KEYNOTE SPEAKERS

Andrea Wesser-Brawner
Chief Innovation & Emerging Technology Officer
Orange County Government

Angela Chelette
Environmental Administrator,
Florida Department of Agriculture and Consumer Services

Steve Davis
The Everglades Foundation
Chief Science Officer

Florida Research Development Alliance (FloRDA)

COLLABORATE FloRDA:
WATER

FEBRUARY 24, 2022 10AM - 12:30PM

This virtual intercollegiate collaboration event features keynote speakers from local governments and a foundation, along with interdisciplinary discussions among researchers. We aim to facilitate interactions between researchers and professionals from across the state of Florida to find new ways to solve local societal issues that revolve around an essential resource in our state: water.

FloRDA

https://florda.org/events/water/

Speakers, Presenters, & Attendees

Thank you for the participation of our keynote speakers, 31 Presenters, and over 100 Attendees from across the state of Florida.

FloRDA

Keynote Speaker Bios

Andrea Wesser-Brawner is Orange County's first Chief Innovation & Emerging Technology Officer where she builds upon Orange County Mayor Jerry L. Demings' vision of Orange Tomorrow" and creating a culture of innovation, collaboration and inclusiveness. In her role, she focuses on creating public and private partnerships throughout the entire organization to leverage technology to keep up with global trends and position Orange County as a leader in the innovation industry. Through the development of strategic plans and collaborating with a variety of critical stakeholders, Wesser-Brawner believes Orange County is set to be a regional, national, and international powerhouse of cutting-edge technology through championing large-scale projects bringing positive impacts to Orange County residents and visitors for years to come.

Angela Chelette, P.G. serves as the Environmental Administrator at the Florida Department of Agriculture and Consumer Services, Office of Agricultural Water Policy. She has over 25 years of experience in water resource management and, in her current position, is responsible for presenting agricultural perspectives and data to other state agencies, the water management districts and stakeholders while coordinating water supply and nonpoint source water quality issues statewide.

Steve Davis, Ph.D. - Chief Science Officer. Dr. Davis is an aquatic ecologist with 25 years of research in the coastal Everglades. He draws upon his past professional experience, including 10 years as professor of wetland ecology at Texas A&M University, to lead The Everglades Foundation's Science Department and science communication efforts focused on advancing Everglades restoration, tracking ecosystem health, and understanding the impacts of sea-level rise. Davis has authored or co-authored 70 peer-reviewed science publications, holds a Courtesy Associate Professor appointment in Florida International University's College of Arts, Sciences, and Education, and is a Coordinating Editor for the journal Restoration Ecology.

FloRDA

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Andrea Wesser-Brawner

Chief Innovation & Emerging Technology Officer

Orange County Government

TECH INVESTMENTS ACROSS THE COUNTY

Innovation

Public Health

Parks and Rec

Economic & Workforce Development

Sustainability

Inclusion

Public Safety

Transportation

Multicultural Programming

Empathy-Centered Culture

Collaboration

Citizen Engagement

Seamless Resident & Business Services

OC WATER BY THE NUMBERS

Best Management Practices (BMPs):

- **275** acres of invasive aquatic plants treated annually
- **23** lakes stocked with triploid grass carp
- **1.2** million pounds of debris prevented from entering lakes annually
- **900** stormwater filtration devices
- **475** miles of roads swept monthly
- **2** alum stormwater treatment facilities

PROCESS MORE THAN 30,000 samples from 600+ surface water bodies annually

MAINTAIN MORE THAN 1,900 retention ponds

Water Reclamation Facilities serve ~870,000 people
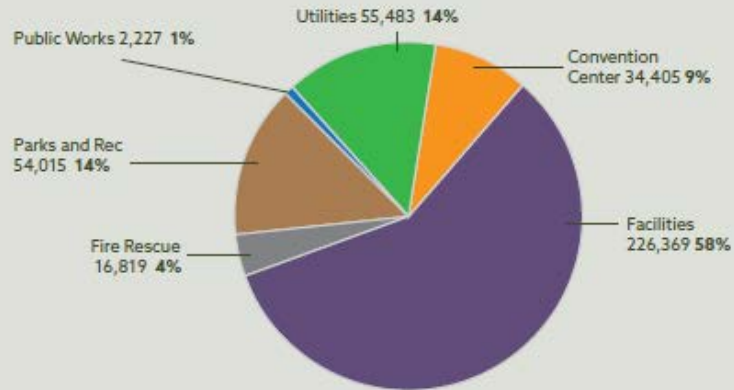
As many as 1,200 inspections are performed each year at:
- Construction sites
- Industrial facilities
- Private stormwater facilities

Nearly 400 active construction sites totaling approximately **13,000** acres are inspected to ensure compliance.

NO DUMPING ONLY RAIN IN THE DRAIN

New developments in Orange County are required to install storm drain labels.

TEST DRINKING WATER QUALITY with more than 350,000 EPA-certified analyses

TOTAL BUILDING WATER USAGE FOR 2019 = 389,318 KGALS

- Public Works 2,227 **1%**
- Utilities 55,483 **14%**
- Convention Center 34,405 **9%**
- Facilities 226,369 **58%**
- Parks and Rec 54,015 **14%**
- Fire Rescue 16,819 **4%**

The water usage captured in this chart includes potable water used within buildings and facilities as well as for irrigation of our properties. However, it does not include reclaimed water. Future water usage assessment will breakout potable indoor water, potable irrigation, and reclaimed irrigation.

