SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Caloosahatchee Community Forums

August 8, 2014

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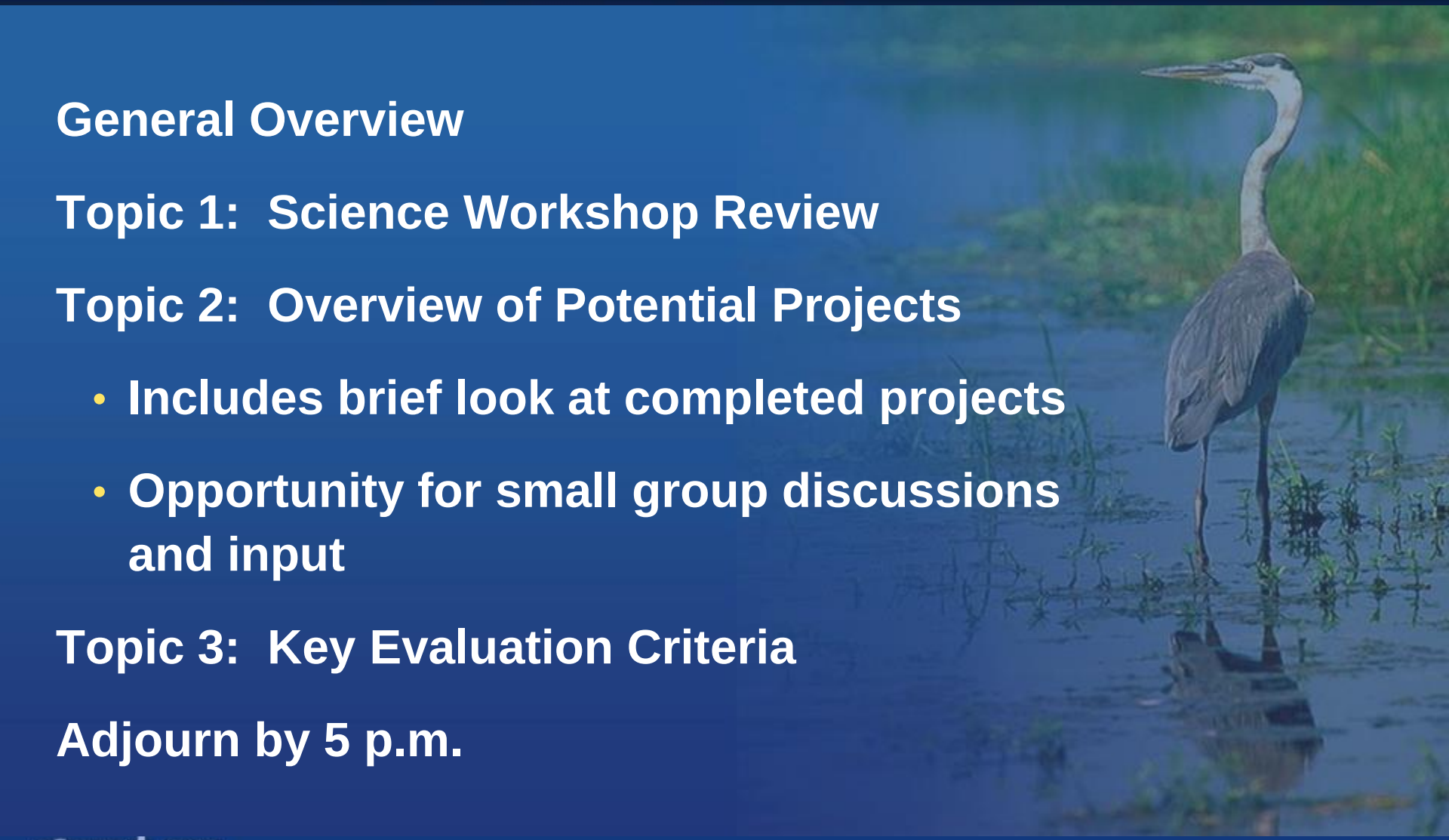
AGENDA OVERVIEW



