Phase II Configuration Development

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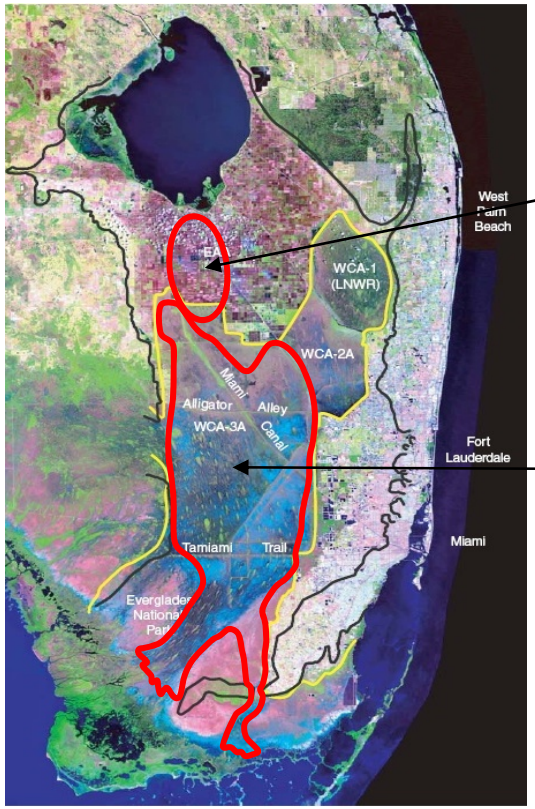
Presentation Overview

- Endpoints of Phase II Planning Process
- Management Guidance
- Planning Objectives and Constraints
- In-Lake Storage
- Configuration Planning (First Step)
- Modeling Assumptions
- Potential Innovative Management Measures
- Questions

Phase II Planning
Endpoints

- Identify 2 - 4 viable configurations
  - With and without land location constraints
- Identify first increment to design and construct

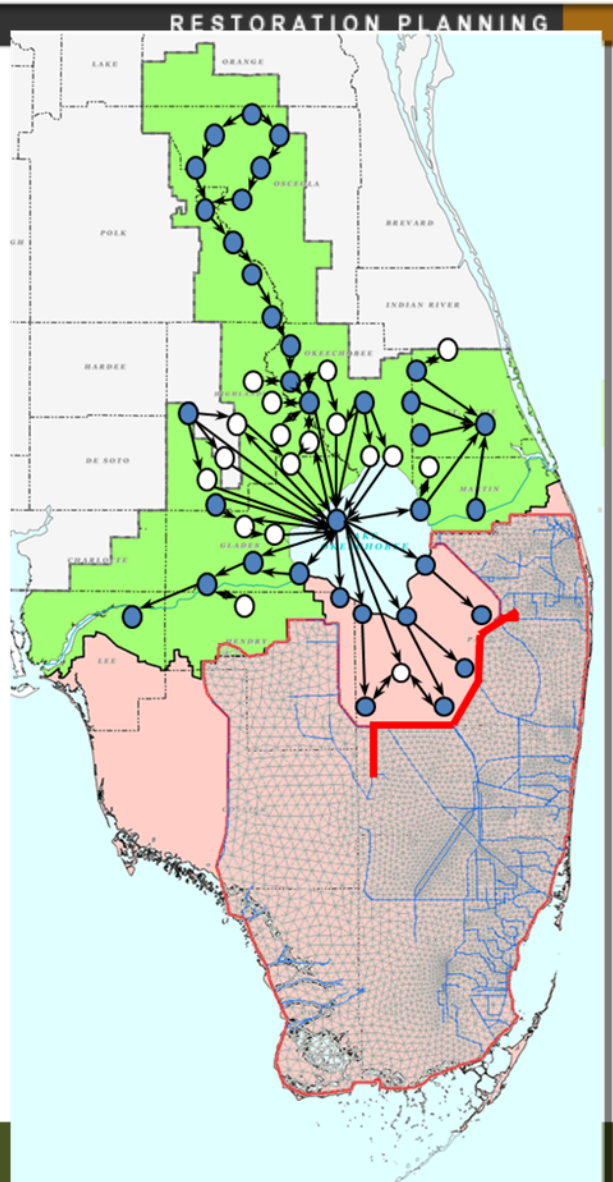


Subsided Ag Land

Degraded Ridge & Slough

Phase II Planning
Focus & Process

- Focus on EAA configurations and Red Line flows
- Process:
  - Initially identify a range of potential infrastructure configurations, costs, and performance levels
  - Compare, contrast, optimize



