majority of the water resource advocates engaged by the Mississippi River Commission represent boards, associations or commissions with combined memberships that number into the tens of thousands. The commission also interacted with members of Congress and their staffs, governors and state agencies, federal partners and river town mayors through engagements during the low-water inspection.

The members of the Mississippi River Commission present during the 392nd session were:

- Brig. Gen. Peter A. "Duke" DeLuca, designated as president September 24, 2013.
- Hon. Sam E. Angel, reappointed as member December 30, 2010.
- Hon. R. D. James, civil engineer, reappointed as member April 6, 2003.
- Hon. Norma Jean Mattei, PhD, civil engineer, confirmed as member December 3, 2012.
- Rear Adm. Gerd F. Glang, confirmed as member September 19, 2013.
- Brig. Gen. John S. Kem, designated as member July 27, 2013.

- Lt. Col. (P) Torrey DiCiro served as secretary of the commission, a non-voting position.



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Low-Water Inspection Trip

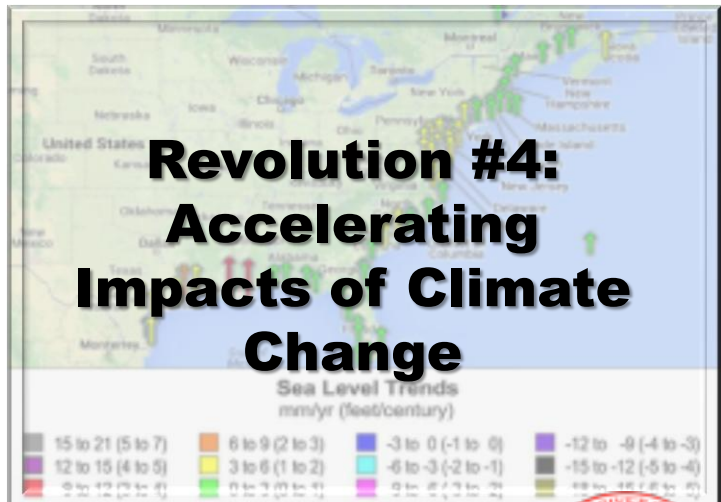
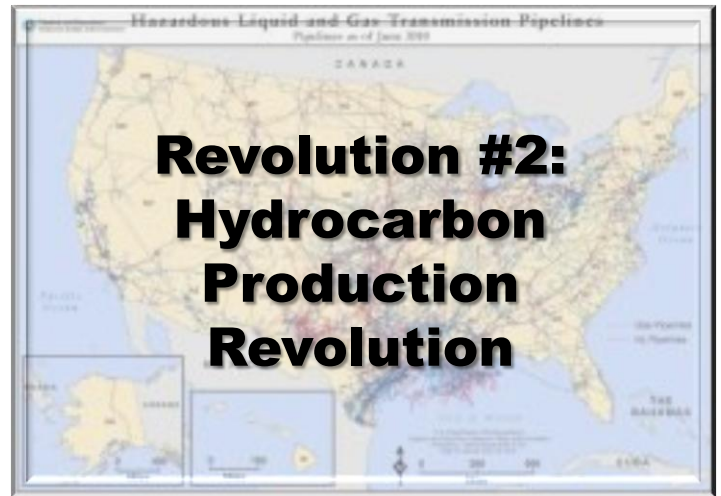
Messages to help our Nation Consider Realities

Revolutions

The agriculture, hydrocarbon production and manufacturing revolutions are increasing demand for shipping goods via road, rail and water.

The inland water transportation system is the only transportation system that has slack in the capacity to handle increased traffic. Investment is required to maximize the benefits.

The climate change revolution necessitates water transportation as it is the most environmentally friendly mode of transportation to handle the increased demand. The revolution demands the nation invest in water transportation.





Low-Water Inspection Trip

Messages to Inform National Priorities

Vision

- The United States gross domestic product is 5.7 times larger today (\$15.95 trillion) than in 1955 (\$2.78 trillion), due in large part to investments in inland waterways and the interstate highway system. The time is right for a next step in the vision.
- Our infrastructure makes global STABILITY and American domestic SECURITY and ECONOMIC PROSPERITY possible!
 - ✓ Our infrastructure is degrading and our infrastructure is UNDER-PERFORMING.
 - ✓ The United States is under-investing in its infrastructure and the United States significantly lags other developed nations in its investments.
 - ✓ We stand to lose hard-fought ground earned by prior generations through their financial and personal sacrifices.
 - ✓ Our economic prosperity, national security, standard of living and environmental quality are at risk.
 - ✓ Our infrastructure is NOT disposable and should not be treated as such. In fact a system failure is inevitable without action to recapitalize vital infrastructure.





Low-Water Inspection Trip

Messages to Inform National Priorities *(continued)*

Vision

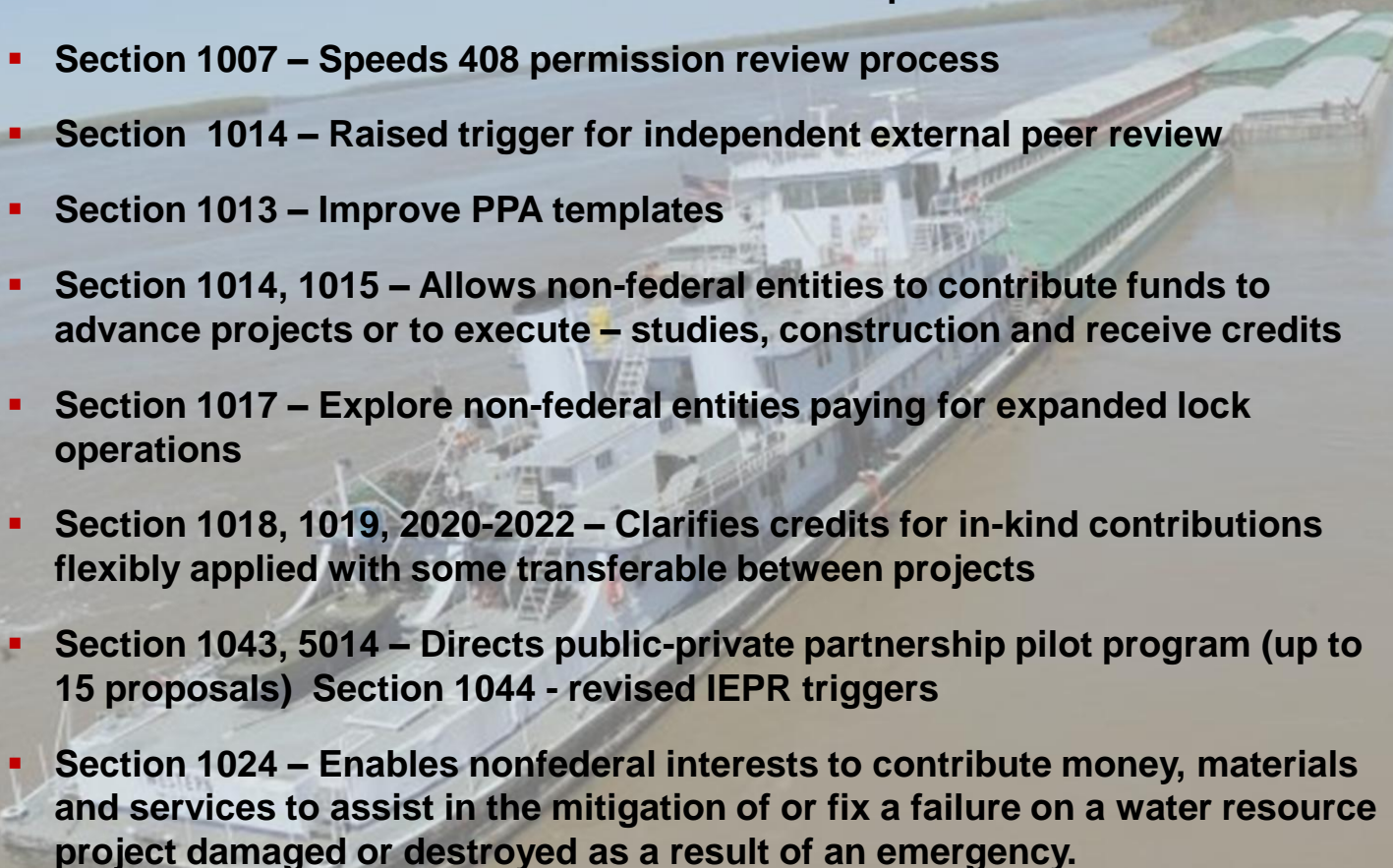
- Private, state and local capital **MUST** be brought to bear.
- ✓ USACE must consider incorporating standards and oversight models similar to the Federal Aviation Administration and airports; USACE **MUST** consider a grant-making model similar to the Department of Transportation.
- ✓ USACE **MUST** include system-wide public-private partnership options.
- ✓ Full privatization **MUST** be on the table and considered.
- ✓ A modified Tennessee Valley Authority model for the entire inland waterway is possible and should be considered.
- ✓ A modified FAA model for USACE oversight of water resource investments should be considered.





Low-Water Inspection Trip

MRC Messages: WRRDA 2014 - The Beginning of a Federal Response?

- **Developing implementing guidance – with YOU!**
 - Needs your input to exploit full authorities to benefit public
 - Needs your active support to achieve in a relevant timeline
 - **Section 1001, 2, 4, 5 – SMART planning streamlining studies and reviews, Section 1005 streamlined environmental review process**
 - **Section 1007 – Speeds 408 permission review process**
 - **Section 1014 – Raised trigger for independent external peer review**
 - **Section 1013 – Improve PPA templates**
 - **Section 1014, 1015 – Allows non-federal entities to contribute funds to advance projects or to execute – studies, construction and receive credits**
 - **Section 1017 – Explore non-federal entities paying for expanded lock operations**
 - **Section 1018, 1019, 2020-2022 – Clarifies credits for in-kind contributions flexibly applied with some transferable between projects**
 - **Section 1043, 5014 – Directs public-private partnership pilot program (up to 15 proposals) Section 1044 - revised IEPR triggers**
 - **Section 1024 – Enables nonfederal interests to contribute money, materials and services to assist in the mitigation of or fix a failure on a water resource project damaged or destroyed as a result of an emergency.**
- 





Low-Water Inspection Trip

MRC Messages: WRRDA 2014 - The Beginning of a Federal Response?