CRITICAL WATER INFRASTRUCTURE

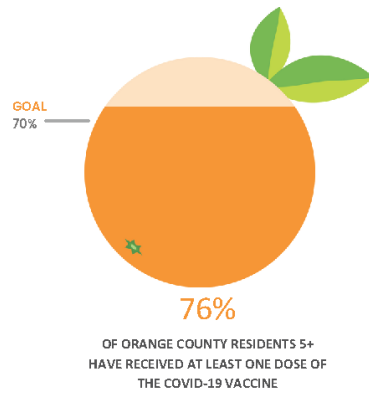COVID-19 Virus Remnants Per Liter

165,122
South Wastewater Service Area
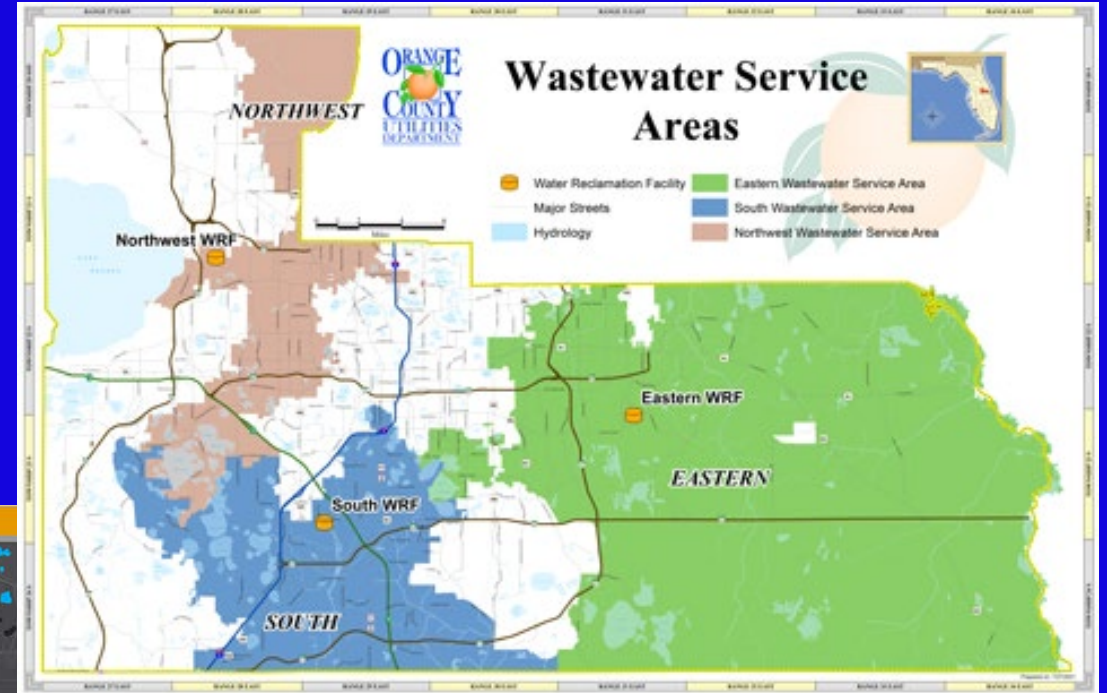A 95% decrease over January 13, 2022

263,726
East Wastewater Service area
A 95% decrease over January 13, 2022

96,346
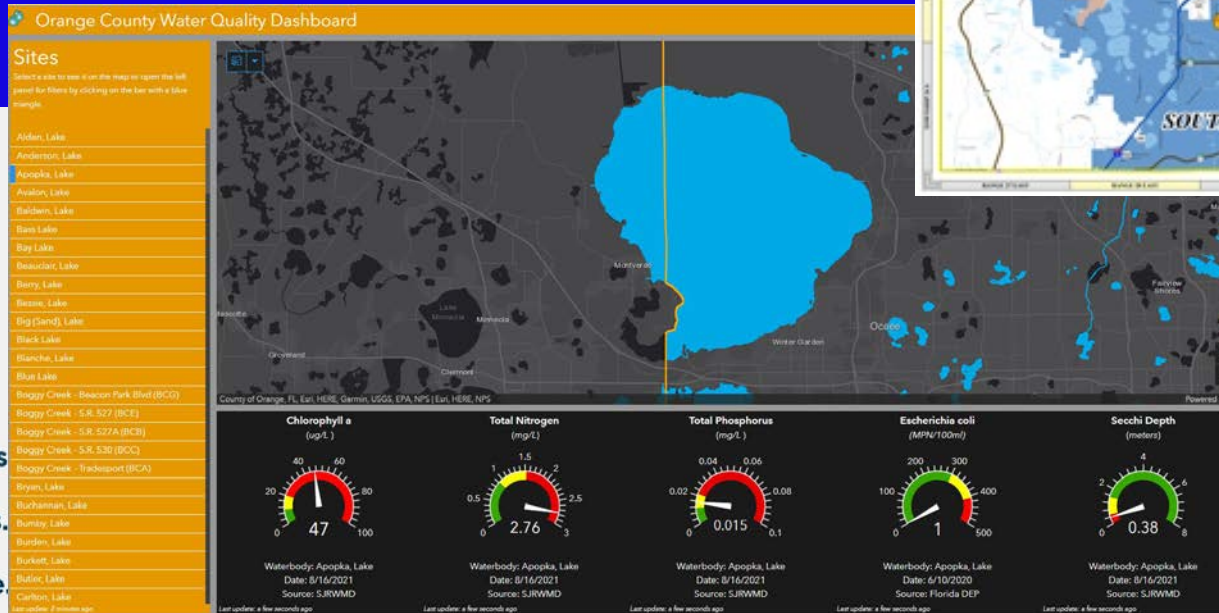Northwest Wastewater Service Area
A 98% decrease over January 13, 2022

GOAL
70%

76%
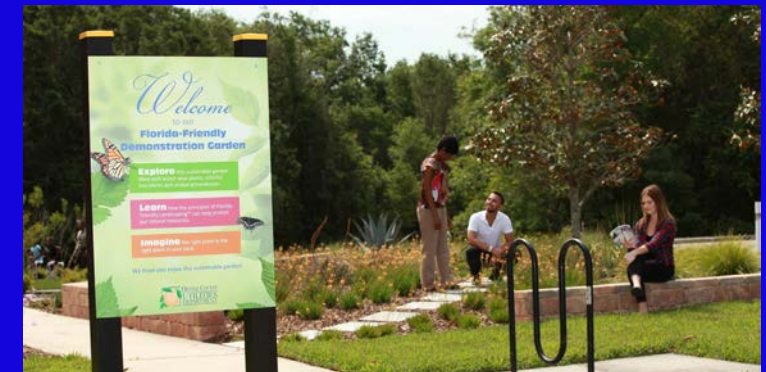OF ORANGE COUNTY RESIDENTS 5+
HAVE RECEIVED AT LEAST ONE DOSE OF
THE COVID-19 VACCINE

Data updated: February 16, 2022

Wastewater Service Areas

www.orange.wateratlas.usf.edu

DIVE into the Water Atlas!

