

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

# 20 years Facilitating Agricultural Resource Management Systems FARMS

*Matt Vinzant*

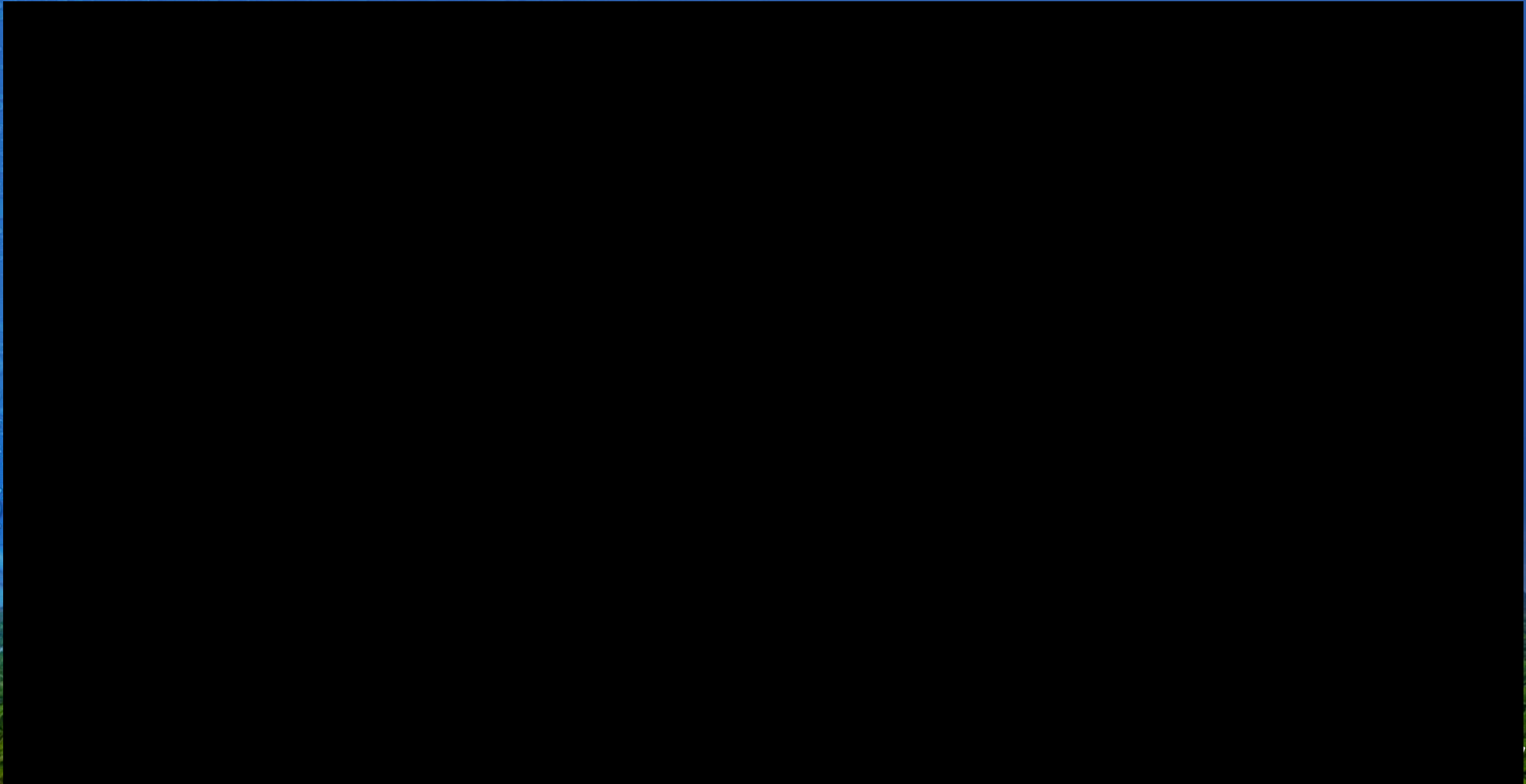
*FARMS Project Manager*

Southwest Florida  
Water Management District  
**FARMS**  
Facilitating Agricultural Resource  
Management Systems

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# SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT



## FARMS Program Status

- 245 Board-approved projects
- 31.8 MGD projected groundwater offset
- Total invested: ~\$88.5 M since 2003
- District Costs \$51.3 M
- District 58%/Farmer 42%
- \$2.43/1,000 gallons saved
- 90% of FARMS projects still active



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## Types of FARMS Projects

- Alternative Water Supply
- Conservation
- Cold Protection
- Nutrient Reduction or Retention



## Mini-FARMS Program Details

- Cost Share Reimbursement Program
- Incentivize Implementation of Ag Water BMPs
- Districtwide
- Low Cost – Small Projects
- 75% Reimbursement Rate
- \$10,000 Maximum Reimbursement
- 2 Projects per Year / 5 Lifetime Total



## Mini-FARMS

- 342 District-funded projects
- \$1.5 million reimbursed
- 1.5 MGD estimated groundwater reduction



## Alternative Water Supply

- Replacing groundwater use with surface water use
  - Existing reservoir
  - Reclaimed water
  - Excavated reservoir
- Higher costs but greater groundwater reductions
- Lower pumping costs
- Sometimes better water quality
  - Lower salt content
  - Lower pH
- Average 30% reduction in groundwater use



## Conservation

- Automated pump control
- Some irrigation conversions
- Weather stations
- Irrigate per ET
- Grower convenience
- Lower cost, but lower reductions
- 5-10 % reductions in use



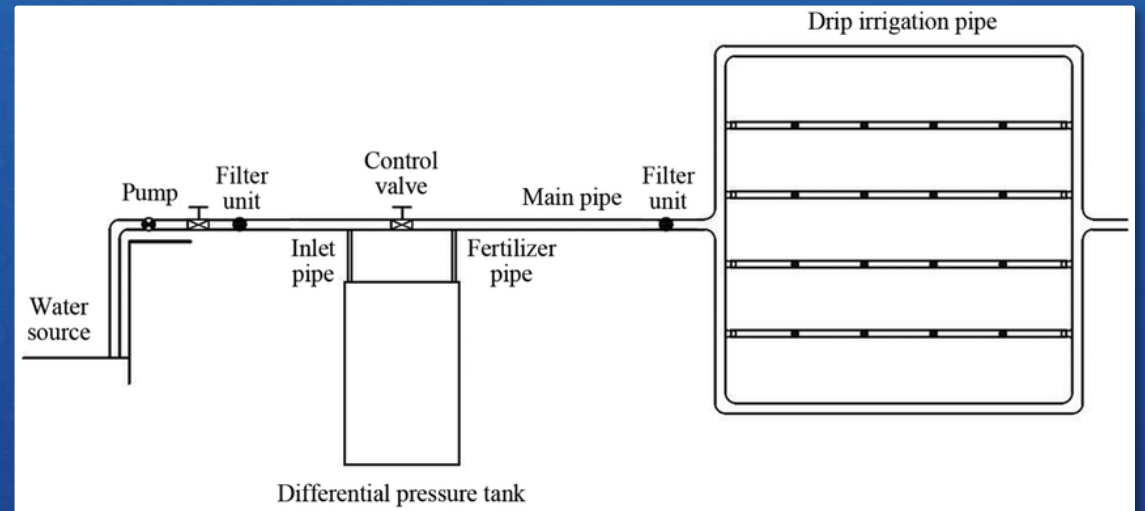
## Cold Protection Projects

- Wind Machines for Blueberries
- Crop cloth for Strawberries
- Alternative water supply for a variety of crops
- Saved 122 million gallons per year



# Nutrient Management Components

- Funded as part of groundwater reduction projects
- In the springs region since 2007
- Districtwide since 2020
- 15 Projects
- 5,100 pounds of Nitrogen per year



## Water Quality – Mini FARMS

- Soil Moisture Probes with Salinity Measurements
- Fertigation – Reduces Nitrogen Leaching in Groundwater



## Challenges for the FARMS Program

- Overcoming grower reluctance to participate
- Areas of geology and hydrology unsuitable for AWS
- Compatibility between the permitted quantity (and size of the farm) and the cost benefit metric
- First come / First served nature of the program
- Increased documentation requirements for surface water use
- Increased concern for food safety and potential for disease from surface water



# Karst Underwater Research

*KUR Mission Statement:* Committed the preservation and protection of Karst aquifers and the quality of their water by conducting relevant scientific research and documentation of surface features and corresponding underwater caverns and conduits.