- **Section 2002 – Refines inland navigation project management, enables ECI, D-B, continuing contracts and MILCON-type mechanisms, expands Inland Waterways User Board’s roles and responsibilities, requires a 20-year inland navigation and intercoastal navigation plan (within 5 years).**
- **Section 2003-6, 2013 – Adjust rules on IWTF, Olmsted**
- **Section 2010 – Closure for navigation of Upper St. Anthony Falls Lock & Dam**
- **Section 4002 – USACE and NOAA upgrade water level forecasting, special status of Upper Mississippi Basin and need for the NESP, USACE examine safety of navigation in extreme low water**
- **Section 1036 – Authorizes USACE to construct a locally preferred plan for a higher level of protection authorized in a WRDA, if feasible. NFS funds all costs above federally authorized level**
- **Section 3001 - Establishes national dam safety program for awareness and outreach to public**
- **Section 3011 – Allows NFS to remain eligible for PL 84-99 program if significant progress is being made on meeting federal requirements to improve the system**
- **Section 3023, 24, 25 – Directs USACE to evaluate strategies for managing comprehensive risks of extreme weather events using all tools, including ecosystem restoration and develop potential rehab or improvement to reduce risk**





Low-Water Inspection Trip

MRC Messages: WRRDA 2014 - The Beginning of a Federal Response?

- **Section 5023 – Directs USACE to study flood risk management and navigation infrastructure in the Mississippi Basin to improve the system in flood and drought**
- **Section 3016 – Establishes national levee safety program**
- **Section 1008 – Makes non-federal hydropower development on USACE civil works features a national priority with USACE report in two years**
- **Section 3017 – Allows USACE to restore flood risk reduction projects to their authorized level of protection in response to settlement, subsidence and relative sea level rise**
- **Section 3027 – Directs USACE to establish an emergency communications network for notification and help when rain and runoff exceed lowest risk to life and property**
- **Section 5023 – Study flood risk and navigation in upper Mississippi basin**
- **Title V, Subsection C – Creates WIFIA \$175 million over 5 years; loans for projects worth more than \$20 million**
- **Over \$9.1 billion of new authorized projects out of \$14.6 billion nationally are in the Mississippi watershed**





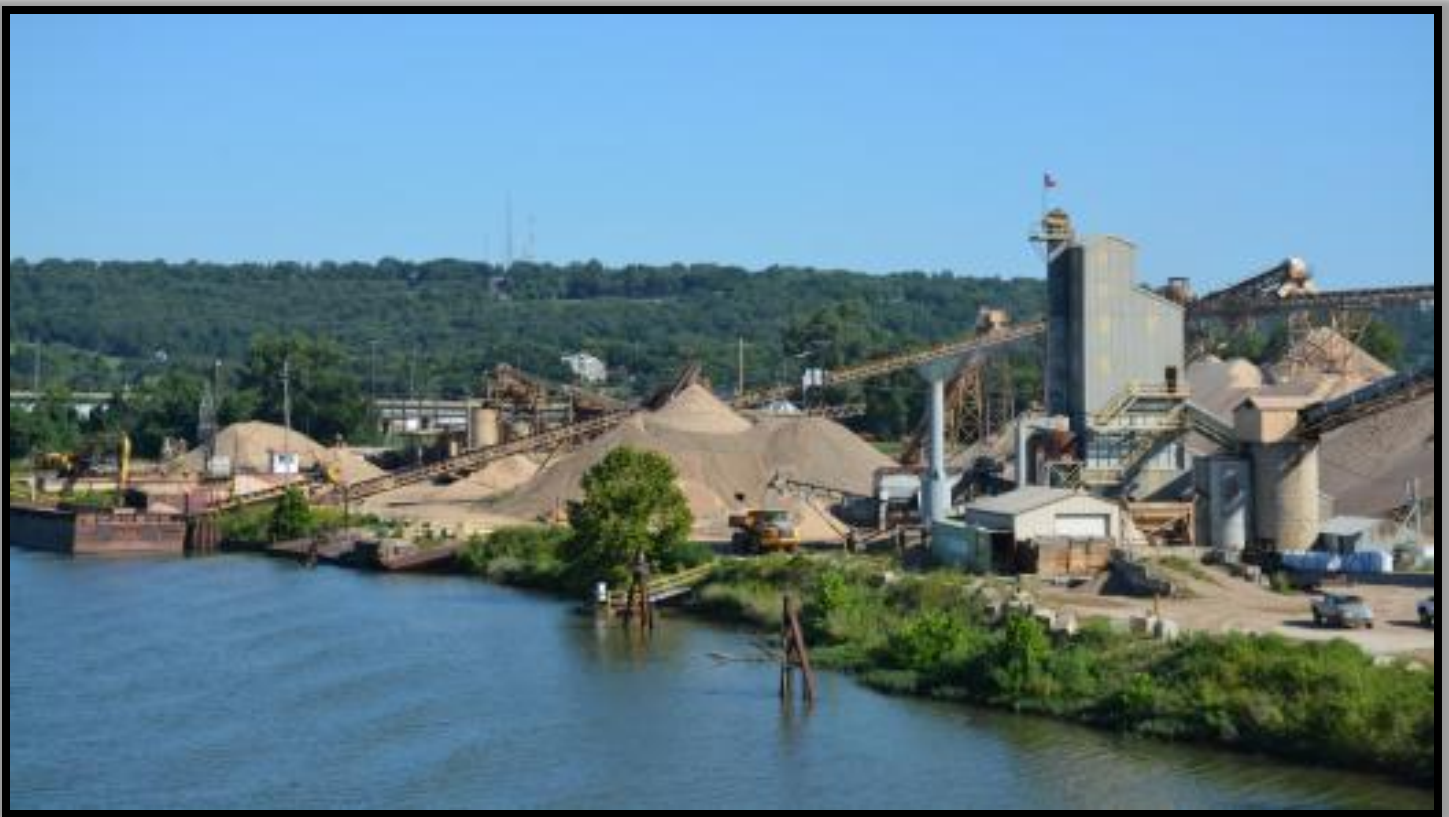
Low-Water Inspection Trip

McClellan-Kerr Arkansas River Navigation System

The Mississippi River and its tributaries drain an area of 1.25 million square miles, or approximately 41 percent of the United States, exclusive of Alaska. The drainage basin spans from western New York to western Montana and from 70 miles north of the United States and Canadian border to southern Louisiana and the Gulf of Mexico. The basin includes more than 250 tributaries and covers all or portions of 31 states and about 20,000 square miles of Canada. The Mississippi River & Tributaries project, implemented by the Mississippi River Commission, provides comprehensive navigation, flood control and environmental improvements for the alluvial valley that strategically anchors the

lower end of the natural funnel formed by the Mississippi watershed.

Water resource management in the major sub-basins comprising the greater Mississippi watershed directly impacts the operations, practices and decisions of the Mississippi River Commission and its prosecution of the MR&T project. Since 1997, the commission has traversed the basins that serve as the greatest contributors of water to the lower Mississippi River and has met face-to-face with local, state and federal partners and stakeholders to gain a better understanding of the concerns, issues and impacts on the watershed as a whole.



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Low-Water Inspection Trip

McClellan-Kerr Arkansas River Navigation System *(continued)*

The commission reviewed and inspected the upper Mississippi River basin ten times from 1997 to 2008 and again in 2013, the Ohio River basin in 2005 and 2011, the Missouri River Basin in 2007 and 2012, the Illinois River basin in 2009 and the Arkansas-White basin in 2010 and 2014. The commission is planning to inspect the Cumberland and Tennessee rivers and ports in August 2015.

The 2010 visit to the Arkansas-White basin was an historic first in that it represented the commission's first system-wide inspection of the McClellan-Kerr Arkansas River Navigation System (MKARNS). The Mississippi River Commission's presence on the system helped to reconnect more than 1,000 people to the river. The impetus from that visit carried over to the commission's return to the basin during the 392nd session, with more than double the amount of people engaging the commission or touring the motor vessel *Mississippi*.





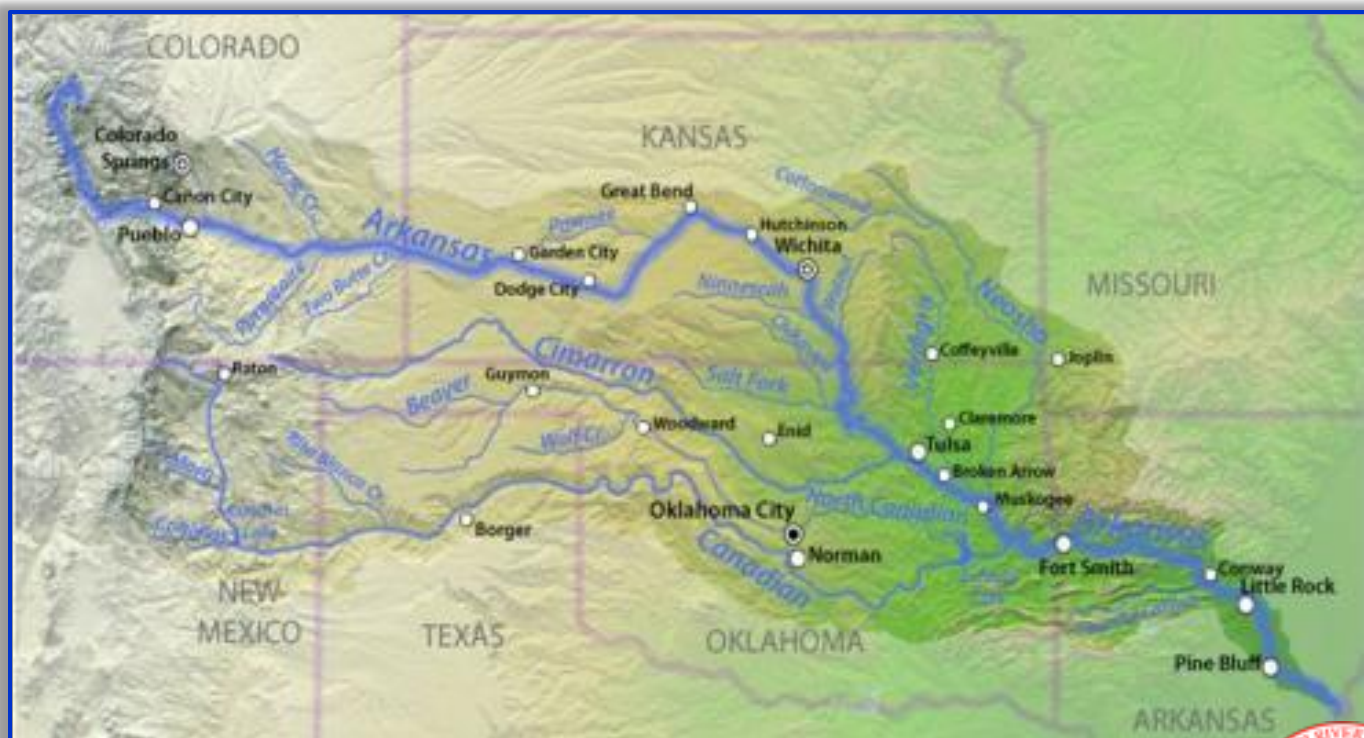
Low-Water Inspection Trip

McClellan-Kerr Arkansas River Navigation System *(continued)*

The Mississippi River Commission once again was impressed by the sound management of the system by the U.S. Army Corps of Engineers offices in Tulsa and Little Rock in partnership with the many stakeholders in the region. The MKARNS is a relatively young system that is still developing, but the clear mutual support exhibited by stakeholders and partners across Kansas, Oklahoma and Arkansas for a systemic approach to problems plaguing the MKARNS reflects a certain level of maturity not present in all river systems. In many ways the willingness to transcend local issues through cooperating regionally resembles the same type of symbiotic relationships that the Mississippi River Commission has enjoyed on the MR&T system and the lower Mississippi River. The Mississippi River Commission believes the increased yields in

agriculture, an abundance of affordable domestic petroleum and natural gas and the return of manufacturing and industry to the region, when combined with extraordinary facilities provided at the Tulsa Port of Catoosa, Oakley's Port 33 and the Port of Muskogee, will lead industries to increase their investments opportunities along the system. As such, it is probable that those industries will turn to the cost effective and climate change friendly use of barge traffic to move a large volume of materials in and out of the region.

