

ECOSYSTEM RESTORATION AND THE US ARMY CORPS OF ENGINEERS IN A CHANGING “CLIMATE”- A NATIONAL PERSPECTIVE

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Willamette River, OR
circa 1980



"If you want to view paradise,
simply look around and view it.
Anything you want to do, do it.

Want to change the world?
There's nothing to it."

- Gene Wilder, as Willy Wonka, 1933-2016



OVERVIEW

- USACE 101 (what we do and how)
- USACE Restoration Program and Projects, trends (uh oh...)
- National “Climate” (what the heck is happening??)
- Looking forward (really, there’s hope!)
- How can WE get things done??



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USACE- SECURING OUR NATION'S FUTURE THROUGH WATER



Navigation - Commerce, Intn'l Markets, Trade

USACE Operates 24,000 miles of Commercial Waterways; Generates \$18 B / 500,000 Jobs Annually; Supports 20% of US Jobs, 1/3 of GDP; Transportation = Decisive US Competitive Advantage

Flood and Disaster Risk Reduction

USACE Prevents > \$9 in Flood Damages per \$1 Invested; 14,700 Miles Levee → 12,700 Miles = Local O&M; 700+ USACE Dams vs 87,000 National Inventory of Dams

Environment - Ecosystem Restoration and Environmental Stewardship

Hydropower - Inexpensive, Sustainable

USACE is the Nation's Largest Renewable Energy Producer 25% of US Hydropower, 3% of Total US Electricity

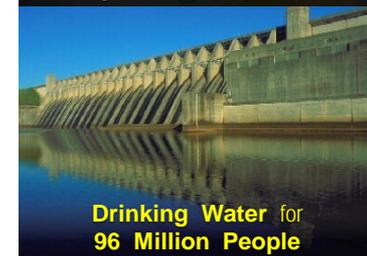
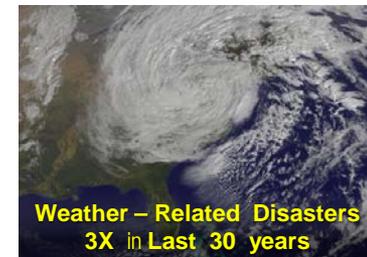
Drinking Water/Water Supply

USACE Produces 6.5 Billion Gallons per Day

Quality of Life – Local Economic Engines

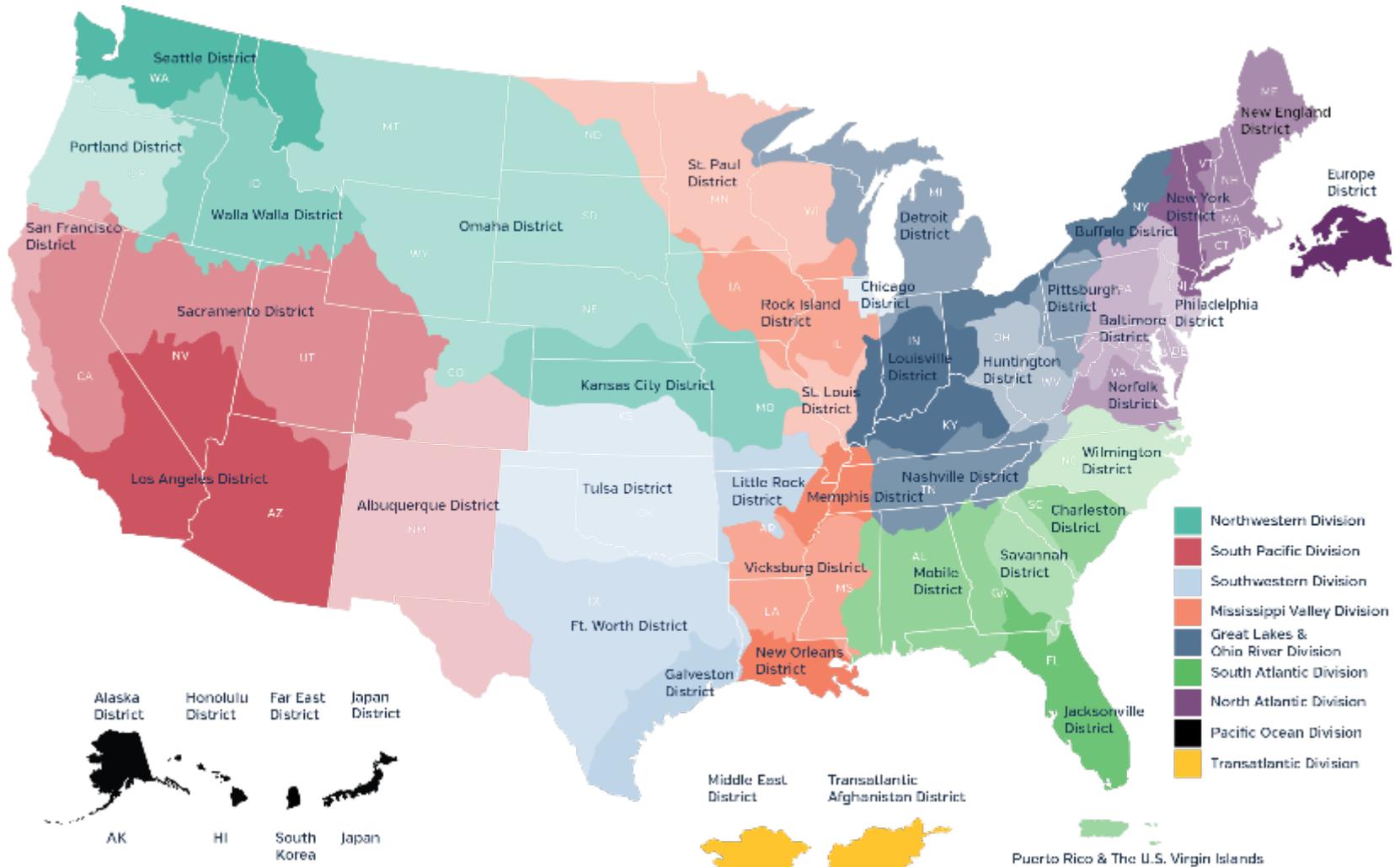
USACE is the No. 1 Federal Provider of Outdoor Recreation, Contributing > \$16 B to Local Economies

Disaster Preparation/Response; Regulatory



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USACE DISTRICTS AND DIVISIONS



- Northwestern Division
- South Pacific Division
- Southwestern Division
- Mississippi Valley Division
- Great Lakes & Ohio River Division
- South Atlantic Division
- North Atlantic Division
- Pacific Ocean Division
- Transatlantic Division



