Integrating sound science and adaptive management into a truncated timeline for Central Everglades restoration

Stephen E. Davis III
Everglades Foundation

**CERP**: Comprehensive Everglades Restoration Plan
**CEPP**: Central Everglades Planning Project
CEPP is CERP

CURRENT CERP (1999 Plan)

Public and Stakeholder Input

Incorporate Updated Science & Hydrology

INPUTS
- Updated Science
- Updated Information
- SFWMD Recent Efforts
- SFWMD Tools
A lot has happened since 2000

• iPod (2001), iPhone (2007) and iPad (2010)
• Pythons documented to be established
• Long-term WQ plan
• Hurricanes, Drought, Fire, Cold snap
• Changes in operations
• C-111 Spreader, Tamiami Trail, Picayune Strand
• Everglades Science: over 150 technical publications per year since 2000.
CEPP Goals

• Reducing harmful discharges to Northern estuaries (Caloosahatchee and St. Lucie)
• Delivering new, clean water to Central Everglades
• Restoring sheetflow and habitat
Since WRDA 2000

- System-wide performance measures
- Used to evaluate and assess
- Science-based indicators of attributes
- Targets as desired conditions
- Robust and feasible
Revised hydrologic target
Water quality impacts
CEPP Water quality and quantity

- Existing lands and WQ
- FEB vs. deep reservoir
- Performance screened:
  - Additional flow volume
  - Dry standard score
  - Relief to N. Estuaries
- Cost!
Screening: additional flow

DEEP RESERVOIR

FLOW EQUALIZATION BASIN
Screening: dry standard score

DEEP RESERVOIR

FLOW EQUALIZATION BASIN
Ridge-Slough: habitat vs. hydrology

- November: Wet season
  - Mostly inaccessible
  - Mostly larger birds

- January/February: Beginning of dry season
  - Increased density
  - Large and medium-sized birds

- March: Dry season
  - Increased variety and density of birds

- April: Drydown
  - Sparse

- May: Re-flooding
  - Fish and crayfish availability
Losing landscape patterning
Tree islands and soil
Restoring flow to re-shape landscape

- Removing barriers to flow
  - Bridge Tamiami Trail
  - Degrade/gap levees
- More flow, pulsed?
- Along historic flow path
- Seasonal depth and flow targets
NW 3A: How much of a spreader?

Partial (NW corner)

3 spreader features
NW 3A: How much of a spreader?

Partial (NW corner)  3 spreader features

No significant difference
Decompartmentalizing the system
Moving water from 3A to 3B
Moving water from 3B to ENP
3A/3B/ENP: Flow it vs. pumping it

By-pass 3B  
Pump from 3B  
Flow through 3B
3A/3B/ENP: will it flow?
3A/3B/ENP: where will it flow?
Alt 4R: reaching a TSP

• New science facilitated screening process
• This is a first increment
• Benefits projected down to Florida Bay
• Cost-effective infrastructure
• Flood control and water supply
• We stand to learn a lot
Acknowledgments

- Walter Wilcox (SFWMD) and the CEPP Modeling Group
- Fred Sklar (SFWMD) and Eco sub-team
- CEPP PDT: Matt Morrison (SFWMD) and Kim Taplin (USACE)
- Shannon Estenoz, Bob Johnson (US DOI)
- Kelly Keefe, Kevin Whitman and many others from USACE
Everglades: then and now

- Central & South Florida Project
- Supports > 6 million
  - Water supply
  - Flood control
- Ecological collapse
- WRDA 2000: CERP
Decomartmentalizing the system
Revised hydrologic target
Restoration Strategies: 2012

- **WQBEL**: 10 ppb P long-term geometric mean
- **6,500 acres new Stormwater Treatment Area (STA)**
- **110,000 acre-ft of new storage as Flow Equalization Basins (FEB)**
- **2025 completion at cost of $800 million**
Screening: reduction in harmful discharges

DEEP RESERVOIR

FLOW EQUALIZATION BASIN
NW 3A: Screening to maximize benefit

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Challenges for Central Everglades restoration planning

• Shortened planning window: 2 years to plan
• Involving public throughout
• Dealing with uncertainty
• Constraints: available land, WQ, Herbert Hoover Dike, savings clause
CERP Goals and Objectives

Ecological Values
• Increase total spatial extent of natural areas
• Improve habitat and functional quality
• Improve native plants and animals

Economic Values and Social Well-being
• Increase availability of freshwater supplies
• Reduce flood damages
• Provide recreational and navigation opportunities
• Protect cultural and archaeological resources