General Overview

Topic 1: Science Workshop Review

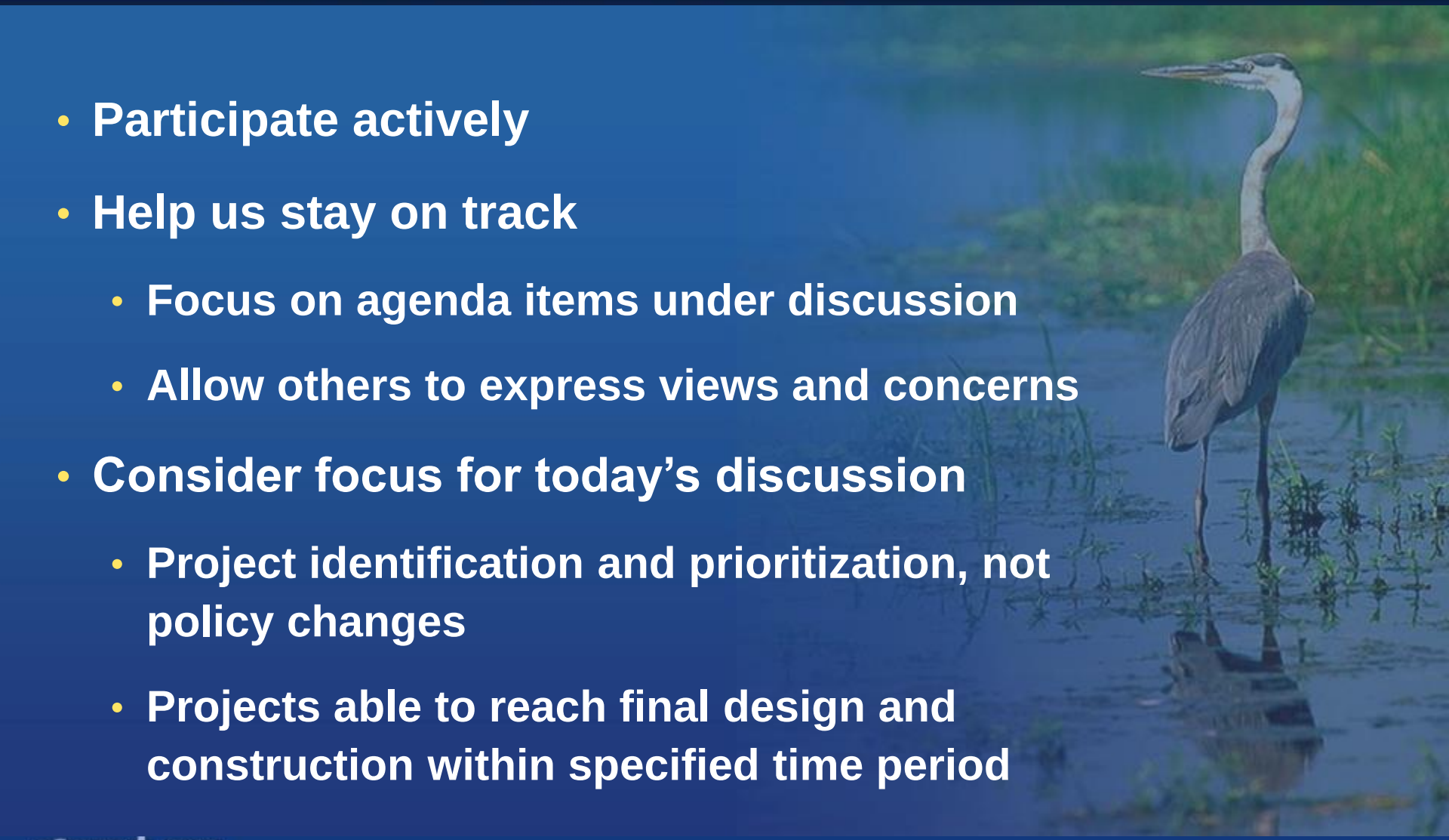
Topic 2: Overview of Potential Projects

- Includes brief look at completed projects
- Opportunity for small group discussions and input

Topic 3: Key Evaluation Criteria

Adjourn by 5 p.m.

MEETING PROTOCOLS



- Participate actively
- Help us stay on track
  - Focus on agenda items under discussion
  - Allow others to express views and concerns
- Consider focus for today's discussion
  - Project identification and prioritization, not policy changes
  - Projects able to reach final design and construction within specified time period

Synopsis of Caloosahatchee Science Workshop

November 19-20, 2013

Michael L. Parsons, Ph.D.
Coastal Watershed Institute
Florida Gulf Coast University

Workshop Objectives

- Summarize major environmental challenges facing the Caloosahatchee
- Discuss indicators for assessing environmental condition and tracking progress
- Identify gaps where more information would improve our ability to manage and restore the system

