

CENTRAL EVERGLADES PLANNING PROJECT



South Florida Ecosystem Restoration Task Force

PRESENTED BY

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Corps of Engineers

December 17, 2013

TENTATIVELY SELECTED PLAN (Alt 4R2)

STORAGE AND TREATMENT

- Construct A-2 FEB and integrate with A-1 FEB operations
- Lake Okeechobee operational refinements

DISTRIBUTION/CONVEYANCE

- Diversion of L-6 flows, infrastructure, and L-5 canal improvements
- Remove western ~2.9 miles of L-4 levee west of S-8 (3,000 cfs capacity)
- Construct 360 cfs pump station at western terminus of L-4 levee removal
- Backfill Miami Canal and Spoil Mound Removal from ~1.5 miles south of S-8 to I-75

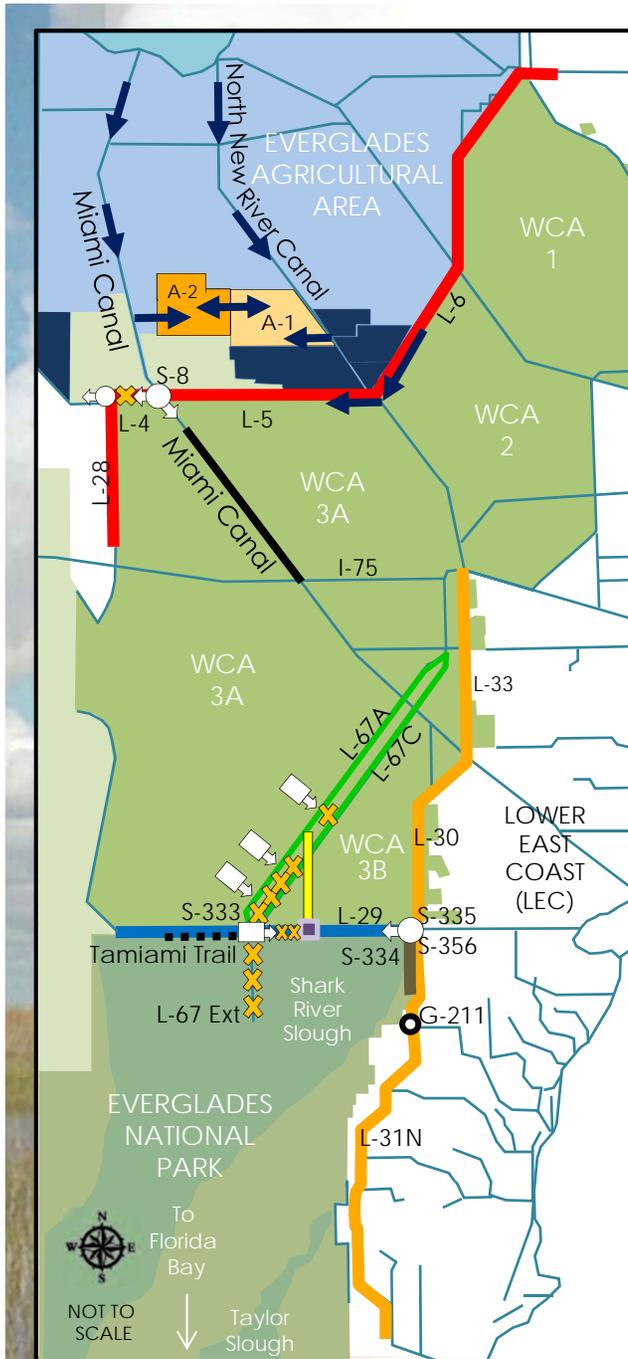
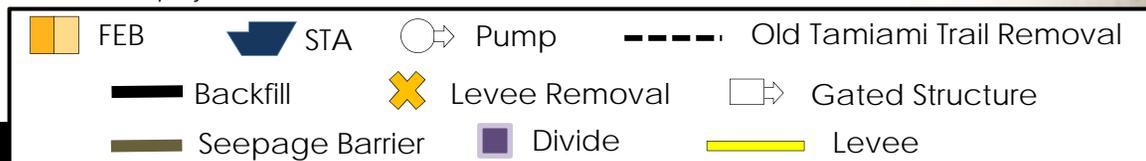
DISTRIBUTION/CONVEYANCE

- Increase S-333 capacity to 2,500 cfs
- One 500 cfs gated structure north of Blue Shanty levee and 6,000-ft gap in L-67C levee
- Two 500 cfs gated structures in L-67A; 0.5 mile spoil removal west of L-67A canal north and south of structures
- Remove ~8 miles of L-67C levee in Blue Shanty flowway (no canal back fill)
- Construct ~8.5 mile levee (Blue Shanty levee) in WCA 3B, connecting L-67A to L-29
- Remove ~4.3 miles of L-29 levee in Blue Shanty flowway; divide structure east of Blue Shanty levee at terminus of Tamiami Trail Next Steps western bridge
- Remove entire 5.5 miles L-67 Extension levee; backfill L-67 Extension canal
- Remove ~6 miles of Old Tamiami Trail road (south of L-29 western levee, from L-67 Ext to ENP Tram Rd)