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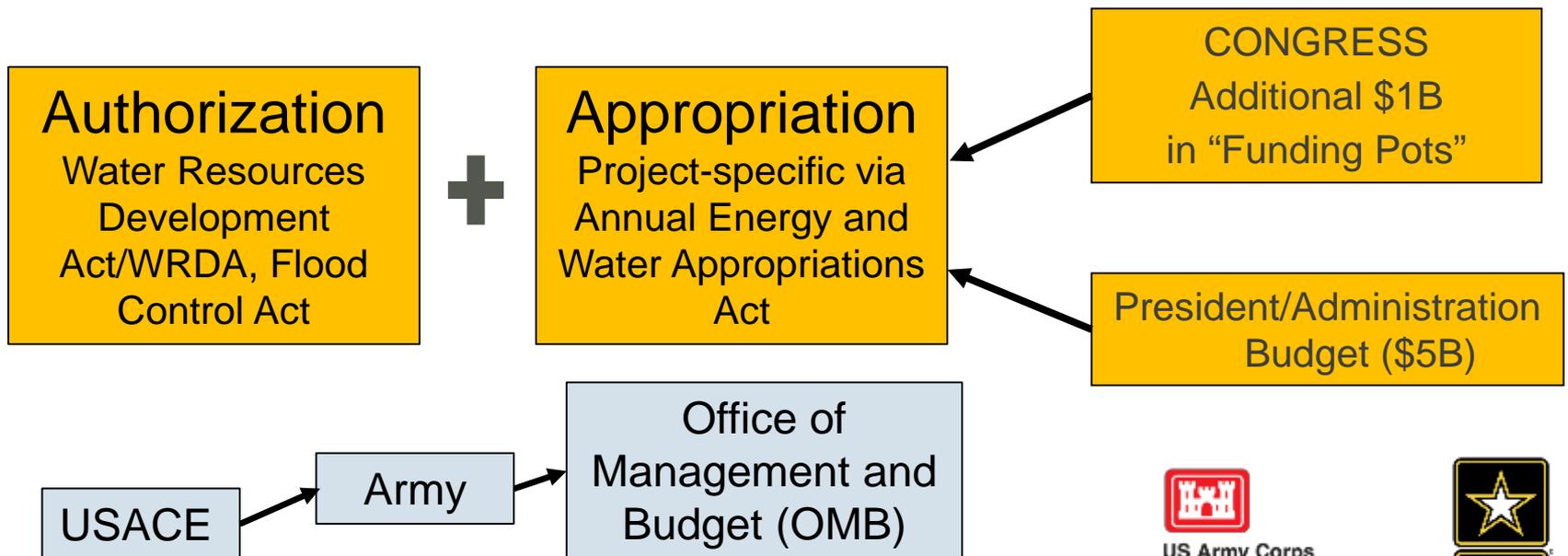


USACE 101

Typical Project Lifecycle

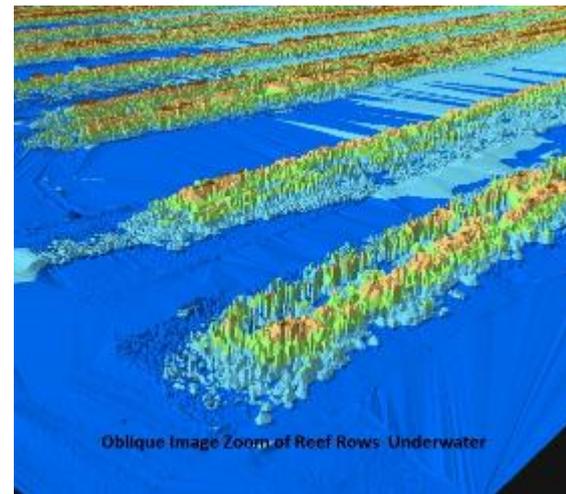


Need funding, annual appropriations AT EVERY STEP



USACE DEFINITION OF ECOSYSTEM RESTORATION

“The objective of ecosystem restoration is to ***restore degraded ecosystem structure, function, and dynamic processes*** to a less degraded, more natural condition.”



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AQUATIC ECOSYSTEM RESTORATION

Priority Ecosystems:

California Bay-Delta
Chesapeake Bay
Everglades
Great Lakes
Gulf Coast

USACE Key Watersheds:

Columbia River
Puget Sound
Upper Mississippi River
Missouri River
Hudson-Raritan

Approx \$400 M annual program

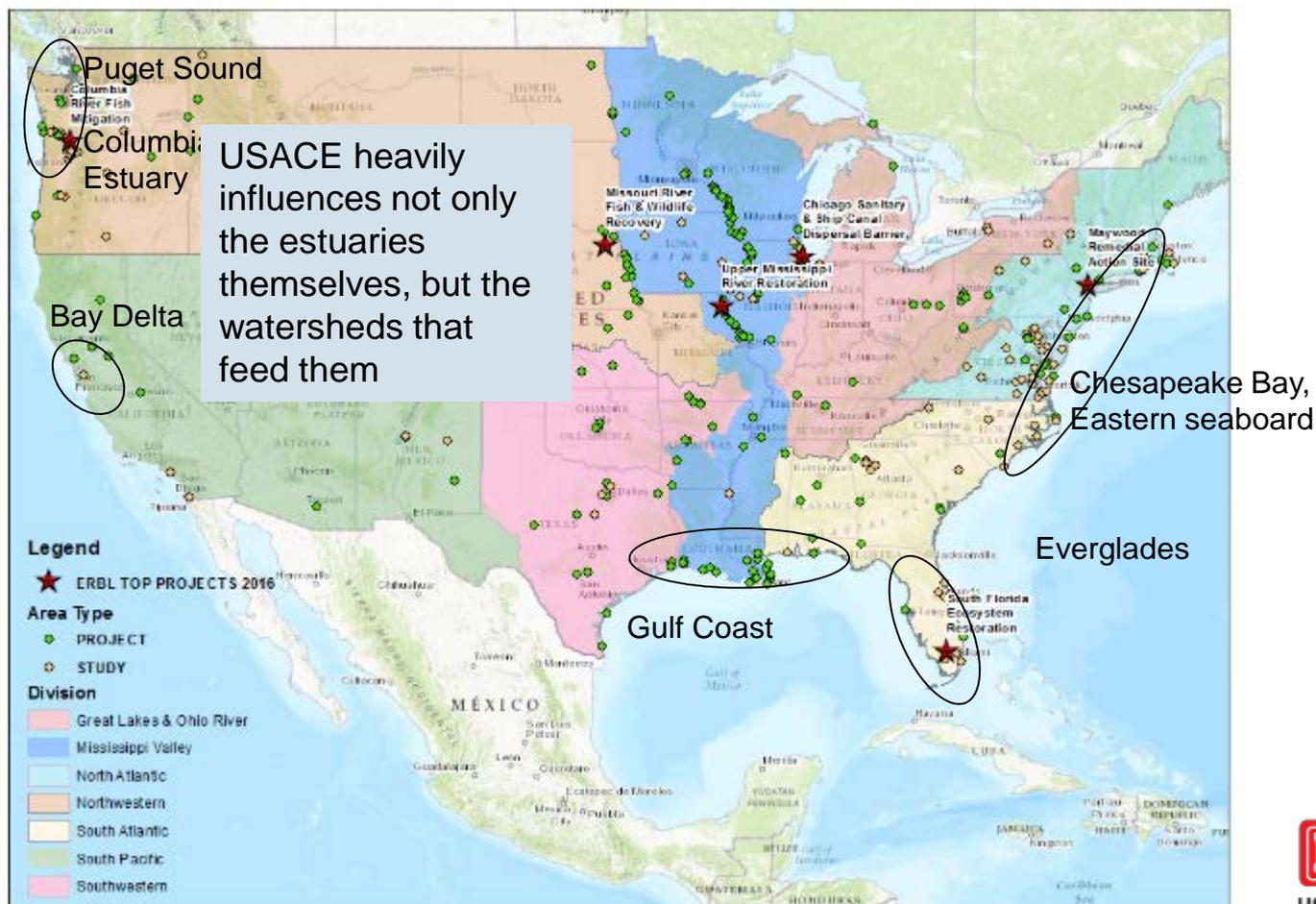


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USACE RESTORATION STUDIES AND PROJECTS

Diverse in ecosystem, size, type, and scale of effect



CONTINUING AUTHORITIES PROGRAMS

Smaller-scale restoration authorities

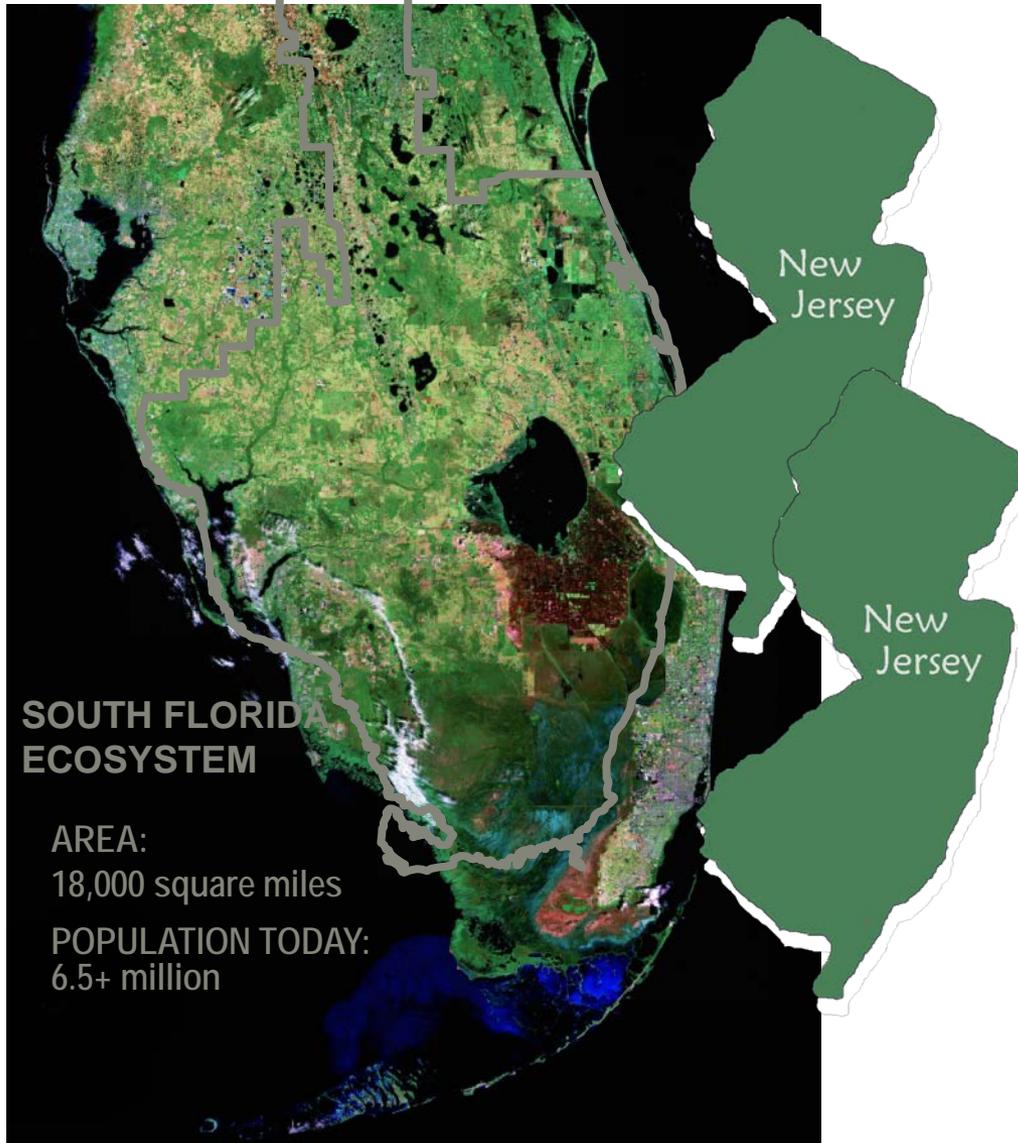
- Sec 206- ecosystem restoration
- Sec 1135- modification of USACE projects for restoration
- Sec 204 – beneficial use of dredged material



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EVERGLADES RESTORATION



- \$60-100M annual budget
- Planning in an area twice the size of New Jersey
- Intense and competitive stakeholder interests
- Restoring Quality, Quantity, Timing, and Duration of flow
- Caused by re-routing of water for flood risk reduction