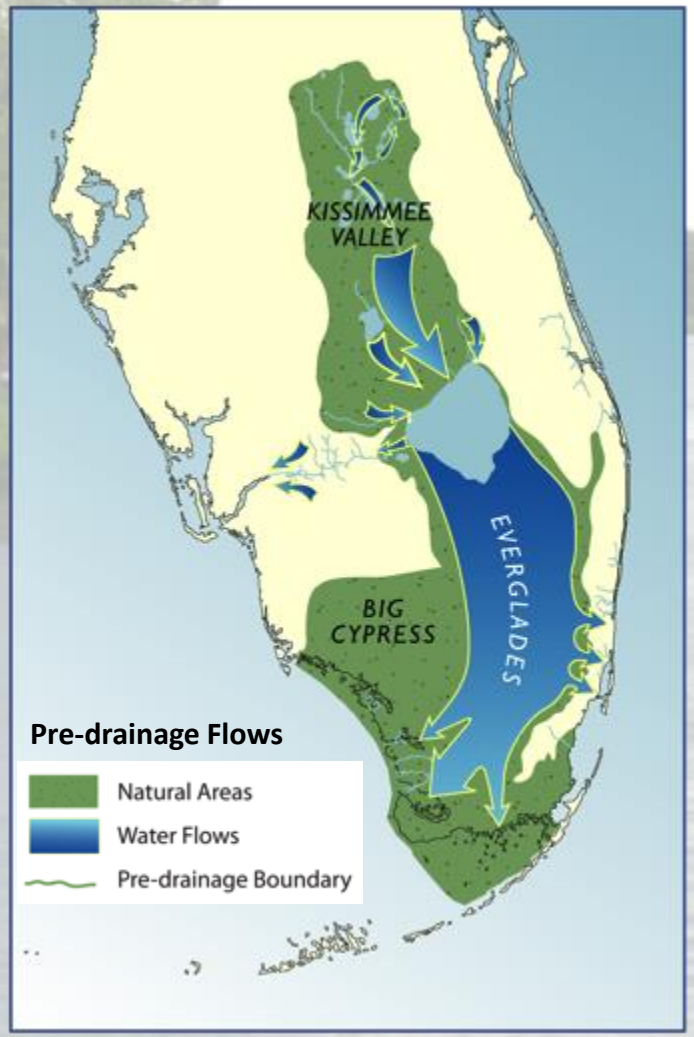
Workshop Structure

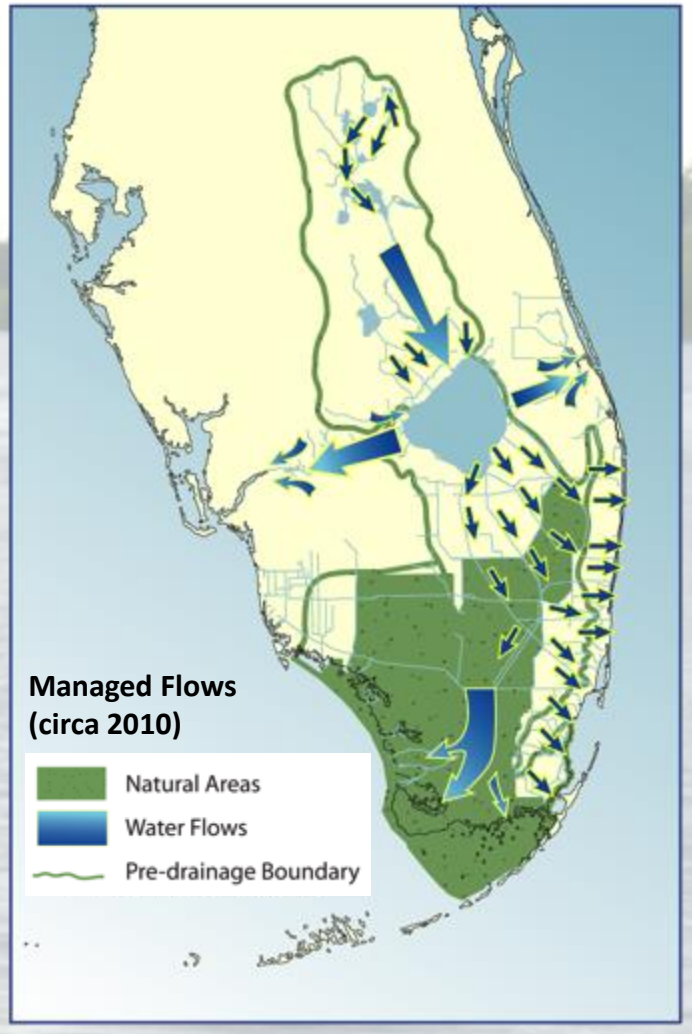
- Experts were invited to speak about ecosystem health
- Break-out sessions were convened
- The workshop closed with a final panel to synthesize findings

Workshop Attendance and Participation

- Multiple governmental, non-governmental, and other interested stakeholders (75-150 people)
- Invited Speakers
  - FGCU (James Douglass, Leslie Haynes, Katie McFarland, Darren Rumbold, Greg Tolley); FWCC (Gregg Poulakis); Mote (Jim Culter); Johnson Engineering (Dave Ceilley); SCCF (Rick Bartleson & Eric Milbrandt); USF (Chloe Delhomme); FDEP (Melinda Brown)
- Final Panelists
  - Jennifer Carpenter (FDEP); James Evans (Sanibel); Keith Kibbey (Lee County); Judy Ott (CHNEP); Pete Quasius (Collier County Audubon Society)

Water Flows: "too much during wet season" versus "too little during dry season"

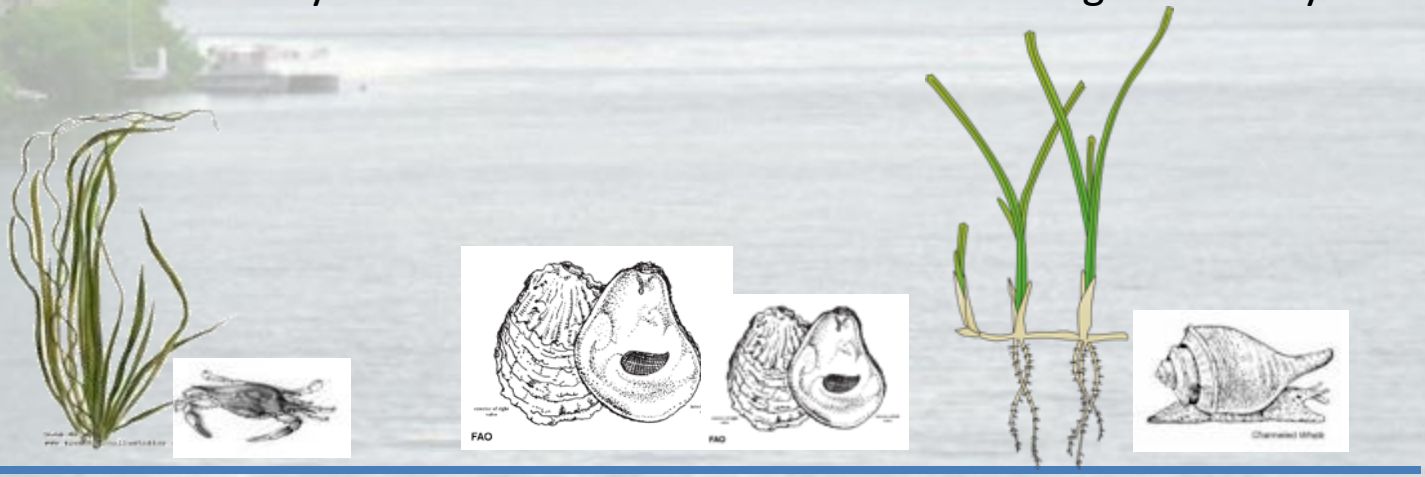




Indicators and Salinity

Prefer Low Salinity

Prefer Higher Salinity



0 5 10 15 20 25 30

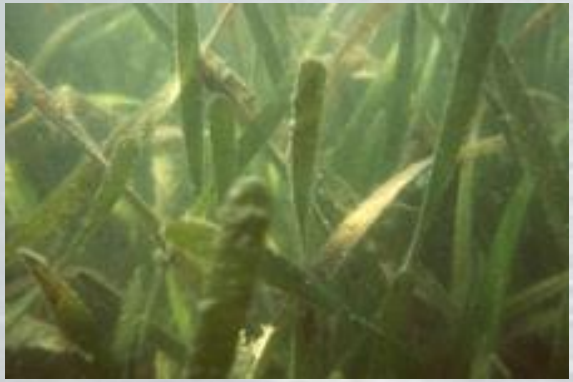
Salinity Gradient

Ecological Indicators in the Caloosahatchee

- Monitoring some of these indicators for over a decade
  - Are they telling us what we need to know?
  - Are they still appropriate?
- Understanding of the Caloosahatchee has increased since the original ecological model
  - Are there other useful indicators we should be using?

