



Audubon | FLORIDA

Florida Stormwater Association

Winter Conference

Wetland Evaluation Tool (WET)

Wetlands the Original Water Storage Solution

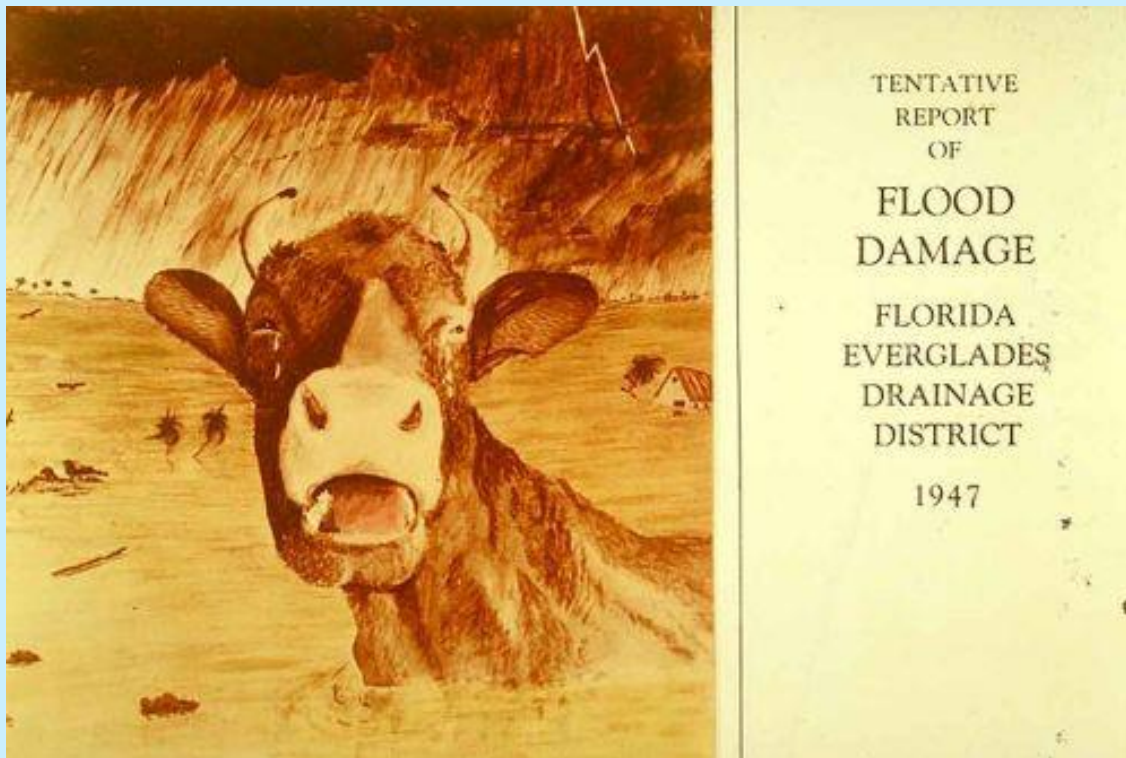
Presented by Danielle Ivey

What caused the Crying Cow?

Florida has a long history of drainage.



Photos courtesy of SFWMD



Historically we drained our way into solutions

Undesirable results of drainage include:

- Downstream flooding
- Loss of recharge
- Water shortages
- Nutrient amplification
- Habitat loss
- Ecosystem services loss (e.g., climate moderation, fragmentation)



More rain than normal

City of Lakeland

June – October

Normal average 30.47

Rain Gauge 62.65 (2024)



Natural versus urban landscape



Photo courtesy of National Geographic



Photo courtesy of WGPU

Wetlands are the original stormwater solution

In the face of growth, where do we find stormwater solutions?

Audubon is addressing this with a GIS tool We are calling our **Wetland Evaluation Tool (WET)** that identifies suitable areas for stormwater storage, usually in historically drained wetlands, and identifying priority recharge areas.



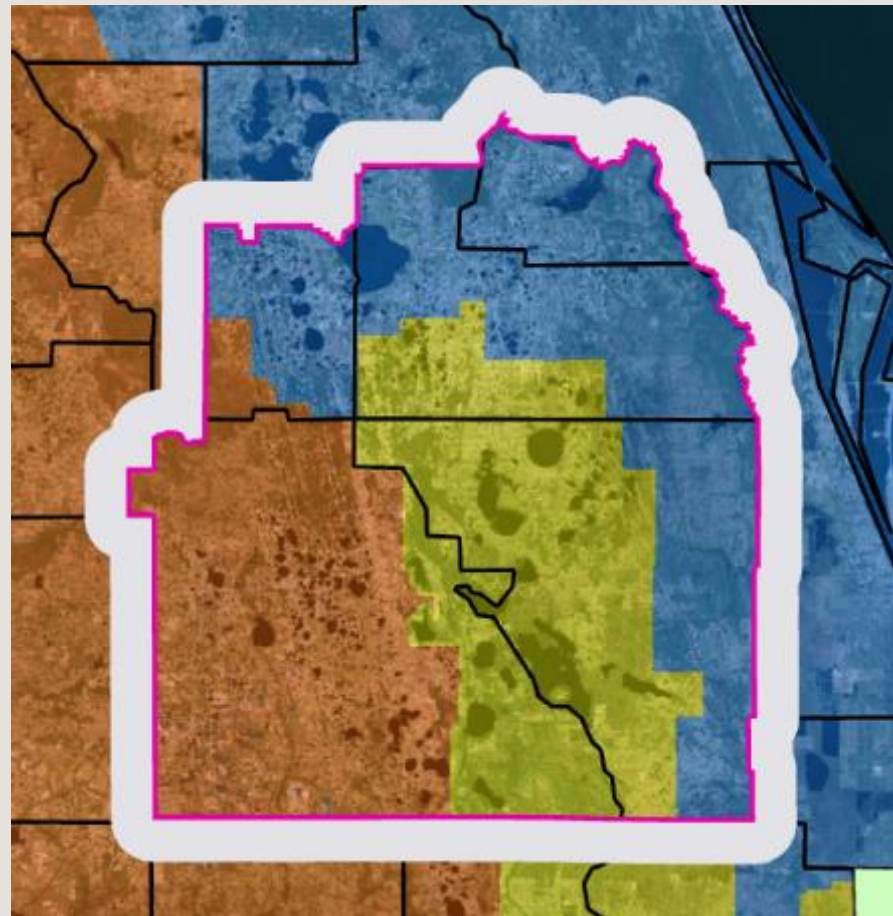
Wetland Benefits

- Stormwater retention
- Flood protection
- Erosion control
- Shoreline stabilization
- Wildlife habitat
- Recreation
- Aesthetic value
- Water filtration
- Microclimate regulation



