

# THE ROLE OF A ROBUST SCIENCE PROGRAM IN ECOSYSTEM RESTORATION

Comparing Everglades Restoration with the Missouri River Recovery Program



Eliza Hines, PBS&J

# Presentation Outline

- Overview of Ecosystem Restoration
- Comprehensive Everglades Restoration Plan
- Missouri River Recovery Program
- RECOVER
- Integrated Science Program
- Similarities/Differences
- Lessons Learned



# Overview of Ecosystem Restoration

- USACE ecosystem restoration/recovery initiatives
  - Emerging as a primary mission of the USACE
  - Nationwide
  - Large and small scale
  - ~\$400-\$500 million/year



# Ecosystem Restoration



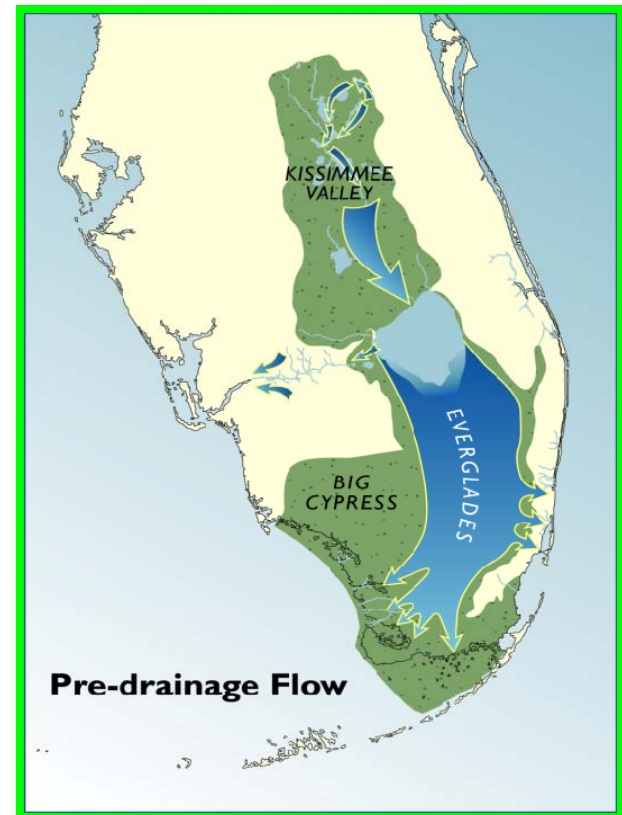
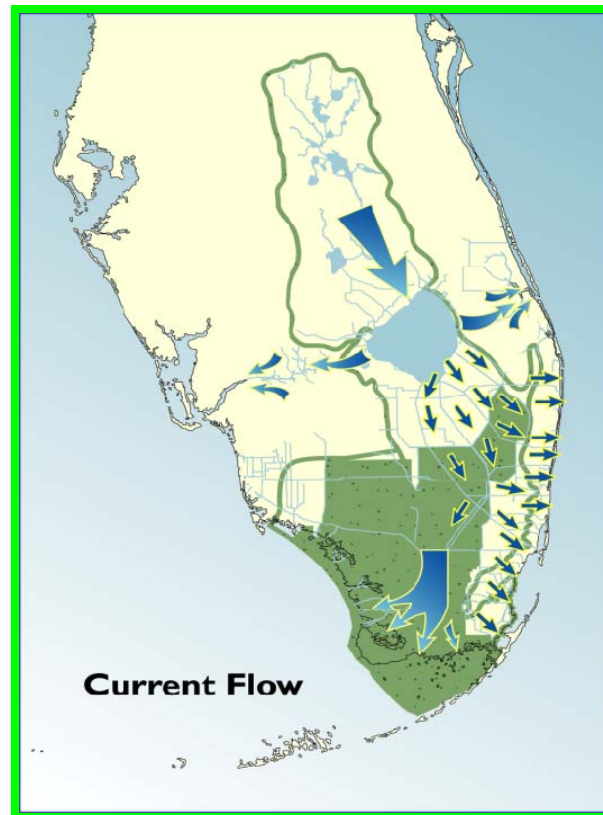
# Everglades Restoration