What we learned: SAV and oysters

steady



What we learned: algal blooms

Stagnant waters (photo from 2008)

Result of high flows? (photo from 2003)

What we learned: fish

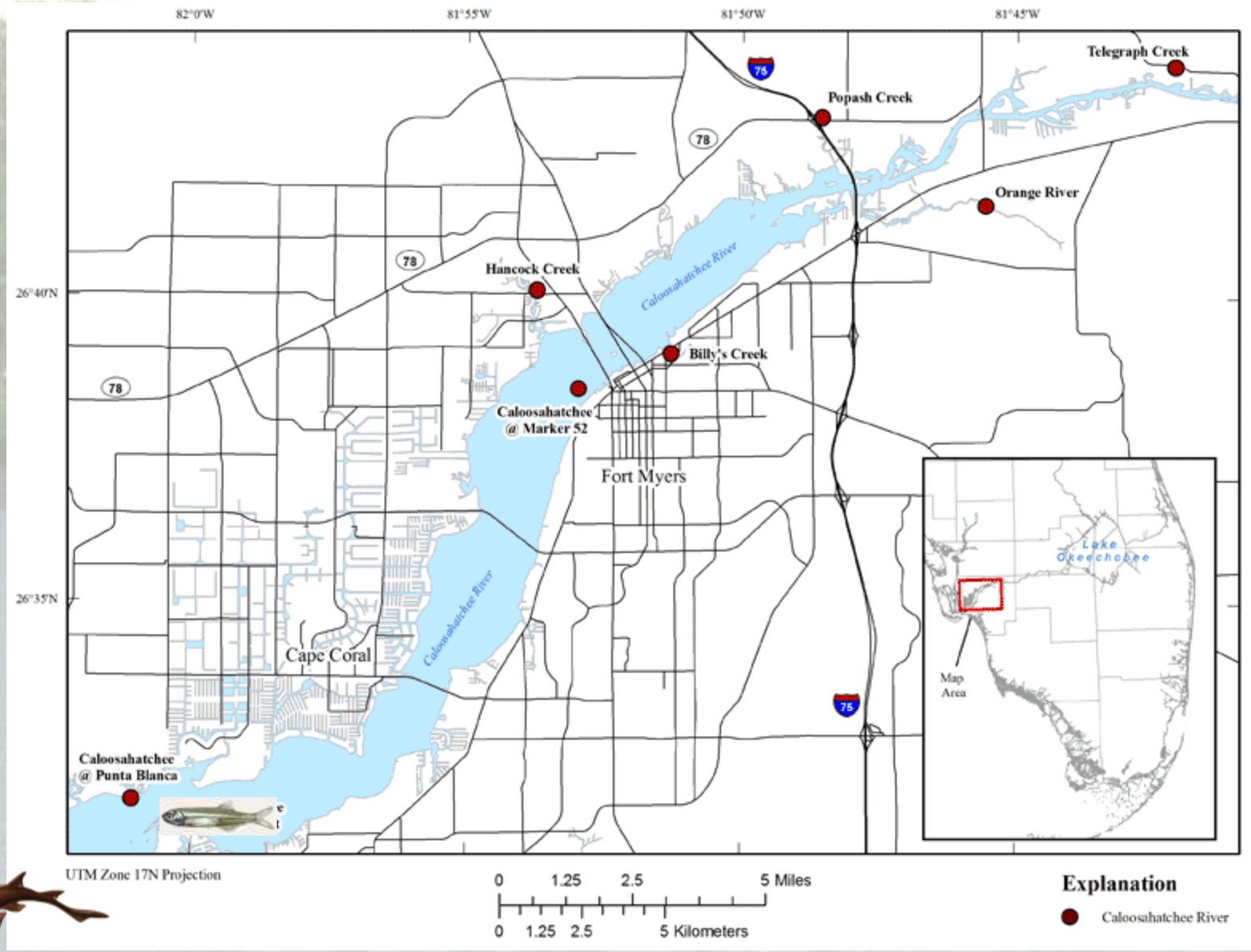


Table 3. Summary table of indicators providing salinity ranges, recommended flow regimes, temperature tolerances, other important stresors to consider, and proposed use to management.

Indicator	known salinity range?	recommended flow regime?	temperature?	Other important stressors?	Use to management?
Vallisneria	<10	>450 cfs		grazing; light	low salinity indicator; upper estuary
Halodule	20-30			light	moderate salinity indicator; mid- to lower estuary
Thalassia	>30	<2800 cfs		light	high salinity indicator; lower estuary and San Carlos Bay
oysters	15-30	1000-3000 cfs	<30		moderate salinity indicator; mid- to lower estuary
phytoplankton		1000-3000 cfs		high residence times	moderate flow indicator; establishment of productivity "sweet spot" in mid-estuary.
zooplankton		0 < x < 3000 cfs			moderate flow indicator; establishment of productivity "sweet spot" in mid-estuary.
cyanobacteria		>0 cfs	>25	high P	canary in the coal mine; stagnant waters
drift algae	>30		<25	grazing	canary in the coal mine; nutrient loading too high?
bony fishes					habitat fragmentation; zooplankton/food movements and location
sawfish	18-30		>30		food movements in river
oxbows					historical resource; use for backwater/protected water studies; nursery for *Vallisneria*
green mussels	>15		<30	desiccation; cold temperatures	SLR indicator; subtidal indicator

Summary of Findings

- Indicators are responding to river flow (and salinity)
- General agreement in optimal flow conditions
  - >450 cfs
  - <3000 cfs
- Can a “sweet spot” be created?
  - Optimize habitat spatially
  - Optimize productivity

Gaps

- Recovery periods?
  - *Vallisneria*
  - *Thalassia*
- Plankton and flow
- Need to collate and analyze available data
- Need for new spatial surveys and aerial maps

Panel summaries

- Need for a science working group
- Need to link various indicator responses
  - How are they responding similarly?
  - How are they responding differently?
- Need to study planktonic (water column) communities (phytoplankton and zooplankton)