Management Guidance

- Evaluate the benefits of a range of configuration sizes and feature types
- Footprint range
  - ≤ 73,000 acres up to a maximum of 180,000 acres
  - Compartment A is additional acreage
- Identify configurations on USSC lands and on other lands
- Identify 2 to 4 cost-effective configurations

Configuration Screening Criteria

- Compare and contrast configurations based on identified and measurable objectives and constraints
  - Objectives: The things we wish to achieve
    - Improve flows
    - Improve water quality
    - Optimize performance for least cost
  - Constraints: The things we wish to avoid
    - Impacts to local communities (low, medium, high)
    - Adverse impacts to existing legal users
    - Conflicts with state and federal law

Planning Objectives

- Improve Red Line flow volumes and timing to maximize benefits to the Everglades, Lake Okeechobee and the Northern Estuaries
- Improve the quality of water delivered to the Everglades consistent with phosphorus water quality standard
- Optimize flows and water quality for least cost

Planning Constraints

- Minimize economic impacts to local communities (NEPA, Environmental Justice)
- Avoid adverse impacts to existing legal users
- Avoid configurations that do not comply with federal or state law
  - Clean Water Act
  - State water quality standards
  - Endangered Species Act
  - Navigation Issues

Potential Planning Groups Based on Feature Type Combinations

- Configuration Planning Groups
  - Deep storage reservoirs with STAs
  - Shallow Dry Storage with STAs
  - Shallow Wet Storage With STAs
  - Deep Storage Reservoir and Shallow Storage with STAs
  - Deep Storage within Lake Okeechobee with STAs

Note: Does not preclude use of ASR

Is Deep Lake Okeechobee Storage Viable?

- Potential Issues
  - Mitigation requirement for impact to Lake
  - Federal/State permitting challenges
    - Avoidance and minimization
    - Navigation
    - Endangered Species/Migratory Birds
    - State Sovereign Lands
  - Elevated TP in deliveries to downstream STAs

Configuration Planning

- Start with 180,000 acres unconstrained by location
- Develop configurations on July 21 and 22
- Teams provide as much detail as possible on water conveyance features, STA loading, reservoir sizes, etc.
- Staff will be communicating/clarifying with team leaders over following two weeks
- SFWMD will model and develop cost estimates and performance evaluation

Configuration Planning (Continued)

