



Rethinking Water Supply Strategies for a Resilient Future

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Bio-Tech Consulting

Environmental and Permitting



What's in the news?

EQUILIBRIUM & SUSTAINABILITY

Majority of America's underground water stores are drying up, study finds

BY SAUL ELBEIN - 01/24/24 11:00 AM ET



Orlando Sentinel

An Orange County neighborhood ripped out its...



An Orange County neighborhood ripped out its septic tanks to protect Wekiwa Springs. Now it's sorry.

Work in Sweetwater West is slower and sloppier than promised, residents say.



EQUILIBRIUM & SUSTAINABILITY

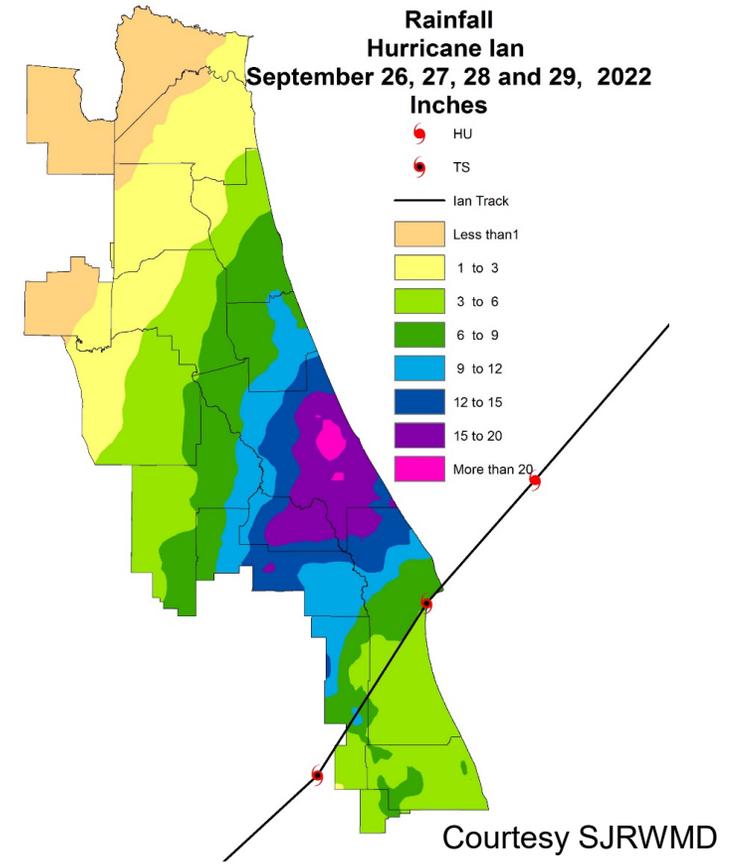
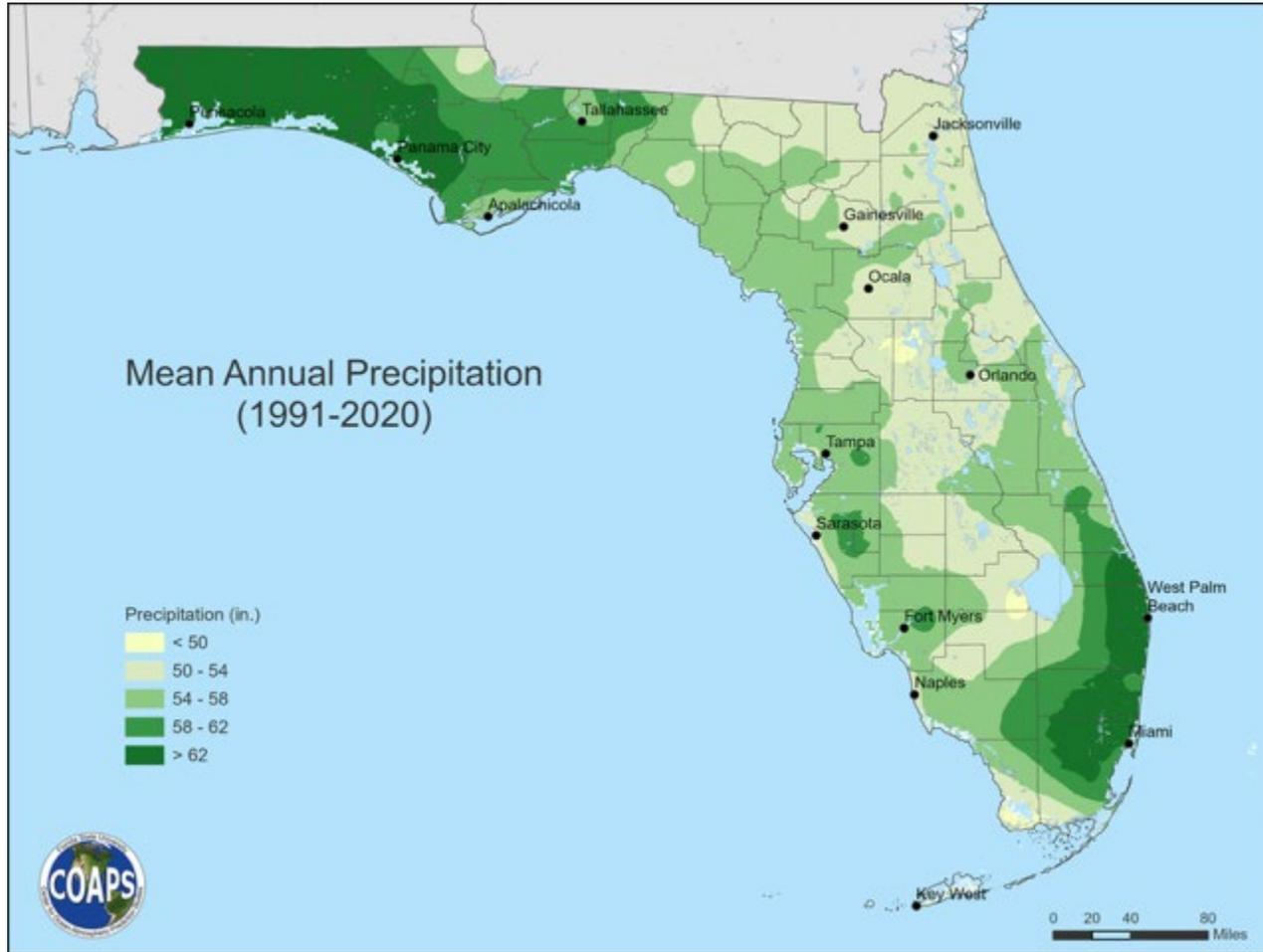
The 6 states facing the most serious groundwater crises

