



# RLSA Restudy Public Workshop

September 27, 2018

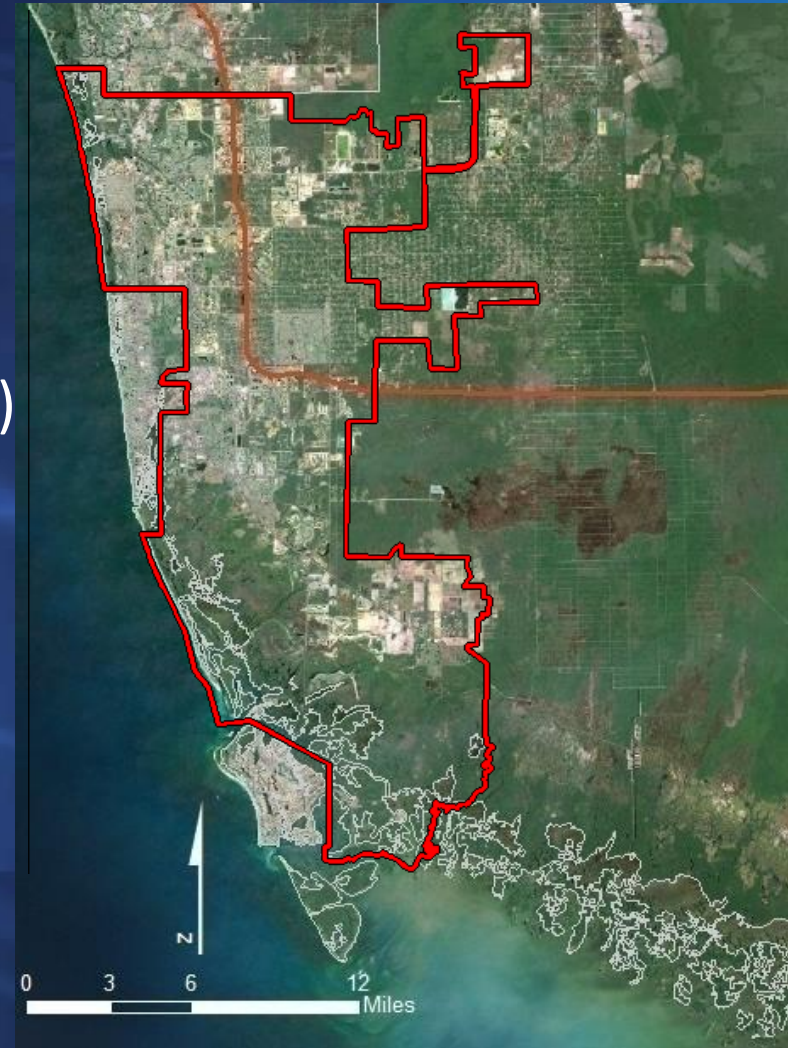
## Opportunities for Improved Water Resource Management from Eastern Lands RLSA