- ❑ Comprehensive Everglades Restoration Plan (CERP)
- ❑ Encompasses the Everglades & South Florida
  - 18,000 sq miles
- ❑ Authorized by the Water Resources Development Act (WRDA) 2000
- ❑ 68 Components
- ❑ 50/50 Federal-State Cost Share
- ❑ 30-Year Implementation Schedule



# South Florida & the Everglades

- Quality, Quantity, Timing & Distribution – “Getting the Water Right”
- Restore sheetflow and connectivity
- Preserve other water-related needs of the region including water supply & flood protection



# Missouri River Recovery Program

- ❑ Missouri River Recovery Program (MRRP) – 2006
- ❑ 2,321 miles of river and 529,000 square miles
- ❑ Flood Control Act of 1944 - Mainstem Reservoir System – 6 dams
- ❑ Habitat Creation – Bank Stabilization & Navigation Project (Mitigation Program)
- ❑ Biological Opinion (BiOp) – 2000 & 2003
  - Least tern, piping plover, bald eagle and pallid sturgeon
  - 70 RPAs, 21 RPMs and 14 conservation recommendations
- ❑ 100% Federally funded
- ❑ 35 Year implementation schedule



# Missouri River Basin



- Three Forks, MT to St. Louis, MO
- State, federal & local participation
- 28 Tribes
- Goals
  - Construct habitat
  - Recover T&E species





# The Role of a Robust Science Program

- Provide a system-wide perspective
- Assess whether the goals and objectives of a program are being met
  - Support to the USACE Planning Process
  - Monitoring (pre and post-construction) and assessment
- Communication of science to managers for decision-making
- Feed the adaptive management (AM) process



# Everglades Science

- **RE**storation **CO**ordination and **VER**ification (RECOVER)
  - Scientific arm of CERP
  - Programmatic and System-wide Perspective
  - Interagency and Interdisciplinary
  - Mission areas - Planning, Evaluation & Assessment
- Predictive modeling, monitoring, performance evaluation and assessment, Plan improvement, vision of success
- Planning/implementation of the CERP AM Program



# Science in the Missouri River Basin

- Integrated Science Program (ISP) – BiOp driven
  - Provide an integrative system perspective
  - Conduct scientific and technical investigations
  - Communicate and coordinate the results
- Mission areas - System monitoring, focused investigations, science integration with management actions, knowledge management, and science quality process.
- Monitoring, focused investigations, assessment scientific/technical review, independent peer review, support to AM



# Differences – A Program Perspective

- Riverine versus tropical grassland/coastal wetland
- Scale – Missouri River Basin is 30 times larger than Everglades ecosystem
- Authorization
  - CERP – WRDA 2000
  - MRRP – Mitigation Program & BiOp
- Funding – cost-shared vs. 100% federally funded
- Status of implementation/construction



# Similarities

- Plagued by great deal of ecological uncertainty
- Implementing AM process
- Critical need for a well-defined vision of success
- Developing conceptual ecological models, hypotheses and performance measures and using information from predictive models
- Conducting monitoring and assessment
  - \$10-15 million/year



# Facing Similar Challenges

- Cost containment – funding is limited, scope is large
  - Meeting monitoring requirements
- Reaching consensus about assessment results
- Integrating scientific/technical information into the USACE planning process
- Successfully conveying results to managers
- Linking science to decision-making
- Fully engaging the public and stakeholders



# Lessons Learned – Transfer of Knowledge

- Transfer of lessons learned from one program to another
  - MRRP reviewing RECOVER MAP – no comprehensive monitoring & assessment plan
  - RECOVER considering MRRP assessment process – inclusion of third party
  - Communication of scientific/technical information for use by managers, decision-makers, stakeholders & the public
  - AM process – learning development and implementation



# Questions?

Eliza Hines

PBS&J

[ebhines@pbsj.com](mailto:ebhines@pbsj.com)

Casey Kruse

USACE – Omaha District

[casey.d.kruse@usace.army.mil](mailto:casey.d.kruse@usace.army.mil)

