

Progress Toward Restoring the Everglades: The Seventh Biennial Review, 2018

Committee on Independent Scientific Review of
Everglades Restoration Progress (CISRERP)

Stephanie Johnson, Study Director
Bill Boggess, Committee Chair



The National Academies of Sciences, Engineering, and Medicine



- Provide independent scientific advice to the nation
- Inform decision making and public policy
- Independent, nongovernmental, non-profit organization

Study Origin: WRDA 2000

- Congressionally mandated study of the Comprehensive Everglades Restoration Plan (CERP) under the Water Resources Development Act (WRDA) 2000.
 - ❖ “The Secretary, the Secretary of the Interior, and the Governor, in consultation with the South Florida Ecosystem Restoration Task Force, shall establish an independent scientific review panel convened by a body, such as the National Academy of Sciences, to review the Plan’s progress toward achieving the natural system restoration goals of the Plan.”
 - ❖ “The panel ... shall produce a biennial report to Congress, the Secretary, the Secretary of the Interior, and the Governor that includes an assessment of ... measures of progress in restoring the ecology of the natural system, based on the Plan.”
- Study funded since 2004 under 5-yr contracts with the USACE, with funding support from DOI and SFWMD

CISRERP Statement of Task

The committee will produce biennial reports providing:

1. An assessment of progress in restoring the natural system
2. Discussion of significant accomplishments of the restoration
3. Discussion and evaluation of specific scientific and engineering issues that may impact progress in achieving the natural system restoration goals of the plan
4. Independent review of monitoring and assessment protocols to be used for evaluation of CERP progress



Committee Membership

- WILLIAM BOGGESS (*Chair*), Oregon State University
- MARY JANE ANGELO, University of Florida
- CHARLES DRISCOLL, Syracuse University
- SIOBHAN FENNESSY, Kenyon College
- WENDY GRAHAM, University of Florida
- KARL HAVENS, University of Florida
- FERNANDO MIRALLES-WILHELM, Univ. of Maryland
- DAVID MOREAU, University of North Carolina, Chapel Hill
- GORDON ORIAN, University of Washington
- DENISE REED, University of New Orleans
- JAMES SAIERS, Yale University
- ERIC SMITH, Virginia Polytechnic Institute & State University
- DENICE WARDROP, Pennsylvania State University
- GREG WOODSIDE, Orange County Water District



Study Process

- Five in-person committee meetings (May '17 - May '18)
 - 4 in-person information gathering meetings
 - 7 web conferences
 - 2 field trips
 - Presentations or public comment from ~ 90 individuals



- Peer-reviewed consensus report

2018 Biennial Report Focal Areas

- Review of restoration progress
- Restoration monitoring
- Lake Okeechobee
- CERP mid-course assessment

