



# 17 September 2015





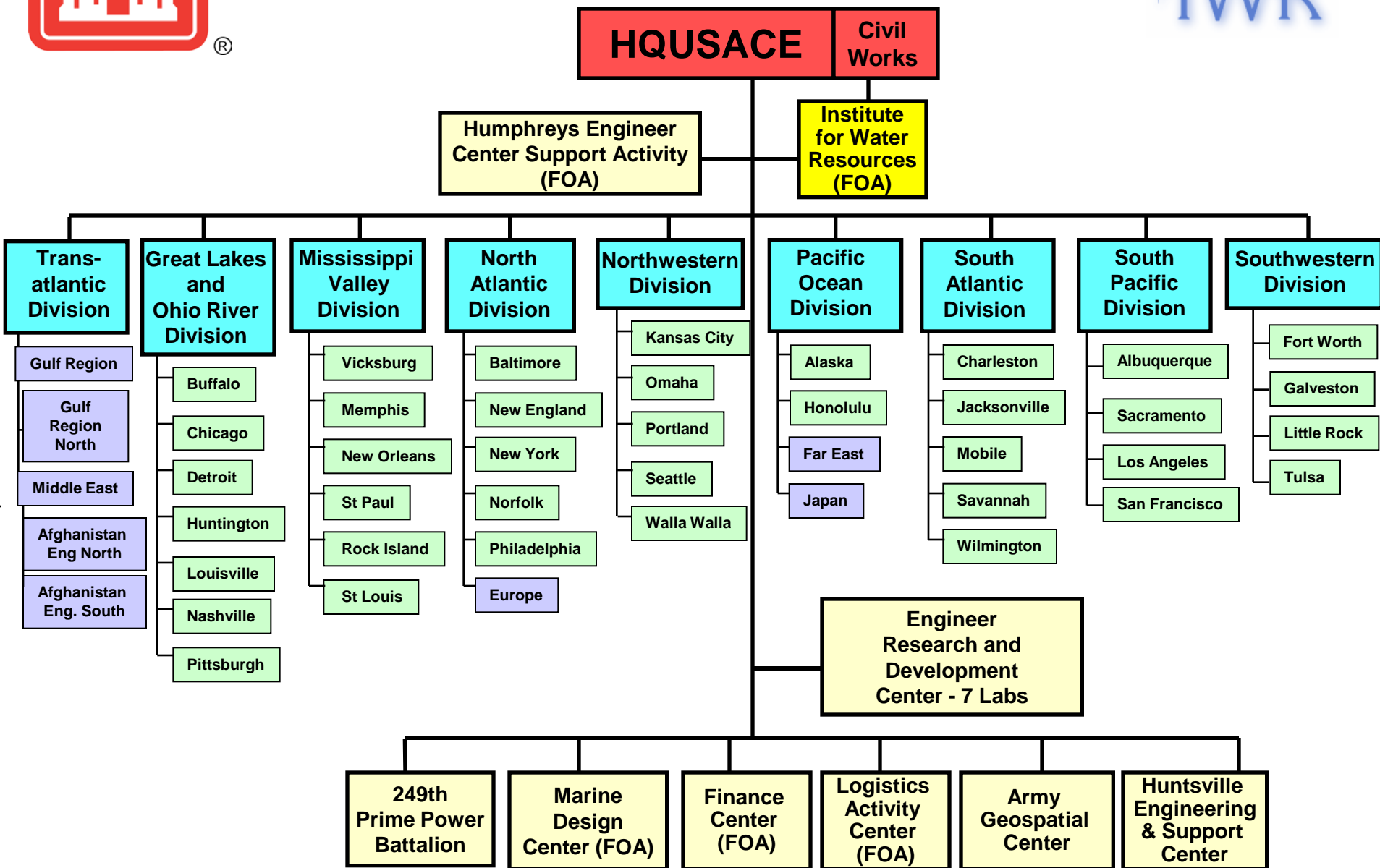
# *About IWR*



- **Established:** in 1969 to assist USACE in identifying emerging issues & adapting to the Nation's changing water resources needs.
- **FOA** – Physically & functionally distanced from HQUSACE by design
  - ✓ Business model – a CW asset - purpose is to facilitate execution of CW mission – ie. ultimately to serve the field practitioner
  - ✓ Offices at five locations, including:
    - Main Office – NCR, in Alexandria, VA, including
      - International Center for IWRM,
      - Conflict Resolution & Public Participation CX, and the
      - Navigation & CW Decision Support Center (NDC)
    - Waterborne Commerce Statistics Ctr (part of NDC) – New Orleans
    - Hydrologic Engineering Center – Davis, CA
    - Risk Management Center – Western Office in Golden, CO and Eastern office in Pittsburgh, PA
- **People:** ~ 270 FTE (FY15) - Permanent staff generally with specialized technical skills, most with advanced degrees.
- **Force Multiplier:** Highly Leveraged: ~ 65% work contracted or involving external teams, IPA's, visiting scholars or thru Interagency Agreements