- 501c3 Not For Profit Organization
- Committed to Exploration, Education, and Preservation
- Specialize in logistically challenging dives

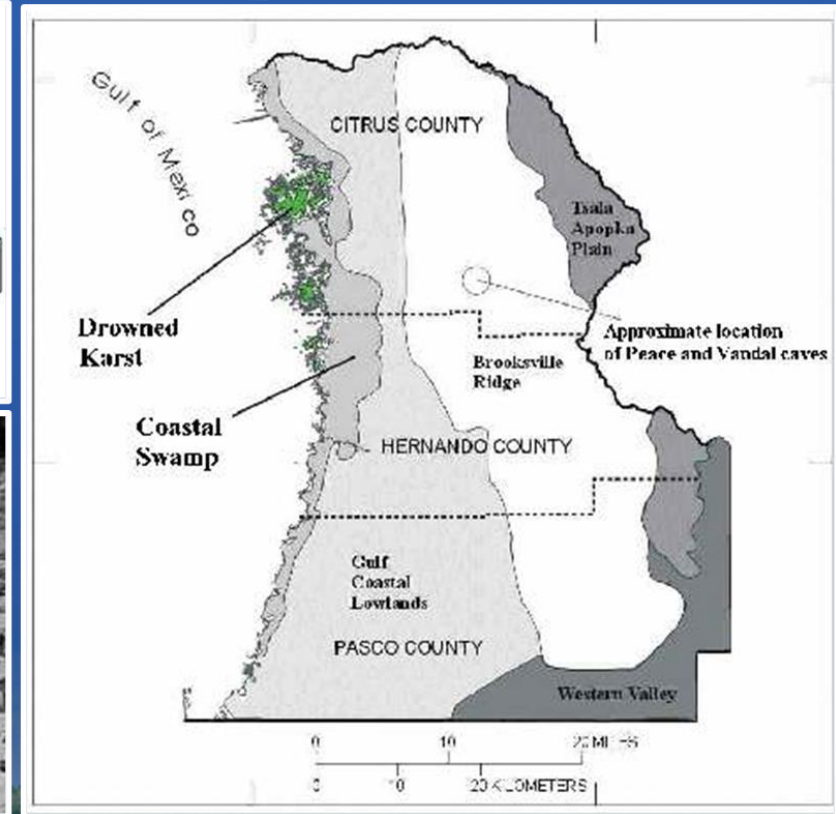
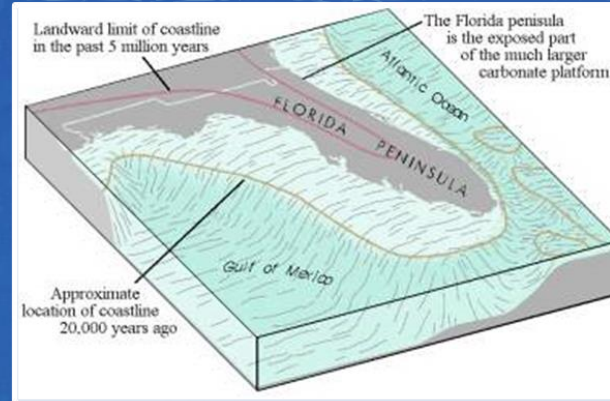