EPD hosts data on hundreds of waterbodies on the Orange County Water Atlas. Citizens can review information about their lake.

Orange County Water Quality Dashboard

https://waterinstitute.maps.arcgis.com/apps/dashboards/07249831d7b9443f8cf4dfd3ffbf9ed9

WATER GOALS & NEEDS

SUMMARY OF GOALS

GOAL	METRIC	BASELINE (YEAR)	GOAL TARGET (YEAR)
GOAL 7: Protect water quality through innovative technology and integrated water management audits at County facilities	Metric 2021 - New goal.	2021 - New goal.	100% assessed facilities by 2022
GOAL 8: Reduce water use 25% across County facilities by 2030 through water reuse and equipment efficiencies	Total consumption across facilities (kGals)	2019 - 389,318 kGals total consumption	2030 - 25% Decrease: 19,466 kgals/yr = $44,577/yr savings Total: 97,329 kgals = $223K savings
GOAL 9: Develop clean and safe access to alternate water supply to meet future demand	Total water supplied annually to OCU customers (Billion Gallons) Calculated gal/day/person	2019 - 23.4 billion gallons supplied to OCU customers* (*Estimated at 550,000) 11.55 gal/day/person	2030 - 31 billion gallons supplied to OCU customers

- Sensors

- Natural water remediation

- Reclaimed water applications

- Low energy/ consumables grey/black and potable treatment

THANK YOU
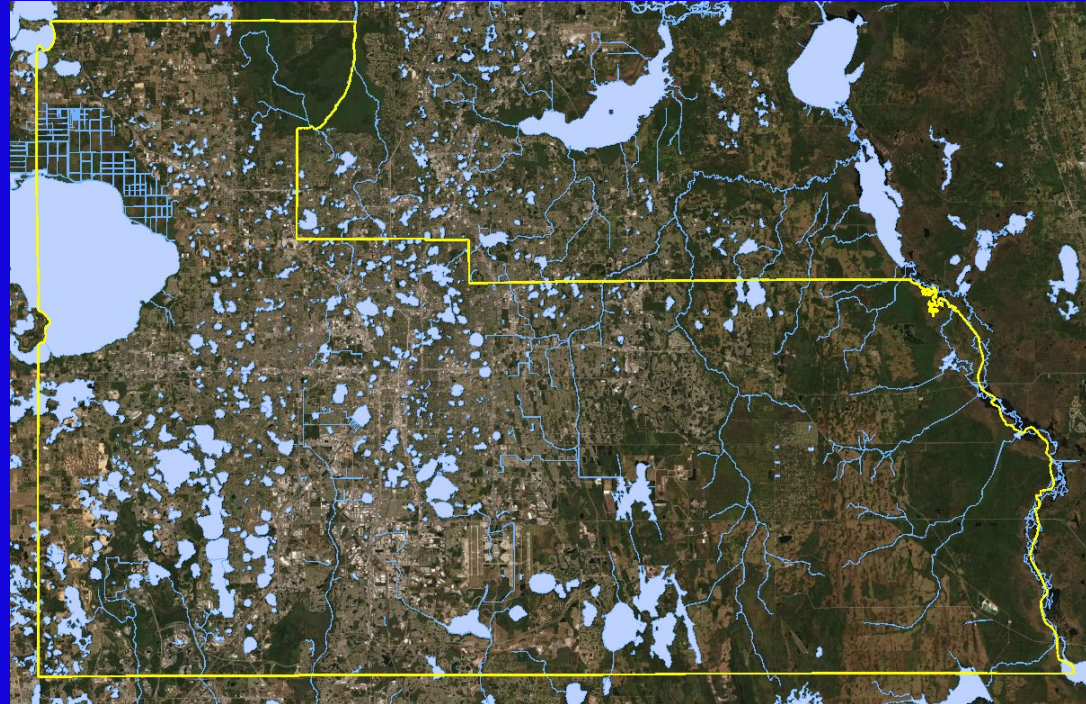
Andrea Wesser-Brawner
Chief Innovation and Emerging Technology Officer
Andrea.wesser@ocfl.net

COLLABORATE FloRDA Event

February 24, 2022

Angela Chelette, P.G., Environmental Administrator
Florida Department of Agriculture and Consumer Services
Office of Agricultural Water Policy

The Department of Agriculture and Consumer Services is...

Agricultural Environmental Services	Agricultural Water Policy	Agricultural Law Enforcement	Animal Industry	Aquaculture
Consumer Services	Energy	Florida Forest Service	Plant Industry	Food, Nutrition and Wellness
Food Safety	Fruits and Vegetables	Licensing	Marketing and Development	...and more

https://www.fdacs.gov/Divisions-Offices/

Florida Department of Agriculture and Consumer Services

Best Management Practices (BMPs)