Therefore, future investment decisions must focus on increasing the value and reliability of the MKARNS, MR&T and all high-value inland waterway systems so the American people can achieve the maximum return on their investment



Listening, Inspecting, Partnering & Engineering since 1879





Low-Water Inspection Trip

Listening – Arkansas-White Basin

During its inspection of the MKARNS system, the Mississippi River Commission engaged with three-to-five person panels representing various users and sectors of the system. The use of panels allowed for an effective dialogue between the commission and various representatives from state agencies/departments, private industry and local partners.



The following provides a brief portrayal of what the Mississippi River Commission heard from the panels:

Commerce

- The MKARNS system carries \$12 million tons annually valued at \$4 billion.
- The system has capacity to handle more cargo.
- Strong support for 12 foot channel .
- Low energy production costs in the region are attracting new industries/manufacturing .
- MKARNS enables region to be energy provider and leading manufacturing center.
- Arkansas-White cutoff will disrupt commerce on the entire MKARNS system.
- Strong support for the Three Rivers study.
- Agriculture in eastern Oklahoma and southeast Kansas are dependent on the MKARNS.





Low-Water Inspection Trip

Listening – Arkansas-White Basin *(continued)*

Transportation

- The MKARNS is an important component of the inland waterways system.
- The MR&T & MKARNS provide 1,500 miles of reliable channel from the Tulsa Port of Catoosa to Port of New Orleans that never closes due to ice, drought or floods.
- Lower shipping costs allow waterborne transportation to remain competitive.
- The aging system is approaching its 50-year design life.
- The MKARNS is an efficiently operated system, but the current rate is also consuming its capital.
- The system needs to be recapitalized to maintain its tremendous benefits.
- Underfunded maintenance for needed repairs is leading to more costly rehabilitations that negatively impact system reliability.
- Fertilizer, wheat, iron, steel and petroleum are shipped to/from domestic and overseas markets via the MKARNS and MR&T navigation system.

Agriculture

- Agriculture in eastern Oklahoma and southeast Kansas are totally dependent on the MKARNS.
- Trucking agriculture would prove too cost prohibitive; farms would be bankrupt.





Low-Water Inspection Trip

Listening – Arkansas-White Basin *(continued)*

Hydropower

- Eight federal hydropower projects in the region are money makers; they return money to the treasury.
- Many components of hydropower units are reaching the end of design life.

Flood Control

- Levee districts face the same challenges as MR&T levee districts in terms of levee certification.
- Levee districts lack adequate revenue to maintain the major maintenance items of their systems without federal/state assistance.

Recreation

- Recreational visits exceed 6 million visitors annually, making the MKARNS important to local and regional economies.
- Recreational boating is limited by lack of marine support facilities to purchase fuel and goods.





Low-Water Inspection Trip

Listening - Low-Water Inspection - MR&T

The Mississippi River Commission held formal public hearings at Caruthersville, Mo., Memphis, Tenn., Rosedale, Miss., and Houma, La. The hearings, engagements and dialogue help maintain a consistent exchange of viewpoints and ideas among the public, partners, stakeholders, elected officials, the Mississippi River Commission, the Corps of Engineers and agencies from the private, state and federal sectors. This process allows the people who live and work in the region a greater voice in shaping federal management and policy on the river and for the watershed.



Approximately 245 members of the public attended the public meetings. Fifty-eight individual speakers presented testimony to the Mississippi River Commission. The major themes from the testimony included:



Navigation

- Dredging needs for inland water transportation systems on the Gulf Intracoastal Waterway and the Mississippi, Atchafalaya, Arkansas, White, Red and Ouachita rivers.
- Importance of dredging Houma Navigation Canal to authorized depths.
- Aging locks and dams are critical for the future of agriculture.
- Need to replace Bayou Sorrel lock and IHNC lock.
- Managing entire watershed as one system.
- The need to operate the two lower locks on the Ouachita River on a full-time basis.





Low-Water Inspection Trip

Listening - Low-Water Inspection - MR&T *(continued)*

Small Ports and Harbors

- Ports and harbors across inland waterways are expanding to meet increasing demand from agricultural, manufacturing and energy revolutions.



Flood Control

- Dwindling MR&T appropriations are harming non-mainstem flood control features that are important to local populations and economies.
- Support for the Morganza to the Gulf project and the St. John's Bayou-New Madrid Floodway project.
- Importance of Planning Assistance to States program to local entities; local flood problems require long-term solutions with federal help.
- The need for improvements and clearing of federal drainage ditches between the Little River Drainage District and the St. Francis Levee District of Arkansas.
- Concerns with PL 84-99 levee inspection policy criteria. The current 18 factors of levee evaluation do not include past performance of the system for levees that withstood 2011 flood.
- Growing threat of local municipalities using eminent domain to condemn federally constructed levees and remove them from levee district jurisdiction for development purposes (Big Island Levee River Conservancy, Milan, Ill.)
- Beneficial use of dredged material for levee construction; remove dredged material from floodplain.





Low-Water Inspection Trip

Listening - Low-Water Inspection - MR&T (continued)

Regulation/Permitting

- Concerns with the wording and interpretation of the “Proposed Waters of the United States” rules.
- Cap wetland mitigation to 1:1 ratio; keep mitigation adjacent to projects in order to help actually improve/restore locally rather than mitigation banks elsewhere.
- Make permitting processes easier and quicker. Belief is that process can perform its function without taking so much time and increasing the costs of the permittee.



Water Supply

- Need to promote greater awareness of protecting ground water.
- More projects like the Bayou Meto and Grand Prairie approach to water management.



Recreation and Tourism

- Bike trails and tourism results in increased investment and awareness of vital waterways and infrastructure system.
- Recreation opportunities can provide increased tax revenues for the levee districts.





Low-Water Inspection Trip

Partnering, Dialogue and Feedback Partner Informed Engineering Solutions

Ports and Harbors

- Tulsa Port of Catoosa, Okla.
- Port of Muskogee, Okla.
- Oakleys Port 33, Okla.
- Little Rock Port Authority, Ark.
- Fort Smith Port Authority, Ark.
- Port of New Orleans, La.
- Port of Memphis, Tenn.
- Pemiscott County Port Authority, Mo.
- Hickman-Fulton County Riverport Authority, Ky.
- Port of Cate Landing, Tenn.
- Rosedale-Bolivar Port Commission, Miss.
- Memphis & Shelby Co. Port Commission, Tenn.
- Port of Morgan City, La.

Agriculture and Economic Development

- Oklahoma Farm Bureau
- Oklahoma Board of Agriculture
- Oklahoma Farmer Wheat Commission
- Tulsa Regional Chamber, Okla.
- Regional Intermodal Transportation Authority of West Arkansas
- Ozark Chamber of Commerce, Ark.
- Delta Council, Miss.
- Institute for Economic Advancement
- Delta Regional Authority
- East Arkansas Enterprise Community
- Riverfront Development Corporation, Tenn.

Water Supply/Water Management

- Bayou Meto Water Management District, Ark.
- White River Irrigation District, Ark.
- Arkansas Water Conservation Board
- Sparta Groundwater Commission, La.
- Boeuf-Tensas Regional Irrigation Water Distribution District, Ark.

River Basin Associations

- Arkansas Riverbed Authority, Ark.
- West Tennessee River Basin Authority, Tenn.
- White River Coalition, Ark.
- Ouachita River Valley Association, La.
- Gulf Intracoastal Canal Association, La.

Industry

- Canal Barge Line
- AEP River Operations, Mo.
- Consolidated Grain & Barge
- CF Industries, Ill.
- Terra Nitrogen Company, Ill.
- Southern Towing Company, Tenn.
- Falcon Steel and Pipe, Inc.
- Tuloma Stevedoring, Inc., Okla.
- Webco Industries, Okla.
- Daltille Corporation, Texas
- Gresham Petroleum Company, Miss.
- Free Flow Power, Miss.
- Associated General Contractors, Tenn.
- Cargill, Minn.
- Gavilon Fertilizer
- Fiver Rivers Distribution, Ark.
- Watco Companies, Kan.
- North Little Rock Hydropower, Ark.
- Arkansas Electric Cooperative Corporation
- Arkhola Marine, Ark.
- Pine Bluff Sand & Gravel, Ark.
- T. Baker Smith, La.
- Bollinger Shipyards, La.
- Allison Marine Contractors, La.
- Big River Coalition, La.





Low-Water Inspection Trip

Partnering, Dialogue and Feedback Partner Informed Engineering Solutions

Educational and Research

- Arkansas River Historical Society
- Delta State University, Miss.
- University of Arkansas
- Arkansas Tech University
- University of Arkansas – Little Rock
- University of Arkansas – Pine Bluff
- America's Watershed Initiative
- Lewis & Clark Community College, Ill.
- National Great Rivers Research & Education Center, Ill.
- University of Nebraska

Tourism, Recreation, and Conservation

- Arkansas River Connections
- Arkansas Wildlife Federation
- Friends of the Mississippi River
- Big River Strategic Initiative
- Lower Mississippi Reservation Conservation Committee
- The Nature Conservancy, Wis.
- Sierra Club, La.
- Gulf Restoration Network, La.
- Friends of the Atchafalaya, La.

Indian Nations

- Choctaw Nation
- Chickasaw Nation
- Cherokee Nation
- Muscogee (Creek) Nation

Flood Control

- Newport Levee District, Ark.
- Conway County Levee & Drainage District #1, Ark.
- Clarksville Levee District, Ark.
- Sny Island Levee Drainage District, Ill.
- Cairo Drainage & Levee District, Ill.
- Big Island River Conservancy, Ill.
- Little River Drainage District, Mo.
- Levee District #3, Mo.
- St. Francis Levee District, Mo.
- St. John's Levee Board, Mo.
- Fulton County Levee Board, Ky.
- Dyer County Levee & Drainage, Tenn.
- Cotton Belt Levee District, Ark.
- Drainage District #7, Ark.
- Drainage District #9, Ark.
- St. Francis Levee District, Ark.
- Board of Mississippi Levee Commissioners
- Yazoo-Mississippi Delta Levee Board, Miss.
- Tensas Basin Levee District, La.
- Terrebonne Conservation & Levee District, La.
- St. Mary Levee District, La.
- North Lafourche Levee District, La.