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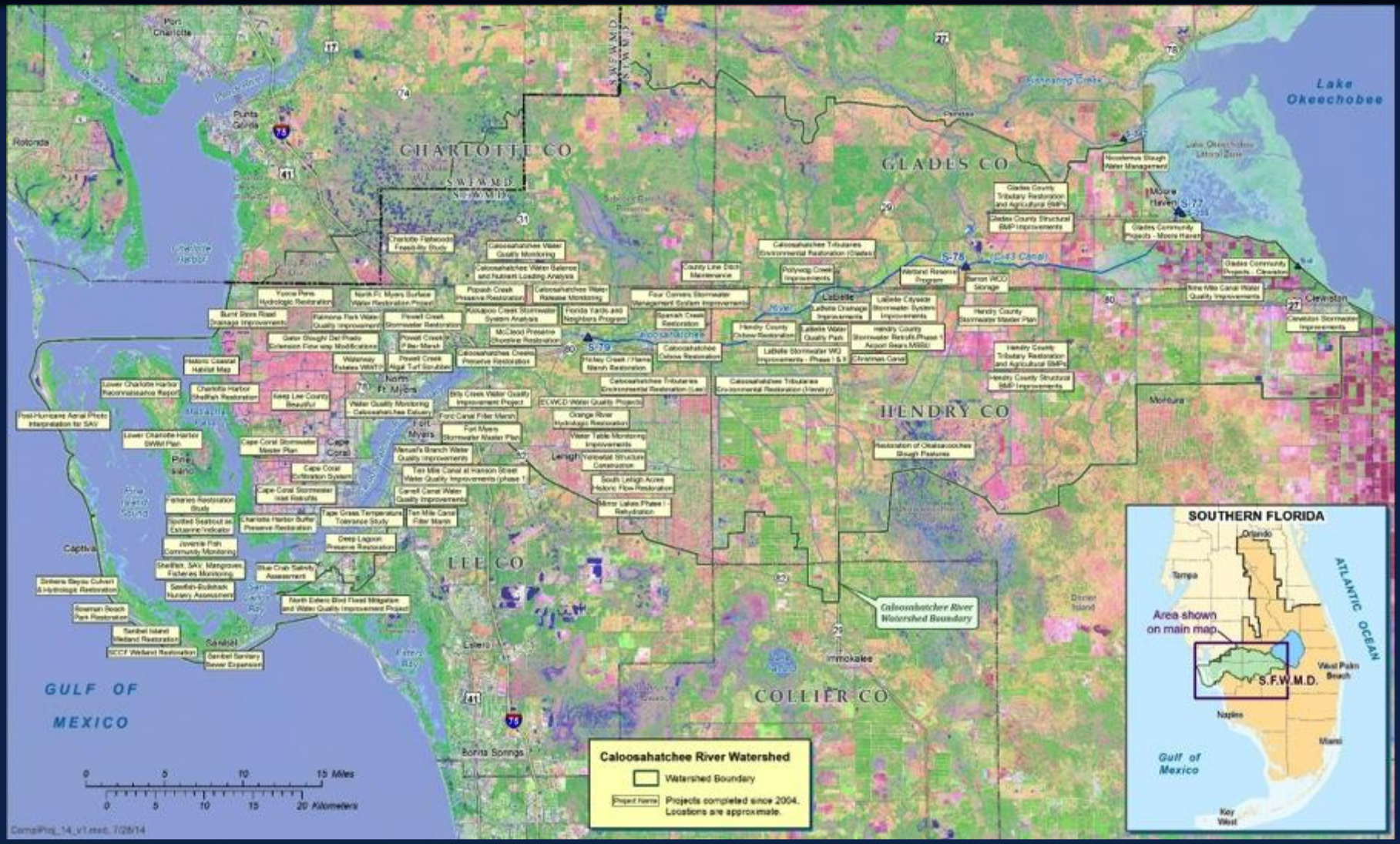
Completed Watershed Projects
Since 2004



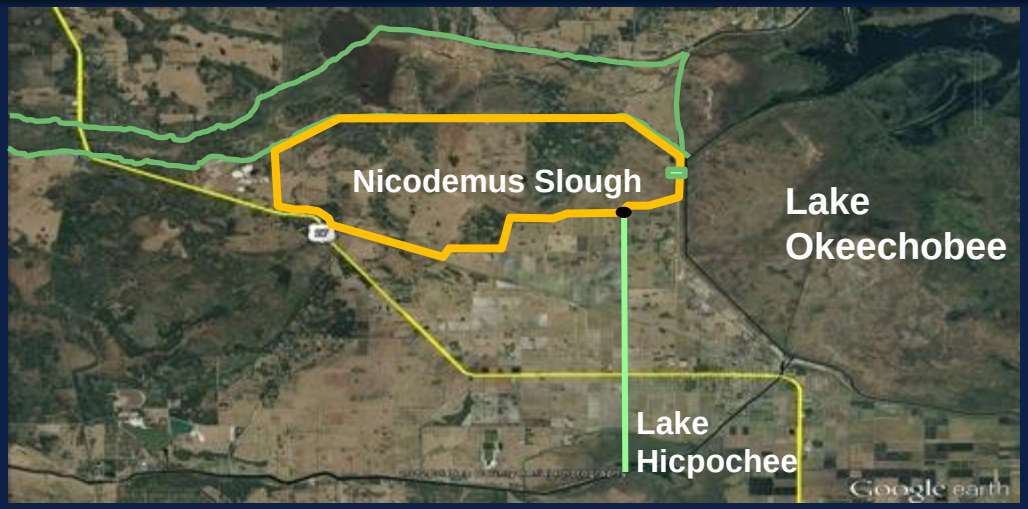
Completed Watershed Projects
Summary of Projects