SEEPAGE MANAGEMENT

- Increase S-356 pump station to ~1,000 cfs
- Construct 4.2 mile partial depth seepage barrier south of Tamiami Trail (along L-31N)
- G-211 operational refinements; use coastal canals to convey seepage

Note: System wide operational changes and adaptive management considerations will be included in project



DRAFT REPORT PUBLISHED IN FEDERAL REGISTER: AUGUST 30, 2013



- Public/agency comment period closed 1 November

OTHER REQUIRED REVIEWS INITIATED: AUGUST 30, 2013



- Technical Review – completed 20 Sep
- Independent External Peer Review – completed 31 Oct
- USACE South Atlantic Division Review – completed 31 Oct
- USACE Headquarters Policy Review – completed 15 Nov

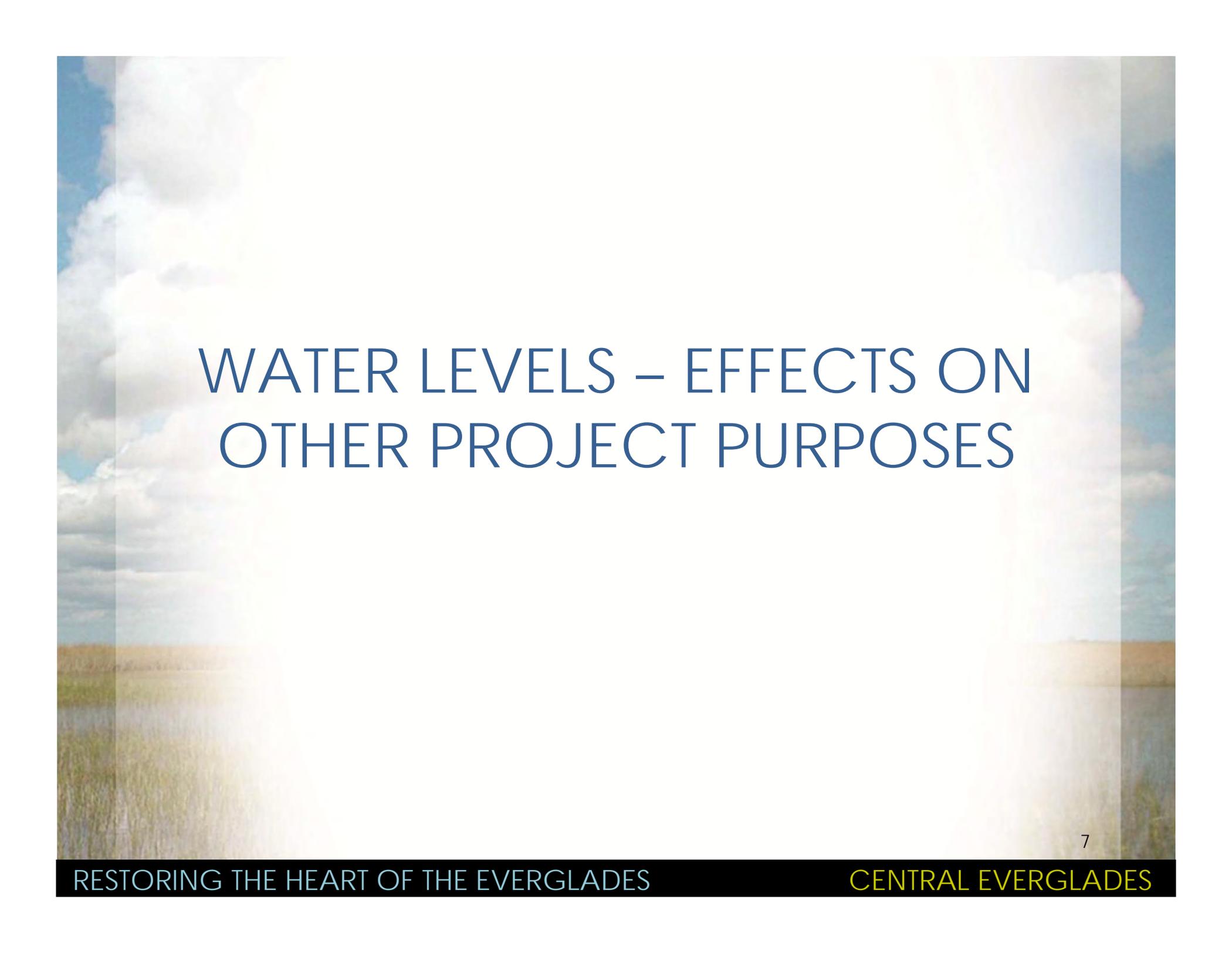
RISK-INFORMED DECISION MAKING

SMART Planning Premises:

- Need to address water resources needs in a timely and cost-effective manner
- Good decisions in timely manner preferable to perfect or optimized decisions made years out
- Decision-making informed by focusing analyses on areas of uncertainty to lower risk
 - *Characterize/quantify risks*
- Success (agreement) requires all parties and public to be willing to move forward with risk-informed decision-making

