

# The Army Civil Works Program: Meeting America's Water Resources Challenges

National Dredging Meeting

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US Army Corps of Engineers  
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## U.S. Army Civil Works Program

Preserving the Strength of the Nation

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

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



Lock and Dam 15 ( Mississippi River )

**(\$1.746 B) Navigation (32%)**



Dredge ESSAYONS ( Coos Bay, OR )

**(\$1.865 B) Flood Risk (34%)  
Management**



Flood Wall ( Williamson, KY )

**(\$940 M) Ecosystem (18%)  
Restoration & Infrastructure**



Lake Seminole ( Mobile District )

**(\$211 M) Hydropower (4%)**

**(\$284 M) Recreation & Natural (5%)  
Resource Management**



Everglades

**(\$190 M) Regulatory Program: (3%)  
Wetlands & Waterways**



Bonneville II Powerhouse ( Washington )

**(\$14 M) Disaster Preparedness (<1%)  
& Response**

**(\$5 M) Water Supply (<1%)**

(FY 2010 Appropriation)

# Civil Works Value to the Nation

3% of Nation's Electricity: \$800 M+ in sales

Stewardship of 11.7 M Acres Public Lands

926 Harbors

12,000 miles of Commercial Inland Waterways

400 miles of Shoreline Protection

50% cost of Rail; 10% cost of Trucks

11,750 miles of Levees

Environmental Restoration

Recreation Areas 370 M visitors / yr

Generate \$16 B + 500 K jobs

Emergency Responses

72,000 Regulatory Permits

- US Ports and Waterways convey >2B Tons of Commerce
- Foreign Trade alone creates >\$160 B in Tax Revenues

3

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# National Water Resource Challenges

Climate Change

Governance  
Federal Budget  
Legislative Changes

Demographic Shifts

Energy

Increasing Demand for Water

Persistent Conflict

Aging Infrastructure

Declining Biodiversity

Environmental Values

Globalization

Disaster Preparedness and Response

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# Harbor Deepening Challenges

## *Future Trade Volumes and Vessels*

- **Study Process:** Difficult and lengthy process to study, design, authorize and appropriate funds for channel improvements;
- **Funding:** Uncertainty associated with annual federal appropriation process for projects underway;
- **Dredging:** Escalating costs of dredging, dredged material placement, and associated environmental mitigation activities;
- **Handling Facilities and Space:** Need for vastly expanded cargo handling facilities and improved intermodal connections, coupled with limitations on port expansion and encroachment of other land uses on port facilities.



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# Coastal Marine Transportation System

- Value of all foreign trade represents nearly 30% of Nation's GDP
- Overseas waterborne trade
  - 95% of overseas trade by volume
  - 75% of overseas trade by value
  - 16 million jobs
- Over \$2.3 trillion in economic activity
- Many coastal ports nearing capacity
- Cargo volumes projected to double by 2025
- A generation behind in channel design
- Capacity constraints increase transportation costs, pollution, congestion



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# Coastal Navigation Inventory

**Total: almost 1100 projects**

High Use (10 M Tons +)

**59 projects**

Moderate Use (1-10 M Tons)

**100 projects**

Base (Less than 1 M Tons)

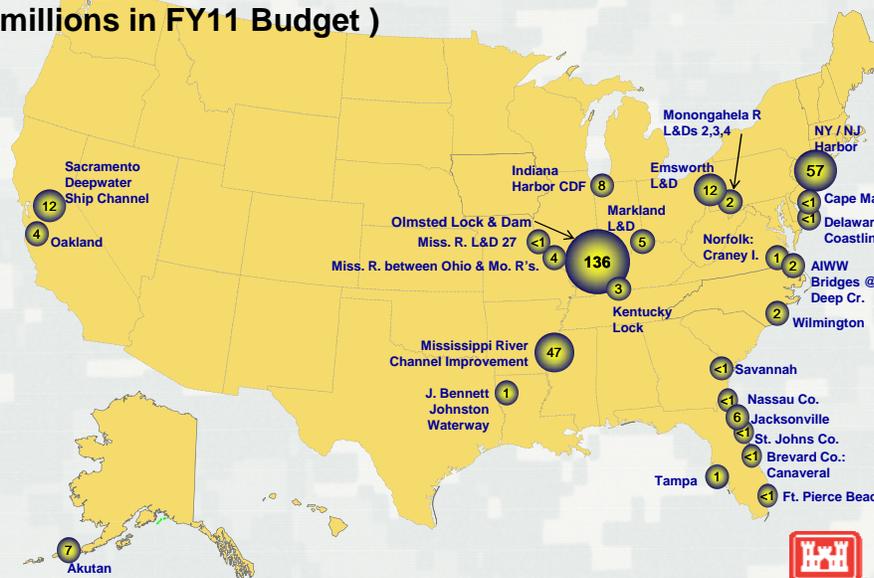
**950 projects**



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# Navigation Construction Projects