Broadcast   Banding

Row spacing

Trunk line   Infrared light beams   Trunk line

Sensors

5.5 m height
100% rate

4.0 m height
83% rate

2.4 m height
66% rate

1.0 m height
50% rate

0.0 m height
0% rate
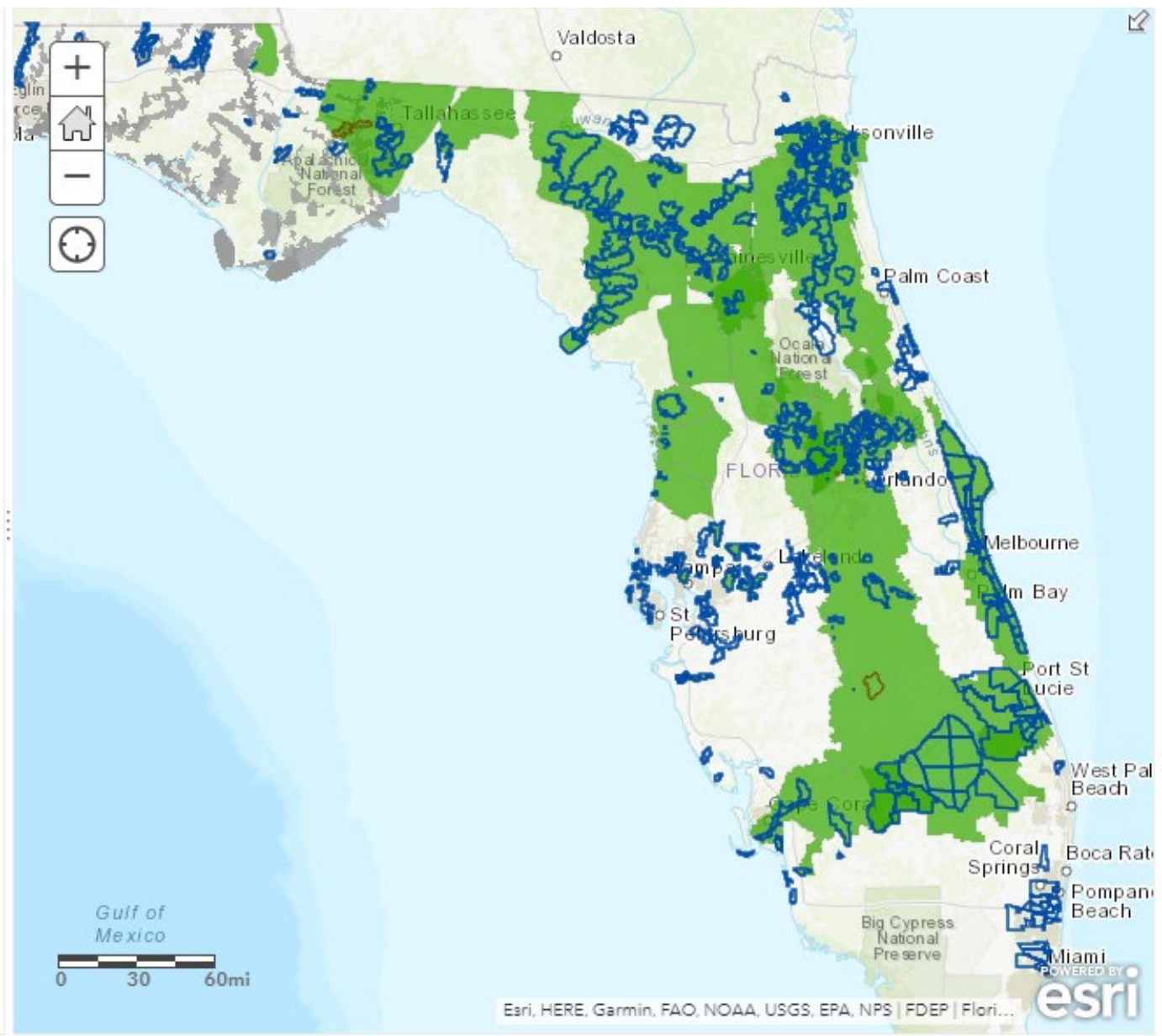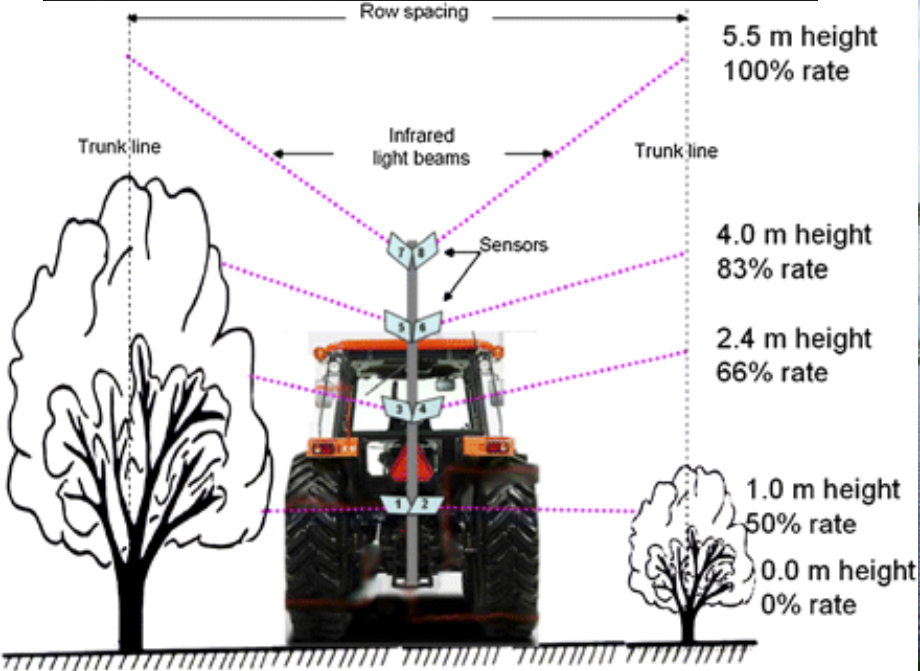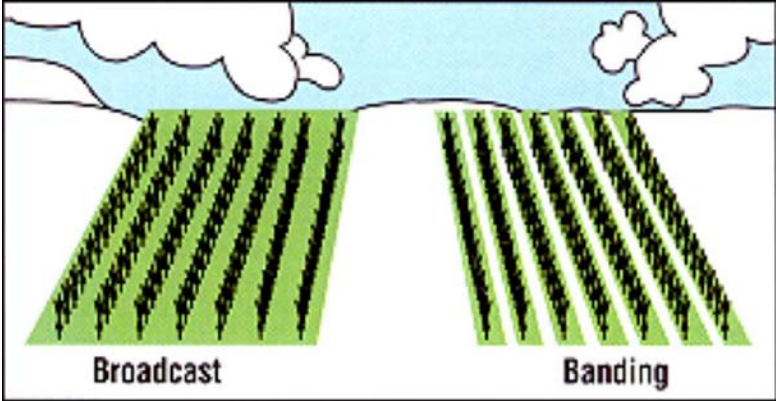
Research

- Build and maintain a BMP Research Program [s. 403.067(7)(c)3.,F.S. and 373.813 F.S.]