Low-Water Inspection Trip

Partnering, Dialogue and Feedback Partner Informed Engineering Solutions

Federal Agencies

- Bureau of Indian Affairs
- Environmental Protection Agency (Gulf of Mexico Program Office)
- Department of Agriculture (Natural Resource Conservation Service)
- U.S. Coast Guard
- Department of Energy (Southwestern Power Administration)
- U.S. Fish & Wildlife Service
- U.S. Geological Survey
- National Weather Service
- Institute for Water Resources

State Agencies

- Oklahoma Department of Transportation
- Oklahoma Department of State
- Oklahoma Department of Agriculture
- Oklahoma Department of Commerce
- Oklahoma Department of Energy and Environment
- Oklahoma Water Resource Board
- Arkansas River Waterways Commission
- Arkansas Department of Emergency Management
- Arkansas Department of Parks & Tourism
- Arkansas Highway & Transportation Department
- Arkansas Game and Fish Commission
- Arkansas Department of Environmental Quality
- Arkansas Natural Resources Commission
- Arkansas Natural Heritage Commission
- Arkansas Land Commission
- Arkansas Department of Agriculture
- Kansas Water Office
- Missouri Department of Agriculture
- Missouri Department of Natural Resources
- Missouri Department of Transportation
- Tennessee Department of Environmental Conservation
- Tennessee Emergency Management Agency
- Louisiana Coastal Protection and Restoration Authority
- Louisiana Department of Natural Resources

Oklahoma
Governor
Mary Fallin





Low-Water Inspection Trip

Partnering, Dialogue and Feedback Partner Informed Engineering Solutions (Congressional and Elected Officials)

U.S. Senate

- Sen. John Boozman, AR (Chris Caldwell)
- Sen. Roger Wicker, MS (Camille Peno, Kern Hoff, Will Kline)
- Sen. James Inhofe, OK (Michael Lee, Michael Junk, Alex Herrgott)
- Sen. Thad Cochran, MS (Chris Gallegos, Constance Payne, Will Todd, Daniel Ulmer)
- Sen. Lamar Alexander, TN (Lora Jobe)
- Sen. David Vitter, LA (Patrick Broussard)
- Sen. Mary Landrieu, LA (Zach Monroe)
- Senate Committee on Agriculture (T.A. Hawks, Ben Mosely, Anne Hazlett, Andrew Vlasaty)
- Senate Appropriations Committee (Carlisle Clarke, Stacy McBride)
- Senate Committee on Homeland Security (Kathy Kraninger)

U.S. House of Representatives

- Rep. Markwayne Mullin, OK-2 (Debbie Dooley)
- Rep. Jim Bridenstine, OK-1
- Rep. Jason Smith, MO-8
- Rep. Rick Crawford, AR-1
- Rep. Stephen Fincher, TN-8 (Ivy Fultz, Chris Connolly)
- Rep. Alan Nunnelee, MS-1 (Tara Morgan)
- Rep. Charles Boustany, LA-3 (Michael Hare, Adam Hensgens)
- Rep. Steve Scalise, LA-1 (Matthew Jewel)

Governors

- Oklahoma Governor Mary Fallin
- Arkansas Governor Mike Beebe (Clark Hall)
- Mississippi Governor Phil Bryant (Chris Champion)
- Mississippi Lt. Governor Tate Reeves (Lee Weiskopf)

State Offices

- Rep. David Brumbaugh, OK-76
- Rep. Ed Schieffer, MO-11
- Sen. Bret Allain, LA-21
- Rep. Gordon Dove, LA-52

Mayors and Parish Presents

- Mayor Bob Coburn, Muskogee, Okla.
- Mayor Julie Ferguson, Sallisaw, Okla.
- Mayor Red Statum, Catoosa, Okla.
- Mayor James Jennings, Wagoner, Okla.
- Mayor Jeff Carter, Webbers, Okla.
- Mayor Sandy Sanders, Fort Smith, Ark.
- Mayor Bob Freeman, Van Buren, Ark.
- Mayor David Stewart, Newport, Ark.
- Mayor Stewart Nelson, Morrilton, Ark.
- Mayor Bill Eaton, Russellville, Ark.
- Mayor Donnie Brown, New Madrid, Mo.
- Mayor Macie Roberson, Lake County, Tenn.
- Mayor Richard Hill, Dyer County, Tenn.
- Mayor (Elect) Chris Young, Dyer County, Tenn.
- Mayor David Lattus, Hickman, Ky.
- Mayor William Forsythe, Hornersville, Mo.
- Mayor Lawrence Owens, Hughes, Ark.
- Mayor Allen Latimer, Horn Lake, Miss.
- Mayor Bill Lockett, Clarksdale, Miss.
- Mayor John Cox, Greenville, Miss.
- Mayor Vernon Jackson, Coldwater, Miss.
- Mayor George Flaggs, Vicksburg, Miss.
- Mayor Frank Grizzaffi, Morgan City, La.
- Mayor Louis Ratcliff, Berwick, La.
- Parish President Paul Naquin, St. Mary Parish, La.
- Parish President Michele Claudet, Terrebonne Parish, La.





Low-Water Inspection Trip

Briefings During the Inspection

Brig. Gen. Kem provided a briefing on water resource and infrastructure initiatives in the Missouri River basin. The discussion included an update on the Missouri River reservoir system, an overview of the backlog maintenance picture and a new hydropower modernization initiative.

Deborah Lee, chief of Watershed Management for the Ohio River, briefed the commission on the repair projects at two major flood control dams for the Cumberland River -- Wolf Creek Dam and Center Hill Dam -- and an update on the construction projects at Olmsted Locks and Dam on the Ohio River and Kentucky Lock on the Tennessee River.

Charles Shadie, chief of Watershed Management for the Mississippi River, provided four key briefings to the Mississippi River Commission:

- A detailed analysis of current river conditions and drought conditions across the greater drainage basin.
- Draft findings and recommendations of the greater Mississippi basin post 2011 flood report being prepared by the national flood assessment team.
- Update on the ongoing MR&T flowline study begun after the 2011 flood. The briefing focused on the meteorology, hydrology and hydraulic modeling efforts accomplished to date.

- MR&T Strategic Investment Plan, which is intended to provide a comprehensive operating picture of future priorities, identify all remaining work for project completion and characterize the risk associated with an incomplete MR&T system.

Dr. Barb Kliess, director of Science and Technology, provided a detailed briefing on the latest science regarding Mississippi River sediment transport and the impact of proposed diversions on the channel.

District commanders from the Memphis, Vicksburg and New Orleans districts provided overviews on various features of the MR&T project within their areas of operation and the status of repairs for the post 2011 flood supplemental investment.





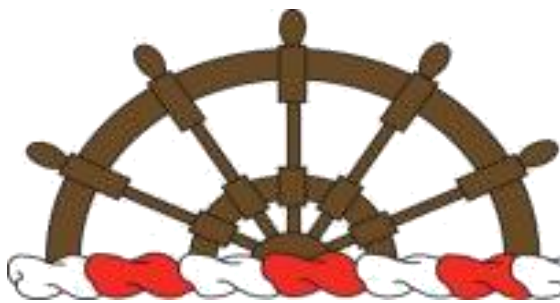
Low-Water Inspection Trip

Bayou Meto Water Management District Site Visit



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Low-Water Inspection Trip

Coastal & Hydraulics Laboratory, ERDC, Site Visit

Ship Simulator



Navigation Models
and Lock Valve Test
Model



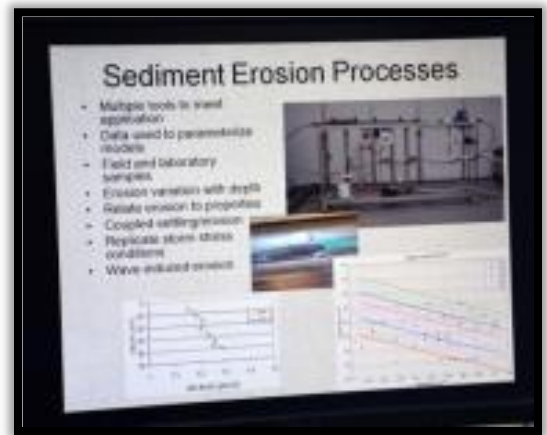
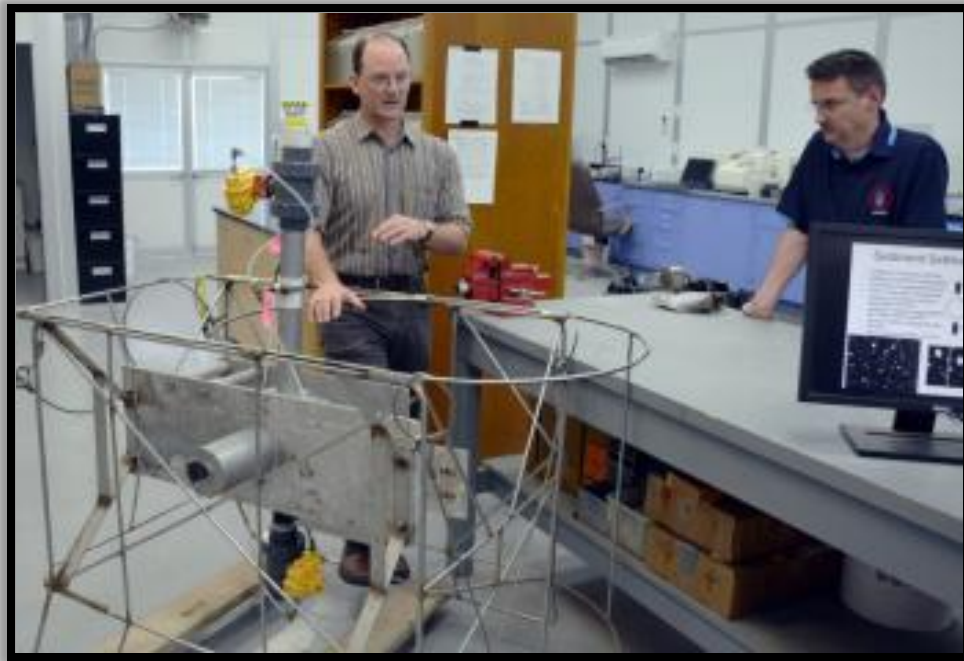
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Low-Water Inspection Trip

Sediment Laboratory, ERDC-CHL, Site Visit



Listening, Inspecting, Partnering & Engineering since 1879



America's Watershed: A 200-year working vision

An Intergenerational Commitment



Our people enjoy a quality of life unmatched in the world. We ...

- **Lead secure lives along the river or tributary.**
- **Enjoy fresh air and the surrounding fauna, flora and forests while hunting, fishing and recreating.**
- **Travel easily, safely and affordably.**
- **Drink from and use the abundant waters of any river, stream or aquifer.**
- **Choose from an abundance of affordable basic goods and essential supplies that are grown, manufactured and transported along and by the river to local and world markets.**

The Mississippi watershed is 41% of the US, 31 states, 1.25 million square miles, over 250 tributaries

Balancing needs for ...