BY SAUL ELBEIN - 01/26/24 5:30 AM ET



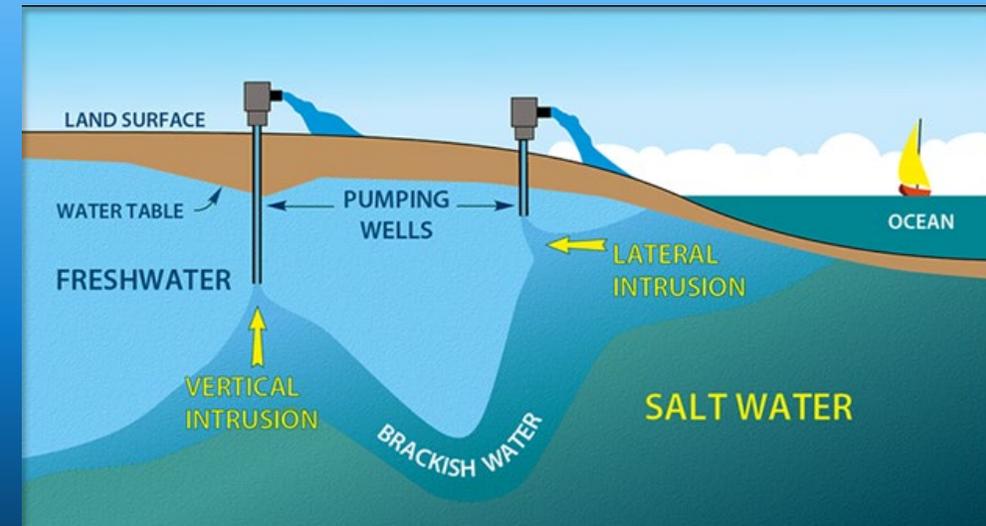


Challenges of Rainfall Distribution and Frequency



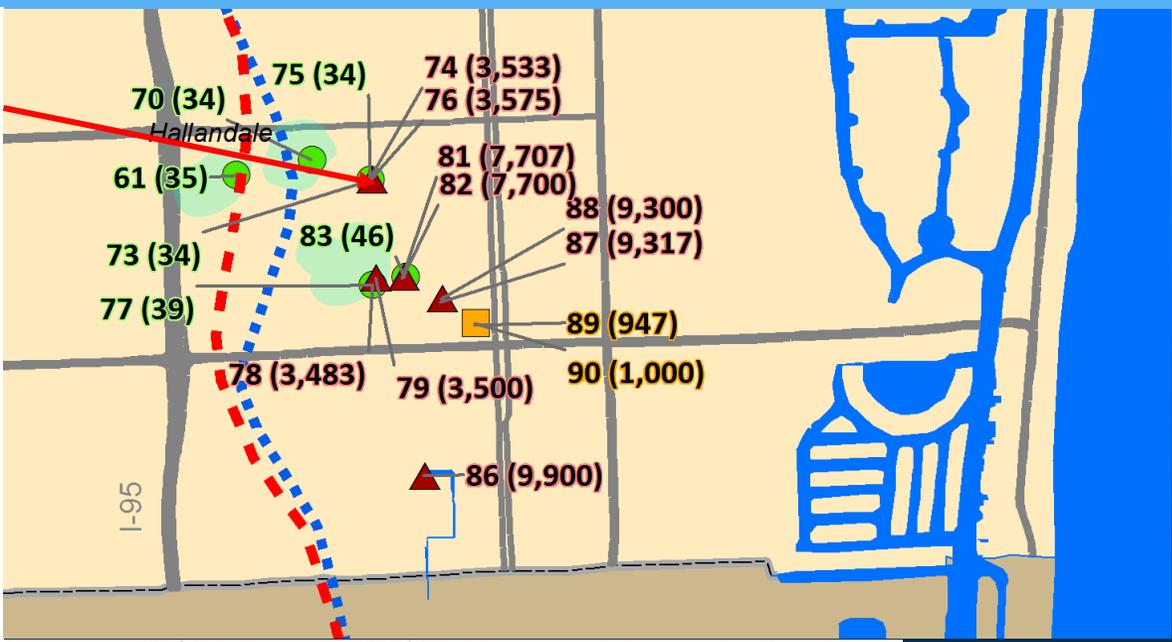
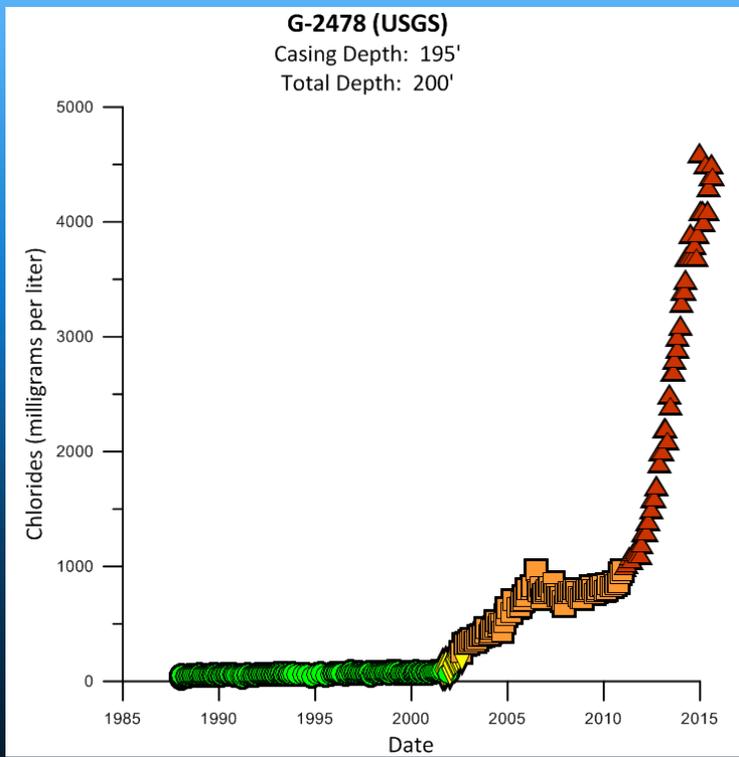
Common Sources of Saltwater Intrusion