Support and provide the scientific and technical justification for the FDACS OAWP BMP program or investigate new, innovative practices for efficient nutrient and irrigation application.

- Sampling Methodology: understand impacts of BMPs on yield as well as water quality and water conservation for initial verification.

- Use research results to develop new BMPs or to support existing BMPs.

Process Components(?)

- Research plan and legislative budget request [s. 403.067(4)(f)1., F.S.]
- Research Coordinating Work Group
- Water Management District research coordination group

Research Needs

- **Nutrient management systems**
    - o **Agronomic rate recommendations** that balance production with water resource protection through the inclusion of water quality monitoring
    - o **Soil and tissue test calibrations and correlations**
    - o **Controlled Release Fertilizer use efficiency**
    - o **Fertigation to improve nutrient use efficiency**
    - o **Software and data collection tool development**

- **Irrigation application and management technologies**
- **Water resource protection** using methods and treatment technologies for on-farm or edge-of-farm
- **Soil Health** specific to Florida
    - o**Mixed species or cover crops for improving nutrient utilization**
    - o**Rotational cropping or integrated crop/livestock systems for improving nutrient utilization**
        - **Demonstrations of water quality improvement** projects that provide information on FDACS BMP benefits to water resources with specific reductions in nutrients (lbs/ac) and quantities of water savings

A Successful Research Template

1 acre

Level 1: Experimental small-plot, replicated trials with detailed measurements (e.g. water efficiency, nutrient leaching, crop productivity). Highly instrumented, controlled as much as possible.

20 acre

Level 2: Applied scale the practice up to a more realistic size with less instrumentation and control

160 Acre

Level 3: Demonstration show the best methods/technologies functioning on a larger scale, farm sized operation (research site or producer field)

Thank You!

http://www.fdacs.gov/Divisions-Offices/Agricultural-Water-Policy

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Environmental Administrator
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Florida Department of Agriculture and Consumer Services