PROJECT CONCERNS & KEY RISKS

- Water Levels – effects on other project purposes (water supply) and wildlife
 - *Revised system-wide operations/modeling & Biological Opinion*
- Compliance with Water Quality Standards
 - *Negotiated language*
- Operations, Maintenance, Repair, Replace, Rehabilitation (OMRRR) – cost-share for use State facilities
 - *Cost-sharing approved*
- Phased implementation – return on incremental investments
 - *Assessment of incremental benefits by phase (3 PPAs)*
- Implementation Timeline – project dependencies & financial capability
 - *Sequencing plan & acknowledgment of requirements*



WATER LEVELS – EFFECTS ON OTHER PROJECT PURPOSES

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Issues, concerns, risk:

- Most CEPP benefits come from delivering water from Lake Okeechobee into the Everglades
- Modifications to Lake Okeechobee Regulation Schedule (LORS 2008) required to further optimize CEPP additional storage (A-2 FEB)
- Stakeholder support

Path Forward to Minimize Risk:

- Revision to LORS anticipated independent of CEPP, once:
 - *(1) C&SF system-wide operating plan updates to accommodate CERP “Gen 1 & Gen 2” projects, or*
 - *(2) completion of sufficient HHD rehabilitation to enable revised Lake O operations*



WATER LEVELS – EFFECTS ON WILDLIFE

WATER LEVELS – EFFECTS ON WILDLIFE

Issues, concerns, risks:

- Concerns over water levels and duration effects on terrestrial species (i.e. deer, small prey animals) and Endangered Species (i.e. Panther, Wood Storks and **Cape Sable Seaside Sparrow** and its habitat)
- Preliminary Biological Opinion from USFWS expected 17 Dec 13
 - *Critical item for completing Final PIR*
 - *Actions required and costs must be incorporated into total project cost estimate*
 - *Consultation must be completed prior to decision-making*
- Programmatic Biological Opinion from NOAA-NMFS expected 17 Dec 13

WATER LEVELS – EFFECTS ON WILDLIFE

Path Forward to Minimize Risk:

- Ecosystem will have time to transition
 - *Operation of Modified Water Deliveries project first*
 - *Phased implementation of CEPP*
- CEPP Implements Rain-Driven Operations
 - *Targets for more natural response to rainfall and flow-through the system*
 - *Targets in NE WCA-3A and eastern WCA-3B proposed are lower than restoration targets, resulting in restrained hydroperiods in NE WCA-3A and eastern WCA-3B*
- Backfilling of Miami Canal includes creation of upland habitat (tree island mounds and construction of Blue Shanty levee) offsetting loss of spoil mounds and levee removal
- CEPP Adaptive Management Plan includes options:
 - *Use of fire management to accentuate sheetflow and minimize excessive ponding*
 - *Plan for incrementally introducing water flow into Water Conservation Area 3B and monitoring effects*

BENEFICIAL EFFECTS - T&E SPECIES

- **Smalltooth sawfish and sea turtles**
 - *Restored salinities improve estuarine and nearshore habitats.*
- **Florida manatee and its critical habitat**
 - *Increased freshwater flows to Florida Bay and the southwestern coastal estuaries improve salinity, therefore reducing stress on sea grasses that are important to foraging manatees.*
 - *Damaging flows to the Northern Estuaries related to pulse releases would also be reduced, resulting in decreased sedimentation and silt, and increased light penetration, therefore providing better sea grass survival.*
- **American crocodile and its critical habitat**
 - *Increased freshwater deliveries to ENP, Florida Bay, and Biscayne Bay are expected to increase suitable habitat for juvenile crocodiles.*
- **Everglades snail kite and its critical habitat ***
 - *Increased hydroperiods within northern WCA 3A, WCA 3B, and ENP would improve Everglade snail kite and apple snail habitat.*
 - *Rapid recession rates were identified as adversely affecting nesting in WCA 3A.*
 - *Increased periphyton would provide for an increased foraging base for the apple snails, in turn providing more foraging opportunities for the Everglade snail kite.*
- **Wood stork ***
 - *Hydrologic changes provide an overall net benefit for wood stork foraging suitability throughout WCA 3 and ENP.*
 - *Decline in foraging suitability occurs in northern ENP due to increased flow deliveries through the Blue Shanty flow way.*
 - *Blue Shanty levee will result in permanent loss of wood stork foraging habitat as well as habitat connectivity.*