Kirk Martin

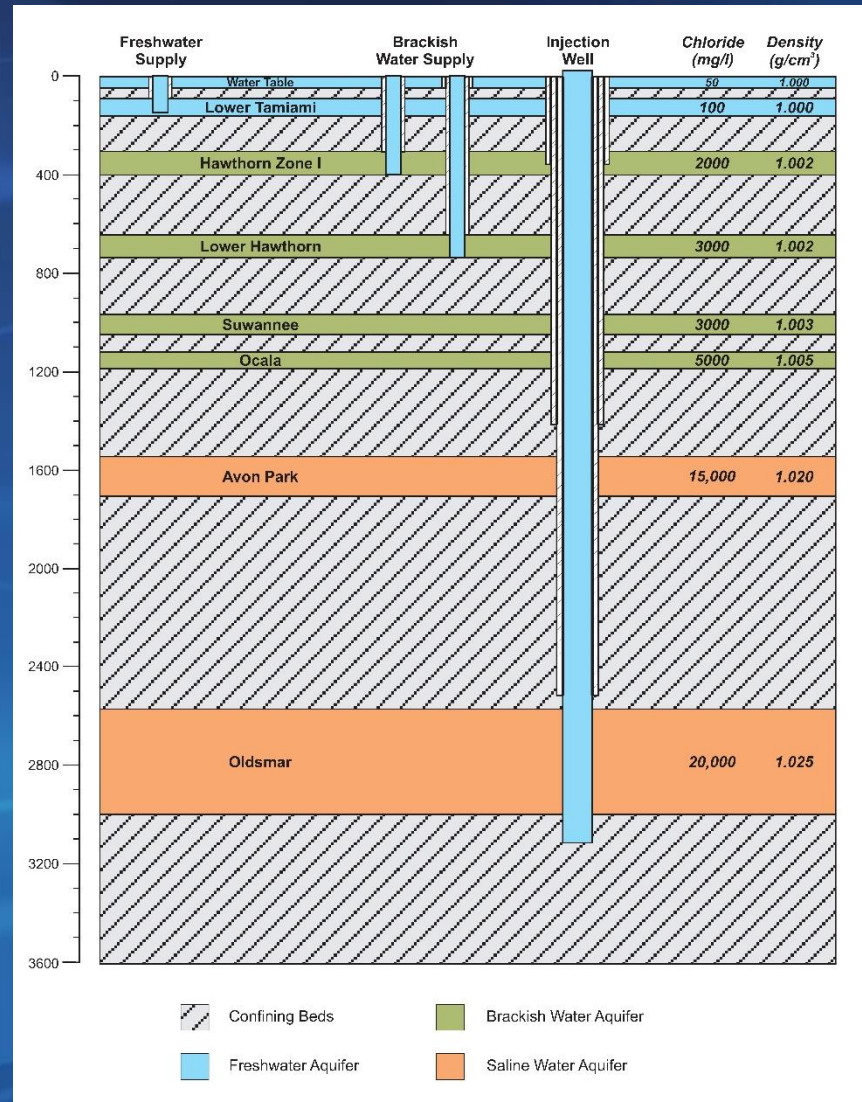
President Water Science Associates

# Collier County Water and Sewer District

- Progressive public water, wastewater, and irrigation water utility
- Early adoption of reuse (1980's)
- Early adoption of desalination (1990's)
- Early adoption of ASR (2000's)
- Increasing focus on integrated water resource management