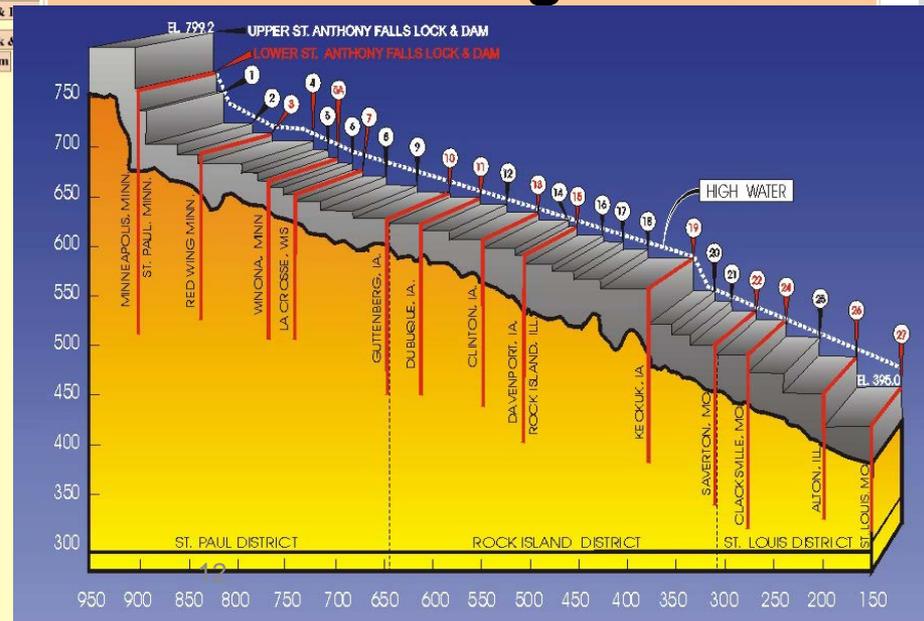
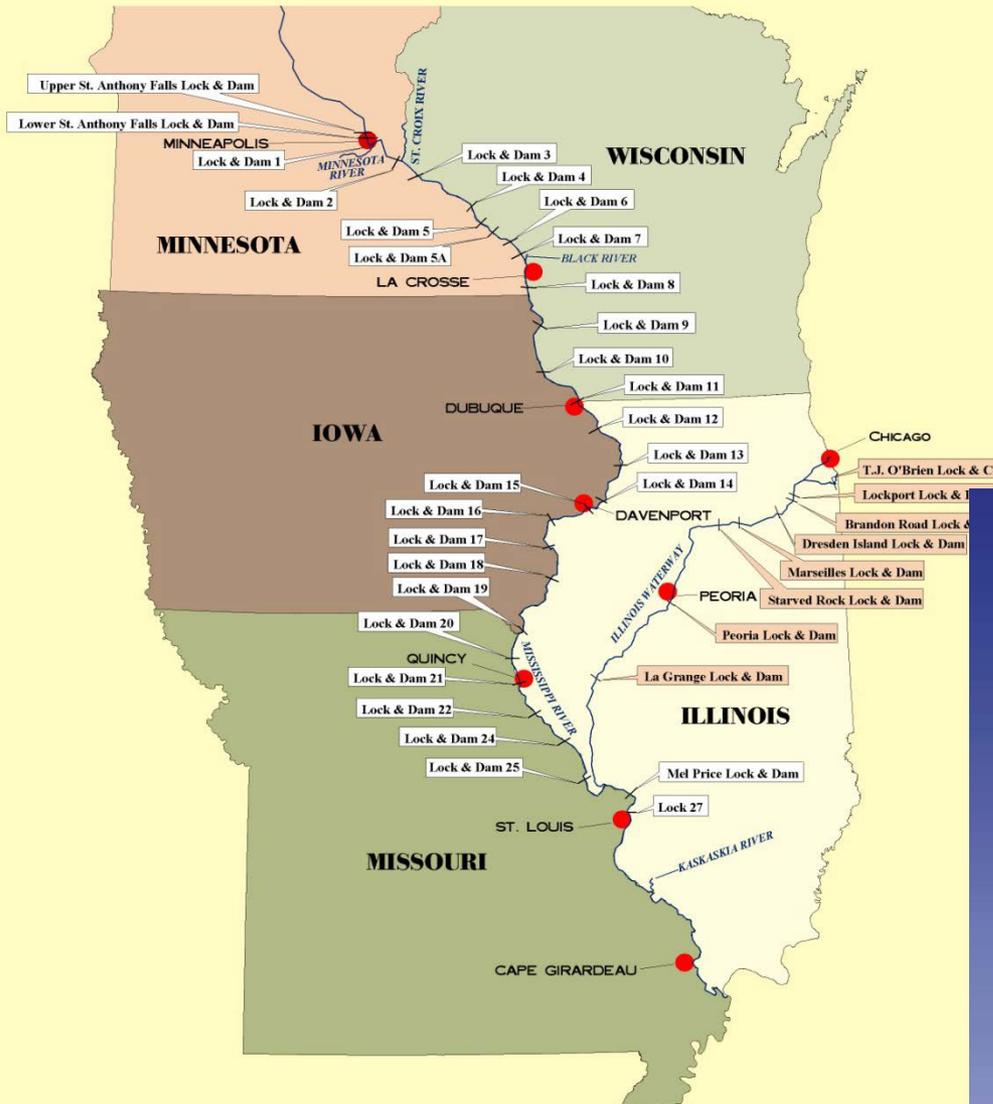
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Upper Miss River Navigation System

9-ft Channel

- Constructed 1930-45
- 37 Lock Sites
- Created system of navigation pools
- River training



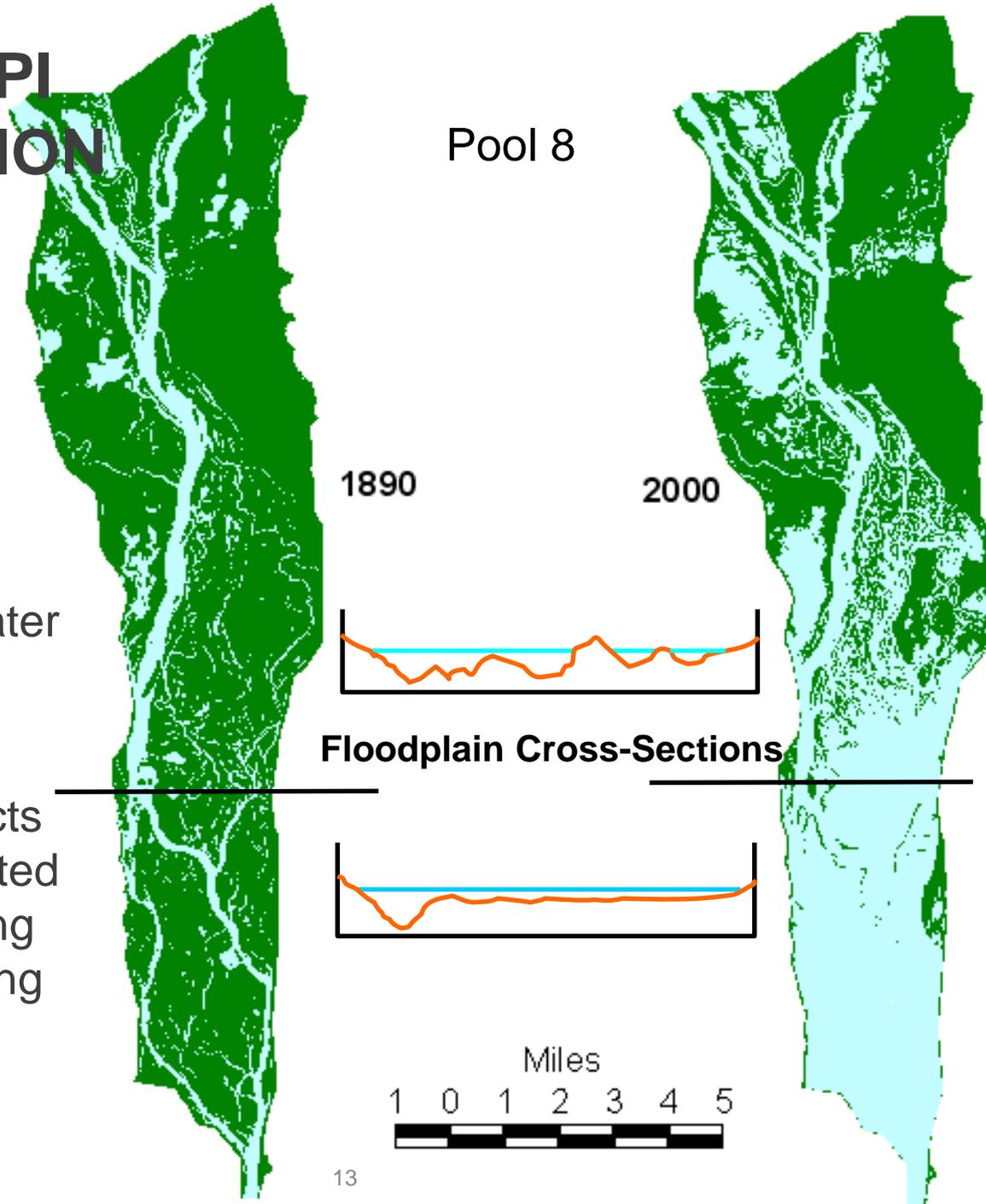
UPPER MISSISSIPPI RIVER RESTORATION (\$30M/yr)