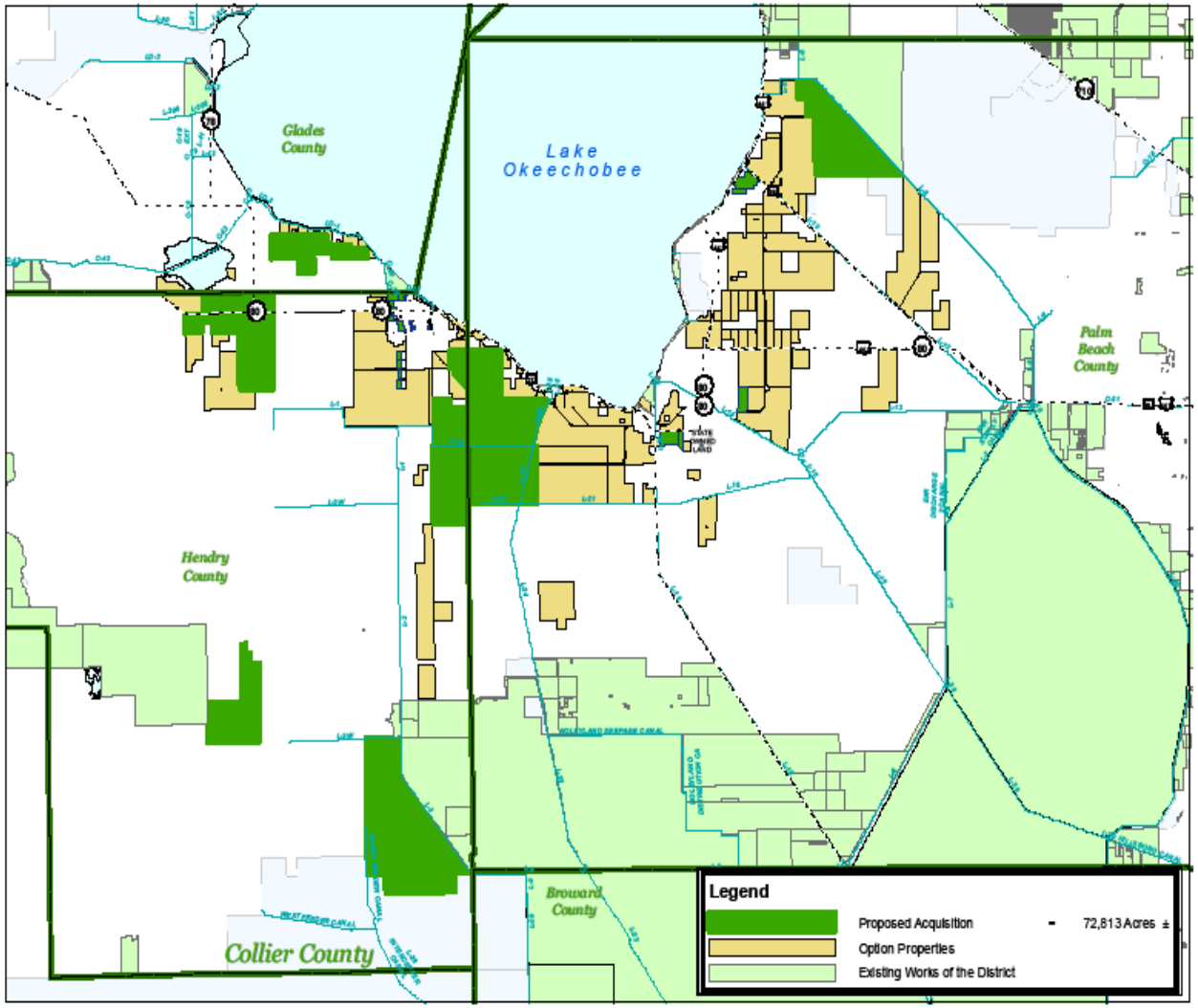
- Will report back to teams on September 22 & 23
  - Red Line flows and timing
  - Northern estuaries and Lake performance
  - Water quality performance
- Discuss results and opportunities for optimizing performance
- Discuss viability of configurations based on objectives and constraints
- Will not remodel at this time

Potential Configuration Planning Groups

Feature Types	Deep Storage w/ STAs	Shallow Dry Storage w/ STAs	Shallow Wet Storage w/ STAs	Deep & Shallow Storage w/ STAs	Deep Storage in Lake O w/ STAs
≤ 180,000 acres	July 21-22	July 21-22	July 21-22	July 21-22	July 21-22
≤ 180,000 acres on USSC land	Sept	Sept	Sept	Sept	Sept
≤ 73,000 acres	Nov	Nov	Nov	Nov	Nov
≤ 73,000 acres on USSC land	Jan	Jan	Jan	Jan	Jan

Potential Acquisition Lands

- Initial purchase of approximately 73,000 acres (dark green)
- Option lands: 107,000 acres (light brown)