- Lateral intrusion from the coast
- Vertical Intrusion (upconing from saltwater below)
- Surface Infiltration – estuaries, boat basins, saltwater marshes, saltwater canals, etc.
- Ancient (relict) seawater trapped in low permeability aquifers



Hallandale Beach Area, 2009 vs. 2014

- G-2478 (Map # 76, Cl = 3,575 mg/L) -- Saltwater toe (195 to 200 feet depth) continued to advance inland
- G-2477 (Map # 75, Cl = 34 mg/L) -- Freshwater (75 to 80 feet depth) -- Upconing potential

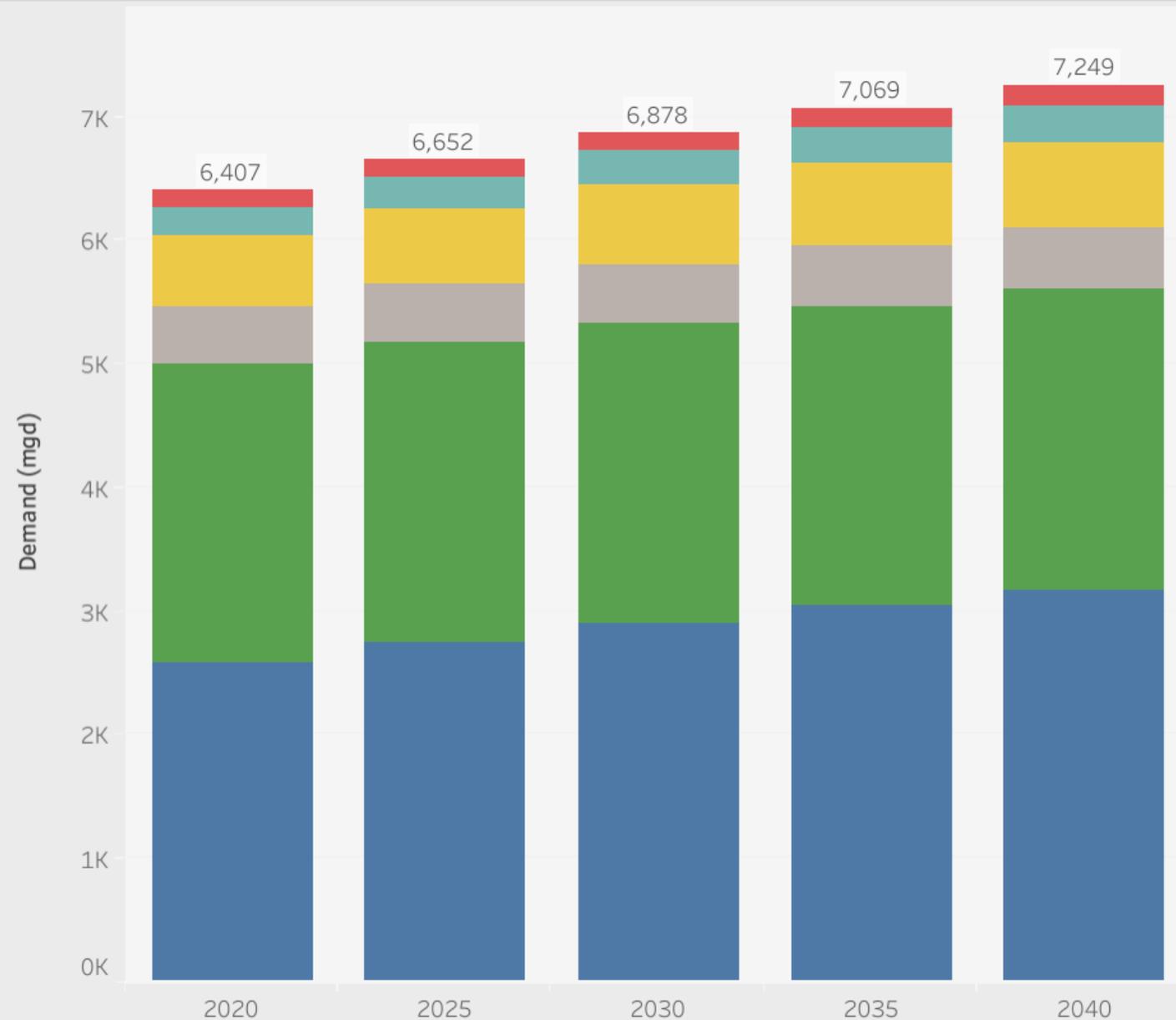


Structures	PWS† Chlorides	Non-PWS† Chlorides	Wellfields in the Water Table Aquifer
○ Culvert	● ≤100 mg/L	○ ≤100 mg/L	● Wellfields in Other Aquifers
⊠ Lock	◇ 101 - 250 mg/L	◇ 101 - 250 mg/L	■ Saline Water Bodies
⊠ Pump	■ 251 - 1,000 mg/L	■ 251 - 1,000 mg/L	■ Freshwater Bodies