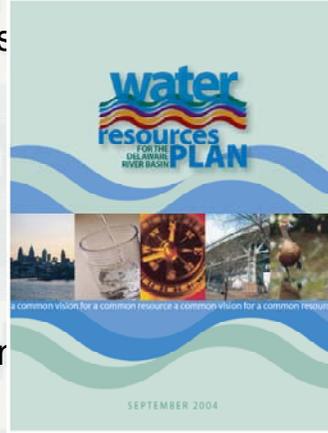
(\$ millions in FY11 Budget )



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## Systems Approach

- Look at river basins, watersheds and coastal zones as a whole
- Shift focus from individual projects to interdependent system
- Shift from immediate to long-term solutions
- Recognize that any single action triggers one or more responses and reactions in other parts of the system



## Collaboration & Partnering

- Allow multiple organizations to contribute to problem-solving
- Improve communications and cooperation
- Listen to partner's needs
- Leverage funding, data and talent
  - Efficiencies, given scarce resources
  - Work towards common objectives
  - Meet commitments
  - Team work the key to success



# Adaptive Management



- Principle commonly used in ecosystem restoration
- Measure responses to interventions within systems to adjust planning, construction and operations in response to changing conditions.



## ***Principles & Guidelines Revision: Water Resources Projects Should:***

- I. Promote economic development;
- II. Preserve and restore ecosystem functions and services;
- III. Promote wise use of floodplains and flood-prone areas;
- IV. Use a watershed approach;
- V. Use best available practices, analytical techniques, procedures and tools;
- VI. Use a planning process with a level of detail commensurate with the investment level and type of the study;
- VII. Account for benefits and costs in appropriate monetary and non-monetary terms;
- VIII. Account for significant effects and mitigate any unavoidable impacts to ecosystem functions and services;
- IX. Address risk and uncertainty;
- X. Address public safety;
- XI. Ensure the planning process is fully transparent; and
- XII. Promote collaboration.



## Regional Sediment Management

- Treat dredged material as a resource and manage it for as such
- Develop and use regional and watershed management sediment strategies
  - Work with others develop and implement them
- Integrate environmental sustainability into our planning, operations and maintenance activities
- Develop proactive management tools



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## Environmental Windows

- Restrict dredging to a certain time period to avoid detrimental impacts
- Pervasive as a dredging project management practice
- Unfortunately, most windows not based on rigorous science
- Compliance with windows inflates cost of dredging, greatly complicates contract schedules
- Conflicts exacerbated when windows apply to Threatened & Endangered Species



## Environmental Windows

Research seeks to improve protection of sea turtles, sturgeon, shorebirds

- Efforts underway to identify and demonstrate effective alternative management practices
  - e.g., improved sea turtle deflectors, rescue trawling methods, bed leveler designs
  - e.g., sturgeon detection and entrainment risk reduction methods
  - e.g., strategies to manage habitat of Interior Least Tern and Piping Plover



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## Environmental Windows

- Progress toward objective, science-based windows requires extensive coordination with state and Federal agencies and NGOs
- Regional partnerships can fill knowledge gaps related to sea turtle, sturgeon and bird recovery plans
- Quantifying performance of alternative management practices to environmental windows is challenging but necessary
- Need exists for risk-informed decision making frameworks for negotiating windows



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## Navigation R&D

- Dredging Operations and Environmental Research
- Regional Sediment Management Demo
- Monitoring Completed Navigation Projects
- Navigation Systems
- Coastal Inlets Research Program
- Coastal Zone Mapping and Imaging LIDAR
- Navigation Economic Technologies
- Dredging Operations Technical Support



<http://operations.usace.army.mil/navigation.cfm>



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## Corps Water Resources Priorities – FY10

- Transforming the Corps Civil Works Program to meet 21<sup>st</sup> Century needs
- Flood Risk Management
- Contingency Planning & Disaster Response
- Integrated Water Resources Management - Watersheds & Systems
- Knowledge Management
- Asset Management & Infrastructure Recapitalization
- Section 404 CWA Regulatory Program



# Discussion



## A Federal Support Toolbox

- Leverage existing toolbox of current resources across Federal agencies
- Enhance the Federal family toolbox with regional interstate organizations, NGOs and other Federal agencies
- Develop the Nation's "will" to offer the States a more robust assistance through collaborative alliances and relationships
- Work with States for more integrated and balanced water plans
- Unify visions for Administration and Congress to determine that water resources planning and infrastructure are national priorities



## Future Directions

- Integrated Water Resources Management
- Sustainable Solutions to America's Water Resource Needs
- Climate Change
- Committee on the Marine Transportation System (CMTS)



21

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## Trends To Watch

- **Continuing Pressure on Budget**
  - Entitlement Programs (Medicare, Medicaid, Social Security)
  - Interest on the National Debt
- **Cost of Infrastructure Recapitalization**
  - Improved Inspection Techniques
  - Modern Design Standards
  - Cost of meeting ESA and other legal requirements
- **Cost of Construction Inflating Faster than CPI**
  - Fuel, Steel, Concrete
  - Expanding worldwide demand



22

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