Phase II Modeling Assumptions

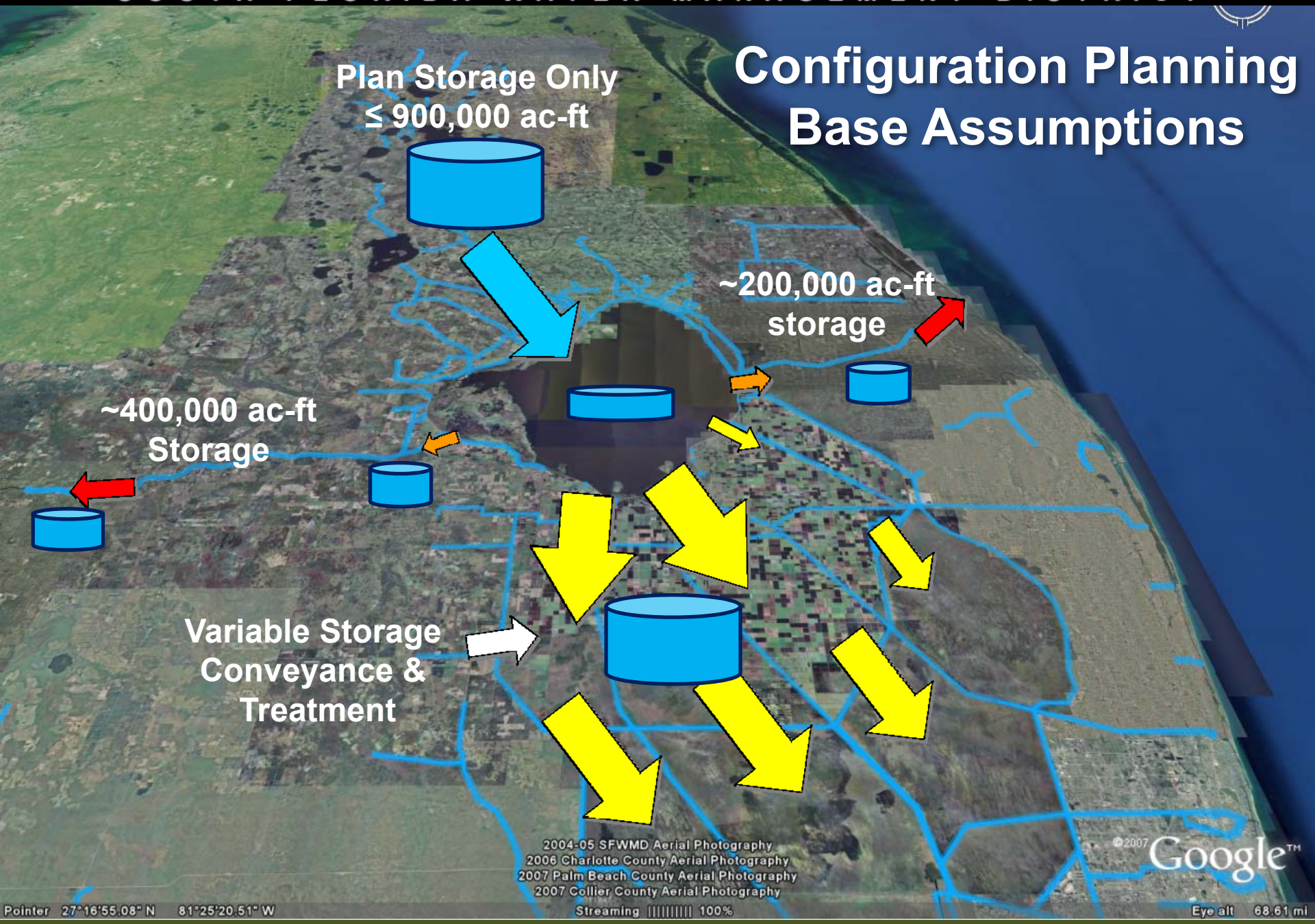
RSM model will simulate each of the Configurations with common elements

- River Watershed Protection Plans (RWPPs) east & west
- Storage north will be defined by ROG teams
  - Will not plan treatment features north of Lake
- Storage, treatment and conveyance features south of Lake to be defined by ROG teams