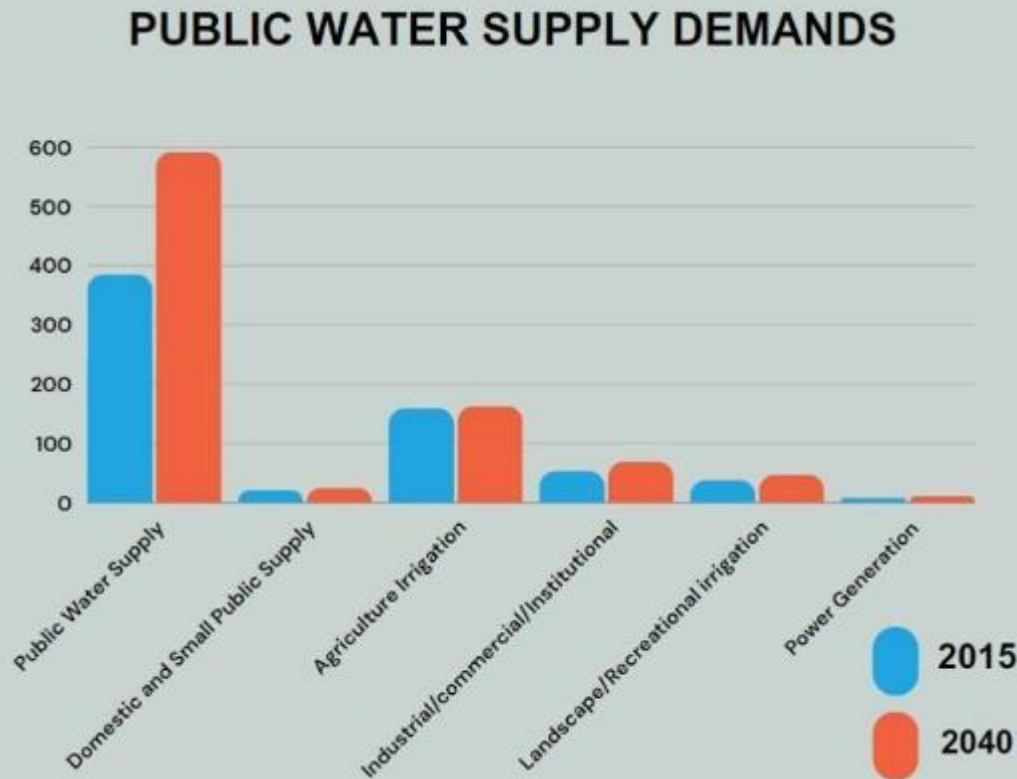
Where we started

- **Central Florida Water Initiative (CFWI)**
- **Collaborative water supply plan process with FDEP, SJRWMD, SFWMD, SWFWMD, FDACS, regional public water supply utilities, and other stakeholders.**
- **CFWI Planning Area includes Orange, Osceola, Polk, Seminole and southern Lake counties.**



We're still growing

A report by the state Demographic Estimating Conference suggests that between April 1, 2024 and April 2028, approximately 874 people a day will be moving to Florida.



Two Goals

Identify areas that can be used for dispersed water management (DWM) and/or groundwater recharge.

- Use the tool to identify green and flexible solutions for stormwater.
- Work with partners to find funding and support project advancement.

Photo by Linda-Dyer-Kennedy





How do you find surface storage?

Our consultant used the suitability modeler in Arc Pro to find areas 400 acres or greater. Our four main datasets include:

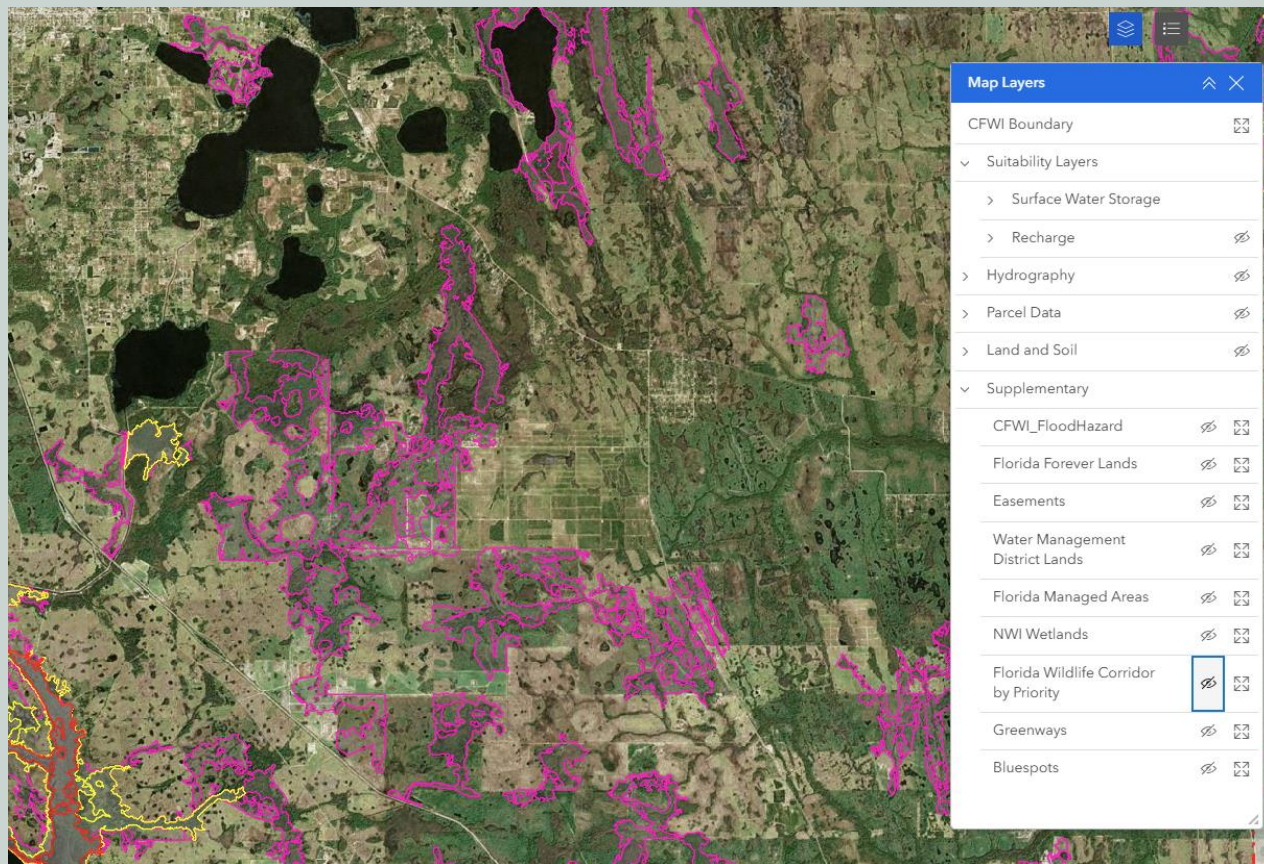
- ❖ **Land Use**
- ❖ **Soils**
- ❖ **Hydrography**
- ❖ **Topography**