- ❖ **National security, flood control and flood damage reduction**
- ❖ **Environmental sustainability & recreation**
- ❖ **Infrastructure & energy**
- ❖ **Water supply & water quality**
- ❖ **Movement of goods; agriculture & manufacturing**

Join the dialogue, visit:
www.mvd.usace.army.mil/mrg
camvd-ex@usace.army.mil

Leveraging local citizens' input, international dialogue, science, engineering, technology and public policy

Mississippi River & Tributaries Project

The Mississippi River and Tributaries project was authorized by the 1928 Flood Control Act. In the wake of the 1927 flood, it was deemed necessary to put into place a comprehensive, unified system of public works within the lower Mississippi Valley that would provide unprecedented protection from floods and an equally efficient navigation channel.

The MR&T project has four major features:

- Levees/floodwalls
- Floodways
- Channel improvement and stabilization
- Tributary basin improvements

These features work together to provide flood protection and navigation, and foster environmental protection and enhancement.

PROJECT BENEFITS

Flood Control

- \$14 billion invested for planning, construction, operation and maintenance since 1928
- \$639 billion in flood damages prevented, since 1928
- Approximately 4 million people protected
- \$234 billion damages prevented in 2011
- 45 to 1 return on each dollar invested
- 1927 Flood = 16.8 million acres flooded
- 2011 Flood = 6.4 million acres flooded
- 89% physically complete
- \$3 billion annual transportation rate savings
- Untold economic productivity enables farms, towns & factories

Navigation

- More than 500 million tons of cargo move on the Mississippi River system each year.
- \$2.9 billion saved annually in transportation benefits.
- The Mississippi River remained opened during the 1988, 1999 and 2012 droughts, as well as the 2011 record flood. The ability to keep the river open offered unequivocal evidence of the benefit of the MR&T project to the nation. Keeping it open and reliable is a pillar of economic stability and national security.



Mississippi River Commission

We Value....

Listening - Access

... providing an equal opportunity for all citizens to share their insight and wisdom in a free and open forum – a forum that offers greater access for citizens to actively engage in and shape Federal water resource management policy.



Inspecting - Professionalism

... setting the highest professional, engineering, and process standards that are emulated nationally and internationally, and offer an intergenerational vision for the world's 3rd largest watershed.



Partnering – Relationships

... establishing and nurturing long-term collaborative relationships with diverse interests, elected representatives, State and Federal agencies, and the Corps of Engineers to develop sustainable solutions for current and future watershed challenges.



Engineering - Action

... protecting lives, property, economic prosperity, and the nation's natural resources by advancing balanced and sound water resource engineering solutions reached through collaboration and long-term relationships.



Mississippi River Commission

Priorities....

- **Navigation – available and improving delivery**
 - » Consider, discuss and address container on barge for 2014-15 with opening of the Panama Canal new set of locks
 - » Dredging of small ports and harbors
 - » Navigation and Ecosystem Sustainability Program (NESP)
- **Infrastructure**
 - » Use MRC process of listening, inspecting, partnering and engineering to increase awareness of the deteriorating infrastructure in the watershed
 - » Through established relationships, develop plans to address infrastructure in the watershed; lead federal efforts
 - » Use MRC process to increase and improve infrastructure investment
- **Comprehensive Flood Control**
 - » MR&T (Mississippi River Levees, Morganza to Gulf)
 - » Upper Miss Comprehensive Plan
 - » Communicate MRC/MR&T process as a comprehensive balanced watershed approach to follow in the six major sub-basins comprising the world's 3rd largest watershed – the Mississippi, Missouri, Ohio, Red, Arkansas, Illinois River basins and tributaries.
- **Environmental Sustainability**
 - » Integrate science based, sustainable and resilient work into all projects (life-cycle costs)
 - » LCA: Explore innovative approaches and solutions such as water and sediment diversions
- **Water Supply**
 - » Prolonged drought concerns/storage of runoff
 - » Multi-state aquifer depletion
- **200-year Working Vision for America's Watershed**
 - » MRC signed a working vision August 20, 2009 (revised August 2010). It serves as:
 - * A system-wide balanced approach, requires an intergenerational commitment, and compliments a national vision
 - * A platform for broad participation, international recognition, and a long-term balanced vision for the entire watershed.



Mississippi River Commission

Inspection Trip Objectives...

LISTEN to partners, stakeholders and public – provide opportunities to meet with the MRC for mutual understanding, education and discussion on value and use of water resources in the local and regional area. The vertical team hears the themes, issues and concerns at the same time -- HQ, MVD/NWD/LRD/SWD, district, stakeholders and partners. Listen to issues of major concerns and on projects and studies and help the understanding of how the entire system is related and impacted while formulating mature recommendations.

PARTNER with key associations and interest groups. Meetings with groups to help enhance relationships and broaden collaboration. Discover and include diverse forums for collaboration, dialogue and education.

LEARN from Mississippi, Ohio, Missouri, Illinois, Arkansas, Atchafalaya and Red River basins partners and others the methods, procedures, systems and other resources to improve the development and delivery of policy, planning, construction, and operation and maintenance for the high value water resource system and basin.

SHARE information with partners, in particular the lessons that the MRC and partners have discovered since 1879 by listening, inspecting, partnering and engineering in the watershed

INSPECT / REVIEW status of the major regional projects/studies and provide status of other National and comprehensive projects:

- 1) Upper Mississippi River-Illinois Waterway System Navigation & Ecosystem (NESP)
- 2) HSDRRS, Louisiana Coastal Authority (LCA), LaCPR ... benefits/impacts to navigation/riverine flooding
- 3) Missouri River Master Manual; MO Basin Authorized Uses and 2011 Flood Recovery+2012 Drought
- 4) Mississippi River and Tributaries (MR&T) Project and the 2011 Restoration effort/2012 Drought
- 5) Upper Mississippi Comprehensive Plan
- 6) Ohio River Studies, Projects and Programs and 2011 Flood/2012 Drought

INSPECT maintenance status of structures in the watershed; perform on site reviews with partners of the nation's infrastructure

REVIEW / DISCUSS the Mississippi and Atchafalaya Rivers and the MR&T project and impacts from and on Mississippi, Ohio, Missouri, Red, Arkansas and Illinois River basins and projects; review status of current and future work. Review and identify comprehensive water resource engineering needs of the watershed.

EDUCATE with our partners, stakeholders and public on water investments and water resource engineering capabilities for the Mississippi Valley watershed (41% of US) and the nation through media opportunities and local contacts during the inspection trip. Communicate the value, history, enablers **and** benefits of water resource engineering.

VISION -- continue to champion the broad participation, national/international recognition and working vision process for America's Watershed – the largest "navigable" system in the world! Gather feedback from international dialogue, across diverse sectors and the public.



MISSISSIPPI RIVER COMMISSION

VICKSBURG, MISSISSIPPI

August 23, 2013

Statement of the Mississippi River Commission *Call to Action*

MISSISSIPPI RIVER COMMISSION
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The American Geography is an impressive one. The Greater Mississippi Basin together with the Intracoastal Waterway has more kilometers of navigable internal waterways than the rest of the world combined. The American Midwest is both overlaid by this waterway and is the world's largest contiguous piece of farmland... The United States has capital, food surpluses and physical insulation in excess of every country in the world by an exceedingly large margin. So... the Americans are not important because of who they are, but because of where they live.

*"The Geopolitics of the United States: The Inevitable Empire,"
Stratfor Global Intelligence, May 2012¹*

The above assessment by Stratfor Global Intelligence clearly captures the strategic importance of the natural, God-given assets that served as the foundation for the greatness of the United States of America. Yet our transformation from a fledgling agrarian nation into the world's preeminent economic power – "the inevitable empire" – necessarily depended on a strong vision, persistent determination to overcome all obstacles, massive private and federal investment that ultimately overcame frequent initial failures, and an intergenerational commitment to develop the full potential of the Greater Mississippi Basin. The determined commitment to make this vision a reality enabled the United States to fully leverage its unique geopolitical advantages and develop a unified national system of rivers, canals, roads and railways connecting the riches of the American interior to its coastal ports and overseas markets.

By the mid to late 20th century, our nation's long-term investment efforts delivered an inland transportation system that was the envy of the world. The abundant natural waterways of the American interior remain the envy of the world, but the same can no longer be said for our infrastructure. Our nation's infrastructure – its ports and navigation locks, levees and dams, highways and bridges, railroads and tunnels – all suffer from prolonged under-investment, deferred maintenance and a failure to upgrade and modernize capacity to keep pace with global trends. Having built out the greatest transportation infrastructure in the world, and then benefiting from its consequences for decades, we became accustomed to its enormous benefits and allowed ourselves to be lulled into assuming this advantage would always endure. So while the rest of the world has forged ahead in building modern marvels of infrastructure capable of efficiently moving vast quantities of waterborne cargo in recent years, the United States has fallen increasingly behind due to its failure to continue its pattern of investment.

Since 1879, the seven-member Presidentially appointed Mississippi River Commission has developed and matured plans for the general improvement of the Mississippi River from the Head of Passes to the Headwaters. The Mississippi River Commission brings critical engineering representation to the drainage basin, which impacts 41% of the United States and includes 125 million square miles, over 250 tributaries, 31 states, and 2 Canadian provinces.

Listening, Inspecting, Partnering and Engineering since 1879

The resultant neglect is resulting in such a degree of deteriorated infrastructure, that it is actively undermining our economic competitiveness.

At no time has the fragility of the Greater Mississippi Basin's waterborne transportation infrastructure been so tested by the extremes of nature as in the past few years. Floods of record occurred on the lower Mississippi, the Souris, the Red River of the North, the Missouri and the Illinois Rivers, all in the last two years. To punctuate the vicissitudes of nature, the record or major flooding that occurred across America's heartland in 2011 and 2013 was interspersed by a devastating drought that destroyed crops and threatened to impede or halt commerce along the middle Mississippi River in the winter of 2012-13. While nature challenges our infrastructures ability to cope with these extremes, lock outages across the system are trending upward, growing by nearly six times from 1991 to 2011.

As a result of our own neglect and the reality that much of the world has surpassed or is surpassing our previous advantages in reliable transportation infrastructure, America now stands at an important crossroads. Today, multiple game-changing realities challenge our prior pre-eminent economic position, compelling this Commission to issue a decisive Call to Action. These inter-related challenges include:

- Pending explosion in the global population by more than two billion people by mid-century – accompanied by a substantial improvement in global standards of living, and consequently expectations – will increase demands for food, water and energy dramatically;
- Across the globe infrastructure investment is increasing exponentially. In contrast, the United States spends a fraction on infrastructure investment and recapitalization. The opening of expanded locks at the Panama Canal in 2015 will dramatically affect United States and global trading patterns, for which our nation has only recently begun to prepare;
- Inefficient and sometimes ineffective and even conflicting federal processes driven by a dizzying array of laws, policies and regulations. The overly complex requirements must be streamlined to exemplify the processes employed in the construction of the I-35 W bridge in Minnesota or the Hurricane Storm Damage and Risk Reduction System in southeast Louisiana.²

Through our public engagement process spanning many decades, the Mississippi River Commission has received testimony from those who live, work, produce and play along the "father of waters" – the Mississippi River and its tributaries. We share their viewpoint that the time for action is now:

- ✓ The Commission advocates a strong national vision for investment in infrastructure that compels the United States to unify behind systems-based, watershed-level projects that assure the long-term vitality of the economy, national security and the environment. That vision must necessarily prioritize high-value projects and must be supported by policies that integrate waterborne and overland transportation needs in order to maximize the nation's natural geographic advantages and bolster our global competitiveness.