Problems:

- Increased base water elevation
- erosion of islands, etc.
- sedimentation of deep water

Objective:

- Address cumulative impacts of an aging ecosystem created by navigation pools, including ongoing effects of maintaining the navigation system.



CHESAPEAKE BAY

\$15-\$50M annual budget

Poplar Island, MD

- Located in upper-middle Chesapeake Bay
- Beneficial use of dredged material
- Dredged material will restore 1,715 acres of remote island habitat
- 68 million cubic yards of dredged material to restore island habitat



CB Oyster Recovery, MD & VA

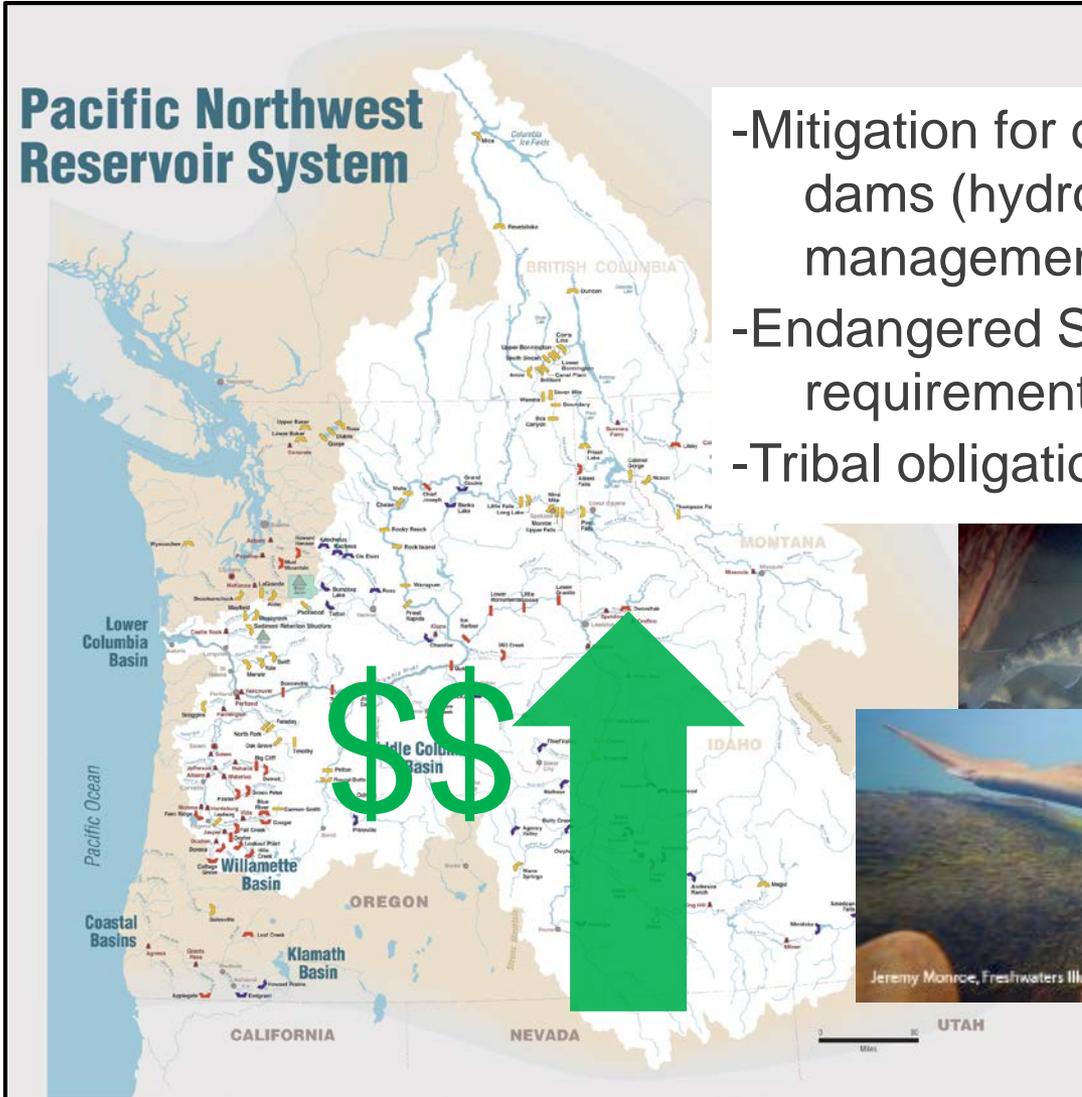


BUILDING STRONG®

COLUMBIA RIVER BASIN/PUGET SOUND

\$70-\$100M annual budget

Pacific Northwest Reservoir System



- Mitigation for operation of multi-purpose dams (hydropower, flood risk management, navigation)
- Endangered Species Act/Biological Opinion requirements
- Tribal obligations for Pacific lamprey



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Bonneville Dam: Yearling Chinook Salmon