Approximately 100 completed projects throughout watershed

State, Local, Regional Projects

- Water Storage
- Water Quality
- General Health of Estuary

Completed Watershed Projects
Regional Projects – Some Examples



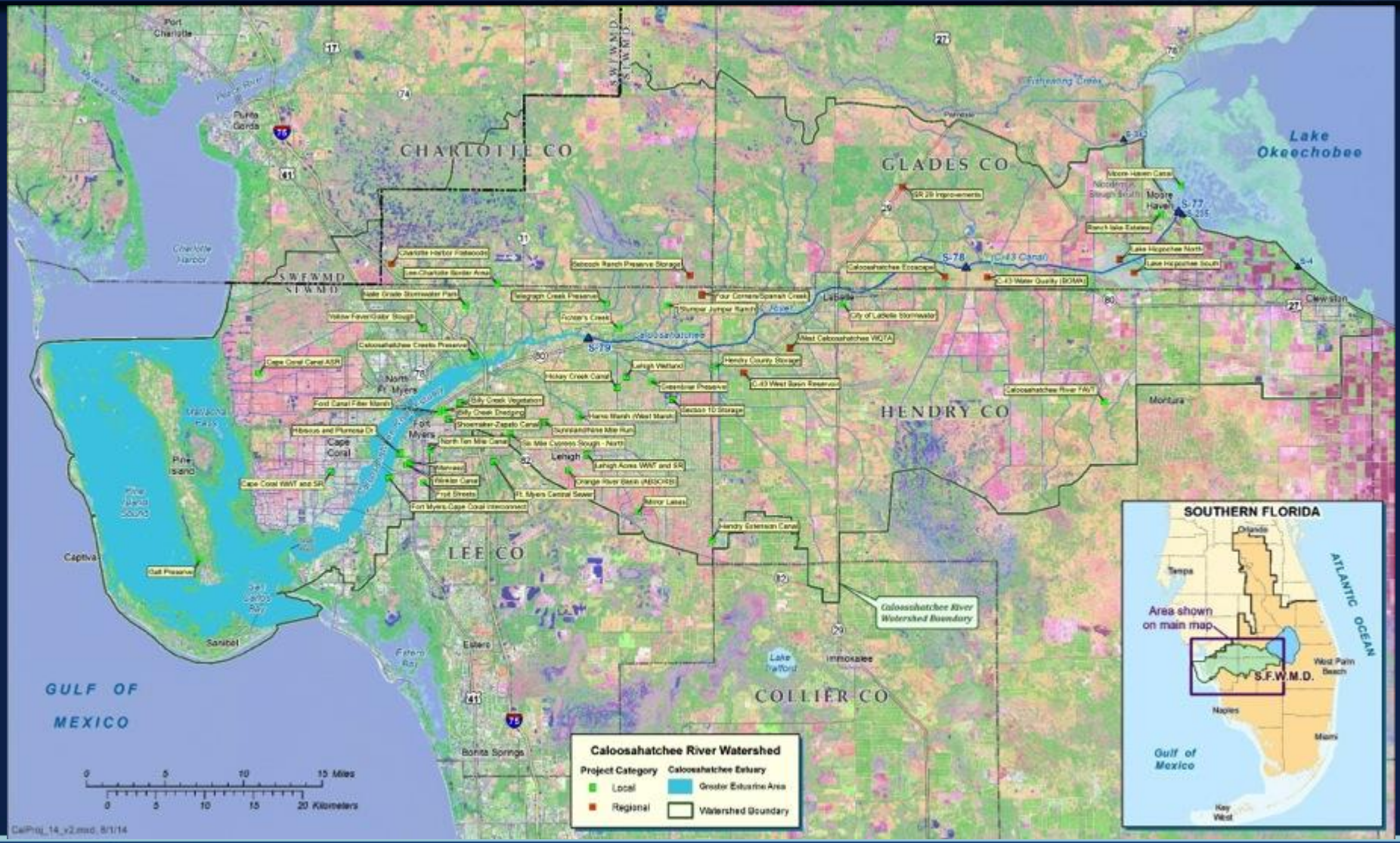
- Nicodemus Slough
- Barron WCD Storage
- Wetland Reserve Program
- Local Stormwater Masterplans
- FRESP

- NPDES Program
- ERP Program
- Water Quality Monitoring
- Biosolids Rule

Completed Watershed Projects
Local Projects – Some Examples

- Billys Creek Filter Marsh
- Harns Marsh (Phase I)
- Manuels Branch
- Pollywog Creek Stormwater Improvements
- Pop Ash Creek Preserve
- Powell Creek Filter Marsh
- Cape Coral Stormwater Retrofit

Proposed Watershed Projects



Proposed Watershed Projects
Source of Project Information

- Caloosahatchee River Watershed Protection Plan
- Caloosahatchee Estuary Basin Management Action Plan
- Local Stormwater Master Plans
- Local Capital Improvement Plans

Proposed Watershed Projects
Types of Projects

- **Water Storage** (reservoirs, ponds, ASR)
- **Dispersed Water Storage** (ranch, citrus, interim lands)
- **Water Quality Projects** (filtermarsh, hybrid treatment)
- **Local Stormwater Projects** (drainage improvements, WQ/storage)
- **BMPs** (ag, urban)

Proposed Watershed Projects
Project Information

Project Description and Status

Project Phase

- Near Term
- Long Term
- Ongoing

Project Category

- Regional
- Local

Agency

Estimated Cost

Estimated Nutrient Removal

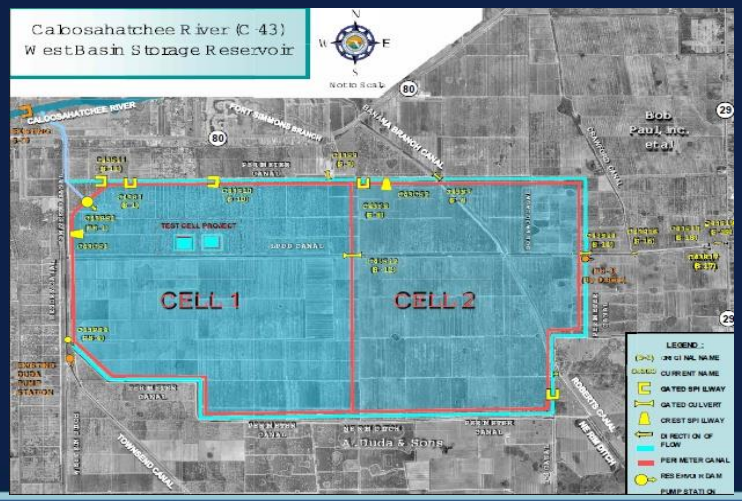
Estimated Storage

Proposed Watershed Projects
Regional Projects – Some Examples

- Lake Hicpochee
- Dispersed Water Management
- Distributed Reservoirs
- Agricultural BMPs
- Charlotte Harbor Flatwoods