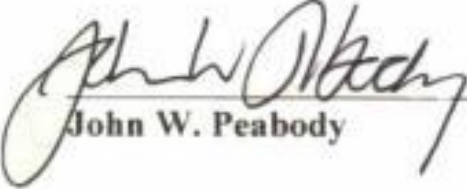
- ✓ The Commission recommends exploring new avenues for funding and executing water resources missions through more aggressive priorities and investment strategies along the lines identified in the recently published report by McKinsey Global Institute on infrastructure productivity.³
- ✓ The Commission supports streamlining water resource development processes, to include all laws, regulations and executive orders, in a manner that serves progressive economic and environmental betterment of the nation as a whole. The streamlined processes should enable state, federal agencies and other key stakeholders to deliver valuable solutions based on clear understanding of risks, within clearly defined schedules.

Roughly 90 percent of all global trade is conveyed by sea, and America uniquely encompasses large coasts on both the Atlantic and Pacific Oceans, making us a global maritime nation. America's economic competitiveness and its ability to feed and supply the world, therefore, depend on fully leveraging and maintaining the reliability, efficiency and effectiveness of moving goods via all transportation systems on which our economic greatness rests. As we cautioned in our April 15, 2011, *Statement on Inland Waterway Navigation System*, the level of commitment to the nation's transportation infrastructure has been waning for decades. A continued failure to invest in sustaining an effective and reliable national transportation network for the 21st century, and a failure to modernize our infrastructure project delivery processes, will negatively affect America's economic and global competitiveness.⁴

This call to action comes at a pivotal moment in history when increasingly globalized trade provides fantastic opportunities for America to deliver on its promise of economic potential to fulfill the world's demands, while advancing the economic security of our nation and its people for generations. Thomas Jefferson and other founders first envisioned the potential of the abundant natural waterways that the "Greater Mississippi Basin" held out, and acted on that vision.⁵ It is already past time to re-energize that vision to guide our future, by acting now to invest in the required infrastructure that will match or exceed the transportation capacity that much of the world is building. Inaction would result in an increase in transportation link failures, an unacceptably negative consequence that would doom America's potential and global needs would remain unfulfilled.

Our current generation must not be complicit in allowing, through inaction, the inevitable catastrophic failure in some vital component of the nation's critical infrastructure, or the inexorable competitive decline while our infrastructure slowly crumbles. Our nation must re-commit to leverage the fortune of its enormous geographic advantages, with its inherent ability to produce and export, by investing in our infrastructure. Such an effort will be the work of a generation or two, yet while we wait the rest of the world is continuing to pass us by. The voices of our diverse partners from every sub-basin in the greater watershed are clear: The time for action is now, and the moment to start is immediately.

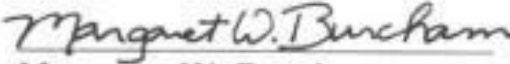
Statement of the Mississippi River Commission
Call to Action


John W. Peabody


Hon. Sam E. Angel


Hon. R.D. James


Hon. Norma Jean Mattei, Ph.D.


Margaret W. Burcham


Gerd F. Glang


John S. Kem



Since 1879, the seven-member Presidentially appointed Mississippi River Commission has developed and matured plans for the general improvement of the Mississippi River from the Head of Passes to the Headwaters. The Mississippi River Commission brings critical engineering representation to the drainage basin, which impacts 41% of the United States and includes 1.25 million square miles, over 250 tributaries, 31 states, and 2 Canadian provinces.

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MISSISSIPPI RIVER COMMISSION

VICKSBURG, MISSISSIPPI

August 22, 2014

Statement of the Mississippi River Commission

Mississippi River and Tributaries (MR&T) Project

MISSISSIPPI RIVER COMMISSION
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The MR&T project is unquestionably one of nation's wisest investments, having a 45 to 1 rate of return for each dollar spent to protect lives, homes, businesses, commerce, important ecosystems, and critical public infrastructure. During the unprecedented 2011 record flood, the MR&T project prevented \$234 billion dollars or one-quarter of a trillion dollars in flood damages to the nation's economy. Key agricultural centers, energy producers, manufacturers, and more than 4 million people escaped the ravages of the flood and, together, they continue to serve as pistons in the economic engine of the nation.

The MR&T system, however, remains incomplete and incapable of passing the project design flood that the system is intended to convey. The Mississippi River Commission estimates that, under current and projected funding levels that fall short of the \$500 million annual capacity of the U.S. Army Corps of Engineers in the lower valley, the MR&T project will not be complete until the 2060's. With consideration given to normal operations and maintenance costs and necessary repairs from future flood events, the Mississippi River Commission is not convinced that the MR&T project can ever be completed because of the repetitious maintenance backlog cycle. That vicious cycle, in turn, slows or retards the benefits that the MR&T system provides and puts the nation at risk of devastating floods. The floods will result in system failure impacting productive commercial communities and navigation and will damage our economic leadership and national security.

The Mississippi River Commission further estimates an investment requirement of \$15 billion is needed to re-capitalize aging features of the MR&T project. These features include the gated concrete spillways governing the floodways, dams that provide critical storage for floods in the project reservoirs, the Old River Control Structure, and various pumping stations and drainage control structures over the next several decades.

The need for investment in the system is strengthened by an understanding that flood control, and commerce share a symbiotic relationship with the critically important ecosystems and ecosystem services on the Mississippi River and its tributaries. Without viable flood protection, the majestic river that connects the nation's breadbasket, rice bowl, and energy production centers to the rest of the world would not exist as a great commercial artery. As agricultural yields produce record harvests capable of feeding the world and as nearby hydrocarbon production centers entice more manufacturing jobs to the nation, the economic expansion of this country will depend on a strong generational investment to provide protection to address increasing flooding brought about by accelerating changes in the climate.

Since 1879, the seven-member Presidentially appointed Mississippi River Commission has developed and matured plans for the general improvement of the Mississippi River from the Head of Passes to the Headwaters. The Mississippi River Commission brings critical engineering representation to the drainage basin, which impacts 41% of the United States and includes 1.25 million square miles, over 250 tributaries, 31 states, and 2 Canadian provinces.

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Statement of the Mississippi River Commission
Mississippi River and Tributaries (MR&T) Project
August 22, 2014



Peter A. "Duke" DeLuca



Hon. Sam E. Angel

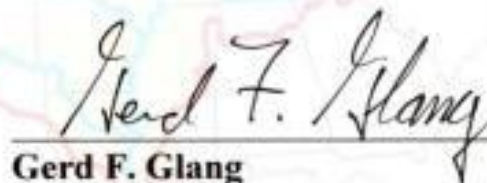


Hon. R.D. James



Hon. Norma Jean Mattei, Ph.D.

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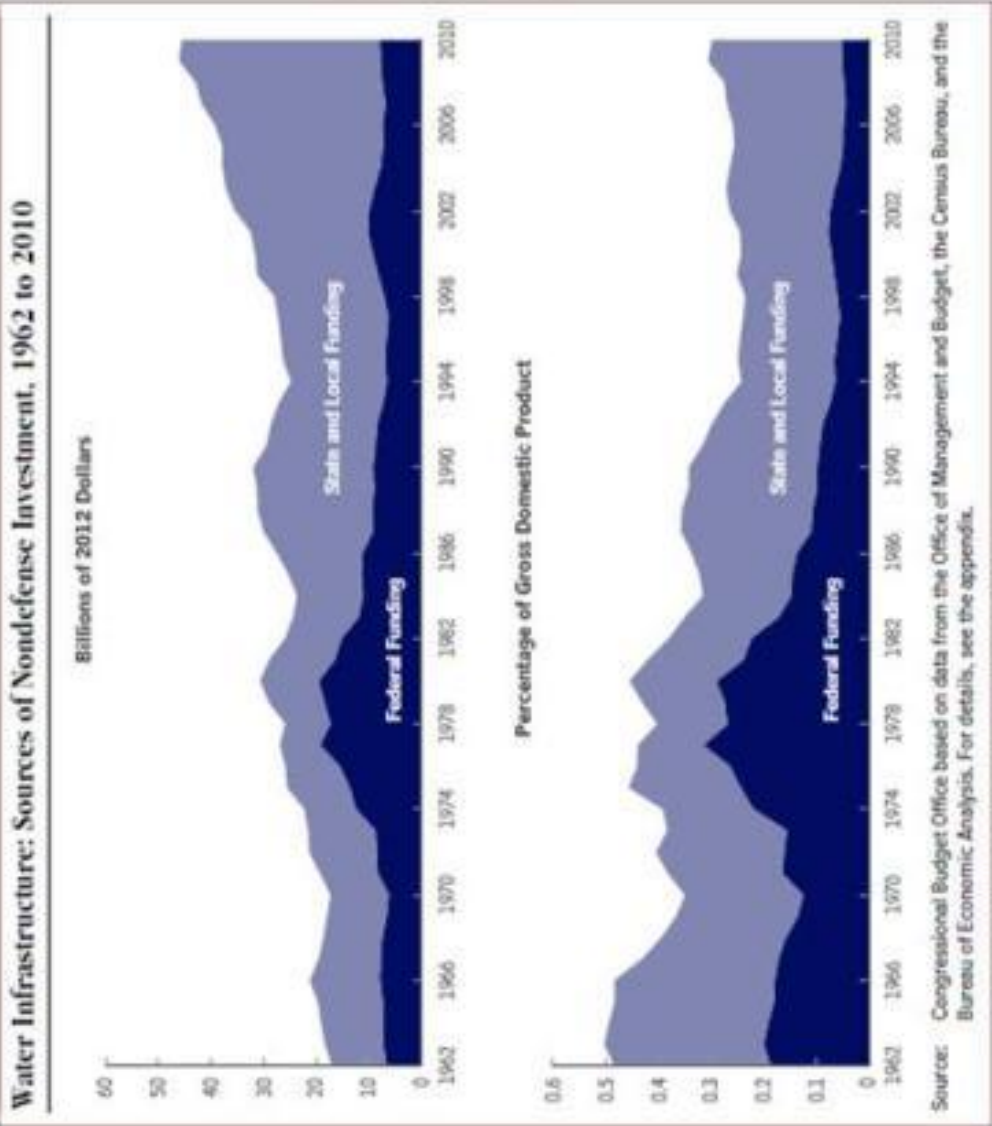
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What is Needed Now ?