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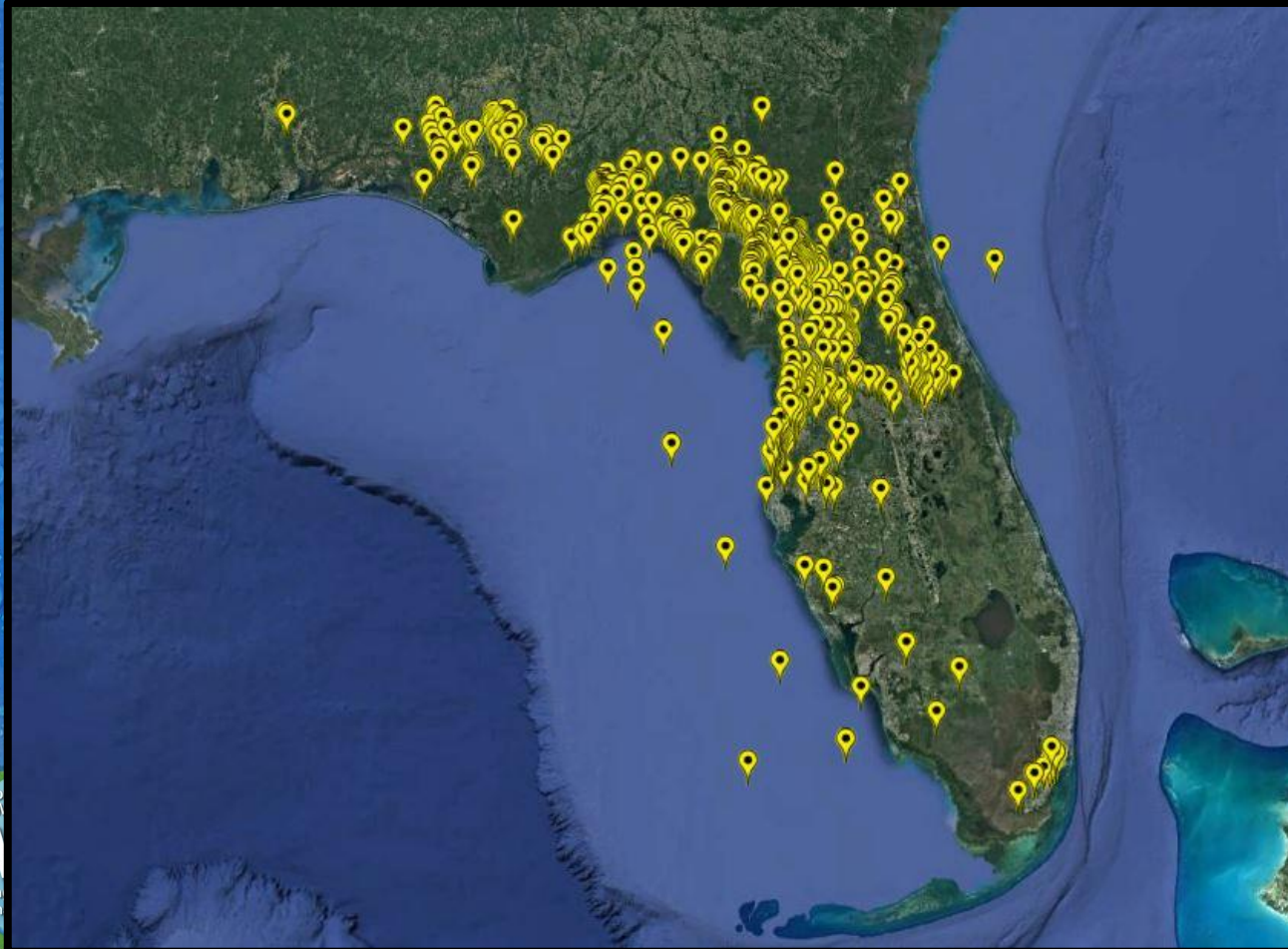
# What is Karst?

- **Karst topography** is a landscape formed from the dissolution of soluble rocks such as limestone.
- Mildly acidic water starts to break down the surface of bedrock in joints.
- Cavities become larger and a drainage system may form.