⊠ Spillway	▲ >1,000 mg/L	▲ >1,000 mg/L	■ Mangrove and Saltwater Marsh
▽ Weir			— Roads
	Wells		⋯ Estimated 250 mg/L isochlor, 2009 (updated)
	▲ 433 (3900)		⋯ Estimated 250 mg/L isochlor, 2014
	Map Number ^(chloride)		

† PWS = Public Water Supply



Water Demand Projections by User



How Much Water Do We Need in FL?



USGS

FDEP Annual Report 2022

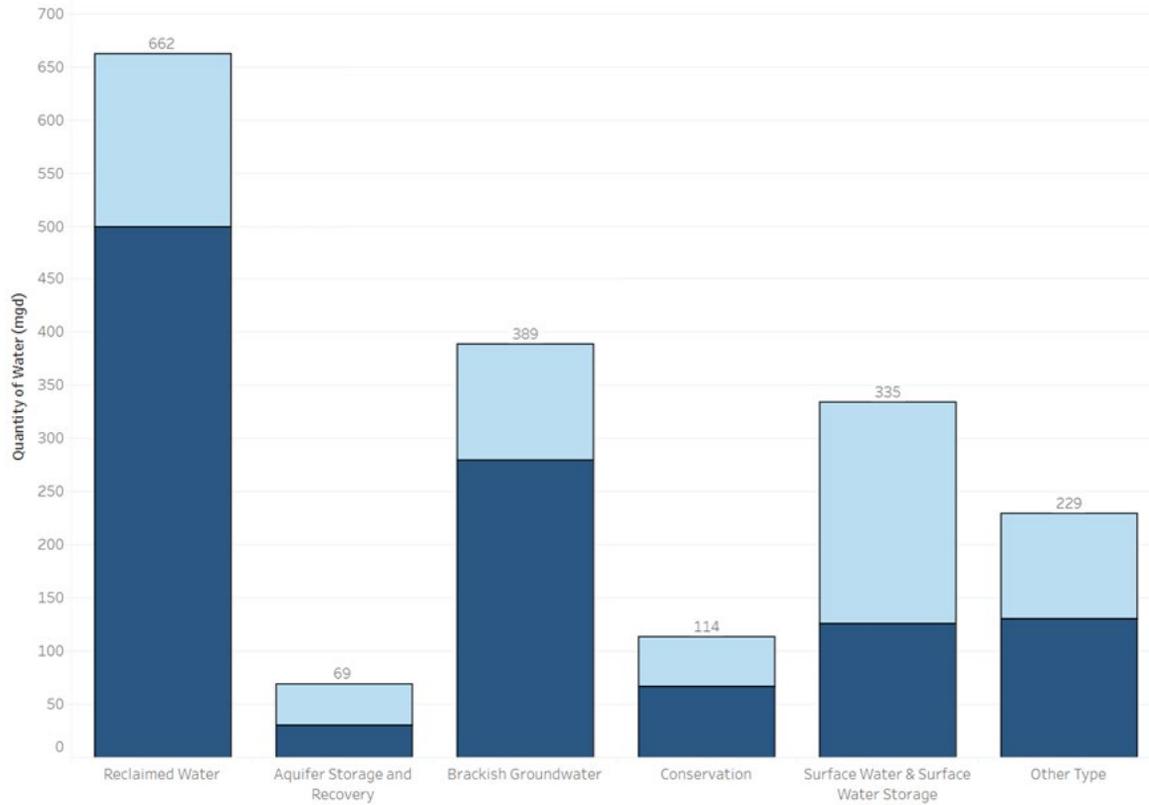


Bio-Tech Consulting Inc.
Environmental and Permitting Services



AWS 2005-2022

Alternative Water Supply Projects



AWS Funding





Meeting Water Supply Challenges

- “Connect the dots” across programs
 - Water quality
 - Flooding
 - Resilience
 - Groundwater recharge
- Remove hurdles within existing programs
- Fix the funding
- Rethink prioritization



