

USACE Civil Works Strategy and IOOS

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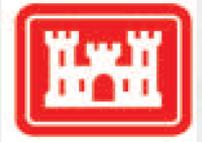
Director of Civil Works, U.S. Army Corps
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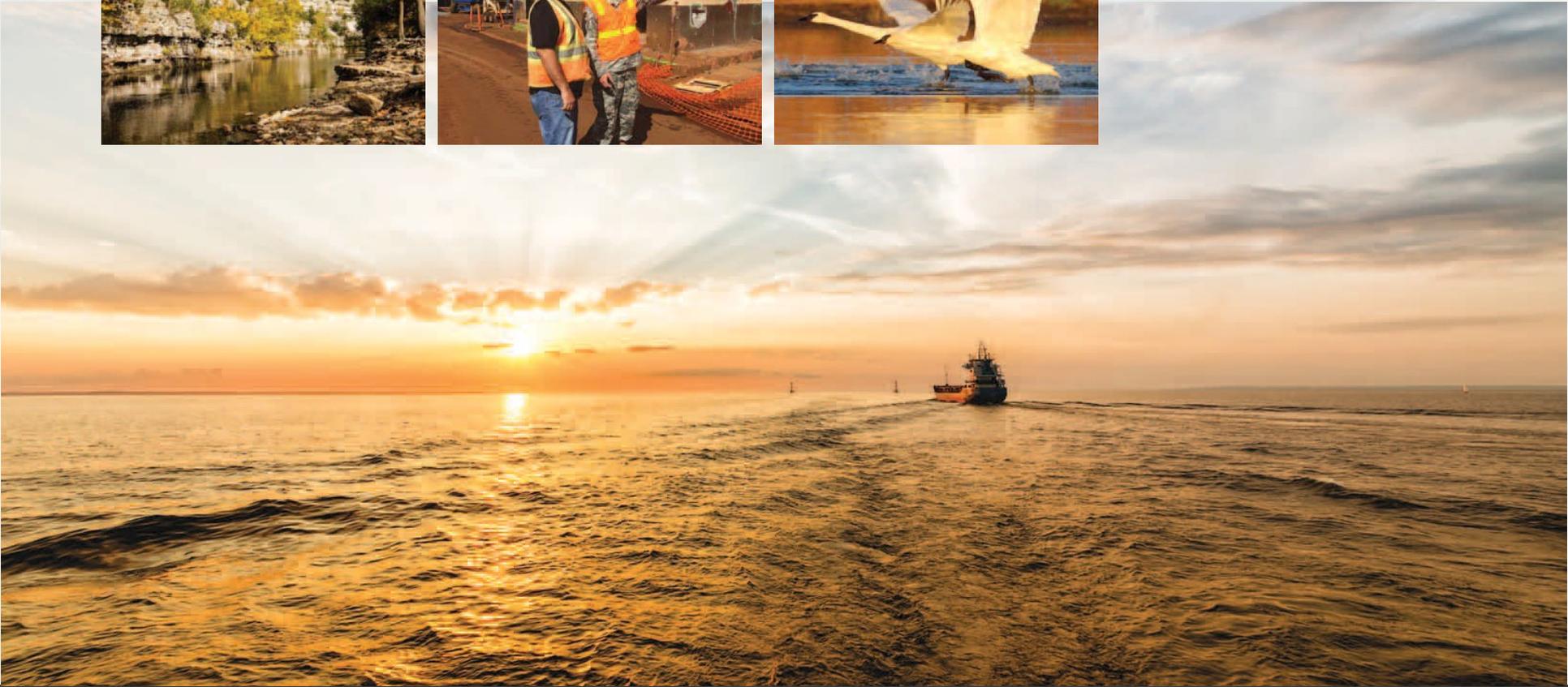


Sustainable Solutions

To America's Water Resource Needs
Civil Works Strategic Plan 2014-2018



US Army Corps of Engineers®



USACE Civil Works Vision

Contribute to the strength of the Nation through innovative and environmentally sustainable solutions to the Nation's water resources challenges



Overarching Strategy:

Integrated Water Resources Management

- A holistic focus on water resource challenges and opportunities that reflects coordinated development and management of water and related resources.
- IWRM considers economic benefits, ecosystem quality and health and public safety in project formulation.