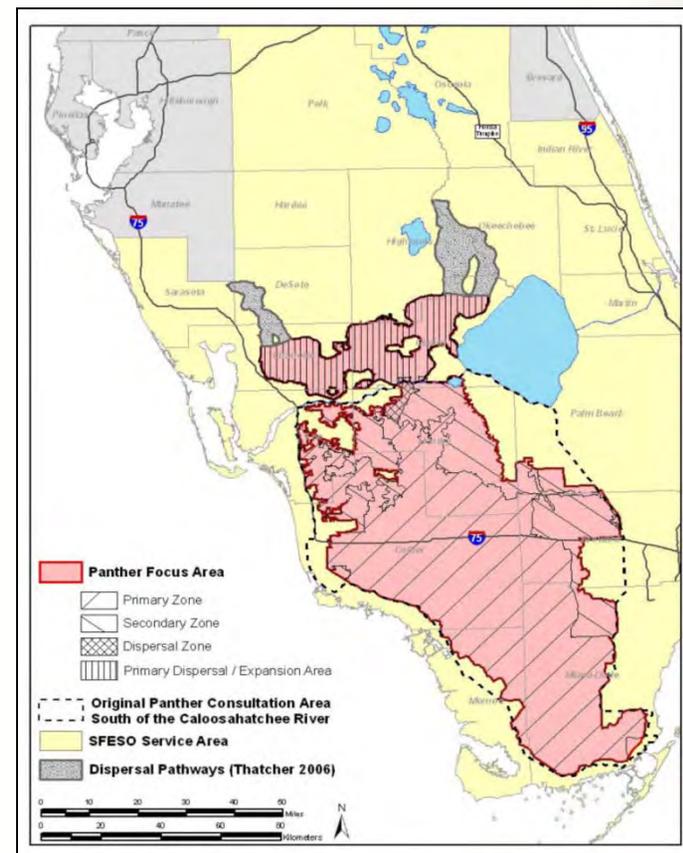
ADVERSE EFFECTS - T&E SPECIES

■ Eastern indigo snake *

- High probability of occurrence within the proposed A-2 FEB site.
- Construction of the A-2 FEB likely to remove approximately 14,500 acres of potential habitat.

■ Florida Panther *

- Florida panthers presently inhabit lands in the EAA and ENP adjacent to the Southern Glades.
- Potential to affect both the Primary and Secondary Zones for Florida panther habitat.
- Construction of the A-2 FEB would convert upland habitat to wetland habitat, thereby eliminating potential habitat within the panther secondary zone in this region.
- Restored lands within the project area will provide an improved forage base that would result in greater use by the Florida panther.



PATH FORWARD

INDIGO SNAKES & PANTHER

- Minimize risk by avoiding Eastern indigo snakes within construction areas following the Standard Protection Measures for the Eastern Indigo Snake
- To minimize risk to Panthers from CERP implementation, a Panther mitigation bank was established in Picayune Strand to off-set adverse effects
 - *USACE determined that no panther credits will be necessary as CEPP is self-mitigating and will generate 40 additional credits*

ADVERSE EFFECT – T&E SPECIES

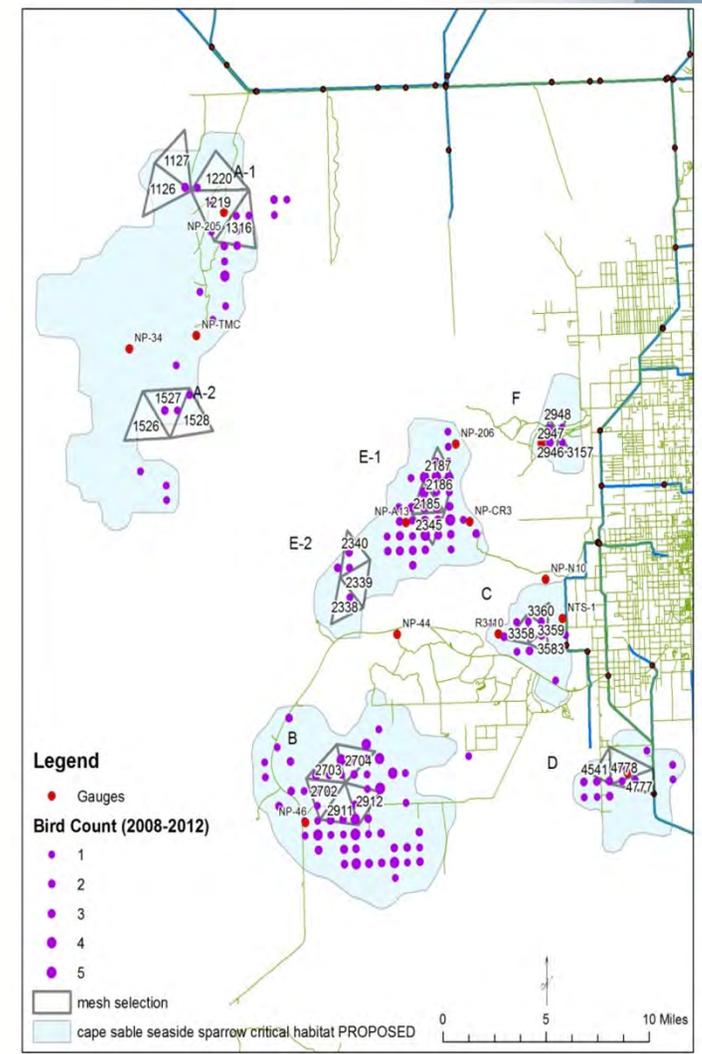
■ Cape Sable seaside sparrow

- *Decrease in the number of years that meet the 60-day dry nesting constraint in sub populations A and E.*
- *Provides more water to Shark River Slough and the southern marl prairies.*
- *Marl prairie habitat suitability decreased for sub populations A, B, D, E, and F.*
- *Hydrological changes are expected to alter some of the physical and biological features essential to the nesting success and overall conservation of the subspecies.*