Passage

Survival

PH2-
Juvenile
Bypass
System

PH2-Turbines

Powerhouse-2



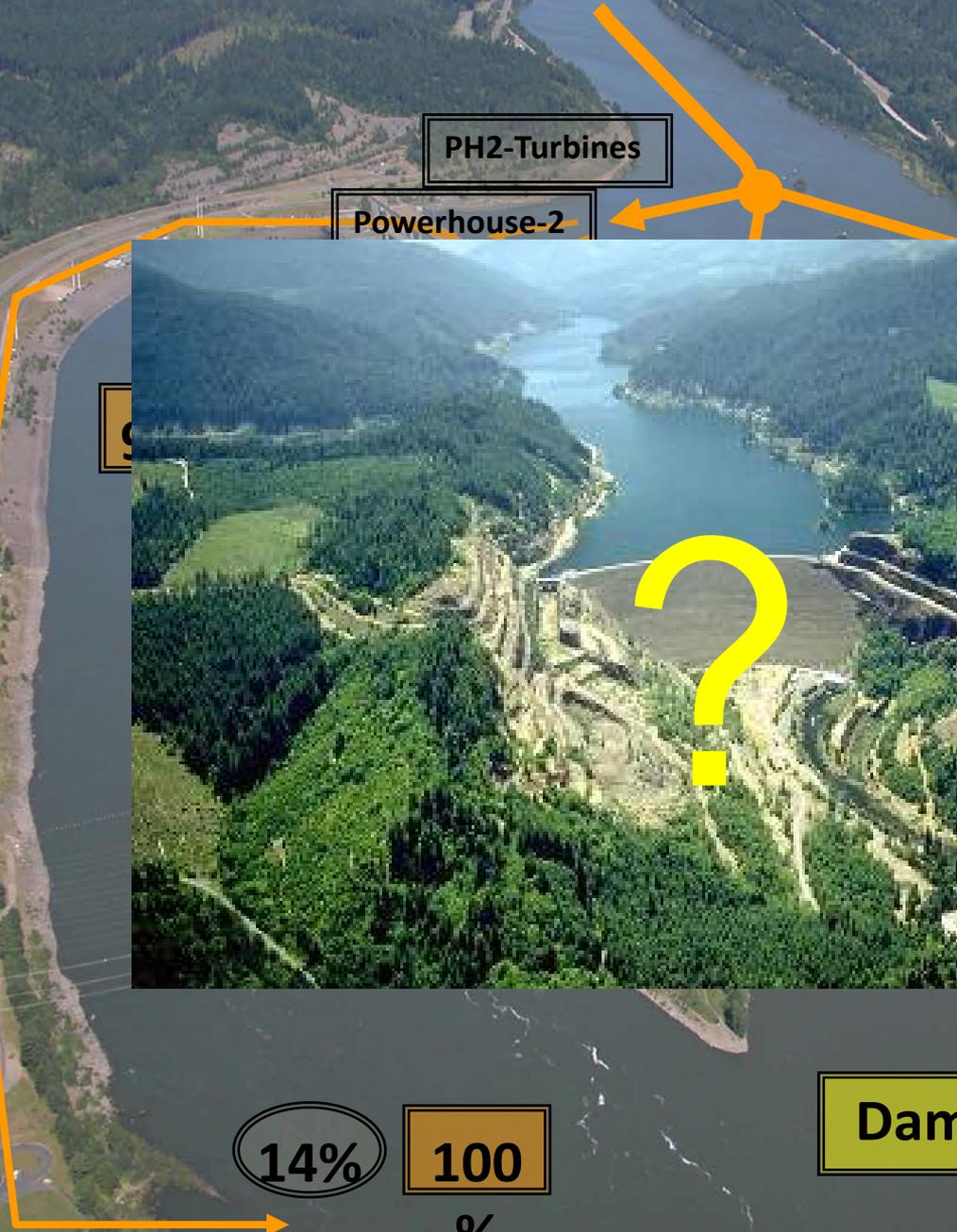
use-1

1-Sluiceway

14%

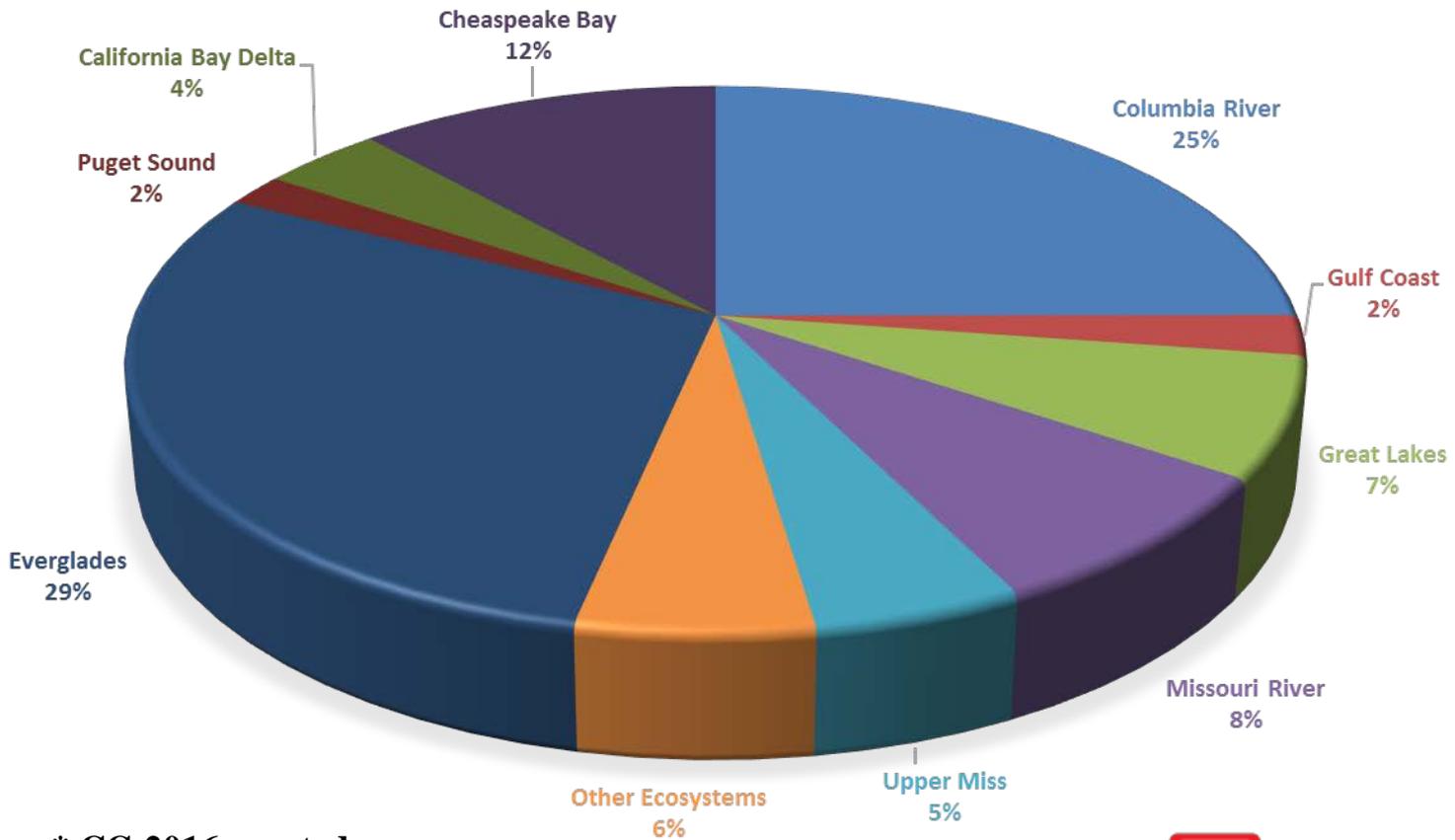
100
%

Dam = 99%



AQUATIC ECOSYSTEM RESTORATION FUNDING BY ECOSYSTEM

(2016 APPROPRIATED)



* CG 2016 enacted



USACE AQUATIC ECOSYSTEM RESTORATION - FUNDING

700,000,000
600,000,000
500,000,000
400,000,000
300,000,000
200,000,000
100,000,000
0



YOU GET NOTHING!