- Renewed or return of understanding about federal investments
- Continue the democratization of water resource decisions and resourcing
- Evolution of USACE 3.0
- Creation of environmental movement 2.0
- Active involvement of producers (agriculture & manufacturers), shippers, transportation, re-creators, sportsmen, naturalists, secondary business owners, YOU!

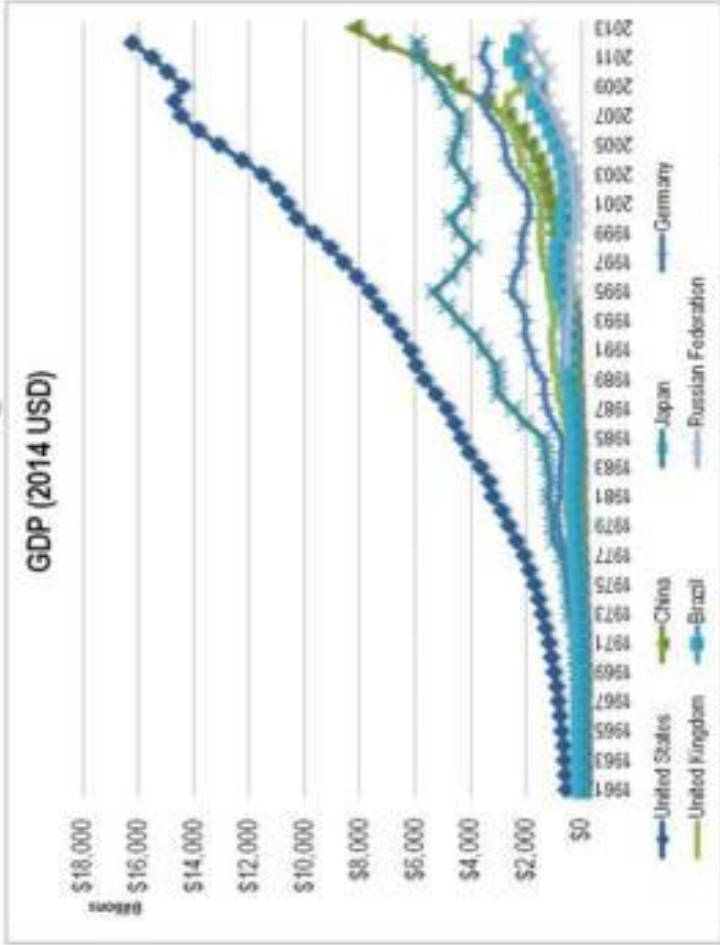
Water Infrastructure Spending



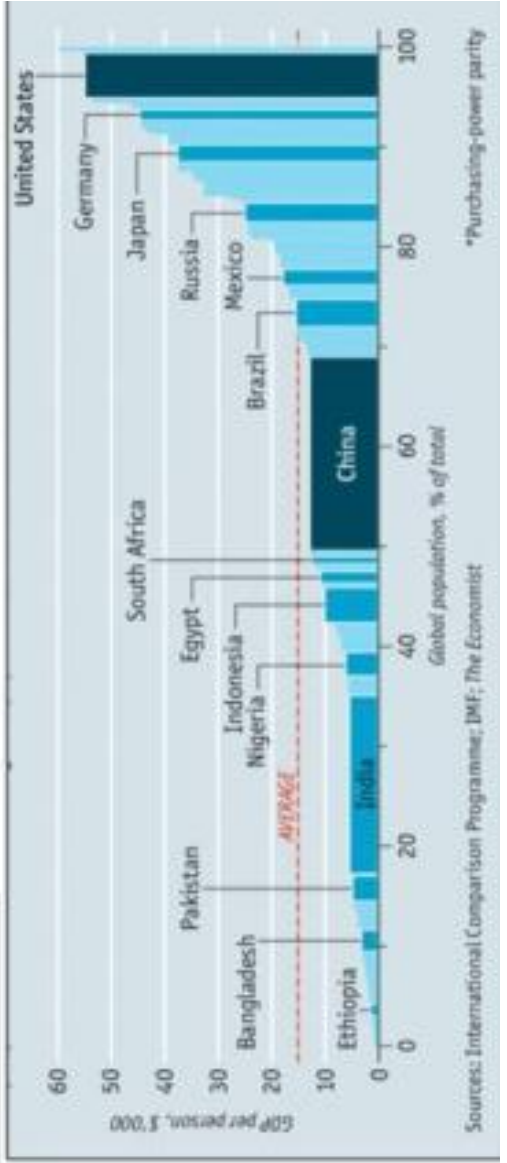
Between 1962 to 2010:

- Total funding **increased**
- % GDP **decreased**
- Greater burden on state and local funding sources as infrastructure ages.

Comparison of gross domestic product

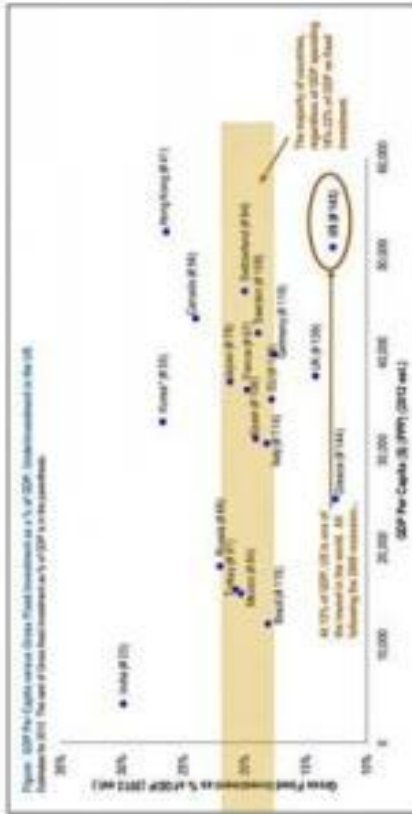


GDP per person at purchasing power parity and share of global population, 2014 forecast



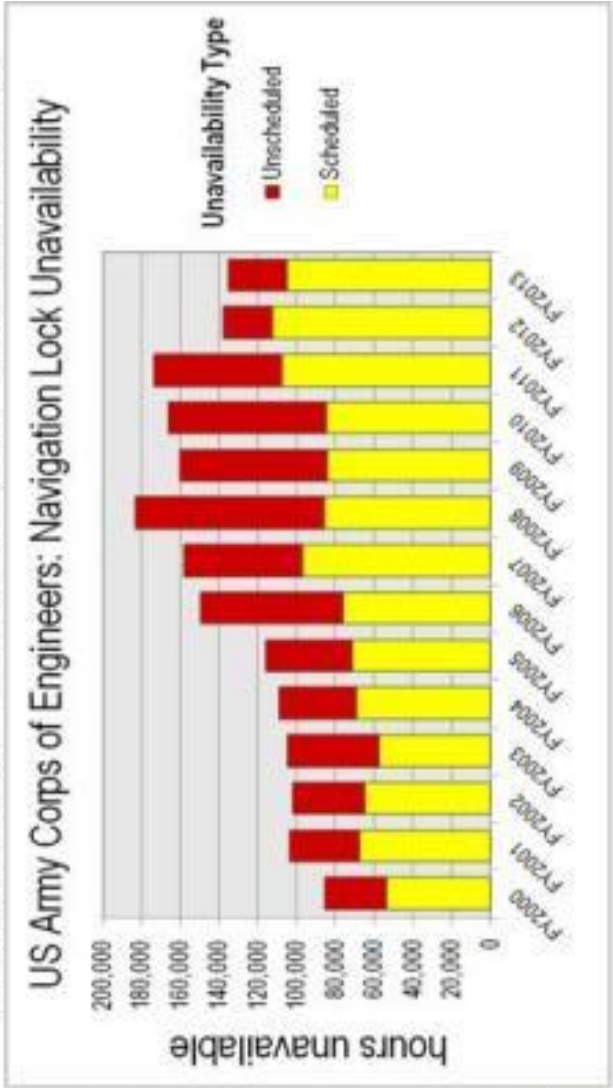
As published in The Economist, "The Dragon takes wing", May 3, 2014, p. 65.

United States relative to other nations



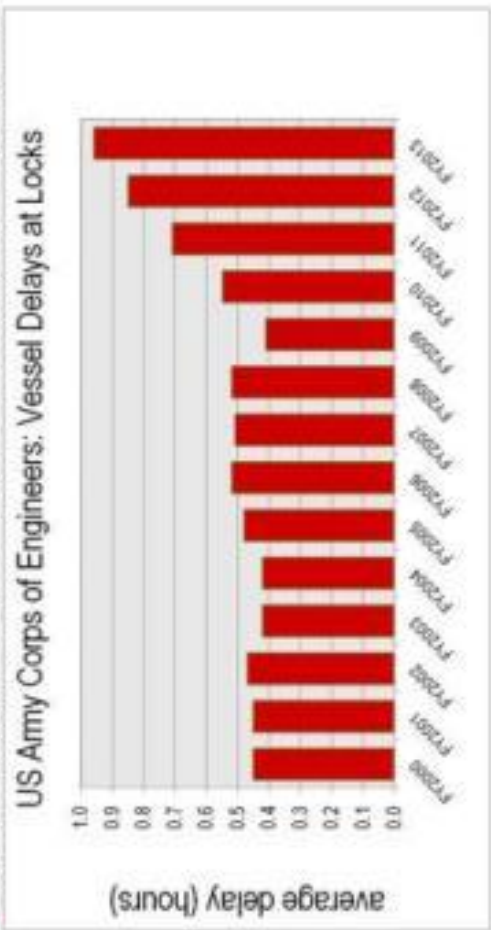
Low investment in infrastructure!
 (equivalent to Greece #143 in world)

Effects of decreased investment



Since 2000:

- ~50% decrease in availability
- Twofold increase in scheduled outages!