# USACE Organization





# IWR MISSION



**To support USACE by: anticipating changes in national & international water resources conditions, and to develop, apply & infuse new CW planning evaluation, investment decision, conflict resolution, hydrologic engineering and water management, risk engineering, navigation and CW data, and program management policies, methods, tools and systems to address these needs.**

## ***In alignment with:***

- ***CIVIL WORKS STRATEGIC PLAN***  
– *focused on sustainability & integrated water resources mgt*
- ***Civil Works Transformation***
- ***USACE Campaign Plan***





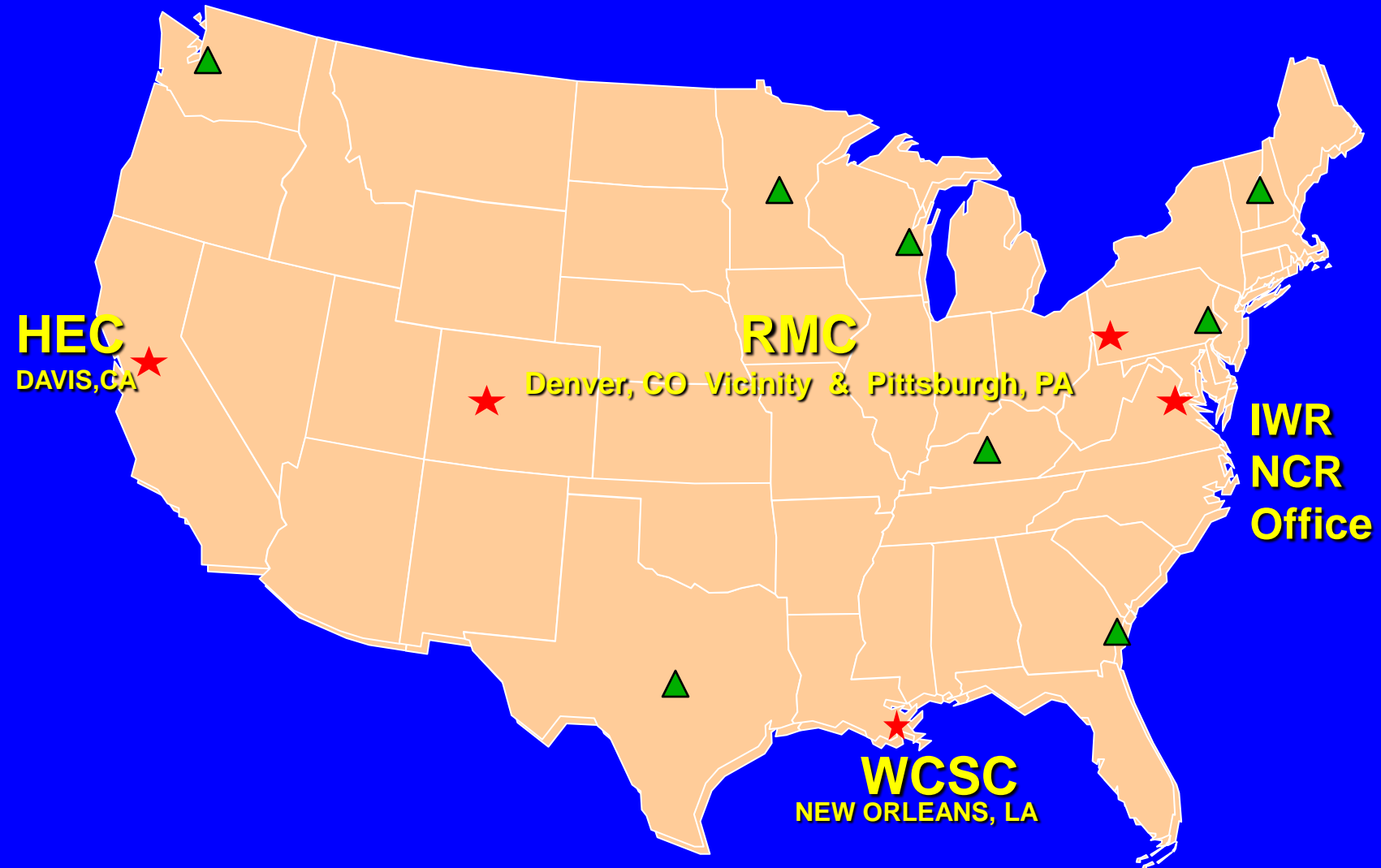


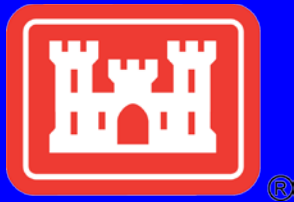
# *Emerging Issues & Challenges*





# ***IWR OFFICES***





# ***IWR WORKFORCE***



## **IN-HOUSE INTERDISCIPLINARY STAFF**

- **At Main Office, concentration of**
  - ✓ **Economists**
  - ✓ **Social Scientists**
  - ✓ **Planners**
  - ✓ **Physical Scientists**
  - ✓ **System Analysts**
- **Also including**
  - ✓ **Civil Engineers**
  - ✓ **Prog/Project Managers**
  - ✓ **Administrative Support**
- **HEC, Hydraulic Engineers**
- **RMC, Engineers**
- **WCSC, Statisticians**

## **EXTERNAL RESOURCES – FORCE MULTIPLIER**

- **Consulting Firms**
- **Intergovernmental Personnel (IPA'S)**
- **Details From Other USACE**
- **Army Interns**
- **Re-employed Annuitants**
- **OPM Presidential Mgt. Fellows**
- **Academia/Visiting Scholars**
- **Interagency Agreements**
- **NRC Research Associates**
- **Oak Ridge NL – ORISE Fellows**



# *An Evolving Focus... What's Influencing the Future of CW*



- 1) Focus on Sustainability – System / IWRM Perspective, Watershed Informed Budgets, Collaborative Planning
- 2) Federalism Shift: Diffused Water Leadership - other Fed agencies & States; i.e. parallel to DOI's alignment w/LCC's
- 3) Continuing need to Modernize CW Planning Program
- 4) Inevitable need to embrace contemporary concepts, ie. EGS
- 5) Increasing Competition for Water, particularly for Water Supply, and Environmental purposes, shaped by shifting demographics, nonstationarity & changing societal values
- 6) Aging Infrastructure, need for Recapitalization/End-of-Life Decision Process
- 7) System-Wide Risk Perspective Applied to Flood Risk Management
- 8) Climate Change Adaptation - Water-Food-Energy-Trans-Health Nexus
- 9) Opportunity: International Water Security & USACE OCONUS Missions
- 10) Globalization - Waterborne Trade Implications, Panama Canal Expansion
- 11) Post-Stimulus/Supplemental's Constrained Domestic Discretionary Funding
  - Need for Alternative Financing, Capital Stock Divestment, Market-Based Solutions
- 12) USACE Organization – Performance, Technical Capability, & Partnering