CERP Restoration Progress

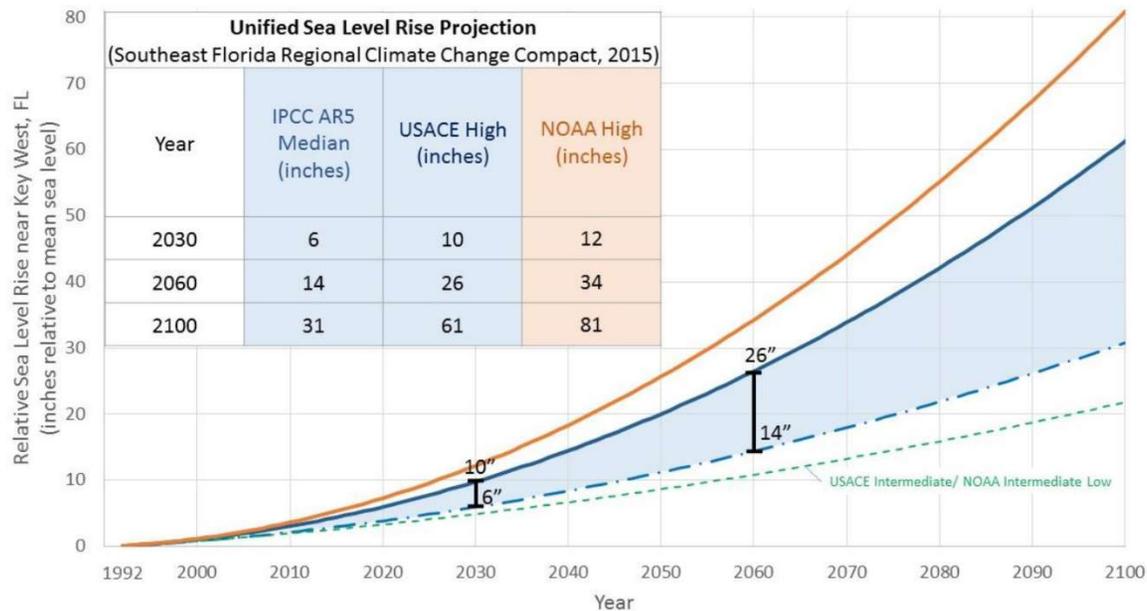
- One CERP project completed
 - Melaleuca biocontrol mass rearing facil.
- One CERP project nearing completion
 - C-111 Spreader Canal (#6)*
- Four CERP projects ongoing
 - Picayune Strand (#2)*
 - Biscayne Bay Coastal Wetlands (#7)*
 - C-44 Reservoir (#4)
 - C-43 Reservoir (#8)
- Impressive efforts in project planning (4 projects; #10, 12, 14, 15: EAA Reservoir now authorized)

* Focused committee review of progress and monitoring



CERP Planning

- Planning efforts have advanced the vision for CERP storage, but a holistic understanding of combined benefits systemwide are lacking
 - Does not adequately examine their resilience to changing climate and sea level rise