Cross-Cutting Strategies

Systems Approach



Collaboration & Partnering



You have a 1% chance of flooding this deep from hurricanes in the Lower 9th Ward / Arabi



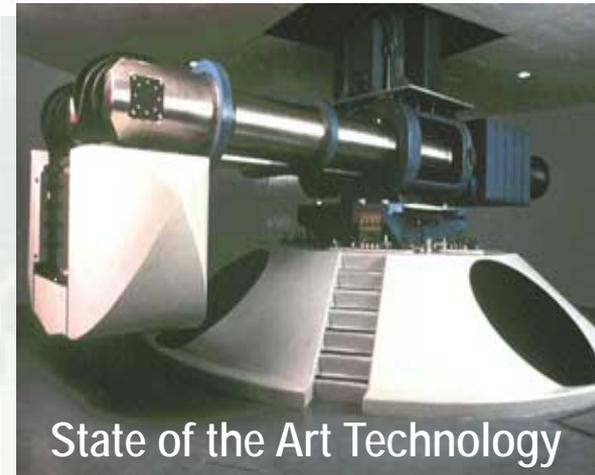
Innovative Financing



Adaptive Management



State of the Art Technology



Strategic Directions

Information that Shapes our Future

Strategic Documents

New R&D Strategy, FY15-20

CW Transformation

CW R&D Overarching strategy
 Provide **state-of-the-art technology** through innovative science and **strategic collaboration and partnering** in support of Integrated Water Resources Management

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USACE Infrastructure Strategy

Resilience Strategy

- CW R&D Goals:**
- **Anticipate** and address R&D to improve the scientific understanding and delivery of exceptional engineering technologies
 - **Create** sustainable, adaptive, cost-effective and integrated solutions
 - **Deliver** new science and engineering technologies into practice
 - **Maintain** scientific and technological resources through training, guidance and technical support



Transform Civil Works

Deliver enduring & essential water resource solutions by applying effective transformation strategies.



Improve Infrastructure Safety & Resilience

- Reduce the Nation's risk and increase resilience to disasters
- Support the Department of Homeland Security/Federal Emergency Management Agency to provide lifecycle public works and engineering support in response to disasters
- Effectively and efficiently execute response, recovery, and mitigation



Facilitate Transportation on Coastal Channels & Inland Waterways

- Facilitate commercial navigation by providing safe, reliable, highly cost-effective and environmentally sustainable waterborne transportation systems



Protect & Manage Aquatic Ecosystems

- Restore aquatic habitat to a more natural condition in ecosystems in which structure, function, and dynamic processes have been degraded
- Reduce adverse impacts to the Nation's wetlands and waterways through an effective, transparent, and efficient Regulatory process
- Clean up radioactive waste sites
- Manage, conserve, and preserve natural resources at USACE projects.
- Provide opportunities for quality outdoor public recreation.



Life Cycle Portfolio Management

- Support the Nation and the Army in achieving our energy security and sustainability goals
- Capitalize, recapitalize, operate and maintain water resources infrastructure to provide maximum value to the Nation.
- Provide reliable, renewable, hydropower to the Nation
- Provide water supply storage in partnership with state and local interests.



Infrastructure Strategy: Alternative Financing

- We are trying to think creatively about our approach to project financing and delivery
- Two national infrastructure challenges we are trying to address through alternative financing
 - ▶ For existing infrastructure, sustain performance, extend service life, and/or buy down risk for the Nation
 - ▶ Accelerate delivery of new infrastructure to reduce life cycle costs and achieve earlier accrual of project benefits to the Nation
- **Value associated with CW infrastructure to the economy, commerce, environment, and job creation:**
 - ▶ CW portfolio of over 3,000 infrastructure assets, with capital stock value of approx \$190B
 - ▶ Is experiencing negative performance trends (unscheduled lock outages, lower peak hydropower avail, climate change, etc.)