Steve Davis
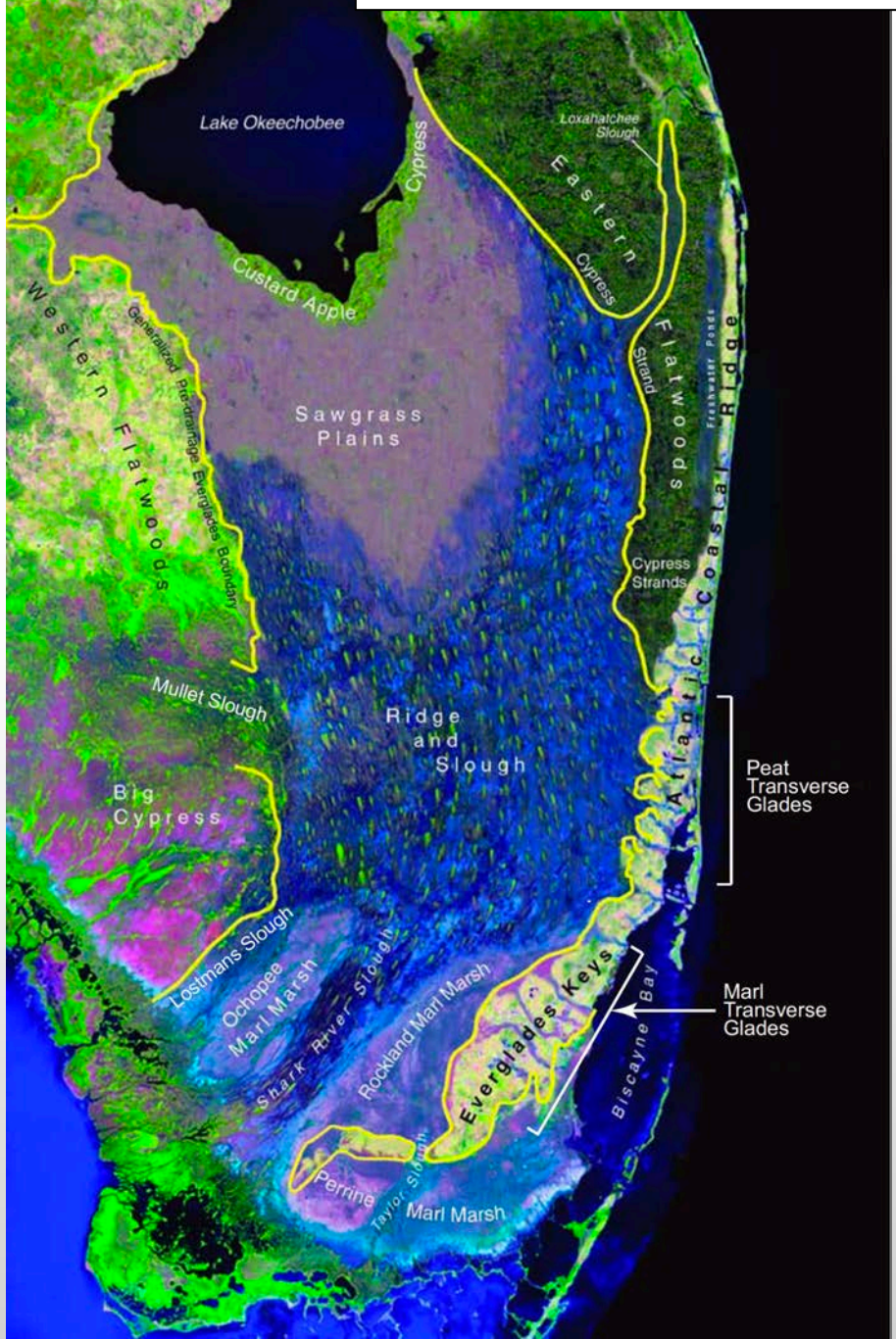
Chief Science Officer
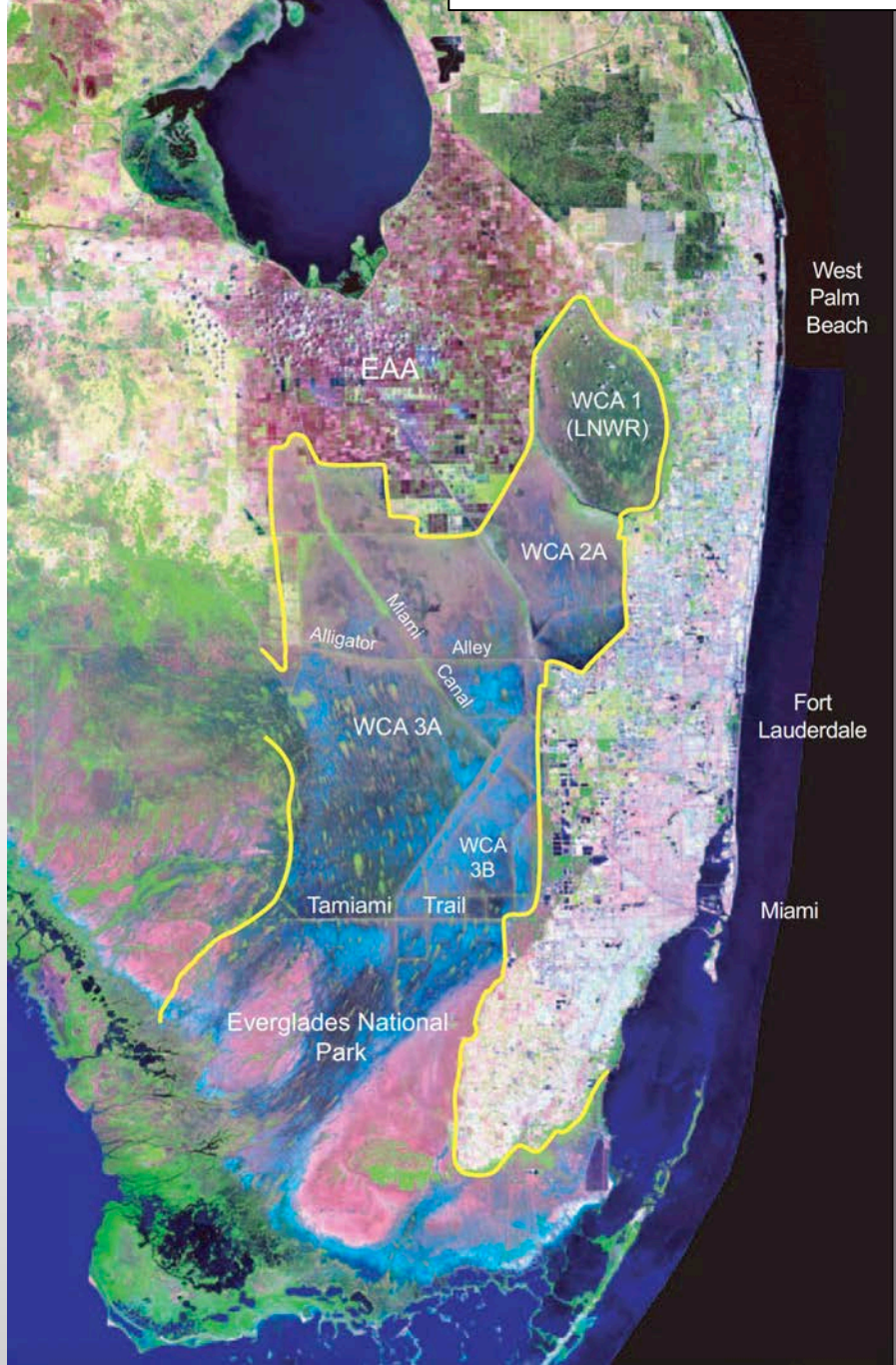
The Everglades Foundation

Restoring America's Everglades

Steve Davis, PhD
Chief Science Officer

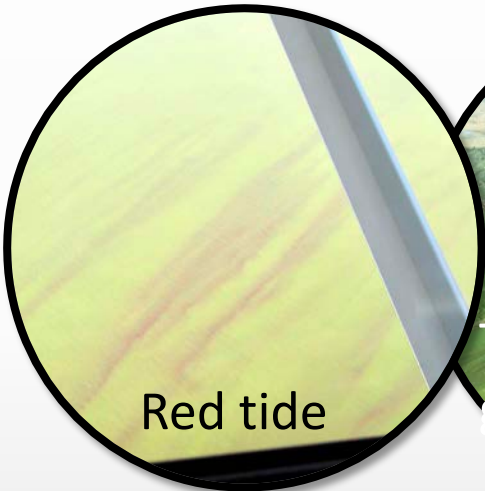THE EVER GLADES FOUNDATION

Pre-drainage Everglades

Current Everglades

From: McVoy et al. 2011, *Landscapes and Hydrology of the Pre-drainage Everglades*