# Hydrogeology of Collier County





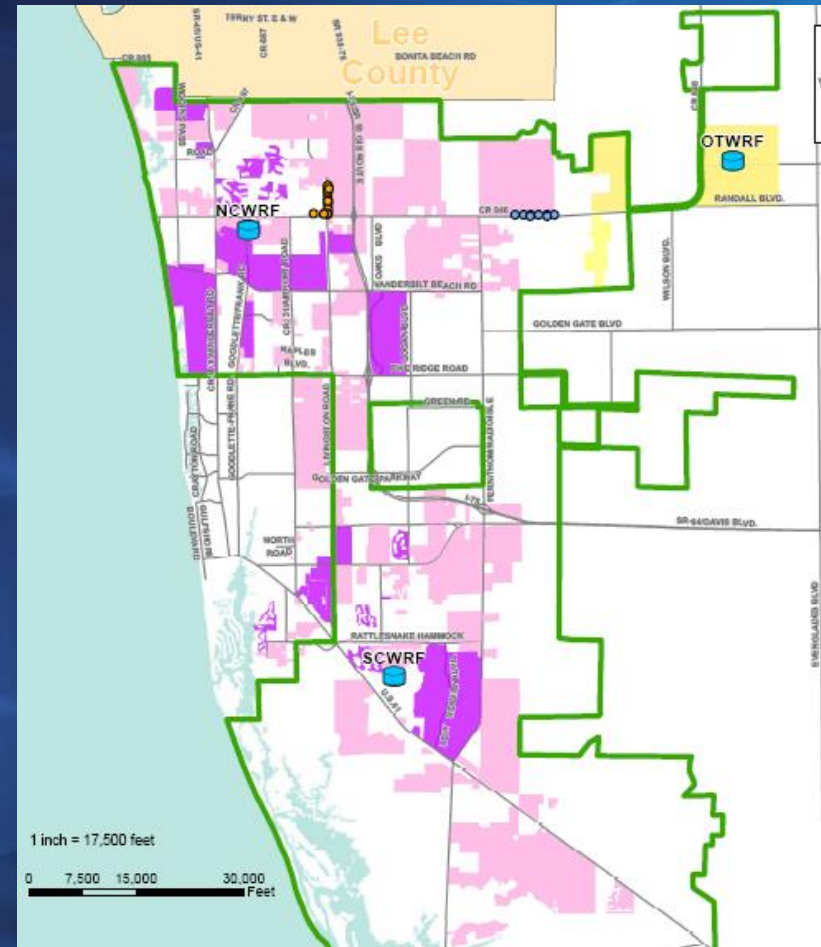
# Collier County Potable Water System

- NCRWTP (20 mgd)
  - 12 mgd Tamiami Fresh
  - 8 mgd Hawthorn Brackish
- SCRWTP (32 mgd)
  - 12 mgd Tamiami Fresh
  - 20 mgd Hawthorn Brackish
- 100+ Production Wells
  - 36 Lower Tamiami Fresh
  - 65 Hawthorn Brackish
  - 1 ASR well
- Proposed NERWTP
  - Brackish Supply



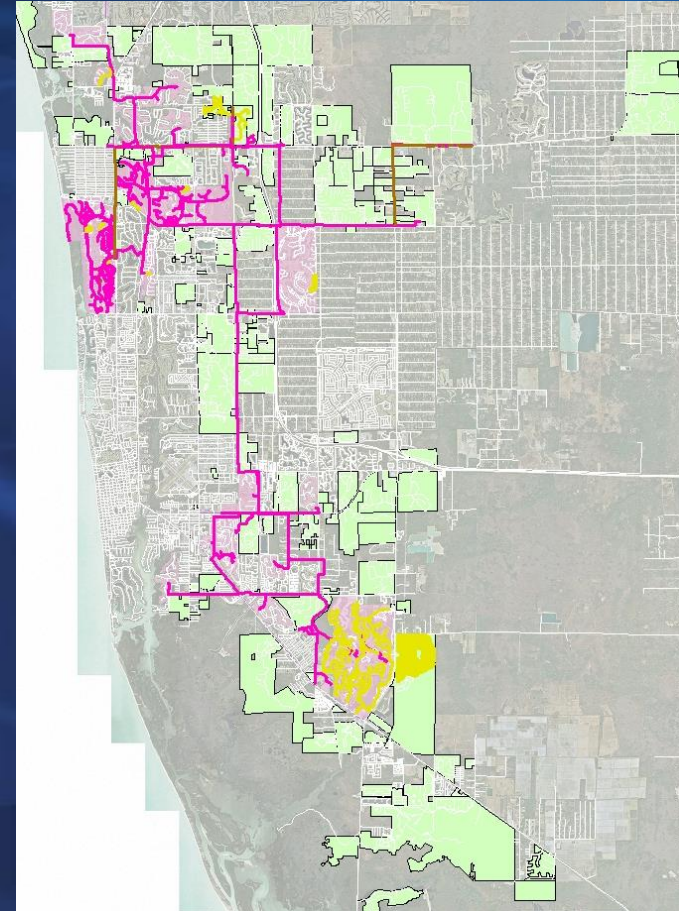
# Collier County Irrigation Water System IQ

- IQ = Reclaimed + Supplemental
- Currently >95% reclaimed reuse
- 2 regional WRF's (40 mgd)
- 20,000 customers
  - 21 golf courses
  - 6 county parks and schools
  - 65 miles of road medians
- 12 supplemental wells (5 mgd)
- 2 ASR wells in testing
- Additional ASR wells planned
- Proposed NERWRF