Configuration Planning Common Elements

- Lake Okeechobee operations: LORS 2008
- Caloosahatchee River Watershed Protection Plan in place with ~400,000 ac-ft of storage
- St. Lucie River Watershed Protection Plan in place with ~200,000 ac-ft of storage
- Compartments B & C expansions complete. Cannot alter B&C purpose
- Up to ~900,000 ac-ft of storage north of Lake (planning limit - can be less)

Configuration Planning Base Assumptions



Planning Guidelines

- STAs: Design in parallel, not series
  - Must consider loads to STAs
  - Retain function and purpose of existing STAs to avoid Consent Decree issues
- Large wet areas that are allowed to dry out will export phosphorus
- ASR has limited flow production capability, but may be a help with keeping features wet
- Compartment A is available for configuration planning

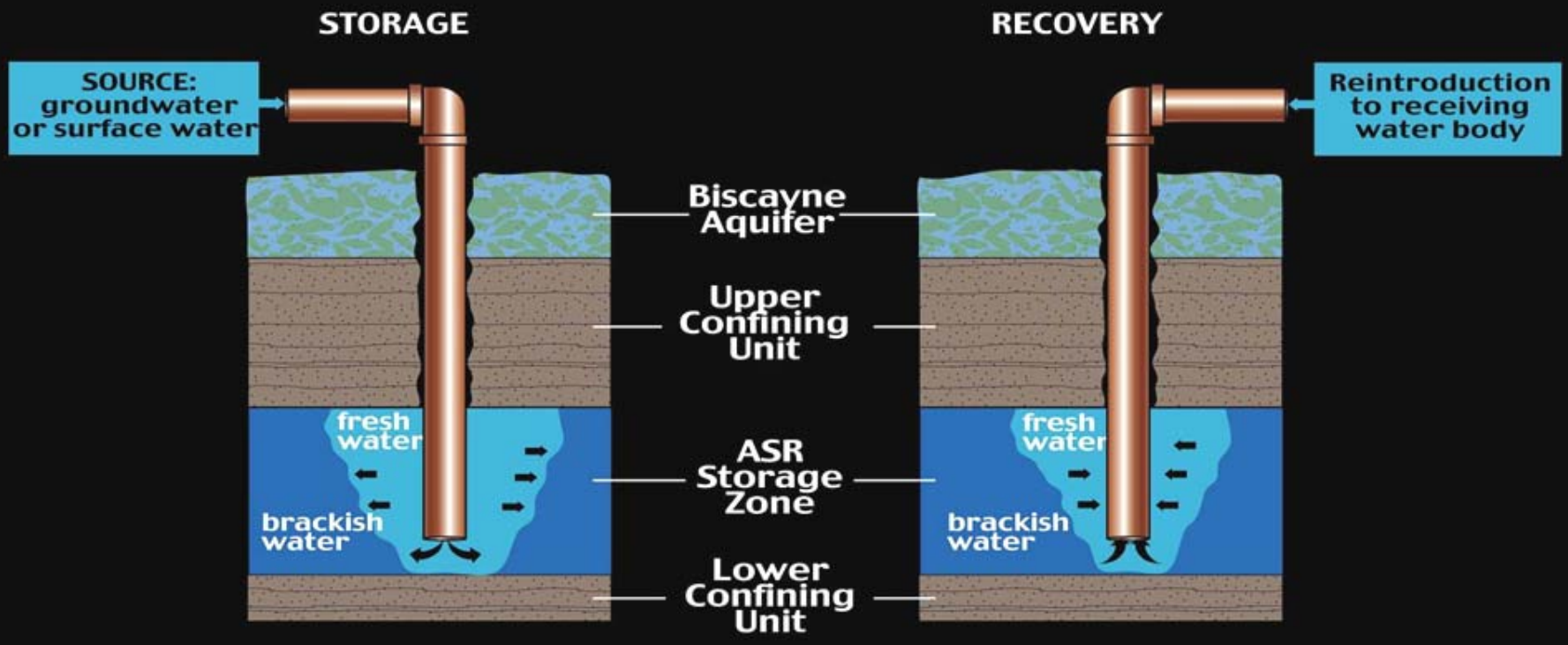
Potential Innovative Management Measures