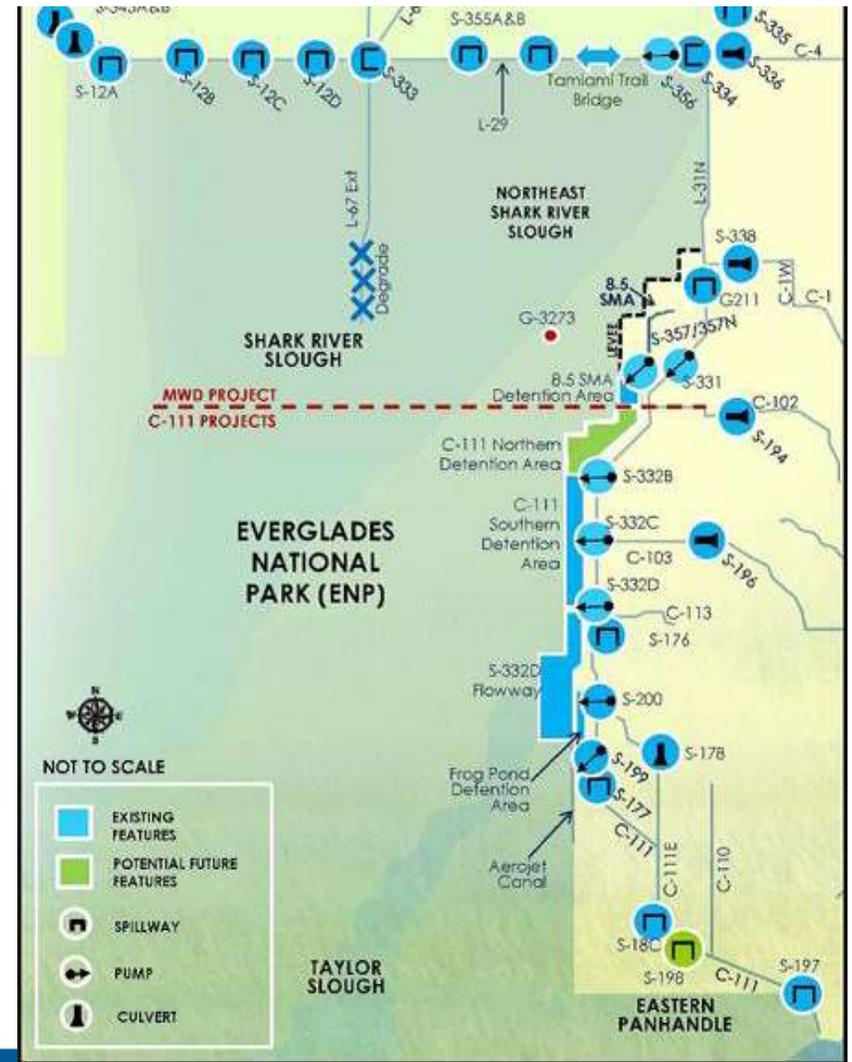
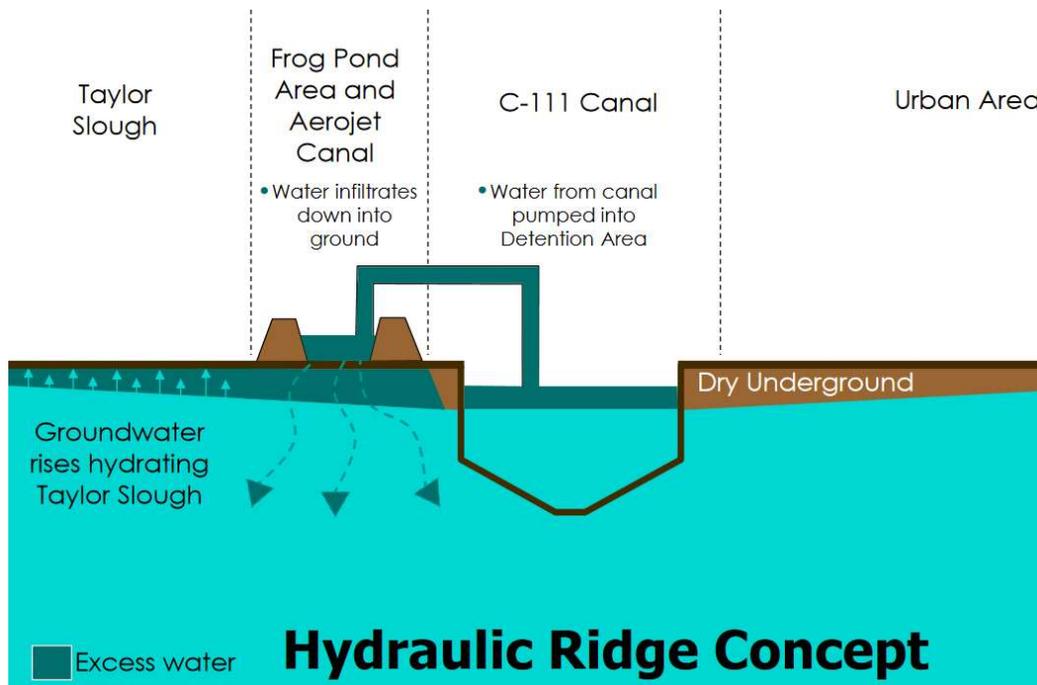


Monitoring Restoration Progress

- Committee examined data and analysis for 3 projects
- Incremental restoration progress difficult to evaluate
 - Lack of rigorous assessment of outcomes relative to goals/expectations