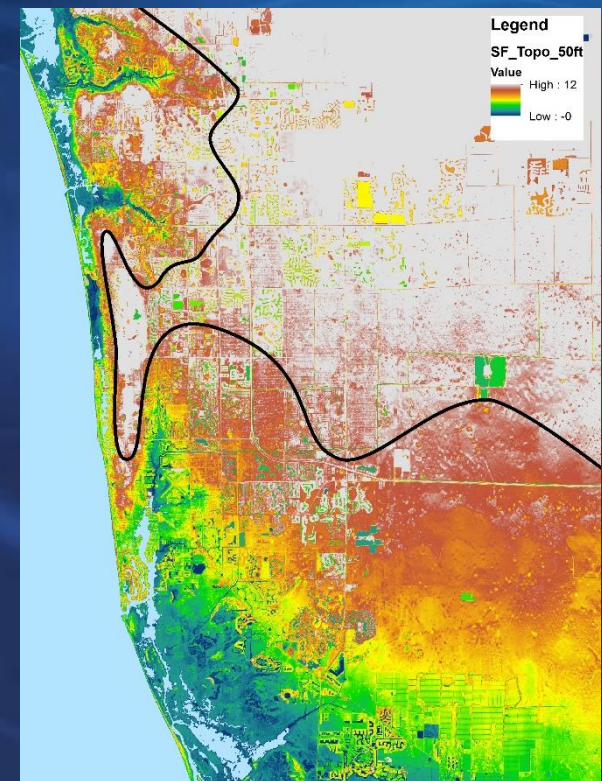
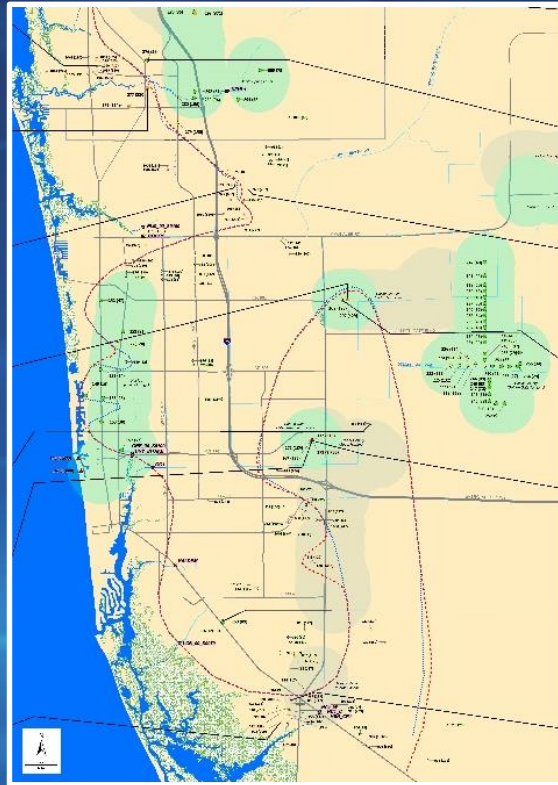
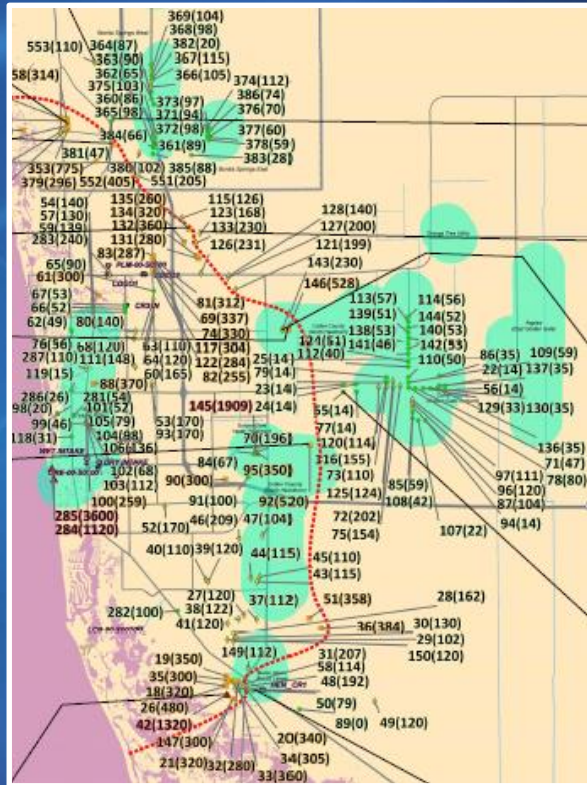
# IQ Program Critical Part of County's Total Water Management Initiative

- Reduces competition for limited resources
- Reduces demands on potable system with significant declines in per capita use
- Removes surface water quality impacts
- Provides aquifer recharge - every day
- Provides aquifer recharge near the coast
  - Mitigating potential for saline water intrusion
  - Supplied from inland and brackish sources