UNDRR



Potable Reuse

**Recycled Water:
Safely Supplying
Florida's Future**

**One Water
Florida**

Water Quality and Aquifer Recharge

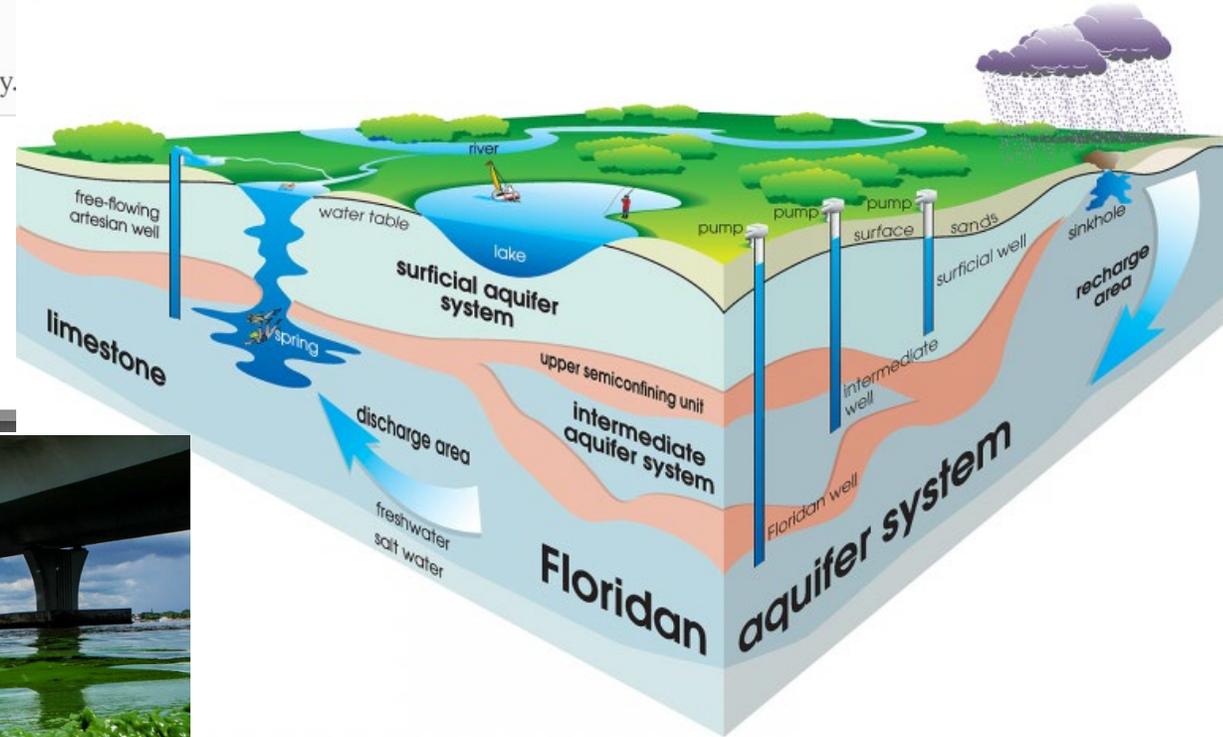
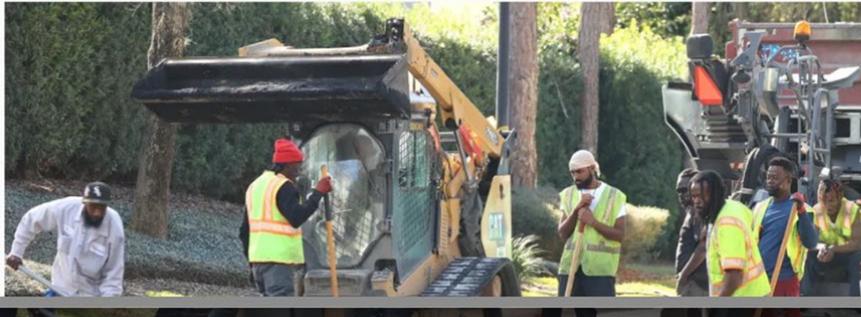
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What About Stormwater?