Each site was scored based on suitability scores then placed into 3 categories (max 60 points):

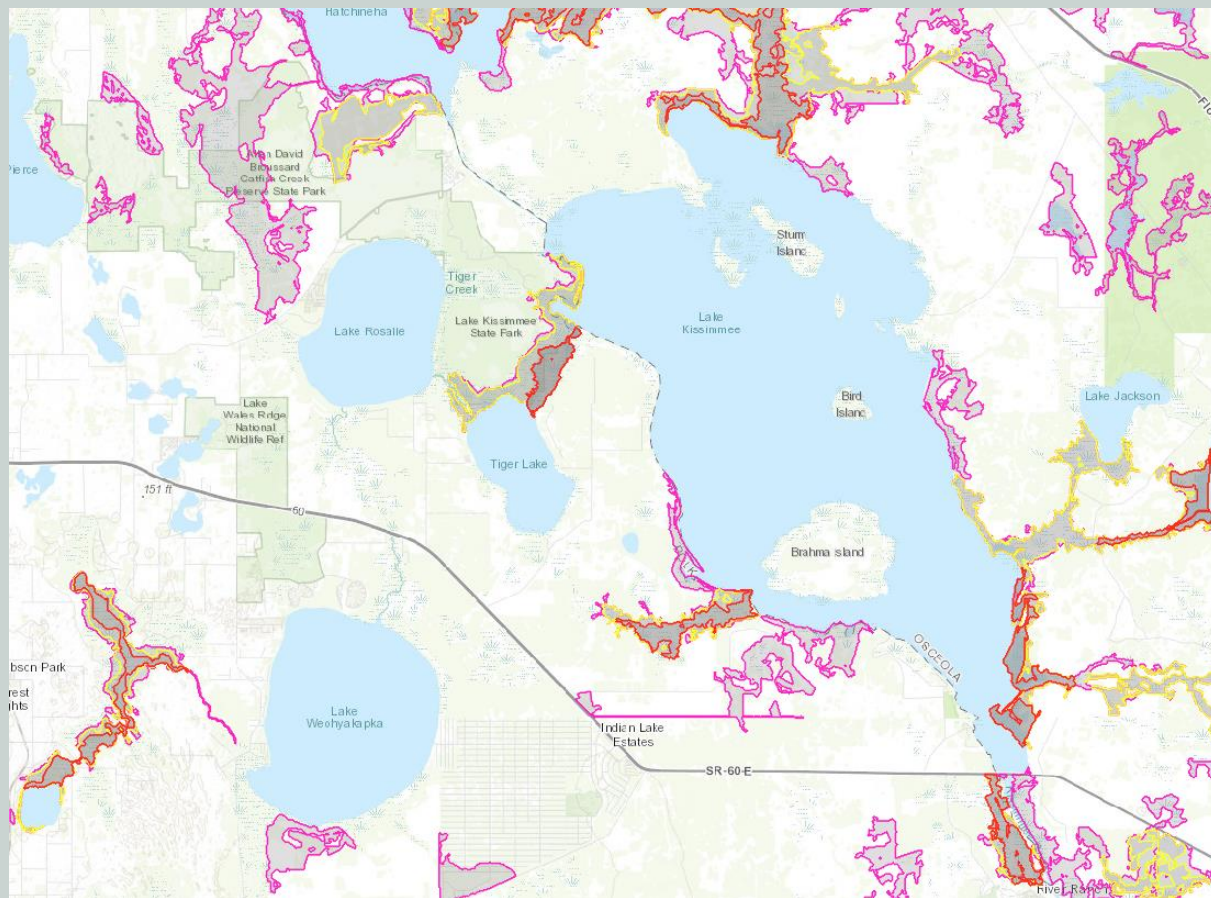
Red Polygons	Priority 1	Scored 59-60
Yellow Polygons	Priority 2	Scored 55-60
Pink polygons	Priority 3	Scored 53-60