Alternative Financing: Public Private Partnerships (P3s)

- **Demonstration projects** explore potential to apply P3 within **existing authority** as another delivery tool
 - ▶ Examine P3 applicability in different project contexts and the extent to which national infrastructure needs can be filled within existing authority
- The diversity of projects in the Civil Works program typically requires unique solution sets for different asset types
 - A P3 structure that works for an FRM project will be different than that for a navigation system, and both will be different yet from a hydropower application
- In some cases we are developing a P4 type structure - with USACE and a Non-Federal entity partnering with the private sector to execute a project



Environmental RD&T Strategic Needs & Priorities

- Establish & Incorporate Ecosystem Goods & Services in Corps Planning and Environmental Benefits Evaluation
- Characterize Physical, Chemical and Biological Variations Affecting Degradation in Coastal Environments
- Improve Capabilities to Design and Implement Aquatic Ecosystem Restoration in Urban Settings
- Optimize Management of T&E and Invasive Species
- Deliver sound engineering and scientific solutions that meet Planning Modernization guidelines



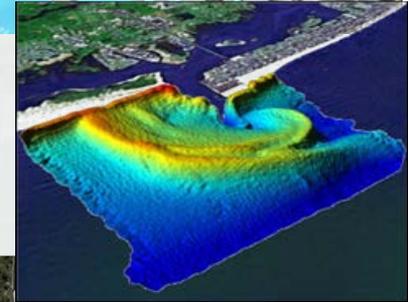
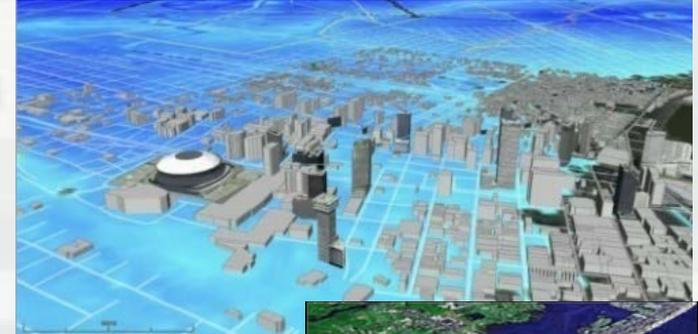
Navigation RD&T Strategic Needs & Priorities

- Extend the useful life of existing navigation infrastructure
- Operate and manage national waterborne transportation assets as an integrated system
- Optimize and prioritize channel availability for commercial freight movement
- Engineering with nature to enhance ecosystem and project processes, benefits and services
- Implement eNavigation throughout the National MTS
- Deliver sound engineering and scientific solutions to align with the Planning Modernization initiative



Flood & Coastal RD&T Strategic Needs & Priorities

- Determine Risk & Uncertainty for Project Alternatives Evaluation & Performance
- Optimize Management of Coastal & Estuarine Resources
- Assess Comprehensive & Multidisciplinary Management of Urbanized Watersheds
- Improve Flood Risk Management & Water Control Infrastructure Resiliency & Reliability
- Engineering with nature to enhance ecosystem and water resources processes, benefits and services
- Deliver sound engineering and scientific solutions that meet Planning Modernization guidelines