Proposed Watershed Projects
Regional Projects – Some Examples

- C-43 Water Quality Demonstration and Treatment (BOMA)
- Babcock Ranch Preserve
- Vallisneria Plantings
- C-43 West Basin Storage Reservoir

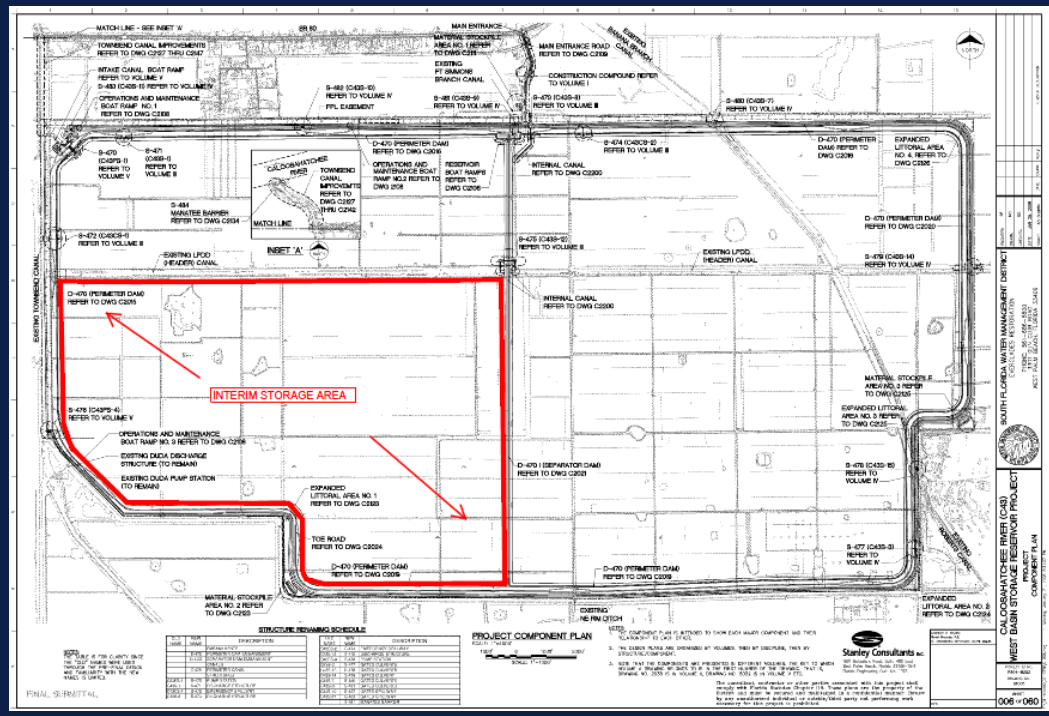


Proposed Watershed Projects
C-43 Early Start Project

- **Objective**

Provide interim shallow storage at the CERP C-43 Reservoir Project site

  - Early construction of some elements of the C-43 West Reservoir Project
  - 3,500 acres
  - 8-11,000 acre-feet of storage



- **Status**

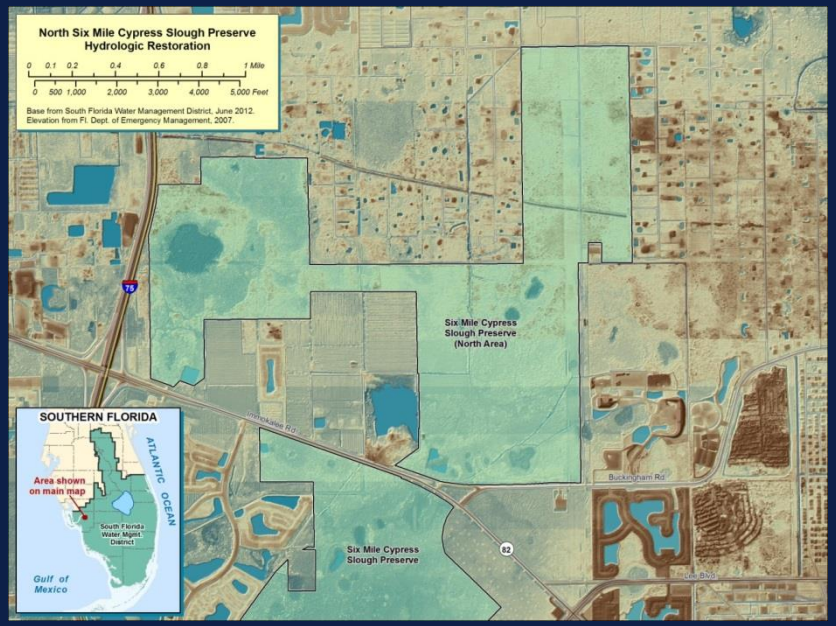
  - Review of existing plans, permits, and reports is ongoing
  - Initial discussions with USACOE re: CERP early work and cost share have occurred
  - Initial discussions with DOI re: interim land use change have occurred
  - Initiate demolition in April

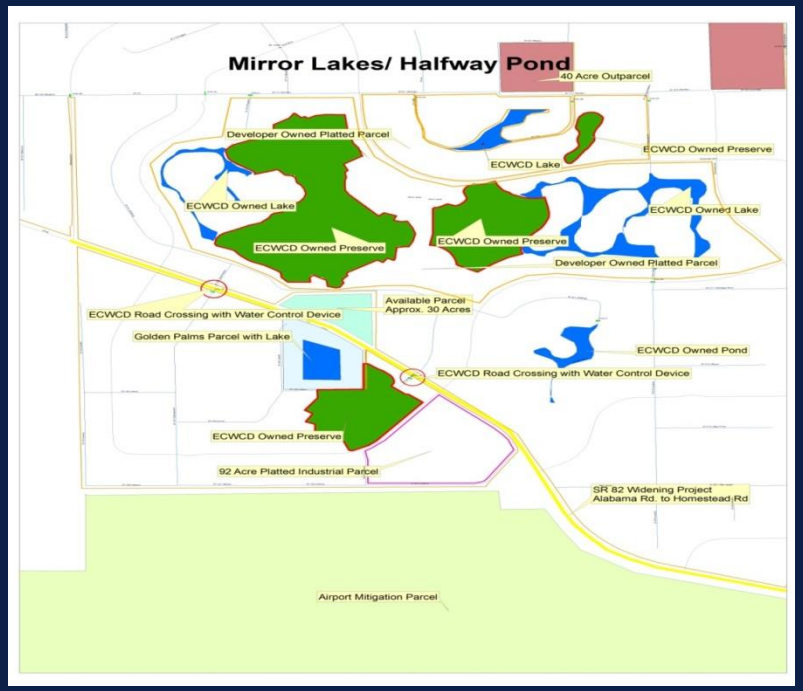
Proposed Watershed Projects
Local Projects – Some Examples