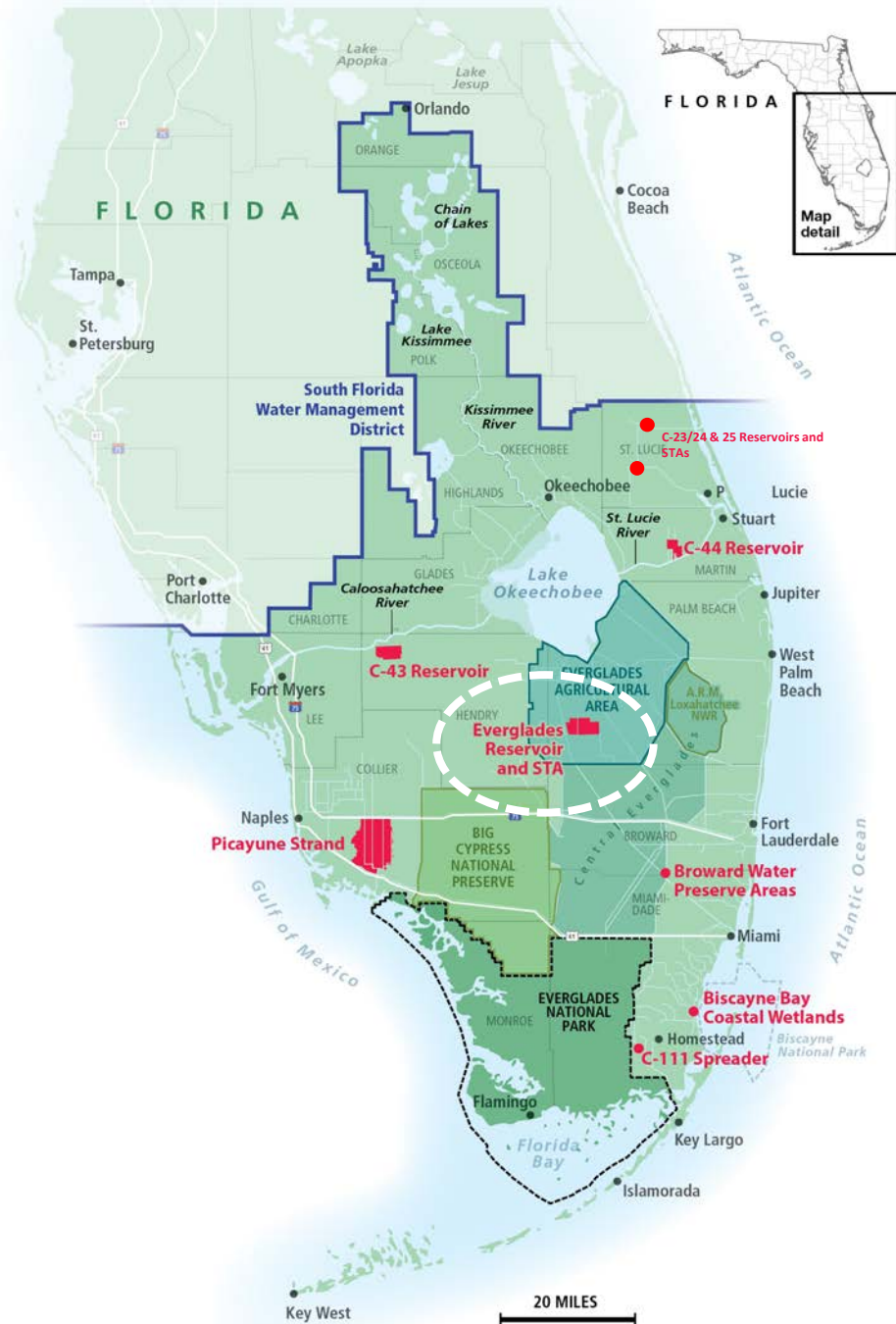# Water Quality & Quantity Problems

Caloosahatchee Estuary

Red tide

Toxic blue-green algae

Florida Bay

Seagrass die-off

Algae blooms

Lake Okeechobee

Toxic blue-green algae

St. Lucie Estuary

Toxic blue-green algae
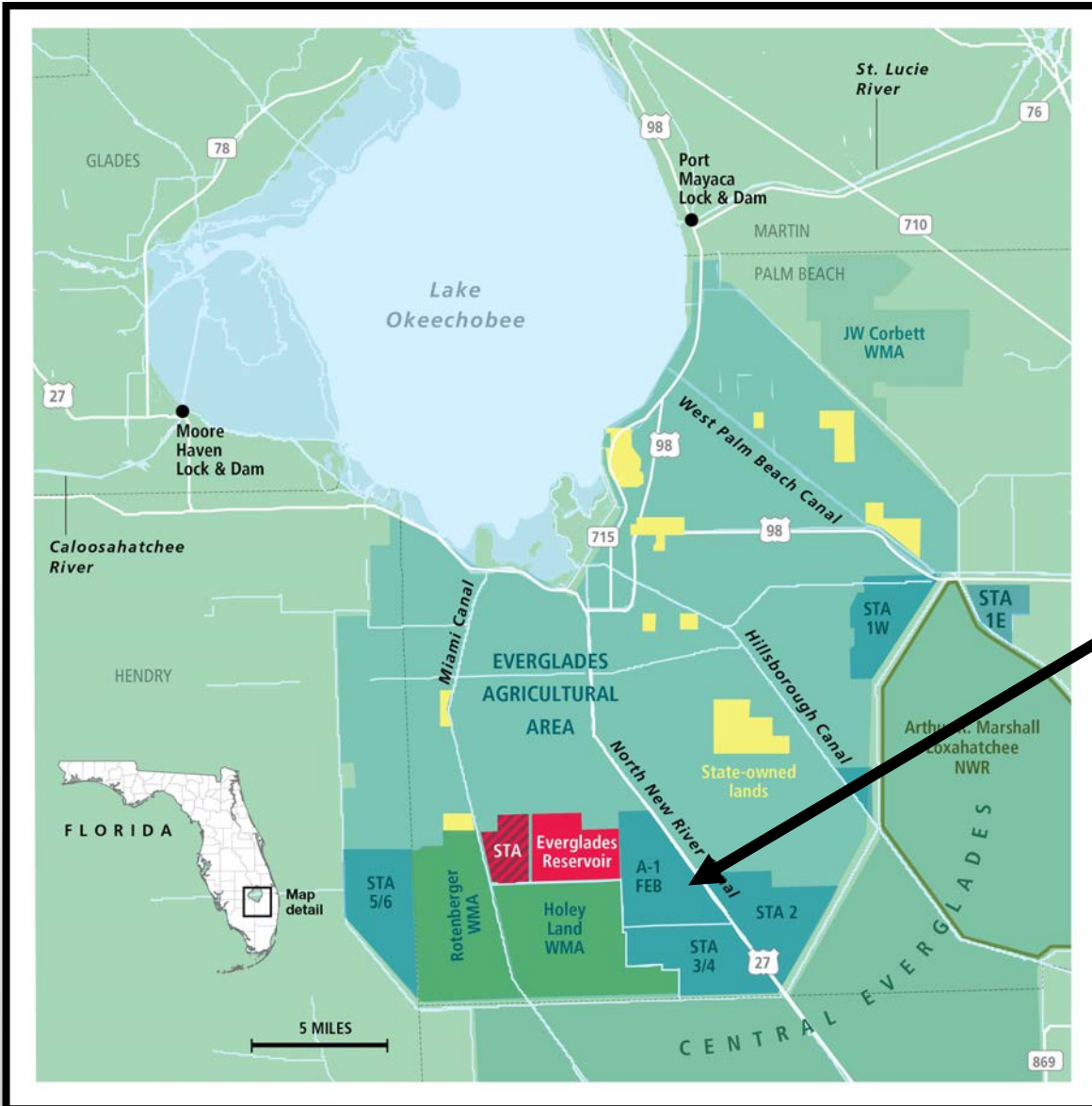
EVER GLADES FOUNDATION