You lose! Good day sir!

— AER H
— AER H

Funds that Congress provides IN ADDITION to Budget

2019

(Adjusted)

(ed)

DIYDESPAIR.COM



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CURRENT “CLIMATE” IN DC....

- De-emphasis on ecosystem restoration
- Streamlining environmental regulatory processes
- “One Federal Decision”
- Agency Re-org proposal
 - Moves USACE to Interior or Commerce



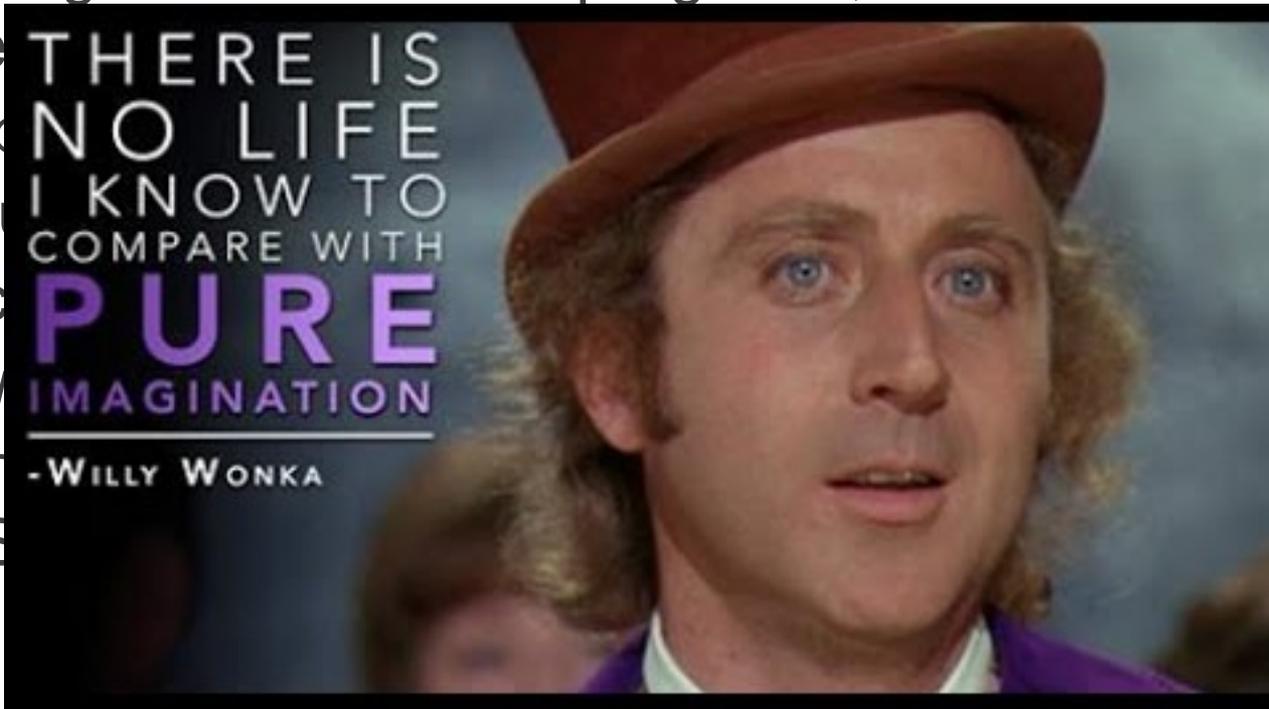
EMERGING NATIONAL CHALLENGES AND...

- “Mitigation” work at USACE projects- \$\$\$\$\$
 - ESA (fish passage, Missouri River)
 - Invasive Species (prevent spread of Asian Carp)
- Time constraints on completing studies and (do more with less)
- Communication of ecosystem restoration benefits to Office of Management and Budget (moving beyond “acres” as a metric...)
 - How do we better tell our story and quantify social and environmental benefits?
- OMB ambiguity on USACE’s ecosystem restoration role
 - Focus only on restoration addressing effects of USACE actions, or for which USACE has unique skills



AND...OPPORTUNITIES!!

- Focus on INFRASTRUCTURE, DISASTER RECOVERY
- Leverage the EXISTING programs, mission areas, and projects
- \$18 billion
- include
- Focus
- How
- Character
- MISS



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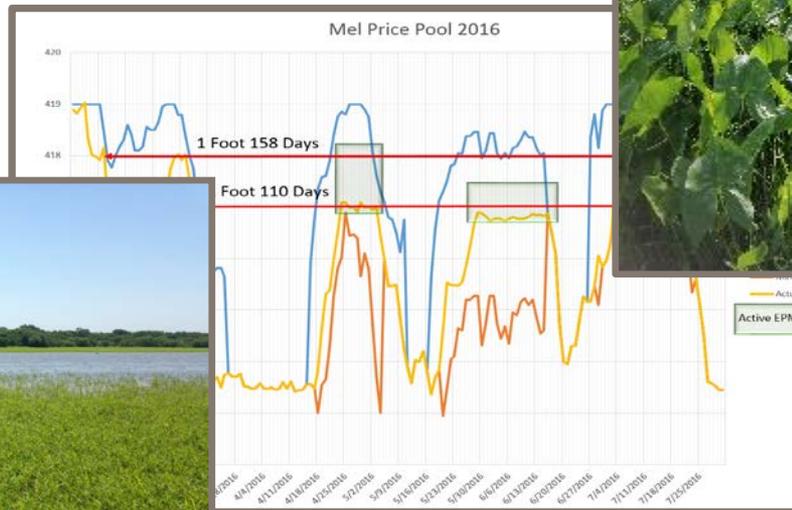


CHANGE HOW WE OPERATE OUR PROJECTS...