Interface

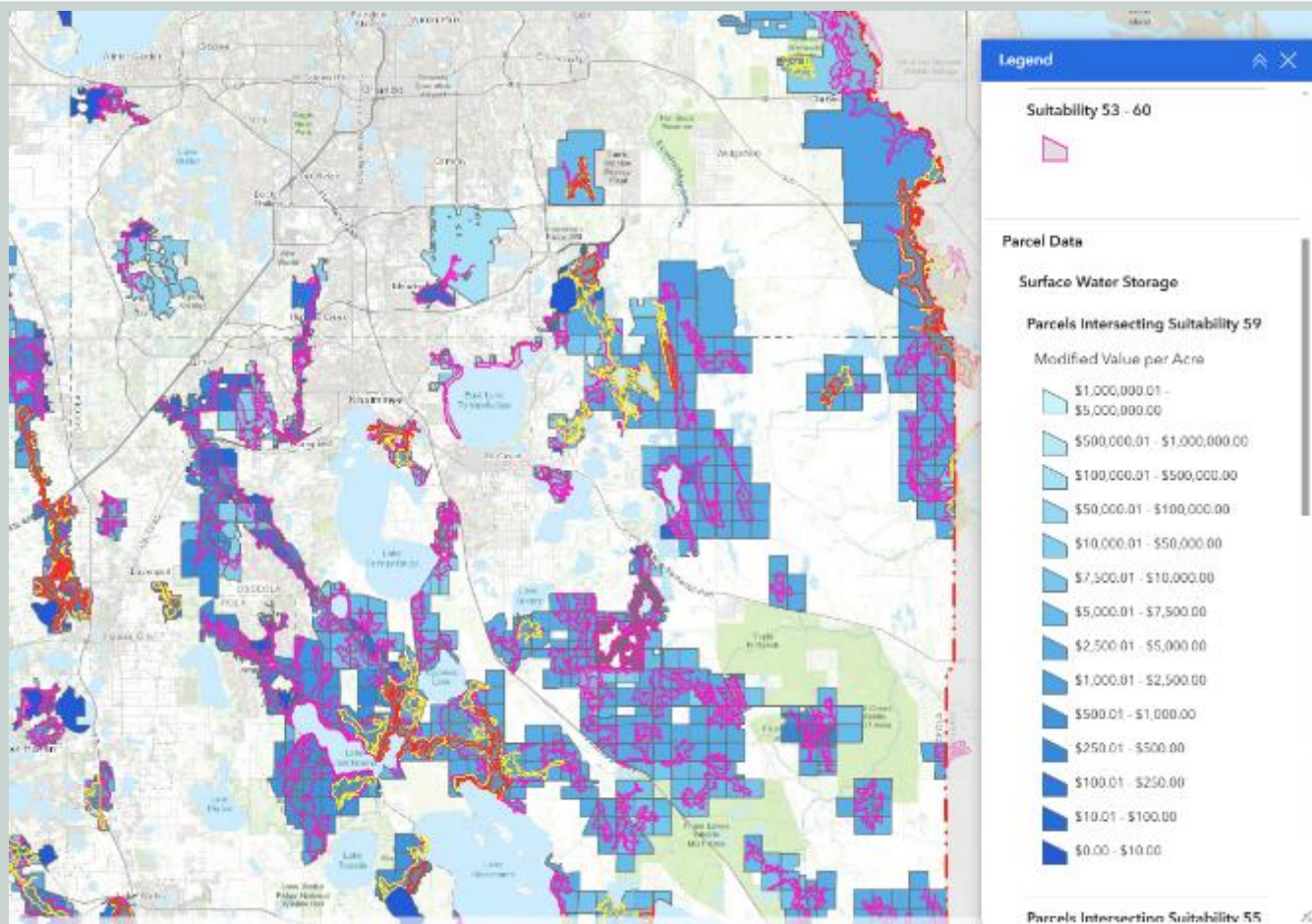
- **Surface water**
- **Recharge**
- **Hydrography**
- **Parcel Data**
- **Land and Soil**
- **Supplementary**
 - **Florida Wildlife Corridor**
 - **NWI Wetlands**
 - **Easements**
 - **Florida Forever lands**
 - **Water Management District Lands**