Everglades (EAA) Reservoir

Reduces lake discharges by 55% & restores 120 billion gallons of flow to the south annually

Treatment Wetlands

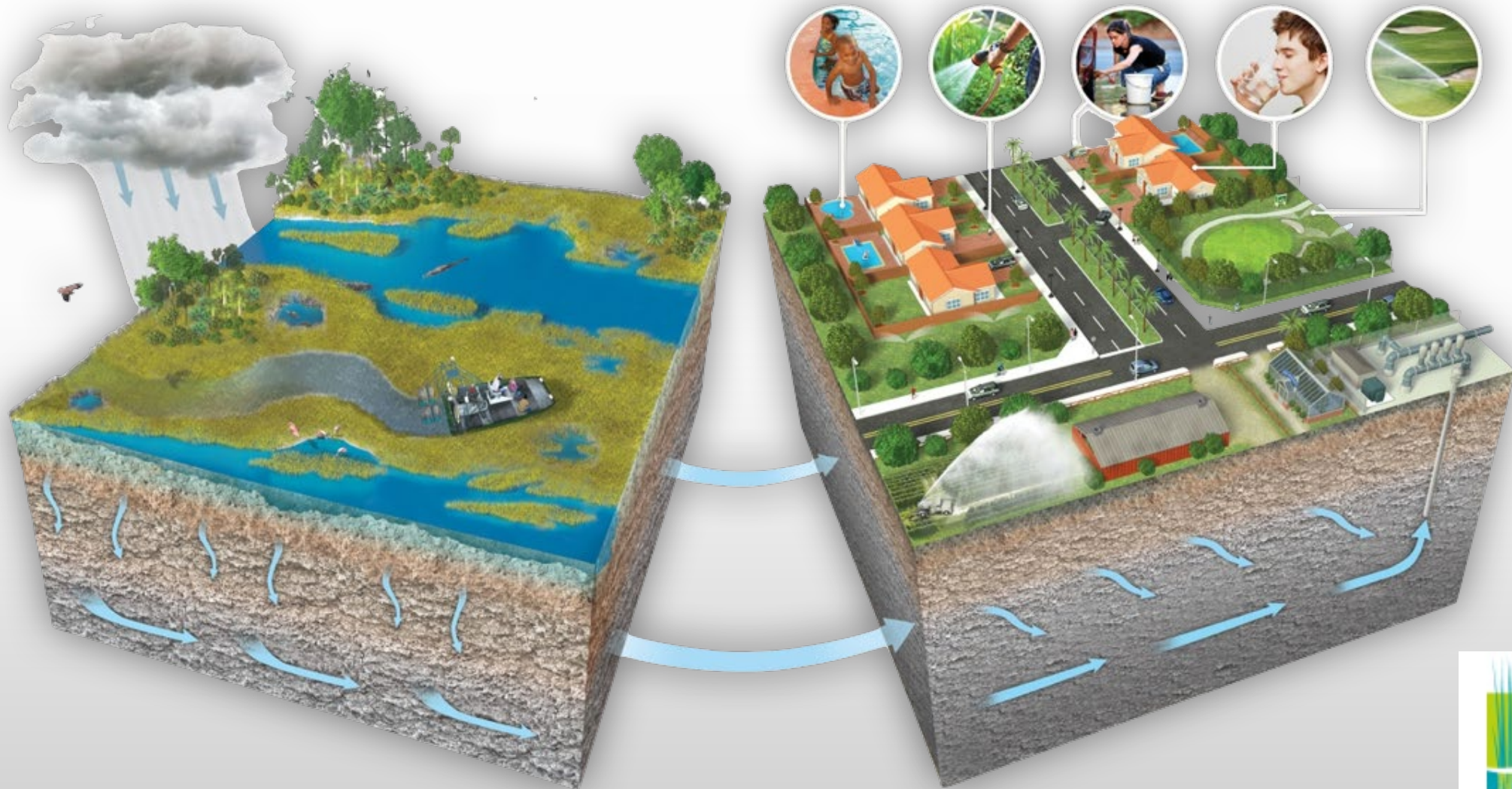STA: Stormwater Treatment Area

FEB: Flow Equalization Basin

Tamiami Trail Bridges

Everglades Restoration Projects = Water infrastructure

South Florida's Water Supply

Questions?
Email *info@FloRDA.org*

Resources and recordings from
this event are available at
https://florda.org/events/water/