■ Challenges

- *Inherent uncertainty in current population estimates*
- *Uncertainty in CEPP implementation timeline and sequencing*
- *Difficult to predict population status so far in the future*

Sub-population Locations



PATH FORWARD

Cape Sable Seaside Sparrow

- USFWS Preparing Preliminary Biological Opinion:
 - *Identify likely effects*
 - *Identify terms and conditions and reasonable and prudent measures to offset potential take and any adverse modification to critical habitat*
- Identify potential conservation measures and steps to be taken in succession or simultaneously to bolster CSSS population/improve habitat and identify the agency(ies) responsible
 - *Allocated to partner agencies (USFWS, ENP, Corps/SFWMD)*
- Biological Opinion finalized by USFWS prior to initiation of construction of any component of CEPP
 - *Consultation will continue through implementation period*



COMPLIANCE WITH WATER QUALITY STANDARDS

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COMPLIANCE WITH WATER QUALITY STANDARDS

Issues, Concerns, Risks:

- Effects of CEPP increases in flow and new distribution of flow on water quality
 - *Water Quality Compliance Limit for ENP Shark River Slough (Appendix A)*
- State's "Restoration Strategies" program must be completed and demonstrated to be in compliance with State water quality standards

Path Forward

- Federal and state partners recognize that in order to achieve long-term hydrologic improvement, water quality may be impacted in the short-term, particularly as measured by the current Appendix A methodology
- Negotiated language included in PIR (excerpt):
 - *"In an effort to address these potential impacts and determine updates to Appendix A to reflect increased inflows and new discharges into ENP since Consent Decree was entered, the parties to the Consent Decree have established a process and scope for evaluating and identifying necessary revisions to the Appendix A compliance methodology utilizing scientific expertise of the TOC."*
- PIR also includes language outlining requirements of State Law that must be met before CEPP implemented
- SFWMD Letter of Support will re-iterate terms under which State will proceed with CEPP implementation



OPERATIONS, MAINTENANCE,
REPAIR, REPLACEMENT AND
REHABILITATION (OMRR&R)

COST SHARE FOR USE OF STATE
FACILITIES

OMRR&R – COST SHARE

Issues, Concerns, Risks:

- CEPP utilizes existing State (SFWMD) water quality treatment facilities (STAs, pumps, etc) to deliver additional flows from Lake Okeechobee into the Everglades.
- The increase in average annual water flow (~19%) through these facilities systems results in increased in OMRR&R costs

Path Forward:

- USACE independently evaluated and confirmed increased O&M requirement
- PIR recommends 9.5% federal cost-share for SFWMD's increased OMRR&R costs (approved by ASA-CW Darcy)



PHASED IMPLEMENTATION RETURN ON INVESTMENTS

PHASED IMPLEMENTATION

Issues, Concerns, Risks:

- Need for an incremental implementation plan to meet financial investment and ecosystem restoration needs.
 - *Multiple Project Partnership Agreements (PPA)*
- Army policy requires supporting analysis confirming cost-effective ecological benefits achieved with separable PPAs

Path Forward

- Multiple construction contracts were grouped into three separate PPAs based upon where benefits accrue
 - *PPA North, PPA South and PPA New Water*
- Benefits and costs of each PPA will be documented in Final PIR
- “PPA New Water” depends up implementation of “PPA North” and “PPA South” to achieve a reasonable cost effective solution.

CEPP PROPOSED CONTRACTS BY PPA

| PPA North | |
|---|--|
| Project Features | Construction Contract |
| <ul style="list-style-type: none"> • L-6 Diversion • S-8 Pump Modifications • L-4 Levee Degrade and Pump Station • L-5 Canal Improvements • Miami Canal Backfill | <ul style="list-style-type: none"> • Contract 1 • Contract 1 • Contract 1 • Contract 2 • Contract 2 |
| PPA South | |
| Project Features | Construction Contract |
| <ul style="list-style-type: none"> • L-67 A Structure 1 North • One L-67 C Gap • Increase S-356 • Increase S-333 • L-29 Divide Structure • L-67 A Structures 2 and 3 South • L-67 A Spoil Mound Removal • Remove L-67 C Levee Segment • Remove L-67 Extension Levee (No Backfill) • 8.5 Mile Blue Shanty Levee • Remove L-29 Levee Segment • Backfill L-67 Canal Extension • Remove Old Tamiami Trail* | <ul style="list-style-type: none"> • Contract 3 • Contract 3 • Contract 4 • Contract 4a • Contract 4b • Contract 5 • Contracts 3 & 5 • Contract 6 • Contract 6 • Contract 6 • Contract 7 • Contract 7 • Contract X* |
| PPA New Water | |
| Project Features | Construction Contract |
| <ul style="list-style-type: none"> • Seepage Barrier L-31 N • A-2 FEB | <ul style="list-style-type: none"> • Contract 8 • Contract 9 |

* Old Tamiami Trail can be completed at any time during implementation, but must precede backfilling of L-67 Extension Canal.