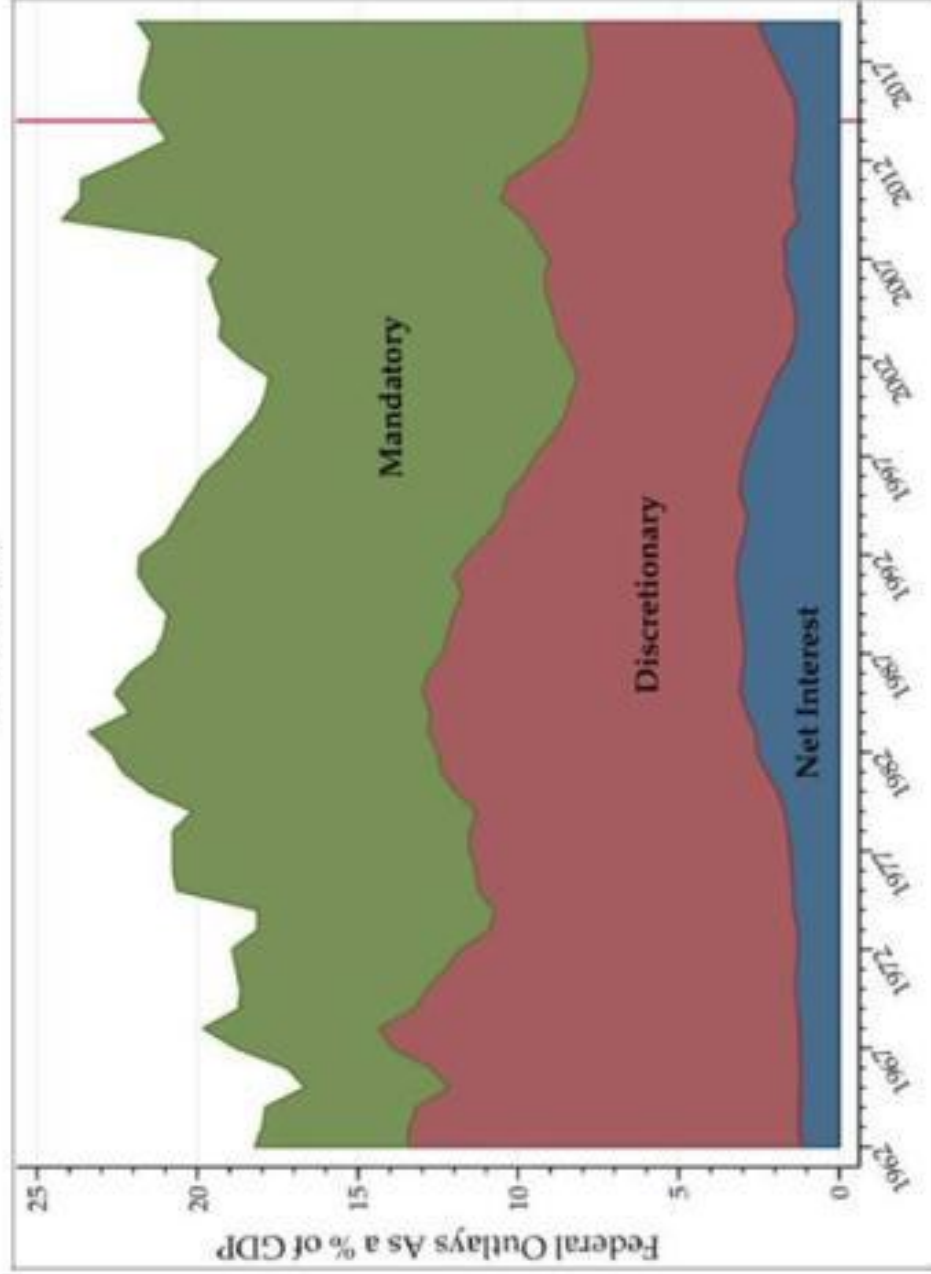


Since 2000: more than a doubling in delays!

These are actual delays experienced by vessels!

Components of Federal Spending: FY1962-FY2019

FY1962-FY2019

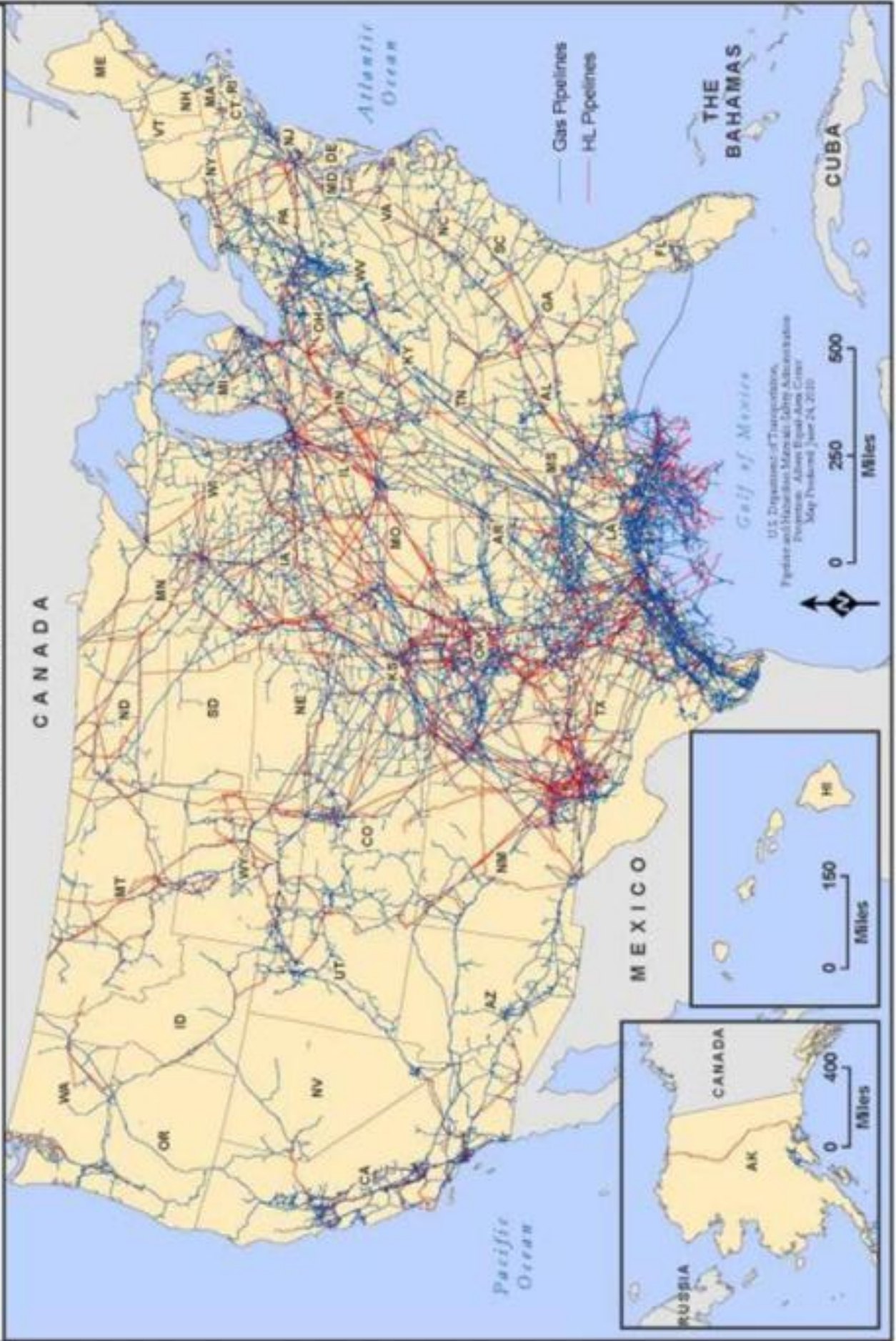


As published in "The Budget Control Act and Trends in Discretionary Spending," D. Andrew Austin, Congressional Research Service, 2 April 2014, p. 20.

Source: CRS calculations based on data from the FY2015 OMB budget submission.

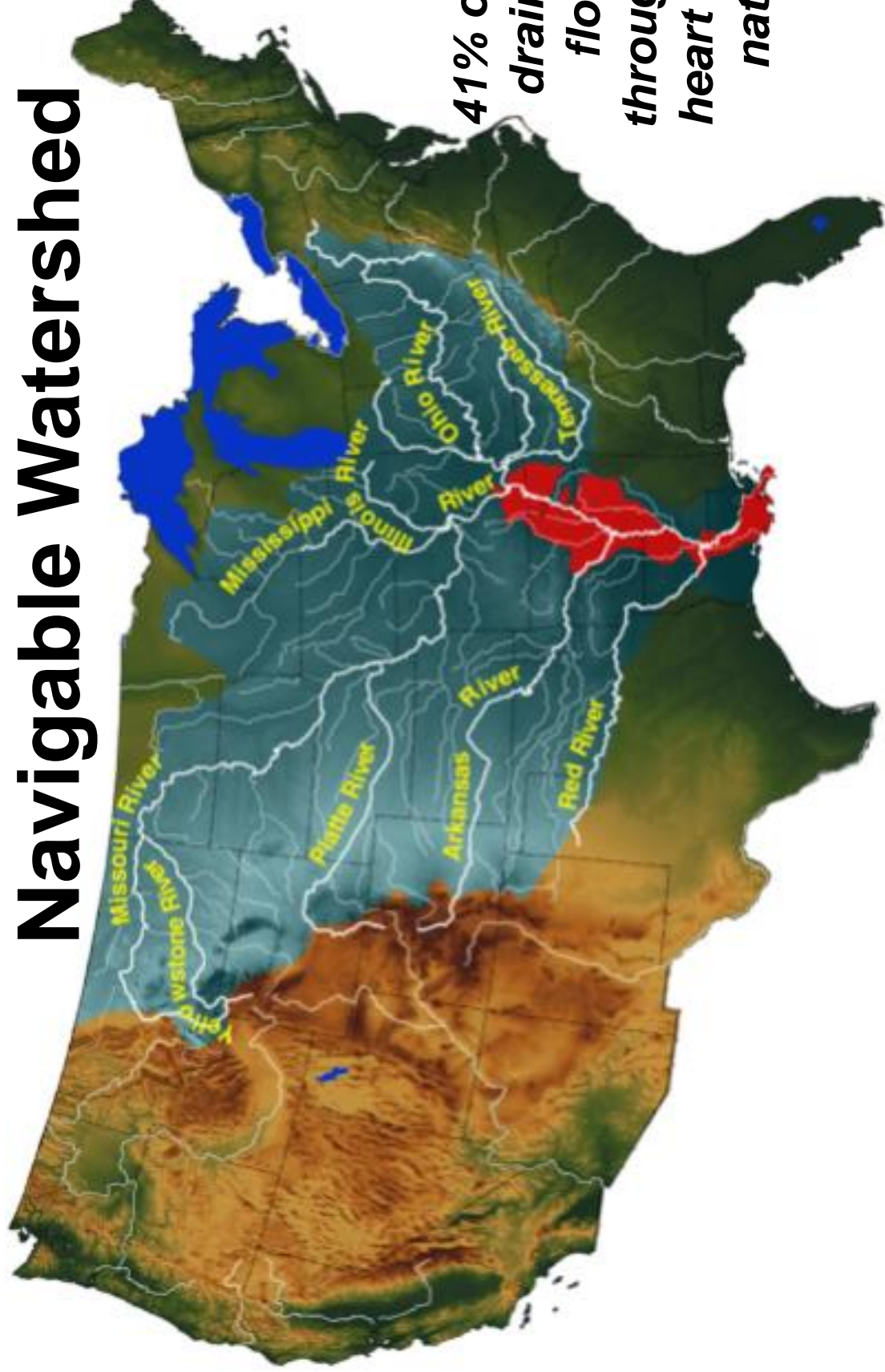
Hazardous Liquid and Gas Transmission Pipelines

Pipelines as of June 2010



Source: Pipeline Safety Update, U.S. Department of Transportation, September 2012, <https://www.hsd1.org/?view&did=722017>

World's Largest "Naturally" Navigable Watershed



**41% of U.S.
drainage
flows
through the
heart of the
nation**

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