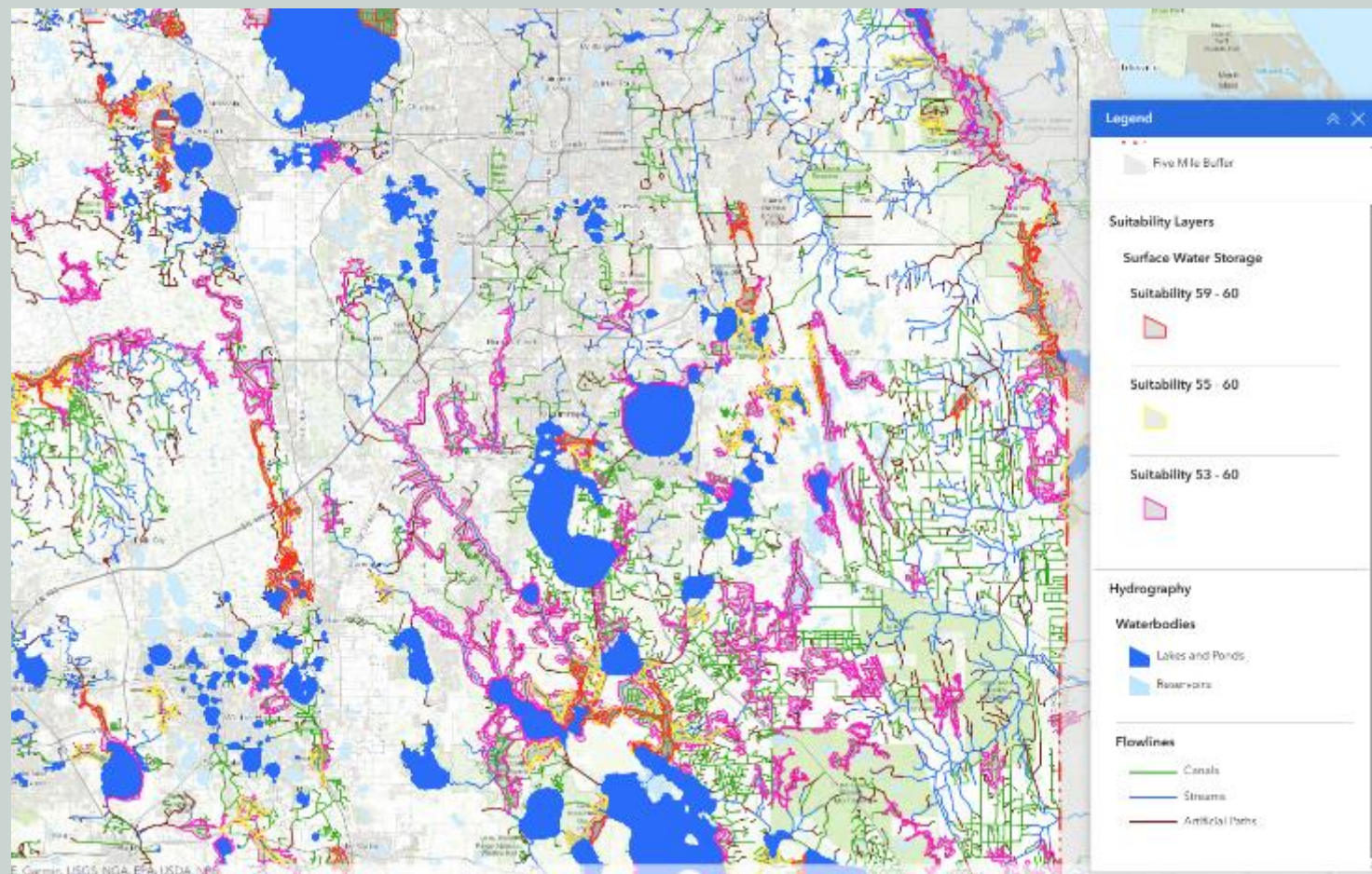
Polygons



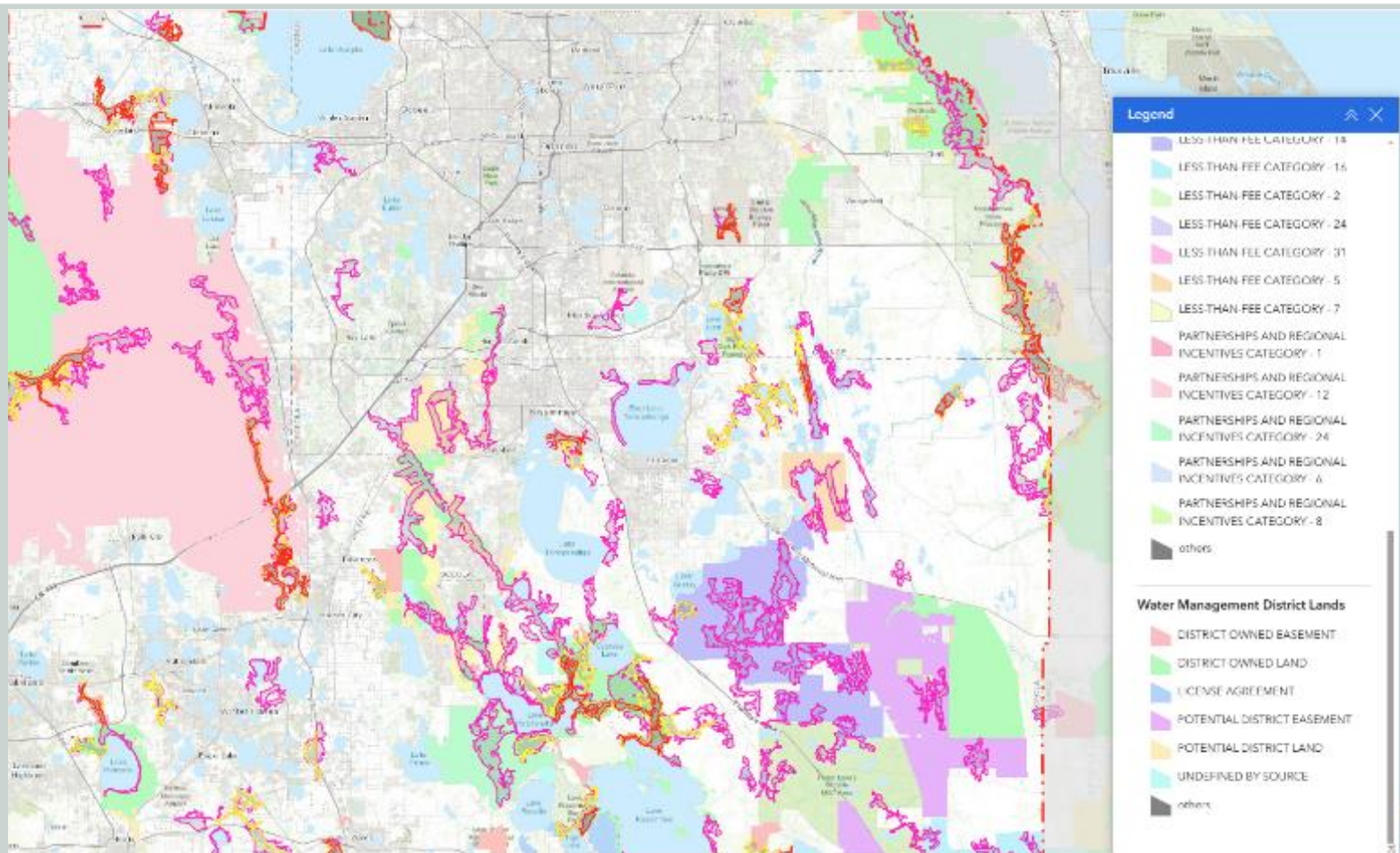
Parcels



Flowlines



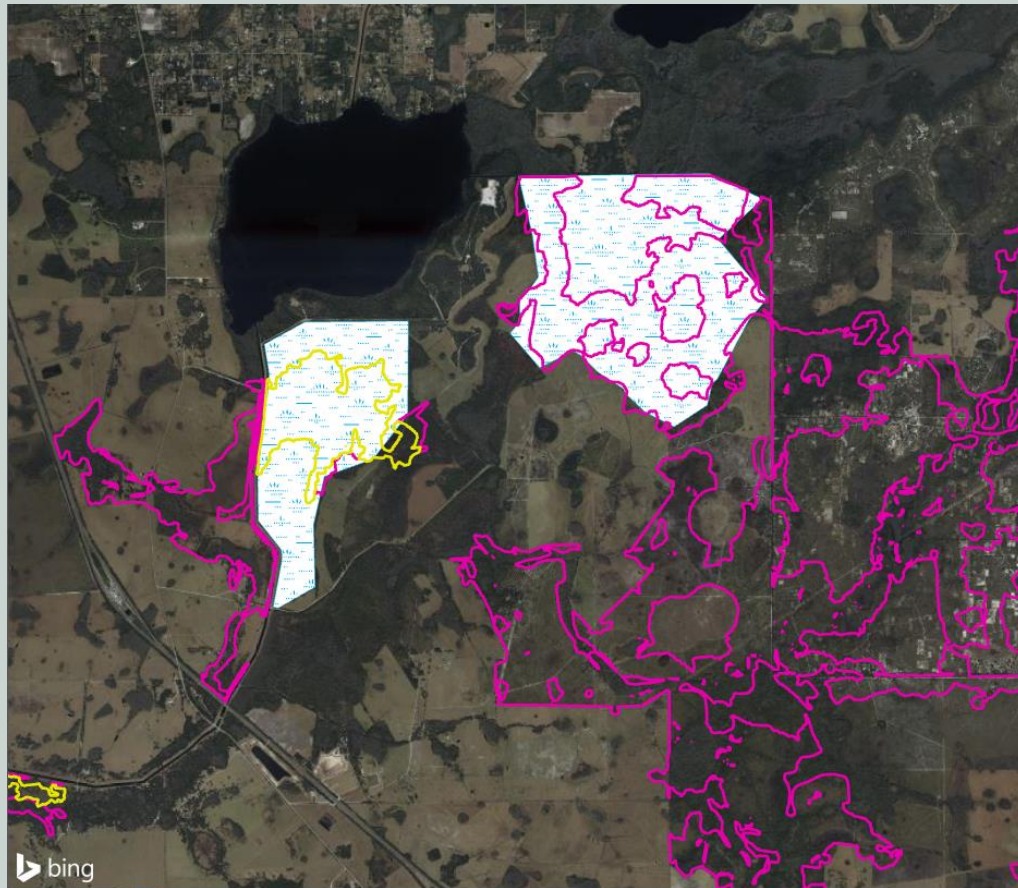
State and District Owned Lands





Proof Of Concept

**Dispersed Water Project on
Doc Partin Ranch through
SFWMD's Payment for
Environmental Services
(PES) Program.**