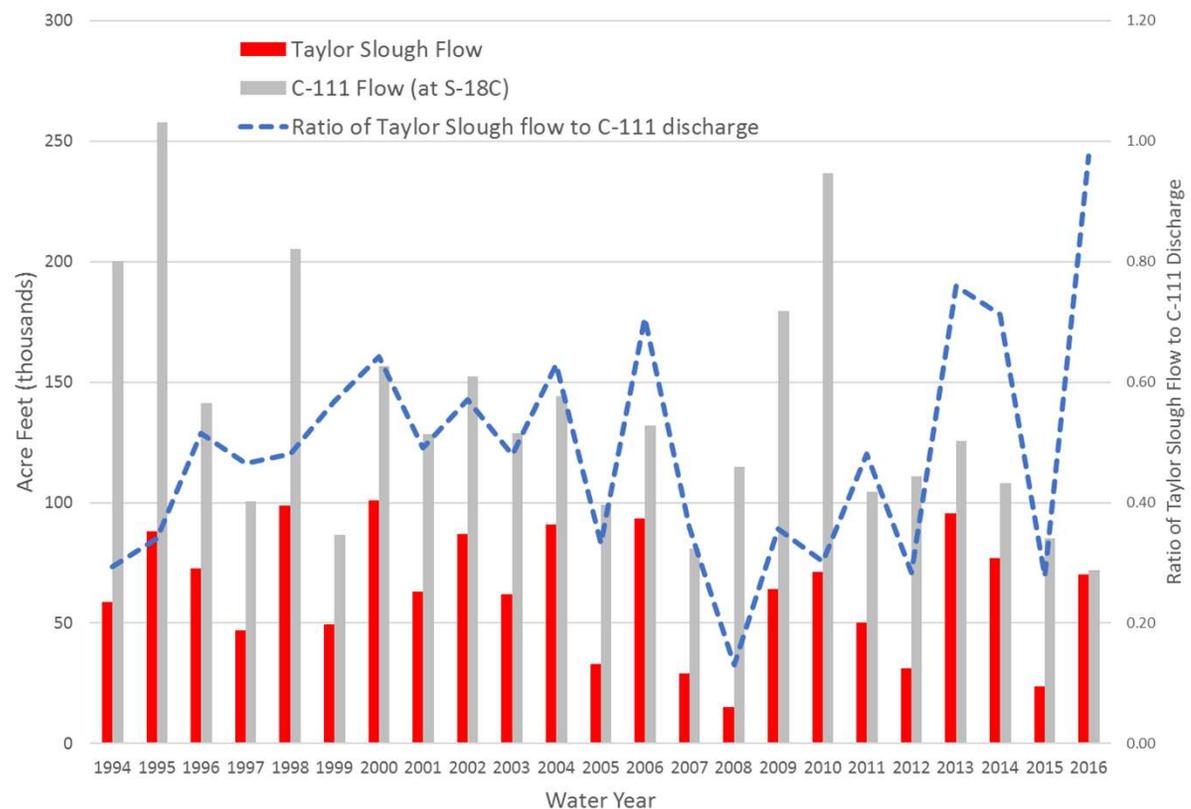


Example: C-111 Spreader Canal



Challenges Determining Project Benefits: C-111 Spreader Canal

- Rainfall variability
- Confounding effects of other projects
- Lack of near-project and seepage monitoring
- Lack of project-specific targets



Project Monitoring

- Many ways to improve efficiency and effectiveness within existing budget
 - Projects vary in the extent to which they have implemented effective monitoring plans

Recommendations:

- Develop quantitative project objectives
- Include an evaluation of the ability to detect restoration success given natural variability
- Use modeling and statistical tools to analyze data
- Revisit project-level monitoring plans periodically
- Develop multiagency assessment and reporting of project-level results