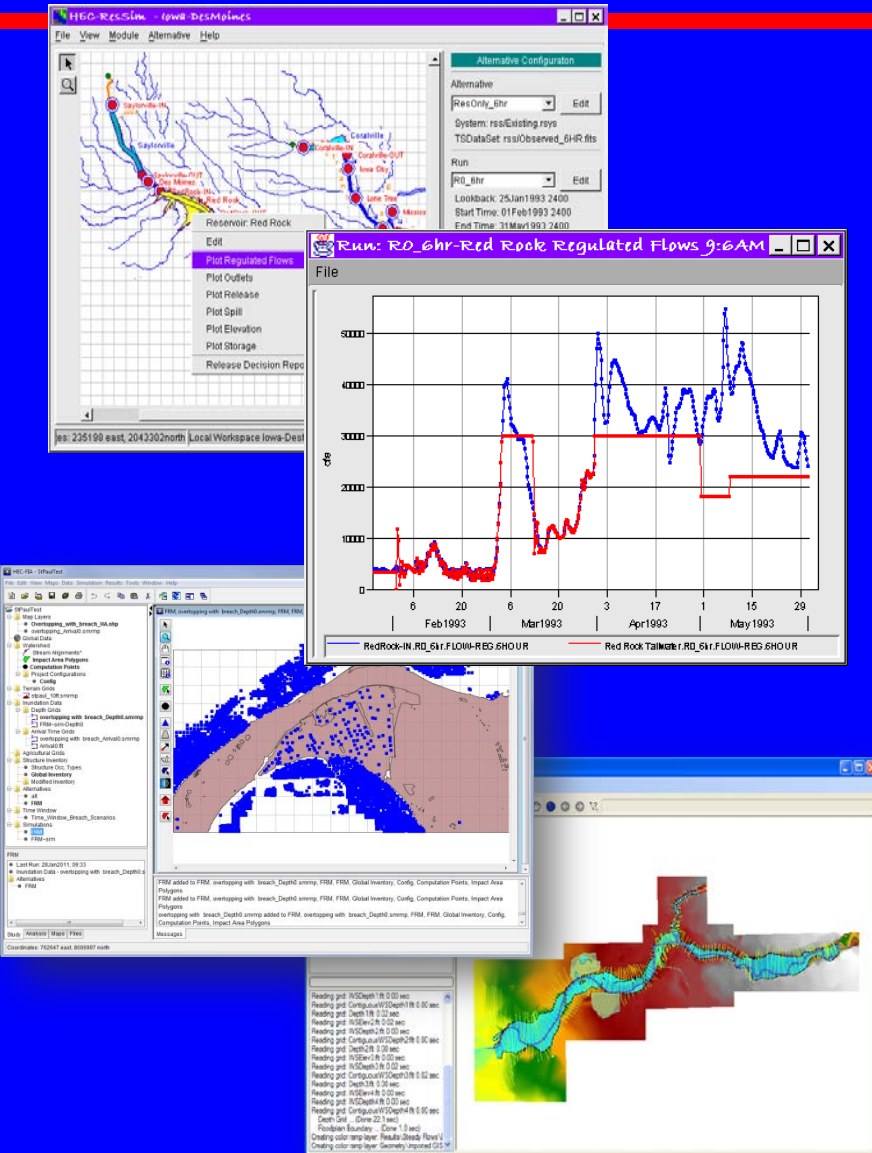
# *Risk Management Center*



- Manages National Dam and Levee Safety Program on behalf of HQUSACE
- Major Responsibilities: Program Management, Risk Assessment, Technical Review for E&C, and Technical Competency
- Accomplishments:
  - ✓ Avoided \$5.7 Billion in costs over 5 years
  - ✓ Reduced average study costs by 50% over last 3 years
  - ✓ Increased number of completed studies per year by 500% over last 3 years



# Hydrologic Engineering Center- HEC Engineering Software



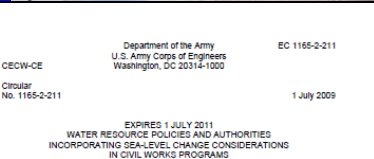
- ✓ Watershed hydrology
- ✓ Statistical software package