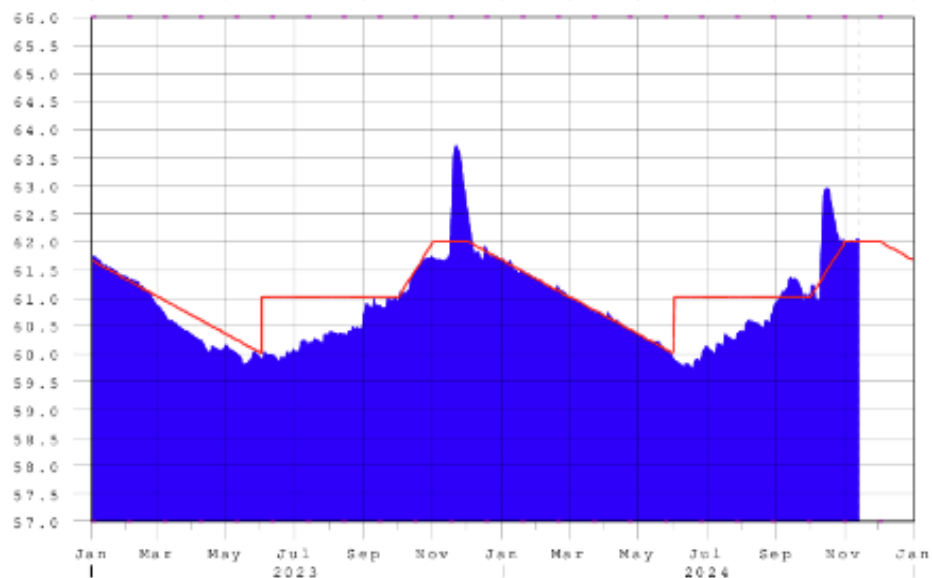


Kissimmee River Basin - Lakes Myrtle, Preston, & Joel

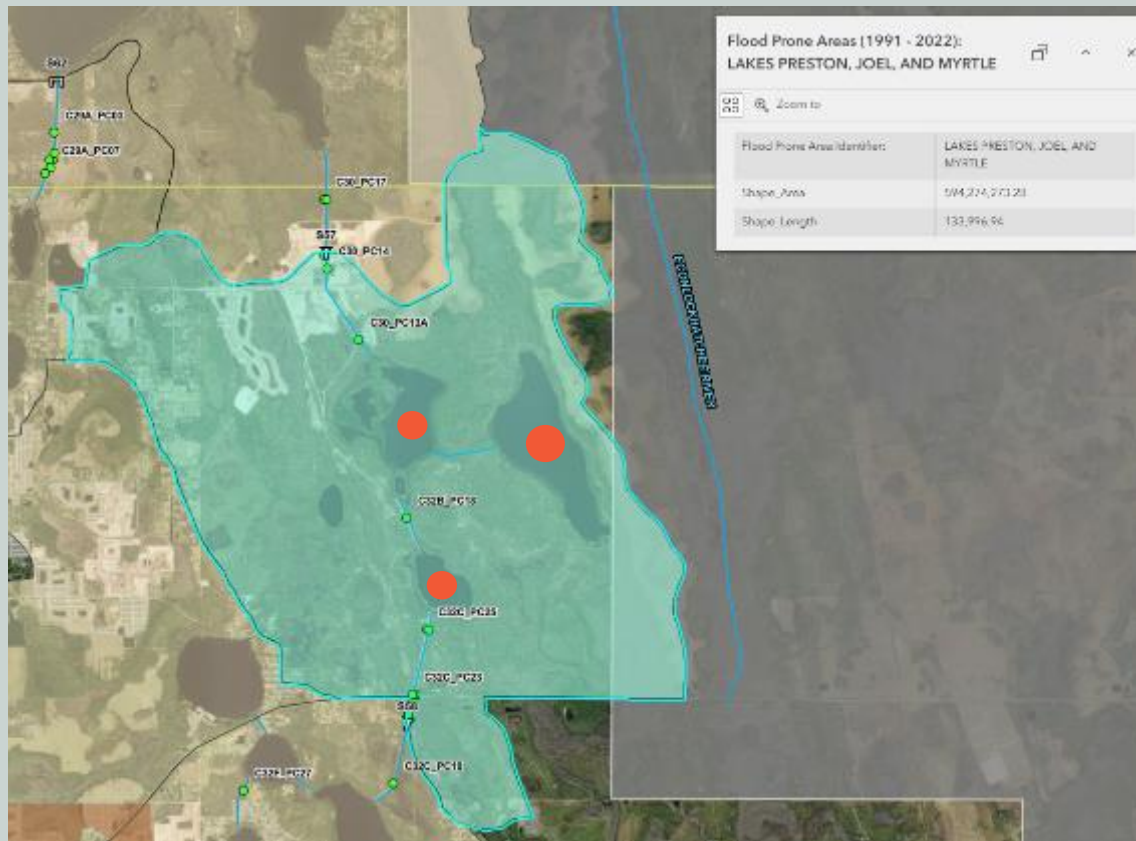
12NOV24 13:17:30

R
a
i
n

E
l
e
v
i
n
F
t
N
G
V
D



S-57 Elev-Head
 Zone B Regulation
 Precip @ Kissimmee Field Station



This is an area already known to flood. This is a clip from the SFWMD Flood Resiliency map.