- Aquifer Storage and Recovery
- Use of rock mining pits
- Dispersed Storage

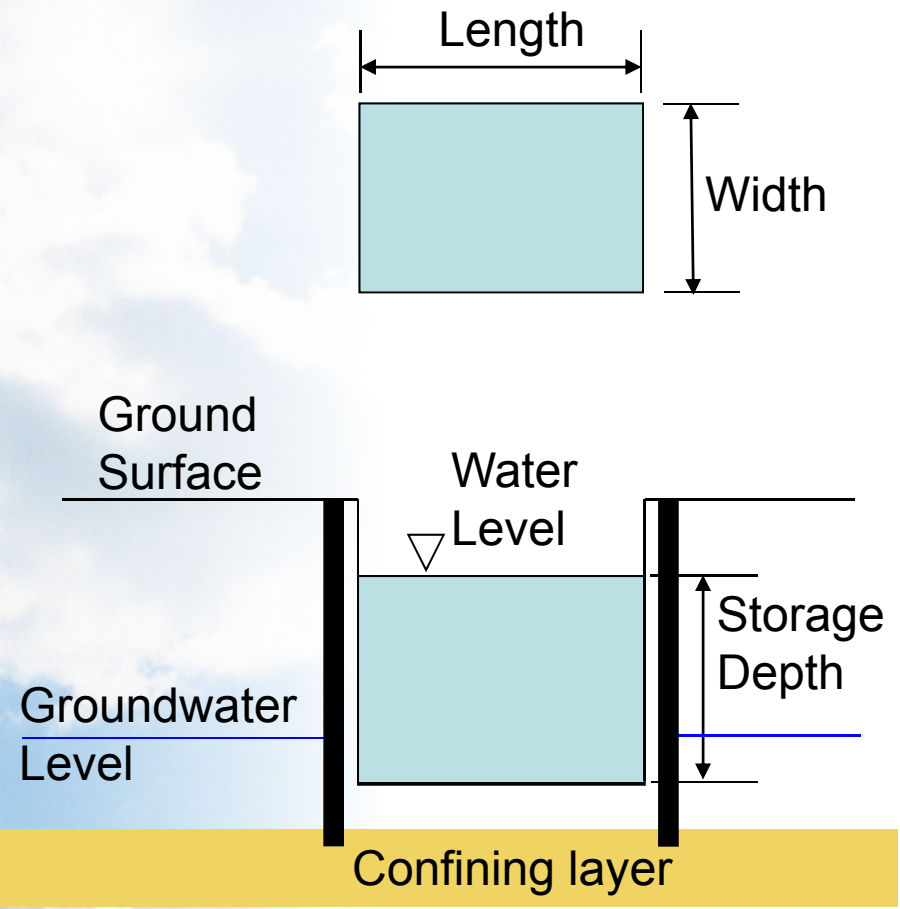
Aquifer Storage and Recovery

- Avoid large, dense clusters of wells
  - Spacing and geology considerations
- May have limited potential to increase Red Line flows
  - One 5 MGD well produces 15 acre-ft per day or 7.7 cfs
- Potential to keep STAs and flow-ways wet
  - 5 ASR wells could keep 5,000 acre STA wet for 60 days

Aquifer Storage and Recovery



Use of Existing Rock Mining Pits



- Existing rock mines may be incorporated
- Proposed rock mines should not be considered in formulating configurations due to long mining periods and uncertainty of availability
- Cut-off wall to ~160 ft.

Dispersed Storage

- Focus on total storage north of Lake Okeechobee, rather than differentiating between dispersed vs. deep storage
  - Field testing underway to document approach for water quantity and quality benefits
  - Currently lack calibrated RSM modeling approach
  - Will not be formulating for water quality north of Lake
  - The Lake Okeechobee Protection Plan will identify appropriate future role

Questions?

Future Meeting Topics

Matt Morrison, Director, Project Coordination

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