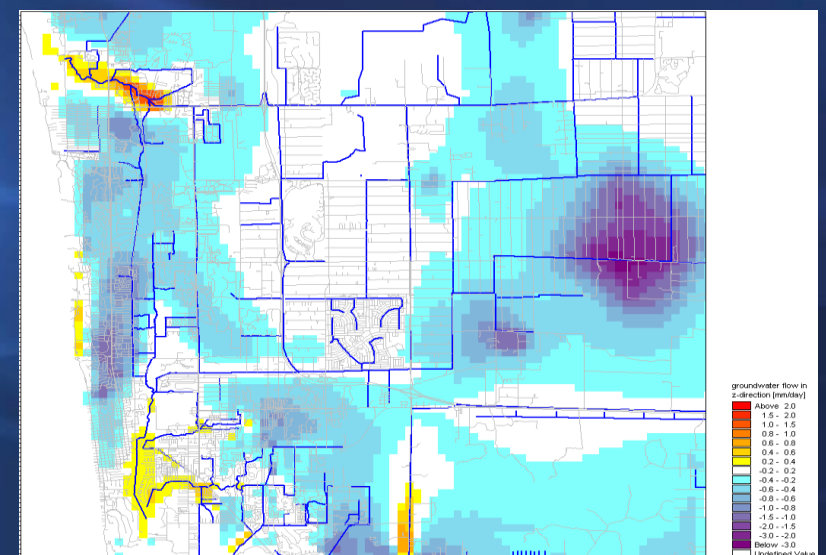
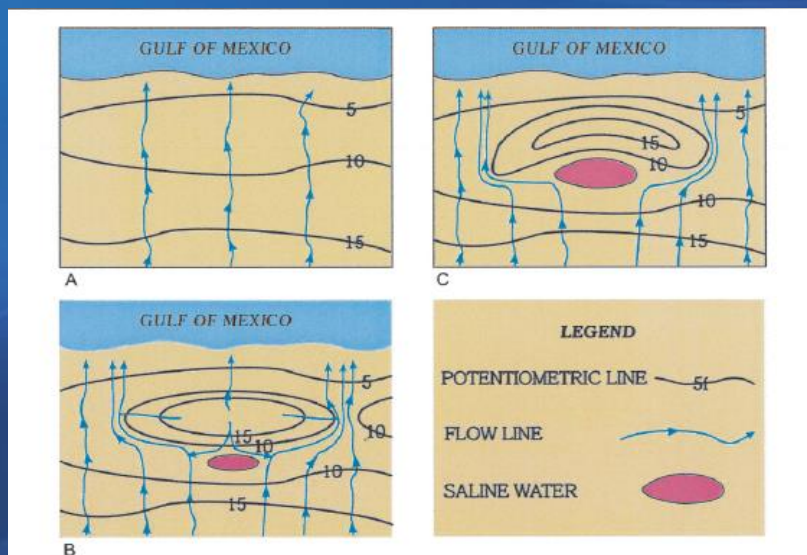
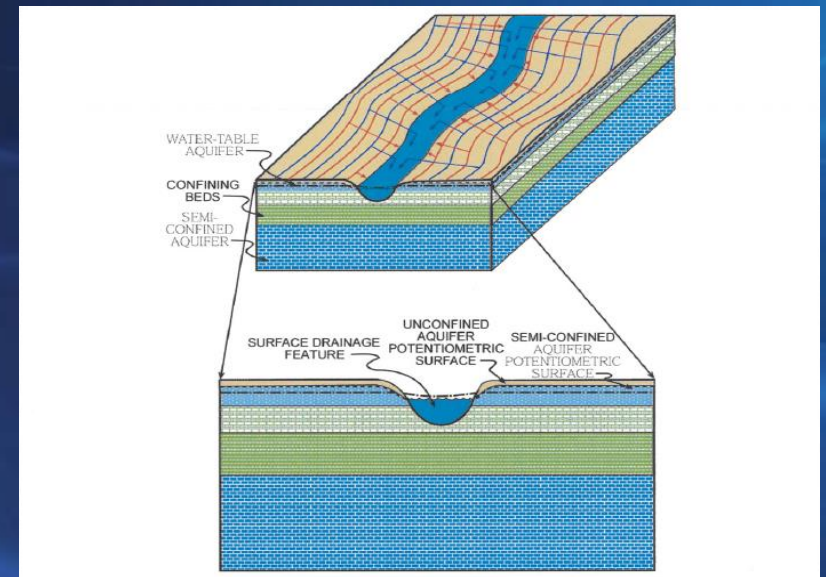
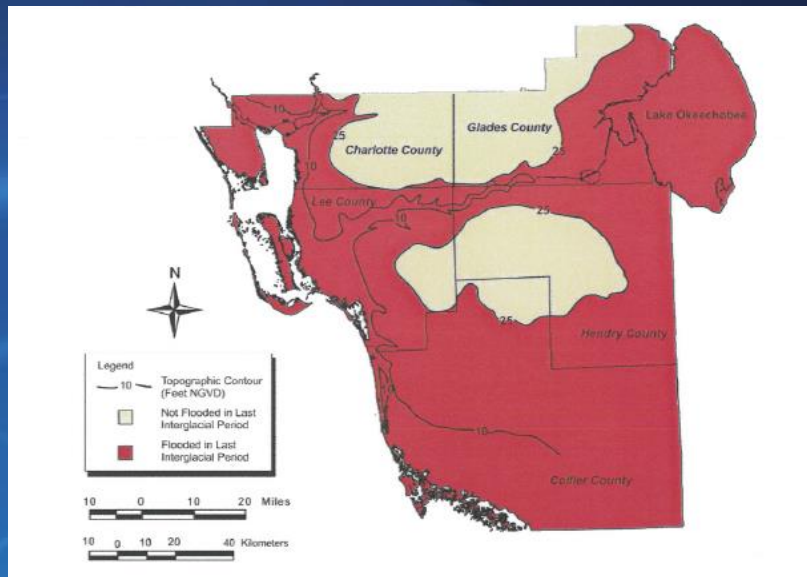