North Six Mile Cypress

Mirror Lakes/Moving Water South

Cape Coral Stormwater Recovery/ASR





Proposed Watershed Projects
Local Projects – Some Examples

- ABSORB/Lehigh Headwaters
- Central Sewer Expansion Projects
- Floating Aquatic Vegetative Tilling Project
- Fichter's Creek Restoration
- Ft. Myers-Cape Coral Reclaimed Water Interconnect
- Hendry Extension Canal Widening

Questions?

SMALL GROUP DISCUSSIONS: Potential Projects

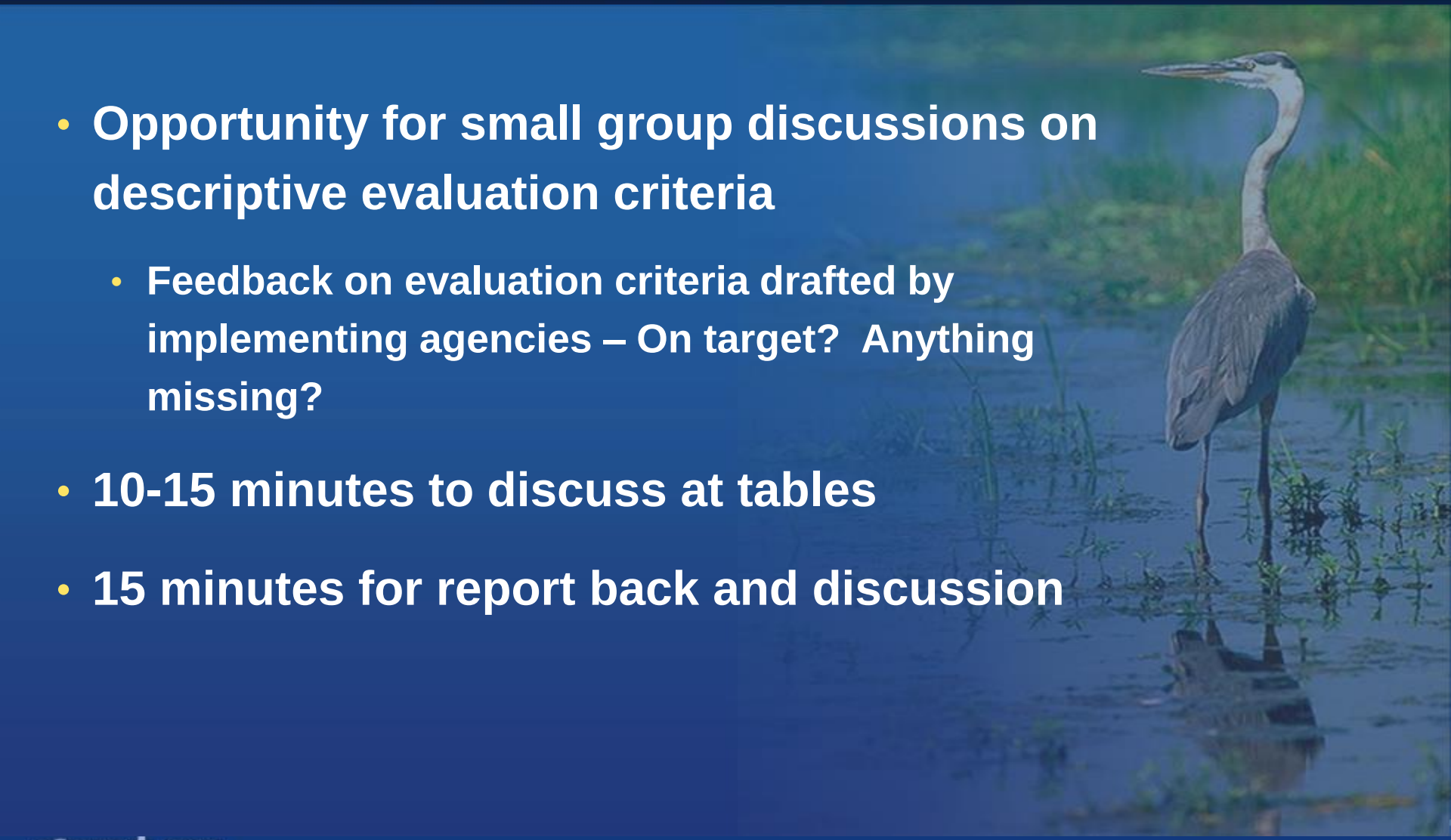
- Opportunity for small group discussions on following topics related to potential projects
  - Key projects missing
  - Additional information needs
  - Emerging priority projects
  - Other longer-term issues
- 45 minutes to discuss at tables
  - Each table to identify recorder to capture key themes
  - Save 5 minutes to confirm report-back summary
  - 15 minutes report back and discussion (post-break)

Break

Descriptive Evaluation Criteria

- Nutrient removal or reduction potential
- Water storage potential
- Operational distribution and timing
- Implementation readiness
- Regional impact
- Multiple benefits
- Sustainability

SMALL GROUP DISCUSSIONS: Descriptive Evaluation Criteria



- Opportunity for small group discussions on descriptive evaluation criteria
  - Feedback on evaluation criteria drafted by implementing agencies – On target? Anything missing?
- 10-15 minutes to discuss at tables
- 15 minutes for report back and discussion