- ✓ River hydraulics
- ✓ Reservoir analysis
- ✓ Flood damage analysis
- ✓ Watershed assessment tool – systems analysis
- ✓ Ecosystem Functions
- ✓ Regime prescription tool
- ✓ Systems Integration: Corps Water Management System (CWMS)



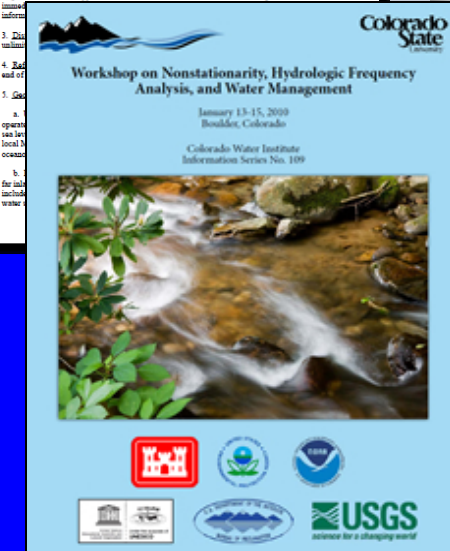
# USACE CW's Response to Climate Change Program



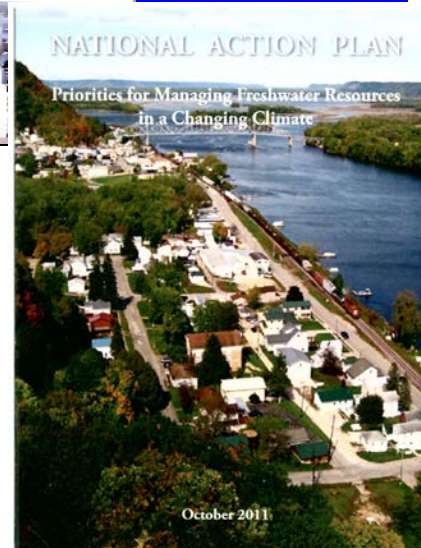
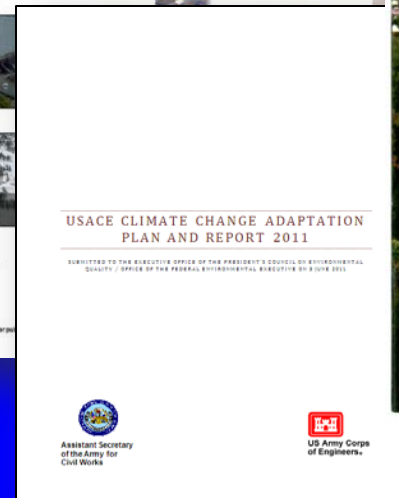
Developing and implementing nationally consistent, practical, and cost-effective approaches that reduce vulnerabilities to water infrastructure resulting from climate change and variability.