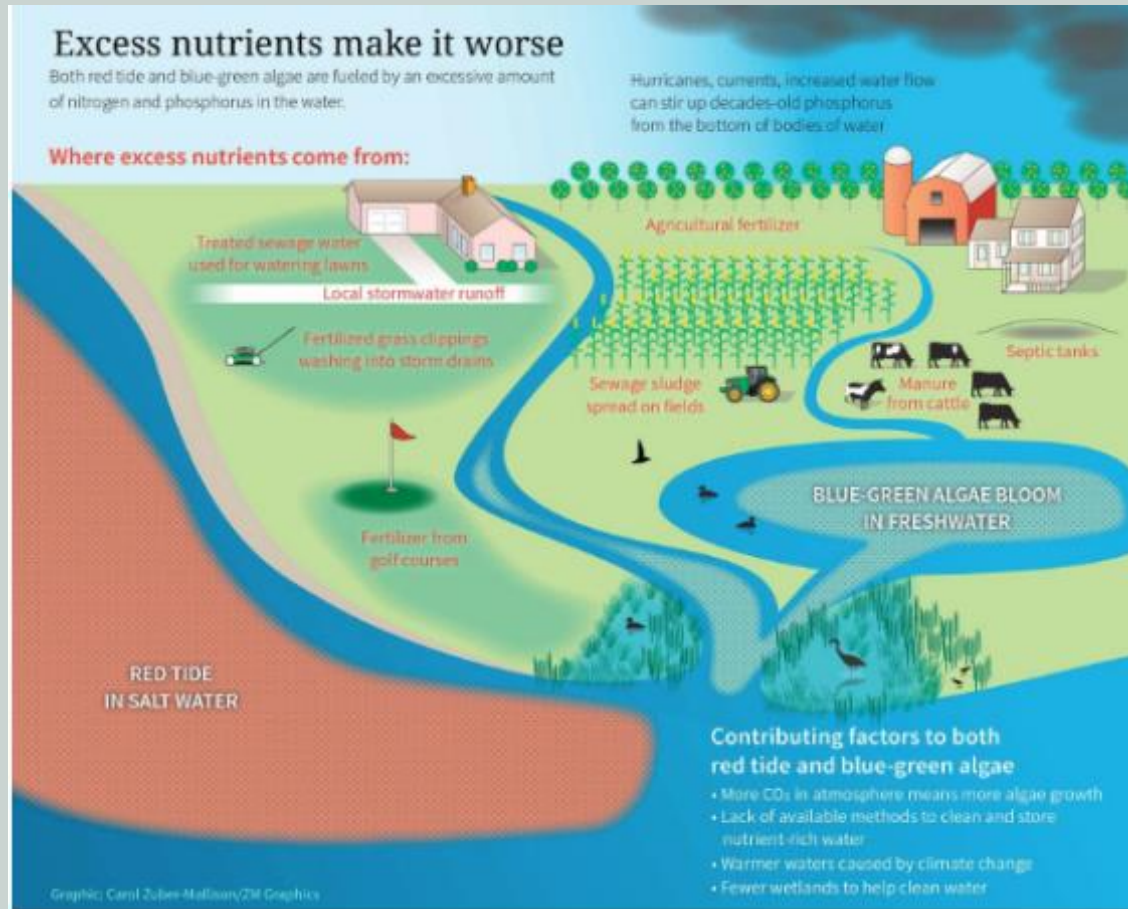
There are better ways to minimize the effects of stormwater when building.

New State Stormwater Rule



- The new Stormwater rule requires at least an 80% reduction of the average annual post-development total "nutrient" load
- Or, a 95% reduction if the proposed project is located within an area with a watershed that contains Outstanding Florida Waters (OWF) or one located upstream.

More Downstream effects



Recharge

Our tool also picks up recharge areas that are 200 acres or larger.

This area is the Yankee Lake water treatment plant in Seminole County. They have a Rapid Infiltration Basin (RIBS).

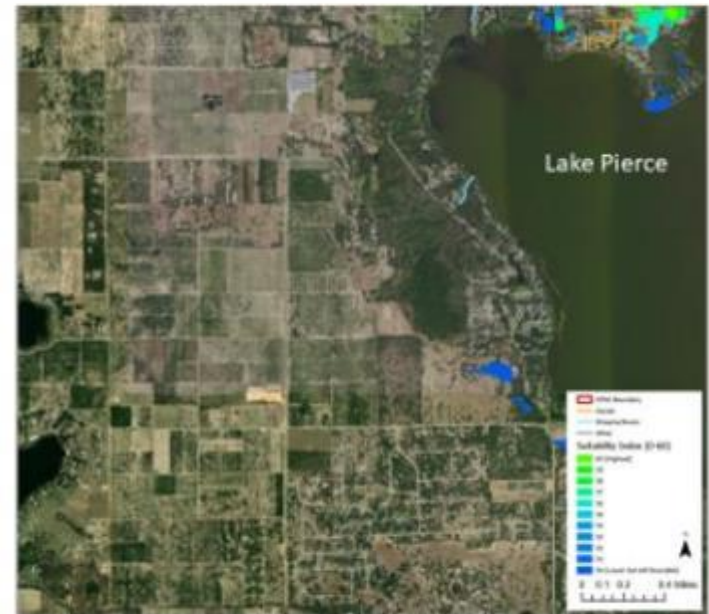


Aquifer Recharge

Recharge Suitability Near Lake Pierce



Recharge Suitability Near Lake Pierce



Stormwater design

Typical storm sewer systems can shunt water to the Lake where it will be lost to surface drainage and fail to recharge the aquifer.