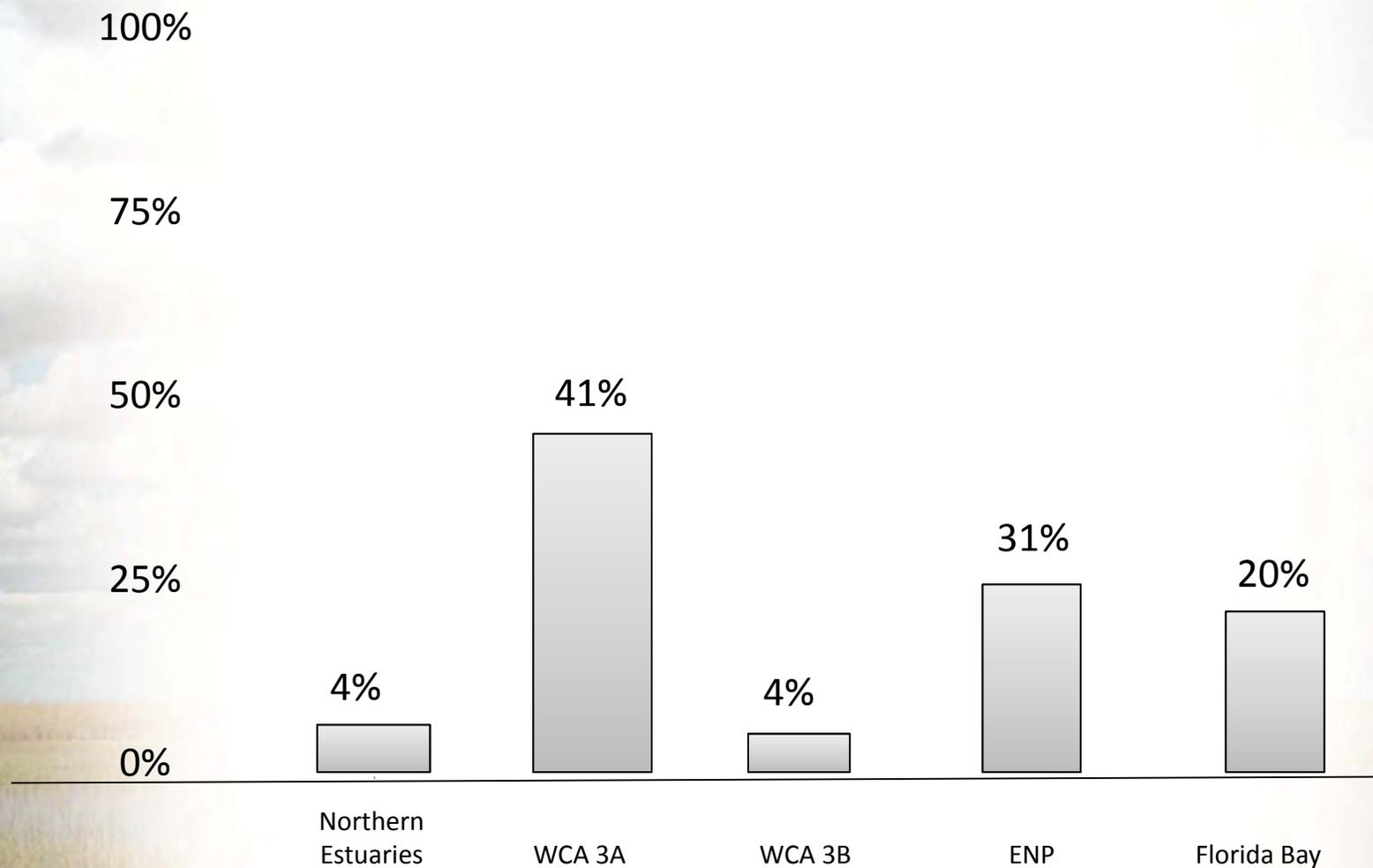
EVALUATING RETURN ON INVESTMENTS

- Features of the Tentatively Selected Plan identified in each recommended PPA were not separately modeled.

- Approach for Evaluating Incremental Benefits (per PPA):
 - *By region*
 - *Narrative description of benefits*
 - *Relationship to CERP Conceptual Ecological Models*
 - *Acres improved*
 - *Percent gain in project benefits*
 - Volume-based approach (Average Annual Overland Flow)
 - Consensus- based approach
 - *Non-CEPP Project Dependencies*
 - *CEPP Project Dependencies*