1. **Purpose:** This circular provides United States Army Corps of Engineers (USACE) guidance for incorporating the direct and indirect physical effects of projected future sea-level changes in managing, planning, engineering, designing, constructing, operating, and maintaining USACE projects and systems of projects. Recent climate research by the Intergovernmental Panel on Climate Change (IPCC) predicts continued or accelerated global warming for the 21st Century and possibly beyond, which will cause a continued or accelerated rise in global mean sea-level. Impacts to coastal and estuarine zones caused by sea-level change must be considered in all phases of Civil Works programs.
2. **Applicability:** This Circular applies to all USACE elements having Civil Works responsibilities and is applicable to all USACE Civil Works activities. This guidance is effective immediately.
3. **Dissemination:**

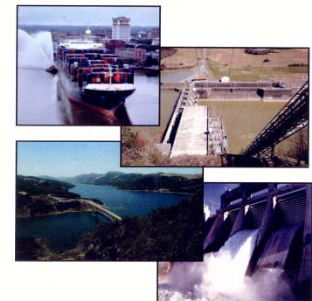


## Addressing Climate Change in Long-Term Water Resources Planning and Management



## Short-Term Water Management Decisions

User Needs for Improved Climate, Weather, and Hydrologic Information

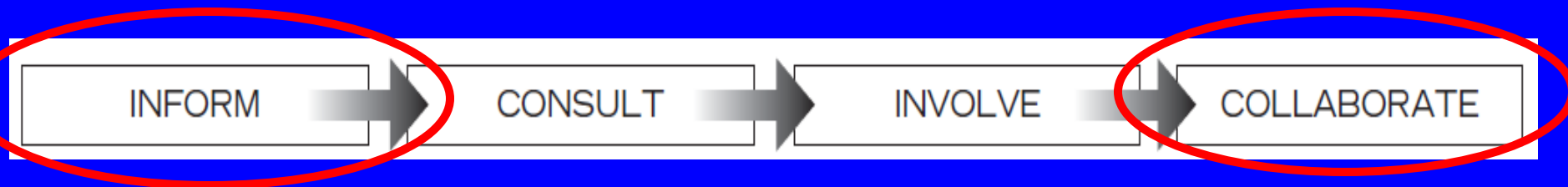


Program designed as intergovernmental collaboration w/other Federal agencies, other levels of government, academia, and stakeholders.



# *Conflict Resolution & Public Participation Expertise Center (CPCX)*

## *Reshaping Public Participation: Stakeholder Influence On Plan Formulation & Decision-making*



Provide parties with accurate and timely information about agency decision-making.

Keep parties informed & fully consider their concerns. Document how their input was considered

Communicate with parties to ensure that their concerns are addressed during the decision process

Work directly with parties seeking their advice & agreement.



**Move Public Involvement to the Right**



*Not just Public Meetings*





# *International Center for Integrated Water Resources Management (IWR - ICIWaRM)*



**Mission:** Advancement of the science and practice of IWRM to address water security and other water-related challenges around the globe.....within the framework of UNESCO's International Hydrological Program (IHP).



MG Don Riley, USACE DCG &  
Mr. Koichiro Matsuura,  
UNESCO Director-General



Technology transfer: hydrologic model training in Kenya & Ethiopia via the Combined Joint Task Force – Horn of Africa.

ICIWaRM facilitates USACE involvement in international water resources activities in association with the U.N.

Supporting the UNESCO's IHP global river basin network, which includes Iowa-Cedar Basin (Rock Island District involvement).



Sharing best planning practices developed by the Corps, such as Shared Vision Planning workshops for Peru & World Bank.