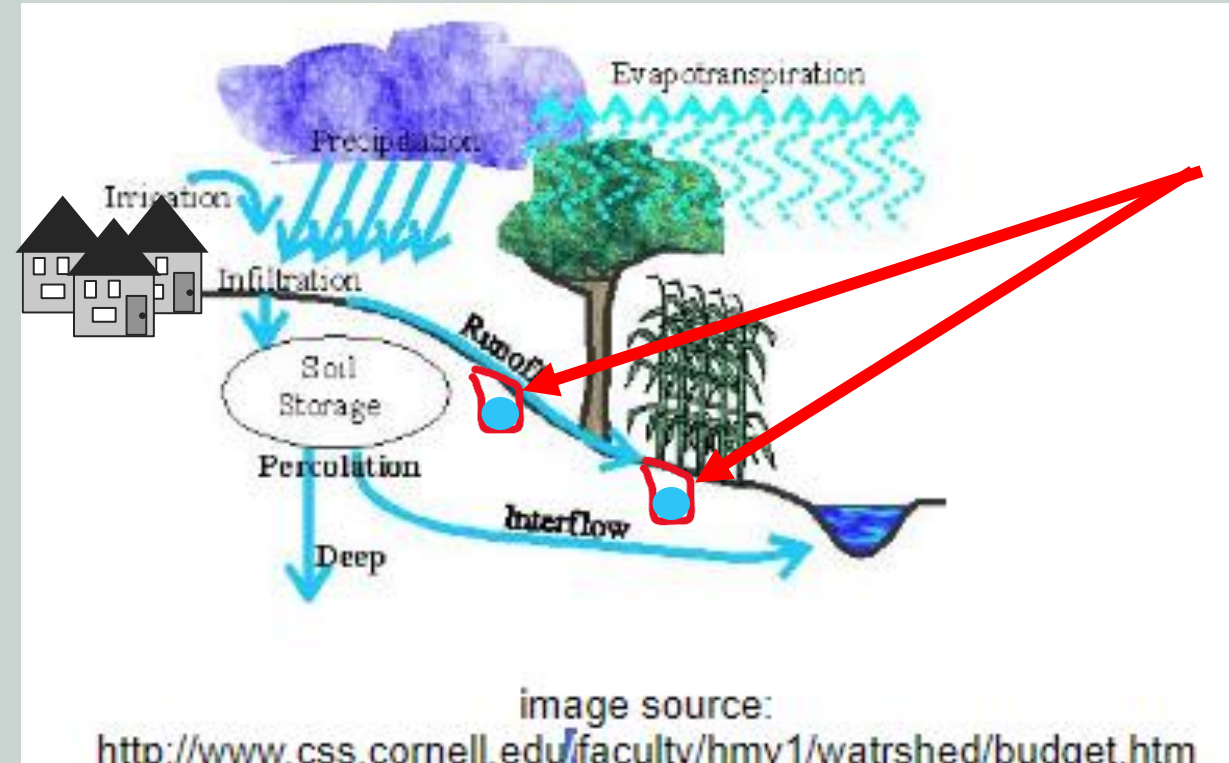
Photo courtesy of the University of Florida

Recharge instead of loss

This is where lateral swales could catch water to allow recharge into the aquifer.

Benefits:

- Recharge, not lost to lateral flow.
- Reduces runoff and improves water quality.



Who are our partners?

- Private landowners
- Government agencies
- NGOs
- Public and private funders
- Developers
- Public and private funders
- Cows and birds

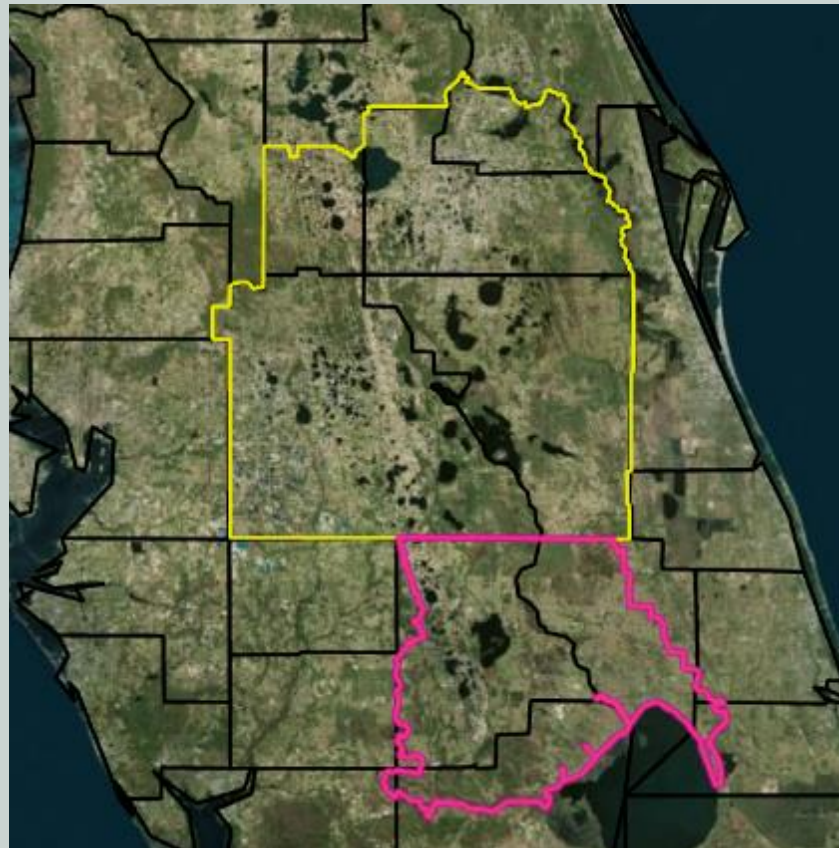


Photo courtesy of Palm Beach County

Next steps

Tool refinement underway:

- Smaller polygons
- No size limit on recharge
- Upstream Okeechobee watershed
- Expand St. Johns River Watershed
- Updated layers
- More funding opportunities and partnerships.





Audubon | FLORIDA



Thank you!

Danielle.Ivey@Audubon.org