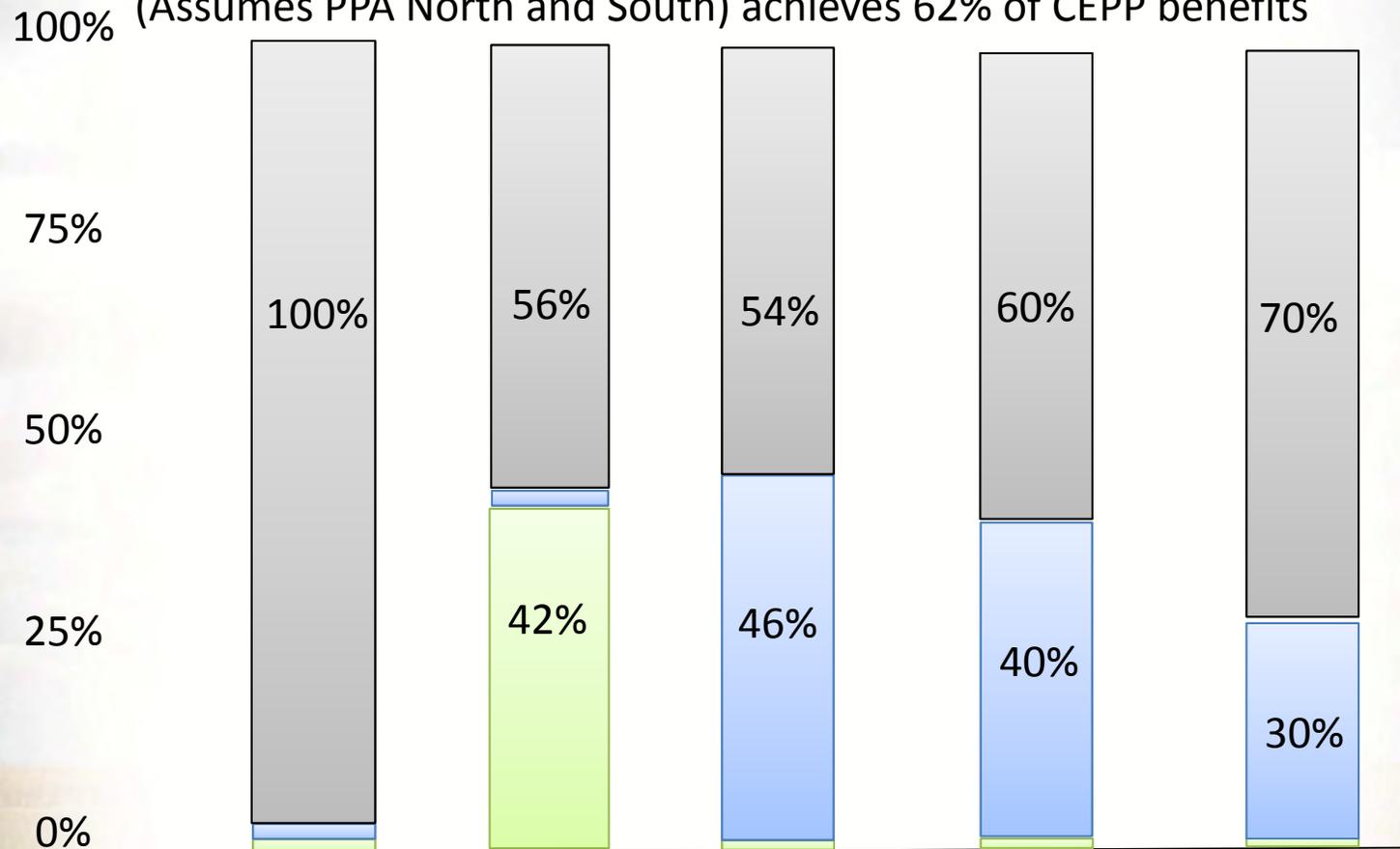
} **Results Combined
to Estimate % CEPP
Benefits per PPA**

Percent of CEPP Overall Benefits by Region



CEPP RETURN ON INVESTMENT BY PPA

PPA North achieves ~ 17%, PPA South achieves ~ 21% and PPA New Water (Assumes PPA North and South) achieves 62% of CEPP benefits



= PPA North
 = PPA South
 = PPA New Water (Assumes PPA North and South)