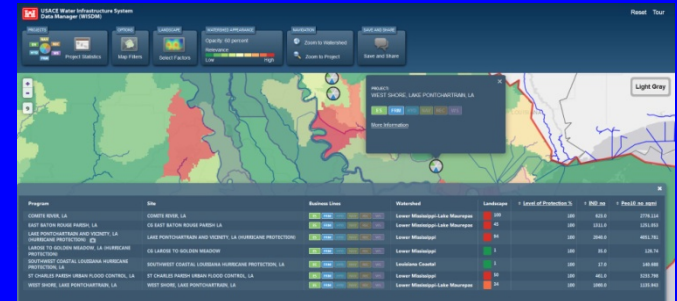




# *Navigation and Civil Works Decision Support Center*



- Data -> Information-> Knowledge-> Decision Support
- Existing Navigation Data
  - Waterborne Commerce Statistics Center (WCSC)
  - Lock Statistics
- Organizing and Analyzing Navigation and CW Data
  - Federal Initiative for Navigation Data Enhancement (FINDE)
  - River Information Services (RIS)
- Decision Support
  - Geospatial Display Tools





# ***Waterborne Commerce Statistics Center (WCSC)***



- **National Information Systems**
- **Data -> Information-> Knowledge-> Decision Support**
  - ✓ USG Agent for Collection & Management of U.S. Waterborne Commerce Statistics
  - ✓ Navigation Infrastructure Inventory
  - ✓ Lock Performance Monitoring System & Corps Locks Public Information
  - ✓ Dredging Information System
  - ✓ Vessel Characteristics





- **How?**

- Movement-based data
- Reported by vessel operators
- Began as an all-paper process
- tapes -> disks -> email -> ftp
- Data collected at LRH and WCSC in New Orleans
- Processing/coding of data is necessary



- **What information is collected?**

- Vessel name/number, O/D, commodity type, quantity, operator name



# Lock Statistics and Data

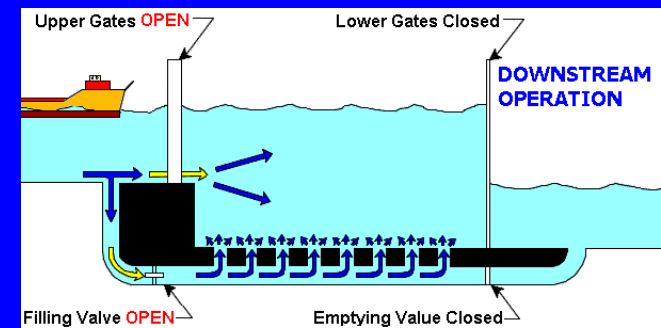


## • How?

- LPMS (Lock Performance Monitoring System)
- Data recorded by Lock Operators

## • What information is collected?

- Record for each lockage
  - Type & Date of Lockage
  - Times –Arrival, Start/End Lockage
  - Commodity and Tonnage
  - Direction of Travel
  - Vessel Number & Type
  - Flotilla Size & dimension of barges
- Time and reason for lock stoppages





# Corps Locks



<http://corpslocks.usace.army.mil>

The screenshot shows the 'Corps Locks - HOME' web page. At the top, there is a header with the US Army Corps of Engineers logo and the text 'US Army Corps of Engineers Lock Performance Monitoring System'. Below this is a welcome message: 'Welcome to Corps Locks!'. A paragraph of text explains that the website contains lock and vessel specific information derived from the United States Army Corps of Engineers Lock Performance Monitoring System (LPMS), representing a half-hourly updated snapshot of Freedom of Information Act (FOIA) data on U.S. flag vessels and foreign vessels operating in U.S. waterways. Below the text are six blue buttons arranged in two rows: 'Find a Vessel', 'Lock Queue Report', 'Lock Status Report', 'Tonnage Report', 'Data Web Services', and 'River at a Glance'. At the bottom of the page, there is a footer with social media icons (U.S. Army, YouTube, RSS, Facebook, MySpace, Twitter) and links for 'Accessibility', 'FOIA', 'Contact Us', 'Link Disclaimer', 'Privacy and Security', and 'Information Quality'.