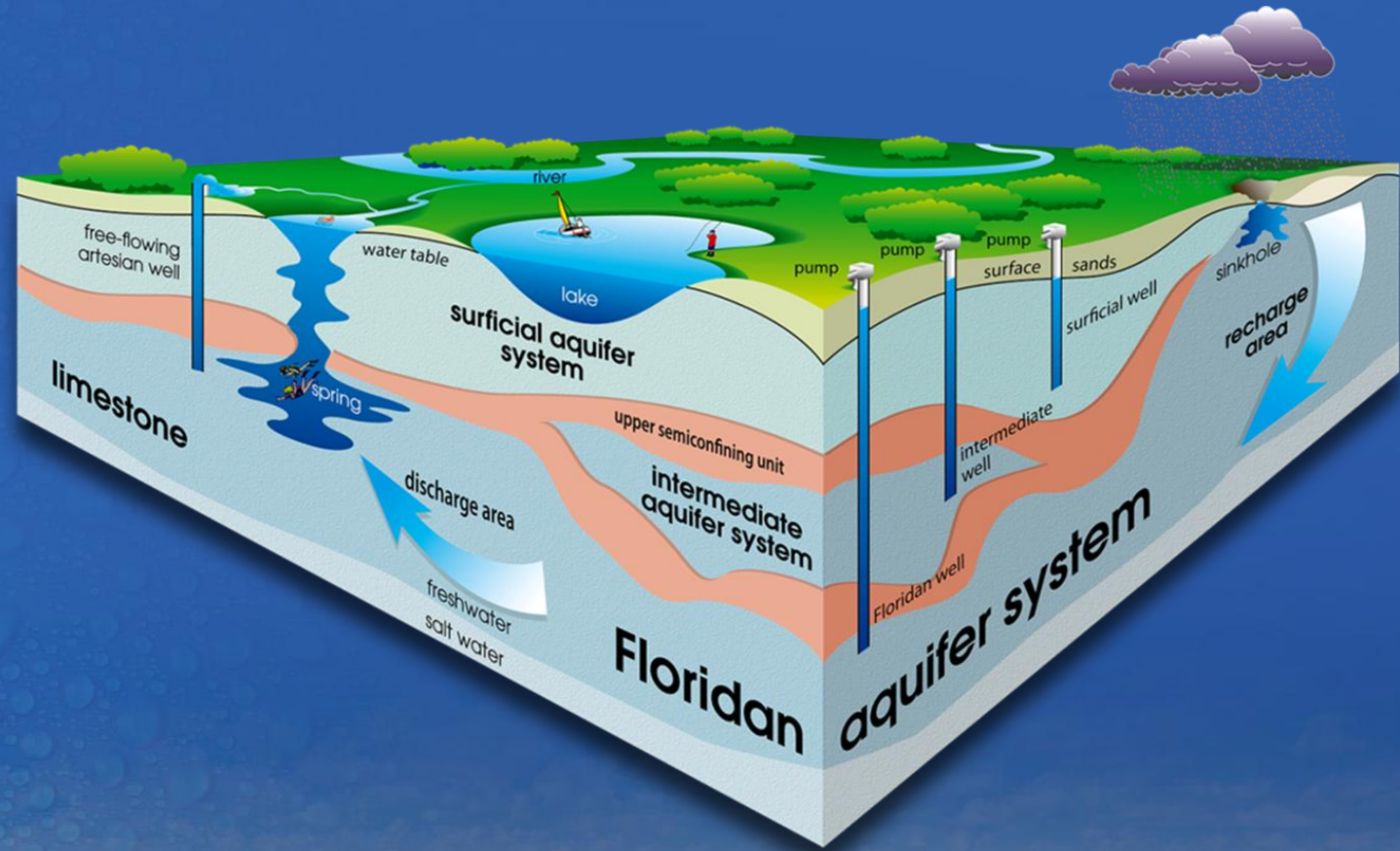
# Florida's Carbonate Platform

**-Known Caves: Windows the Aquifer -**



# SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

- Most drinking water from wells
- Surface activities directly effect groundwater
- High infiltration rates
- Shallow karst and fractures
- Pollutants move quickly