TIMELINE FOR IMPLEMENTATION

DEPENDENCIES AND FINANCIAL CAPABILITY

\$100M/YR FUNDING CONSTRAINED SCHEDULE & DEPENDENCIES

| CEPP IMPLEMENTATION SEQUENCE WITH PROJECT DEPENDENCIES | | | | | | | | | | | | | | | | |
|---|--------------------------------------|----------|-----|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| Duration (Days) | CEPP | Cnt. No. | PPA | YR 1 | YR 3 | YR 4 | YR 6 | YR 7 | YR 9 | YR 10 | YR 12 | YR 13 | YR 15 | YR 16 | YR 18 | YR 19 |
| A-1 FEB & Restoration Strategies meeting WQBEL | | | | | | | | | | | | | | | | |
| 8.5 SMA, C-111 SD, Existing S-356 Operational | | | | | | | | | | | | | | | | |
| MWD 1- Mile Bridge & Road Raising | | | | | | | | | | | | | | | | |
| 365 | L-6 Diversion | 1 | N | | | | | | | | | | | | | |
| 730 | S-8 Modifications | 1 | | | | | | | | | | | | | | |
| 730 | L-4 Degrade and Structure | 1 | | | | | | | | | | | | | | |
| 540 | L-5 Canal Improvements | 2 | | | | | | | | | | | | | | |
| 913 | Backfill Miami Canal | 2 | | | | | | | | | | | | | | |
| BWPA C-11 Impoundment | | | | | | | | | | | | | | | | |
| 365 | L-67A 500 CFS Structure North | 3 | N | | | | | | | | | | | | | |
| 180 | Spoil Mound Removal West L-67A (N) | 3 | | | | | | | | | | | | | | |
| 180 | L-67C 6000' Gap | 3 | | | | | | | | | | | | | | |
| TTNS Bridging & Road Raising | | | | | | | | | | | | | | | | |
| 1186 | Increase S-356 | 4 | S | | | | | | | | | | | | | |
| 365 | Increase S-333 | 4a | | | | | | | | | | | | | | |
| 365 | L-29 Divide Structure | 4b | | | | | | | | | | | | | | |
| 270 | L-67A 500 CFS Structures 2 & 3 South | 5 | | | | | | | | | | | | | | |
| 180 | Spoil Mound Removal West L-67A (S) | 5 | | | | | | | | | | | | | | |
| 730 | Remove L-67C in BS | 6 | | | | | | | | | | | | | | |
| 730 | 8.5 Mile Blue Shanty Levee | 6 | | | | | | | | | | | | | | |
| 365 | Remove L-67 Extension Levee | 6 | | | | | | | | | | | | | | |
| 365 | Remove L-29 Levee in Blue Shanty | 7 | | | | | | | | | | | | | | |
| 730 | Remove Old Tamiami Trail * | X | | | | | | | | | | | | | | |
| IRL-S C-44 Reservoir | | | | | | | | | | | | | | | | |
| LO Regulation Schedule Revisions | | | | | | | | | | | | | | | | |
| 365 | Seepage Barrier L-31N | 8 | NW | | | | | | | | | | | | | |
| 1825 | A-2 FEB (5 sub contracts) | 9 | | | | | | | | | | | | | | |

Assumes \$50M Federal/\$50M Non-Federal

PROJECT DEPENDENCIES

- CEPP implementation dependencies:
 - *C-111SD and Modified Water Deliveries complete, operational*
 - *State of Florida “Restoration Strategies” water quality projects*
 - *DOI “Tamiami Trail Next Steps” bridge project*
 - *System-wide Operations Revision*
 - Lake Okeechobee Regulation Schedule
 - *CERP project dependencies*
 - IRL-S C-44 Project, Broward Water Preserve Areas C-11 Impoundment
 - *Other CERP projects*
 - *Not dependencies, but contribute to system benefits*
 - *IRL-S C-23/24, C-43 Reservoir, C-111 Spreader, Biscayne Bay Coastal Wetlands, Site 1*
- Federal Authorization and Appropriations
- State funding availability and cost-share credits
- Water quality compliance/permitting
 - *Demonstration of compliance with WQBEL and Appendix A*

PATH FORWARD: Dependencies & Financial Capability

- C-111SD and Modified Water Deliveries – resolve crediting and PCA amendment, construct contract 8 (North Detention Area) AND develop/implement operational plan for MWD project (water quality compliance)
- Water Quality Compliance Shark River Slough – TOC sub-team review of Appendix A methodology (ongoing)
- State of Florida “Restoration Strategies” water quality projects – construction scheduled for completion in 2024, frees up some State funding
 - *Provisions exist to modify permits should all parties agree circumstances warrant earlier implementation of CEPP features*
- DOI “Tamiami Trail Next Steps” bridge project – poised to receive both Federal and State funding to implement
- Lake Okeechobee Regulation Schedule – System Operation Manual revision will be required once HHD rehab sufficient, KRR and C-44 come on line
- CERP projects – update Integrated Delivery Schedule
- State funding availability and cost share credits – passage of WRRDA and execution of PPAs to allow application of credits to cost-share balance
- Federal authorization and appropriations - Congress

PUBLIC & AGENCY COMMENTS

- 30 formal comment letters
- 214 emailed comments
- Comments from 5 public workshops
 - *Over 100 comments expressing support for CEPP and continued expedited schedule*

PUBLIC & AGENCY COMMENTS: TOPICS

- Adaptive management
- Benefits Biscayne Bay
- Cost
- Cultural resources
- Dependencies
- Ecosystem services
- Endangered species
- Environmental effects
- Exotics project
- Implementation
- LO releases & LORS
- Modified Water Deliveries project
- Modeling
- NEPA
- Operations
- Pilot planning program
- Plan 6
- Plan formulation
- Recreation
- Savings clause
- Sea level rise
- Water supply
- Western basins
- WRDA

NEXT STEPS

- Finalize responses to public & agency review comments
- Finalize responses to USACE policy review and coordinate with vertical team
- Revise PIR based on public, agency and IEPR, USACE policy reviews
- Incorporate USFWS & NMFS Biological Opinions & costs
- Final PIR reviews
 - *Jacksonville District/SFWMD quality/technical review of Final PIR*
 - Cost certification
 - *Agency technical review of Final PIR*
 - *SFWMD approval of Letter of Support and Financial Capability*
 - *USACE HQ review of Final PIR*
 - *Civil Works Review Board and approval to release Final PIR*
- 30-Day Public & Agency review of Final PIR
- Address comments and prepare Chief of Engineers Report

THANK YOU