Opportunistic Environmental Pool Management Mississippi River Navigation Pools 24 -26



- Little to no cost
 - Working within the existing operational band
 - Controlling water level fluctuations
 - Extending period of exposure



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The Nature
Conservancy
Protecting nature. Preserving life.™



Upper Miss Pool Management Positive Environmental Response (2017)

- >1000 acres moist soil and perennial plant habitat created
- >2,100,000 pounds of seed produced
 - Enough food for 8,000,000 ducks for 1 day
 - Or 135,000 ducks for 60 days
- Extra Benefit! – Least Tern nesting

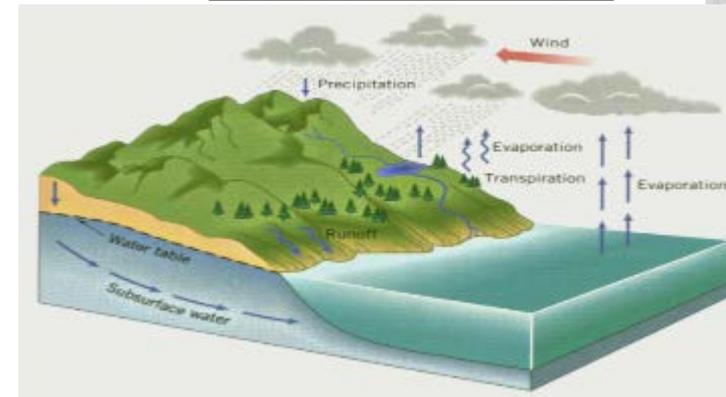


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CONTINUE RESEARCH EFFORTS AT THE USACE ENGINEER RESEARCH AND DEVELOPMENT CENTER (ERDC)

- \$15-20 M annually for ecosystem restoration and management research
- PLUS Other programs:
 - Dredging-related environmental impacts, benefits
 - Engineering with Nature
 - Design of Natural and Nature-based Features
 - Coastal Resiliency
 - Invasive Species



**Environmental Research Area Review Group*



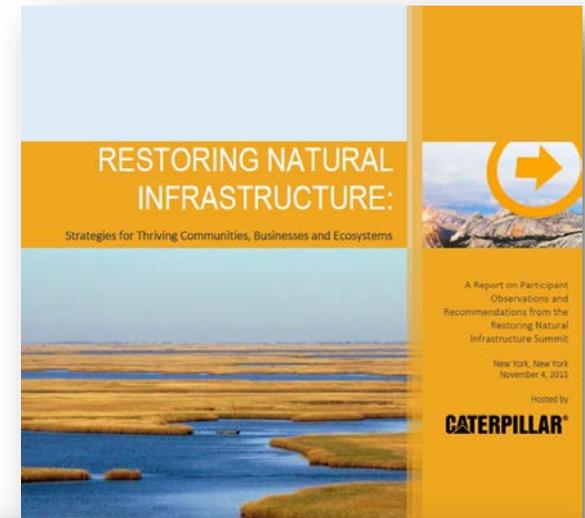
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FOSTER CREATIVE PARTNERSHIPS

- Unique Partnership Natural Infrastructure Initiative:
 - ▶ Caterpillar, Inc.
 - ▶ AECOM
 - ▶ Great Lakes Dredge and Dock
 - ▶ The Nature Conservancy

- USACE/NII Collaboration
 - ▶ Leverage public and private resources
 - ▶ Focus on beneficial use of dredged material and natural and nature-based features
 - “sediment matchmaker” tool



<http://www.caterpillar.com/en/company/sustainability/natural-infrastructure.html>



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BENEFICIAL USE OF DEREDGED MATERIAL PILOT PROGRAM (WRDA 2016 SEC 1122)

- Requires the USACE to establish a pilot program to carry out ten projects for the beneficial use of dredged material (for multiple purposes)
- 95 proposals received
- Significant stakeholder and Congressional interest



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CHIEF OF ENGINEERS' ENVIRONMENTAL ADVISORY BOARD

- Created by the Chief of Engineers, LTG Frederick J. Clarke in April 1970
- Purpose: a means to gain outside, expert and independent advice on environmental issues facing the Corps of Engineers
- Work Tasks: Improving environmental metrics, monitoring and adaptive management, inland regional sediment management, several others

NEED NEW MEMBERS- ASK MINDY!!



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WORK TOGETHER TO SUPPORT USACE'S RESTORATION MISSION (AND OTHER MISSIONS...)

USACE- tell our story better, use a language that will resonate with your audience

NGOs- Federal employees cannot lobby- YOU CAN!
USACE, Assistant Secretary of Army (Civil Works), OMB

Gov agencies- leverage each others' expertise

KNOW how your project is authorized and funded!!!!
Authorization (WRDA) + appropriation (Energy and Water Appropriations)

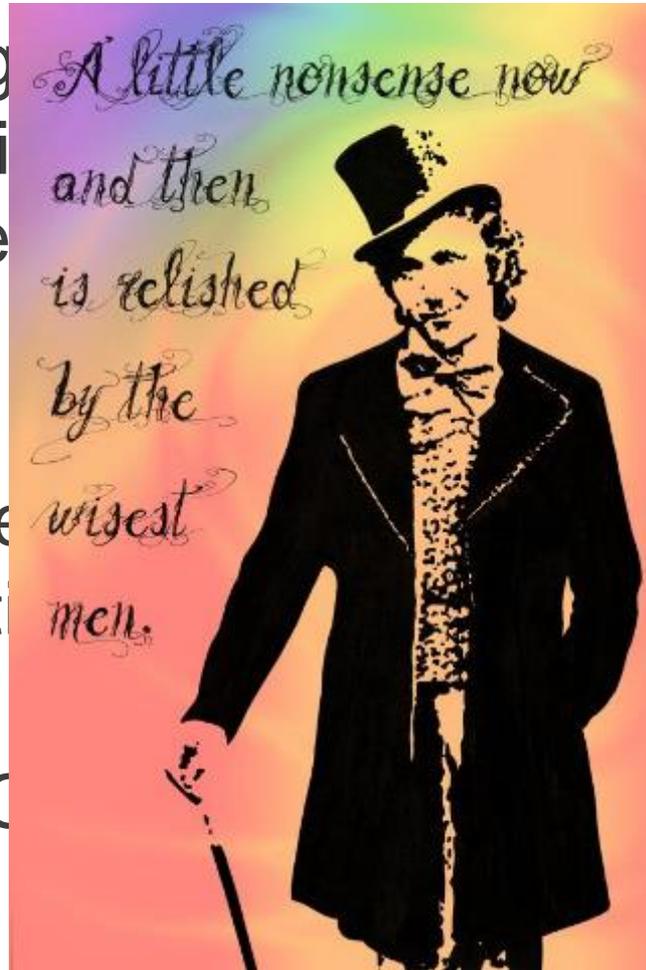


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DEVELOP AND LEVERAGE CREATIVE PARTNERSHIPS!!

- Your message is listened to if they are unified from multiple parties, especially if they are “atypical” partners
- Understand each partner’s strengths, limitations, and capabilities
- GET TO KNOW EACH OTHER AND HAVE FUN



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