USACE Significant Activities

IOOS Committees/Participation

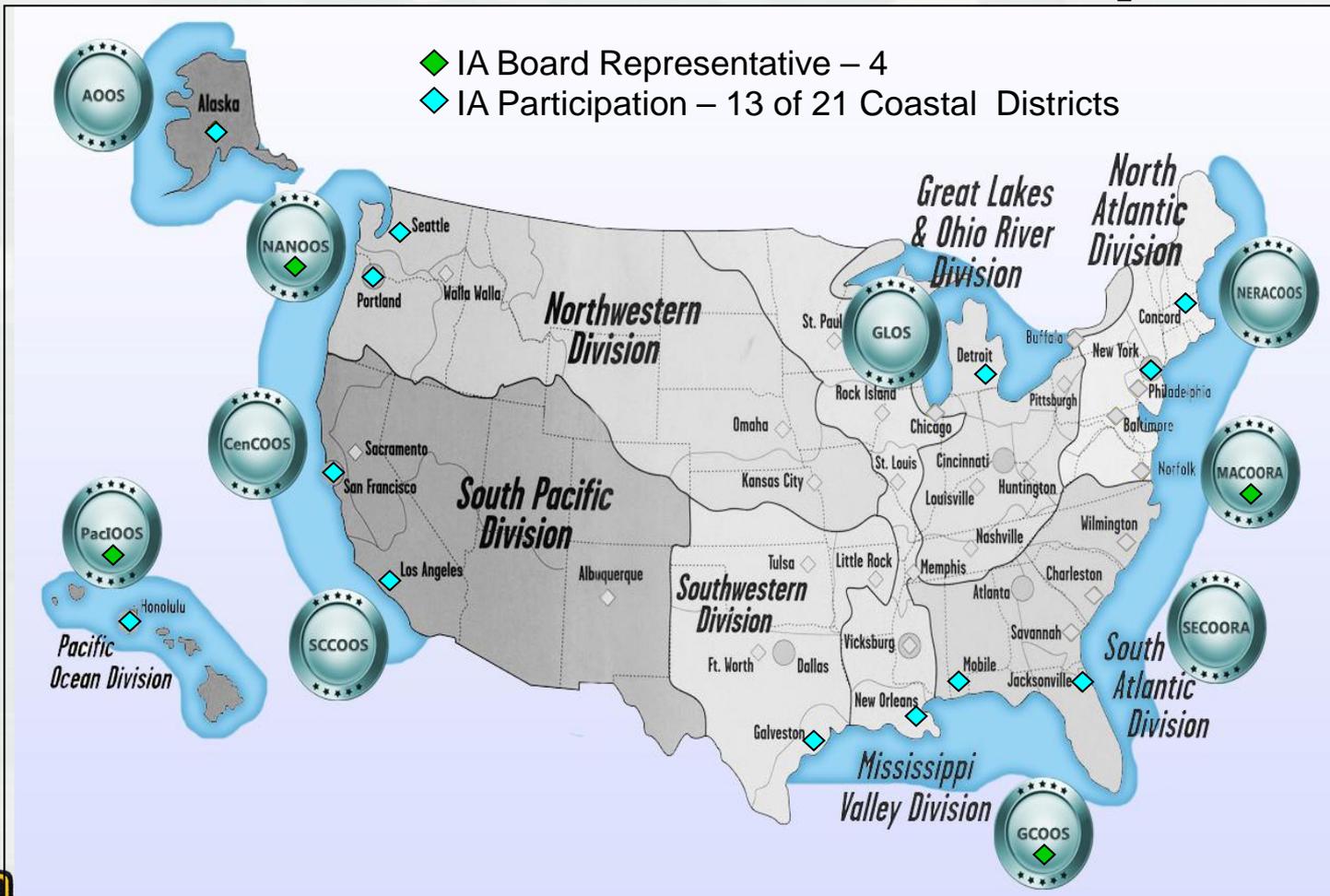
- **Lead: National wave data collection through partnership w/Coastal Data Information Program (Scripps) since 1977**
- **Co-Chair Interagency Working Group Ocean and Coastal Mapping (IWG-OCM)**

IOOS/IOOC Teams

- **Data Management & Communications DMAC Steering Team**
- **DMAC Working Group**
- **Reference Implementation Workgroup**
- **Quality Assurance of Real-Time Ocean Data - QUARTOD BOA**
- **QUARTOD Temperature and Salinity Committee**
- **Numerical Modeling Strategy Team**
- **Puerto Rico Numerical Modeling Testbed Team**
- **Animal Telemetry Network Steering Committee**
 - **Biological Integration and Observation Task Team**
 - **IOOS Summit Steering Team**



IOOS Associations & USACE District Participation



USACE Needs From IOOS

- **Greater Participation From Other Federal Agencies**
 - Identify Agency needs and contributions
 - Reach beyond IOOC into organizations for participation
 - Establish virtual IOOS liaisons – networking
- **Expand DMAC Participation to Other Federal Agencies**
- **More IOOS Association – Federal Agency Interaction**
- **Expand IOOS Data Variables to Meet USACE needs**
 - Coastal (nearshore) - waves, water-levels, winds, currents, bathymetry, sediment properties/transport
 - Environmental - endangered species, ecosystem restoration, environmental assessments, habitat, land use
- **Integrated Federal Agency Numerical Models**
- **Integrate JALBTCX Data and Products into IOOS Catalogue and Products**



Discussion