Conventional Systems provide...



- *Water Quality*
- *Flood Control*
- *Aesthetics*
- *Water Reuse*
- *Groundwater Recharge*
- *Floodplain Storage*



Smart Ponds are optimized for multiple benefits...



Prioritization and Funding

- Statewide
- WMD
 - Ad valorem
 - Slicing up the pie

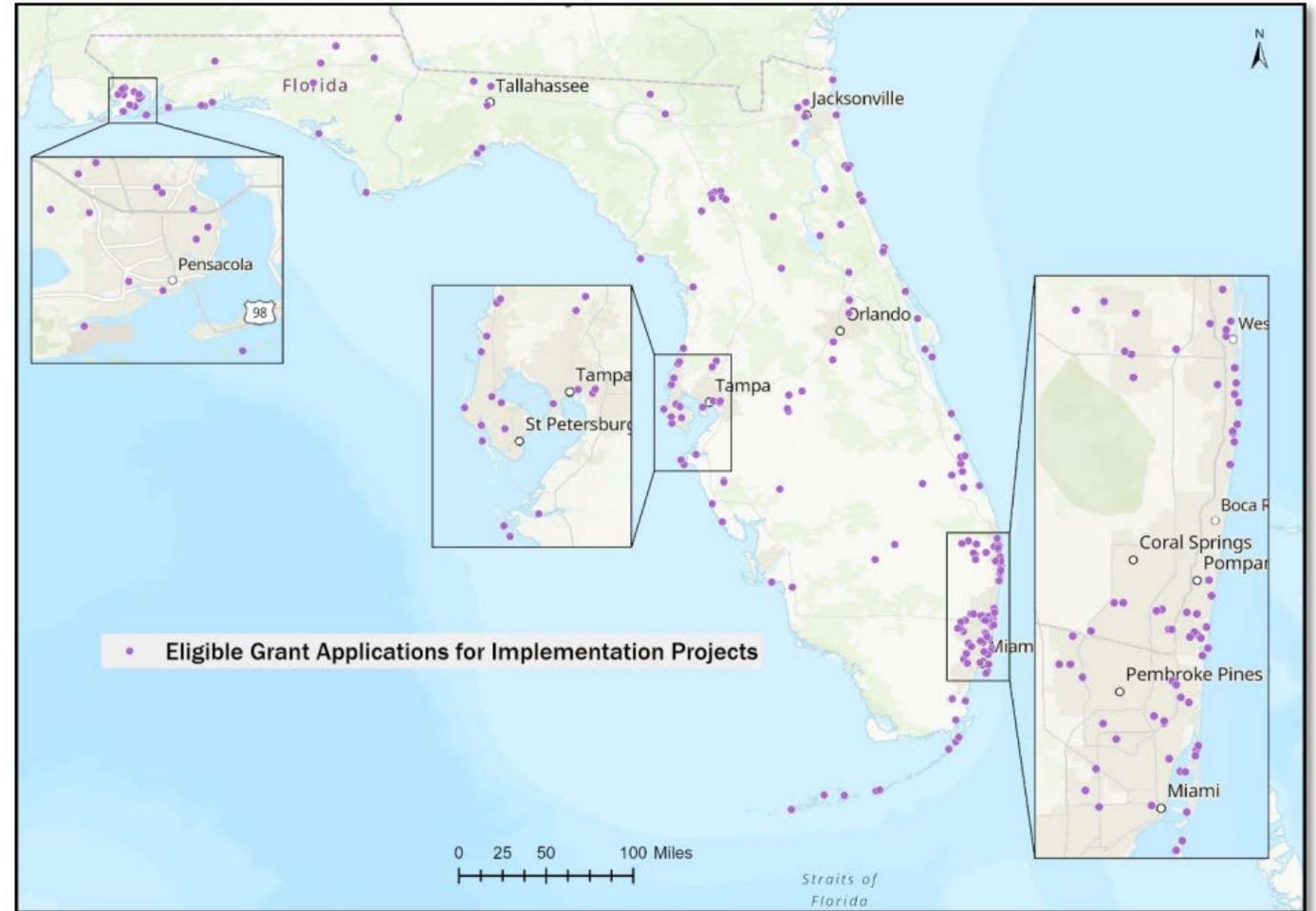


Figure 1. A distribution of eligible proposals submitted during the 2023 application cycle.



Questions?

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