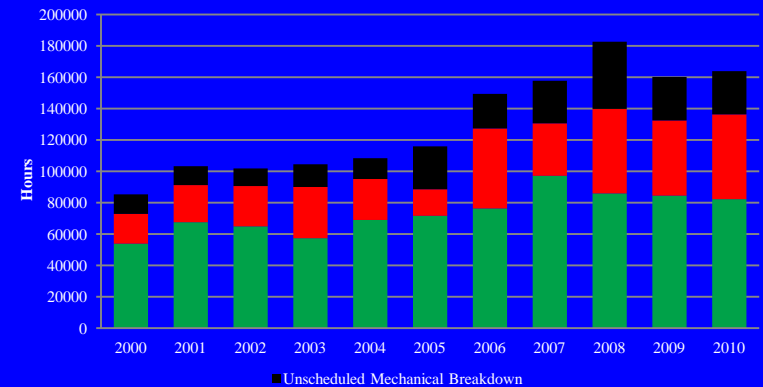
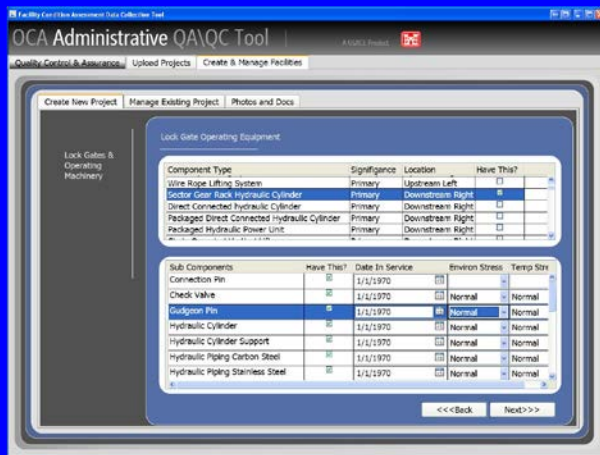
- One-stop shop for all your Navigation Data needs.
  - Waterway (Voyage Planning)
  - Vessel Traffic (Voyage Management)
  - Transportation Logistics
  - Support Services
  - Strategic Traffic



# Where are we Going?



Data -> Information-> Knowledge-> **Decision Support**





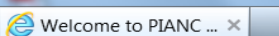
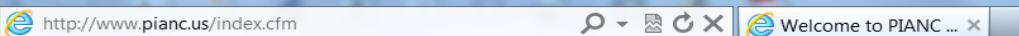



- Condition
- Performance
- Budget
- Integrated Decisions
- Value to the Nation


TABLE III-5						
Relative Risk Value Matrix						
Condition		Condition Classification				
Consequence Category	F	D	C	B	A	
	(Failed)	(Inadequate)	(Probably Inadequate)	(Probably Adequate)	(Adequate)	
	I	1	2	6	10	15
	II	3	5	9	14	19
	III	4	8	13	18	22
	IV	7	12	17	21	24
V	11	16	20	23	25	



# PIANC - USA








**PIANC USA**

Navigation Ports Waterways Environment



Working to advance the sustainable development of maritime and inland navigation infrastructure through the international exchange and publication of expert technical information on port and waterway development.

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Smart Rivers Registration Open

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PIANC USA Appoints New Technical Commission Members

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**Welcome**

Welcome to PIANC USA, the United States national section of the World Association for Waterborne Transport Infrastructure (PIANC). We are committed to fostering progress in all fields related to waterborne transportation. Since 1902, PIANC USA members have worked with experts from around the world to improve and support maritime and inland waterway and port development and management.

**Learn More About PIANC USA**

PIANC USA works with members from 40 other nations to address policy, engineering and environmental issues for the advancement of waterborne transportation.

★★★★

We are dedicated to port and waterway development and management, and we provide our members with outstanding professional benefits.

★★★★

Our members include engineers, scientists, economists, planners, dredgers, port operators, regulators, and marina and vessel owners.

★★★★

PIANC USA participates in research projects and information exchanges that study specific challenges and develop solutions to navigation issues.

★★★★





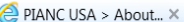




# PIANC USA

- U.S. has been a member of PIANC since 1902
- USACE provides Secretariat for the U.S. Section, housed at IWR
- ASA (CW) and DCG-CEO serve as Chair and President, respectively
- Anne Cann serves as Secretary; Kelly Barnes as Deputy Secretary



# http://www.pianc.us/index.cfm



http://www.pianc.us/abpiancusa.cfm

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Working Groups  
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## About PIANC USA

PIANC USA is a national section of PIANC, a worldwide non-political and non-profit technical and scientific organization established to promote both inland and maritime navigation by fostering progress in the planning, design, construction, improvement, maintenance and operation of inland and maritime waterways and ports and of coastal areas for general use.

PIANC USA was organized in 1902 with the U.S. Army Corps of Engineers (USACE) serving as the Secretariat. Membership is comprised of engineers, scientists, economists, planners, dredgers, port operators, regulators, and marina and vessel owners. The Assistant Secretary of the Army (Civil Works) and the USACE Deputy Commanding General for Civil and Emergency Operations serve as liaisons to the U.S. National Commission.

U.S. Section members, including government organizations, the private sector and individuals, work together with 40 other nations to address a broad range of policy, engineering and environmental issues for the advancement of waterborne transportation.

## Networking

PIANC USA provides opportunities for members to connect with a domestic and international community of technical professionals. Members meet to exchange information, build business contacts and develop professional relationships.