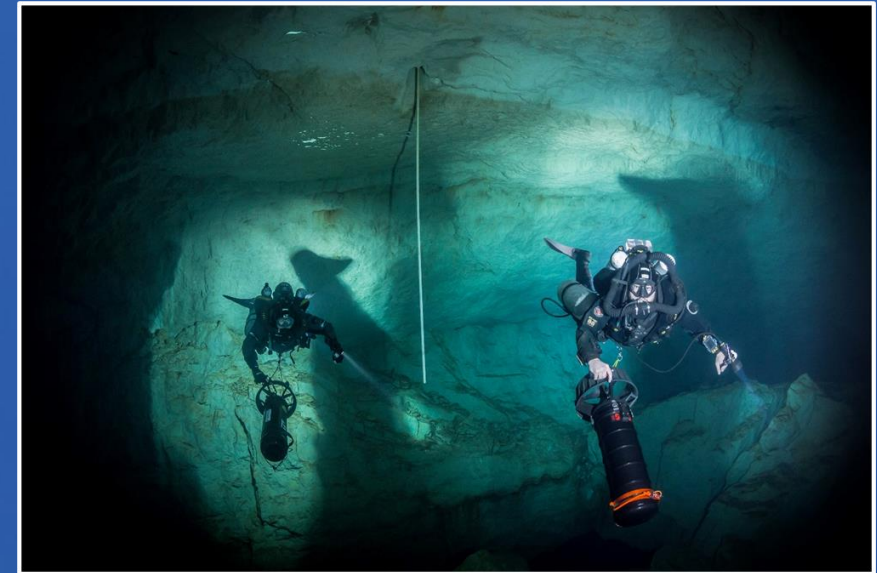


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## WELLS

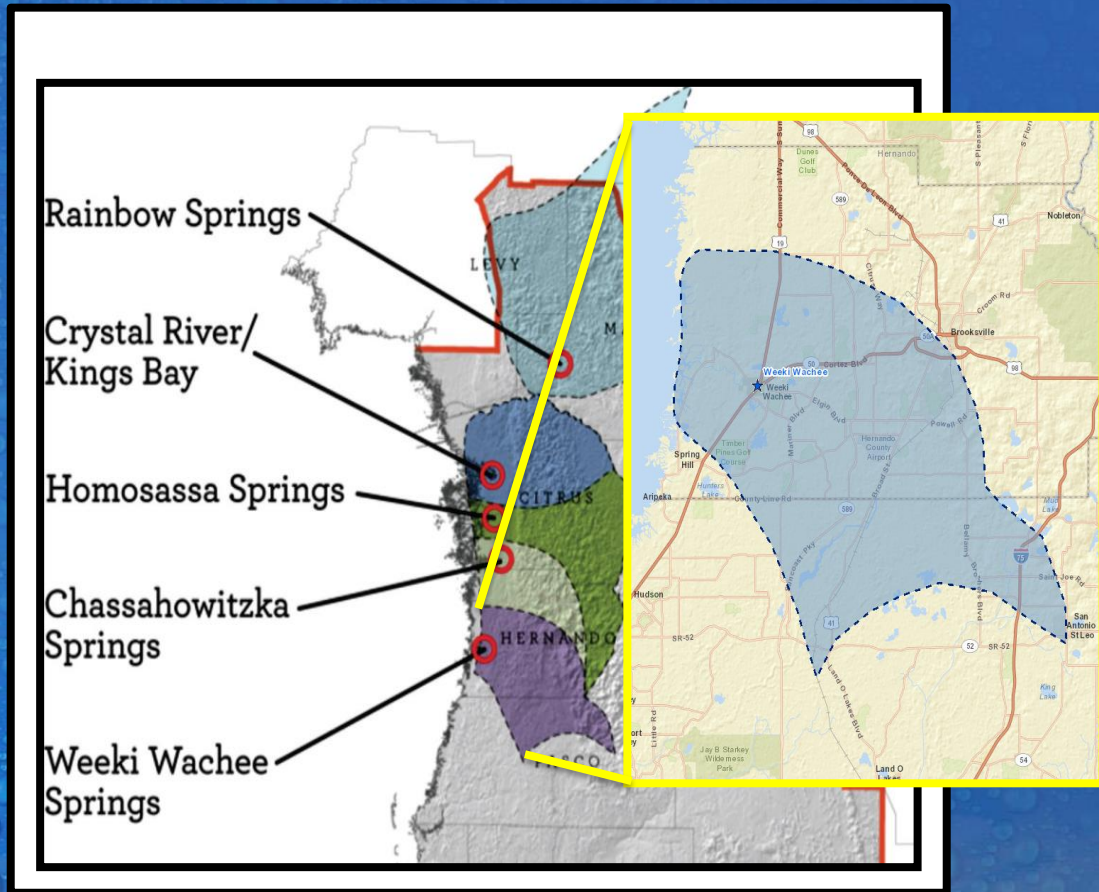


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**Questions?**