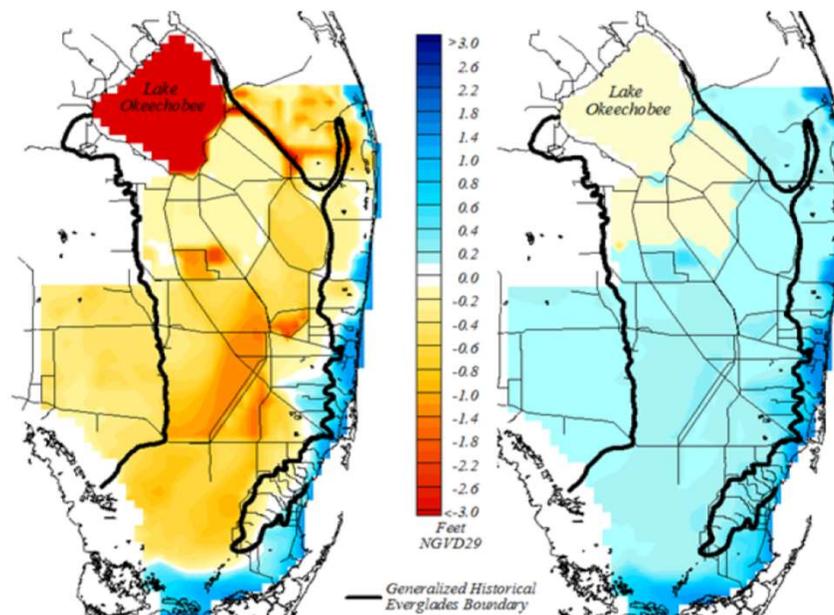
Lake Okeechobee

- Lake regulation is central to Everglades restoration benefits and conditions systemwide
- Completion of Herbert Hoover Dike rehabilitation may facilitate more storage (pending risk analysis)
- Report documents ecological effects of different storage levels
- Enhanced monitoring and real-time optimization may be able to reduce impacts of higher water levels and provide more flexibility



Context for Mid-course Assessment

- Vision for CERP storage becoming clear
- Everglades of 2050 and beyond will differ from what was originally envisioned when CERP was developed.



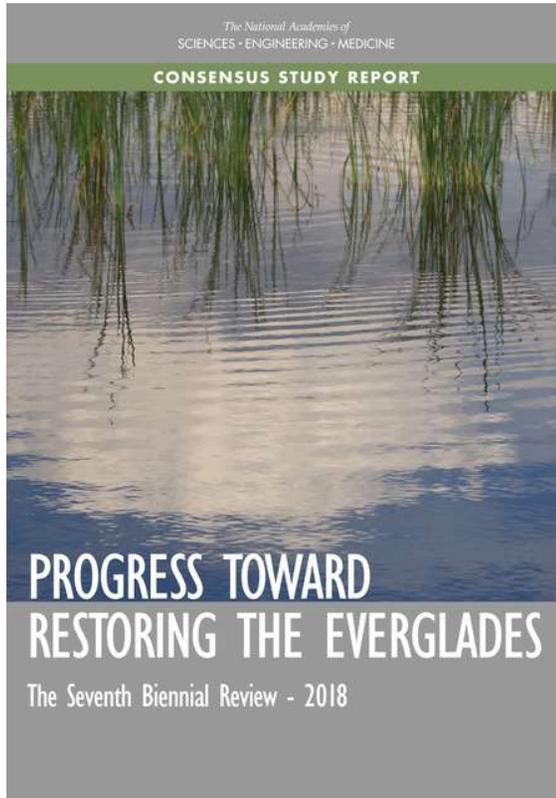
CERP Mid Course Assessment

- CERP agencies should conduct a mid-course assessment that rigorously considers the future of the South Florida ecosystem
 - Systemwide modeling of all authorized and planned projects
 - Examine near- and far-term performance under future possible climate and sea level rise conditions
- Results will document the benefits provided by CERP and inform robust decisions about planning, sequencing, adaptive management

Supporting Sound Decision Making for a Future Everglades

- Requires a science program that can bring the latest information and tools into CERP planning and implementation
 - Research needed to understand systemwide issues affected by future change, including peat collapse, saltwater intrusion, invasive species
 - May be best championed by an independent Everglades Lead Scientist empowered to coordinate and promote needed scientific advances

Summary



- Impressive project planning in last 2 years
- Vision for CERP storage becoming clear; storage in Lake Okeechobee remains unresolved
- Mid-course assessment should be conducted to analyze the projected CERP outcomes in context of future stressors
 - Rigorous assessment of latest CERP plans to examine their integrated performance under future climate and SLR scenarios
 - Time is right; Needed to inform robust decisions on planning, sequencing, adaptive management
- Improvements recommended for monitoring to provide more useful information from monitoring investments