## Conferences & Workshops

PIANC USA organizes conferences, seminars and workshops to disseminate the latest engineering, scientific and economic advancements in the field of inland and maritime navigation and ports. Technical professionals from around the world gather to network, present and publish papers, and gain knowledge at PIANC World Congresses, PIANC USA Annual Meetings, and technical specialty conferences such as Smart Rivers in 2007 and Ports™ (co-sponsored with the American Society of Civil Engineers). Visit the [PIANC USA upcoming events page](#) for information about current and recent conferences and annual meetings.

## Young Professionals

PIANC USA provides opportunities for training and development of [Young Professionals](#) (members 40 years of age and under). The goal is to provide value to students and professionals in the early years of their career by giving young professionals awards for technical papers, positions on working groups, and hosting cultural and professional exchanges.

## Working Groups

PIANC USA participates in PIANC International Technical [Working Groups](#), comprised of experts from member countries who gather, analyze and consolidate state-of-the-practice solutions from each country. The resulting reports are published and distributed to each PIANC member. Members gain international recognition through working group participation.

## PIANC USA Rules and Regulations

[Rules and Regulations \(pdf, 100 KB\)](#)

[Networking](#)  
[Conferences and Workshops](#)  
[Young Professionals](#)  
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★★★★



# 2015/2016 Activities

- PIANC Council Meeting 8 September, and SmartRivers conference 9-11 September 2015, Buenos Aires, Argentina
- PIANC USA Commissioners' Meeting 19 October and Dredging 2015 Conference 19-22 October 2015 in Savannah, GA
- PIANC USA Commissioners' Meeting – January 2016 – likely in Washington, DC
- AGA in Bruges, Belgium, May 2016
- PORTS 2016, 12-15 June 2016 in New Orleans, LA

# REGISTER TODAY!

## *Dredging 2015 Conference - Moving and Managing Sediments*



COASTS, OCEANS,  
PORTS AND RIVERS  
INSTITUTE

October 19-22, 2015 Savannah, Georgia  
Hyatt Regency

- in Savannah, Georgia, October 19-22, 2015, at the Hyatt Regency on the riverfront in the Downtown Historic District. Organizers expect more than
- 500 dredging experts from around the world to gather at this technical specialty conference. The format will be very similar to the 2012
- Conference in San Diego, with plenary sessions, concurrent technical sessions, short courses, tours, and a large industry exhibit hall.
- *"More than 200 of the top dredging experts in the world will be presenting technical talks at the conference on more than a dozen major topics ranging from dredged material management, to regulatory challenges, to working with nature,"* Conference Chair Stephen Garbaciak Jr., PE, Anchor QEA, LLC.

- Register Today at <http://pianc.sites.usa.gov/>



<http://www.iwr.usace.army.mil/>





# Institute for Water Resources



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### Collaboration and Discussion with Chinese ILVP Delegation on Water Resource Management

On August 28, 2014, the National Capitol Region office of IWR hosted an information and collaboration session for four Chinese participants in the US Department of State's International Visitor Leadership Program (IVLP)—Dr. Liangang Chen, Ms. Yanyan Ma, Ms. Shanshan Xi, and Mr. Xingpi...

[Story](#)



### Hydrologic Engineering Center



### Navigation and Civil Works Decision Support Center



### Risk Management Center



### Conflict Resolution and Public Participation Center of Expertise



### International Center for Integrated Water Resources Management



### Waterborne Commerce Statistics Center

#### Inside the Institute



**PIANC USA**



**SILVER JACKETS**  
Many Agencies One Solution



**RESPONSES TO CLIMATE CHANGE**



**NATIONAL FLOOD RISK MANAGEMENT**



**Corps Risk Analysis Gateway**



**Shared Vision Planning**



**WATER RESOURCES Training and Education**



**ICIWARM**



**NATIONAL WATER RESEARCH INSTITUTE**

#### Latest Stories

**USACE Participates in the ACES (A Community of Ecosystem Services) 2014 Conference**  
From 2-12 December, 2014, USACE participated in the biannual ACES (A Community of Ecosystem Services) 2014 Conference. Published: 2/3/2015

**Tennessee Region and Ohio Region Climate Change and Hydrology Literature Syntheses Released**  
ALEXANDRIA, VIRGINIA. The U.S. Army Corps of Engineers (USACE) is increasingly considering potential climate change impacts on water resources. Published: 1/30/2015

**Chief of Engineers Visits the Institute for Water Resources**  
ALEXANDRIA, VIRGINIA. Lieutenant General Thomas P. Bostick, Commanding General (CG) for USACE and Chief of Engineers, visited the Institute for Water Resources (IWR) on January 28, 2015. Published: 1/28/2015



*Thank You*