# “Saline” Water Occurrence in Collier County



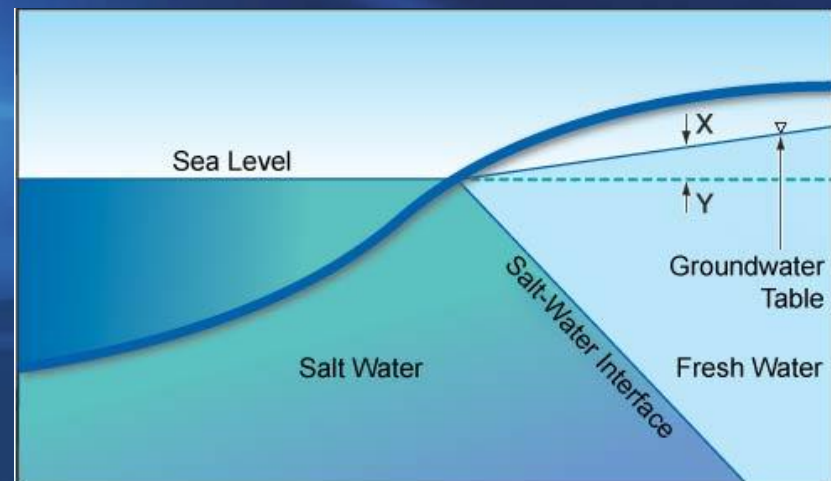
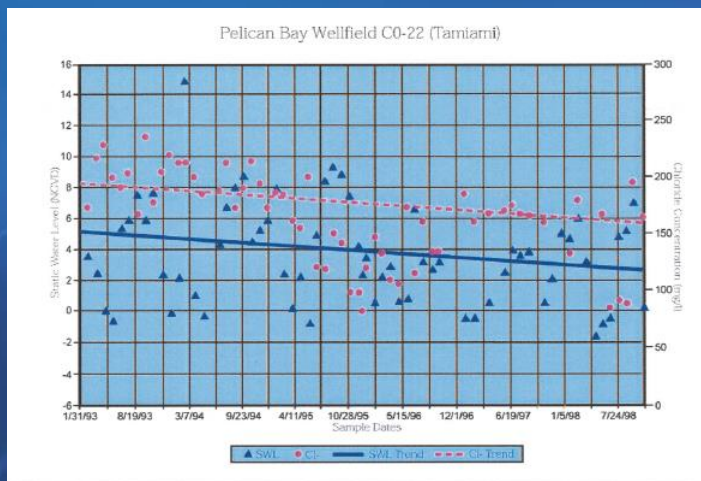
# Hydraulic Entrapment of Connate Water





# Saline Water Intrusion

- Most saline water in Lower Tamiami Aquifer is not saline but very mildly brackish water (300 – 500 mg/l Chloride)
- “Saline” water in Lower Tamiami Aquifer is not “intruded” but trapped connate water from last high sea level stand
- Minor apparent movement of connate water within the aquifer but no apparent movement of a saline water front in County
- Use of the connate water is actually good for the resource
- Sea level rise is not projected to increase saline water intrusion

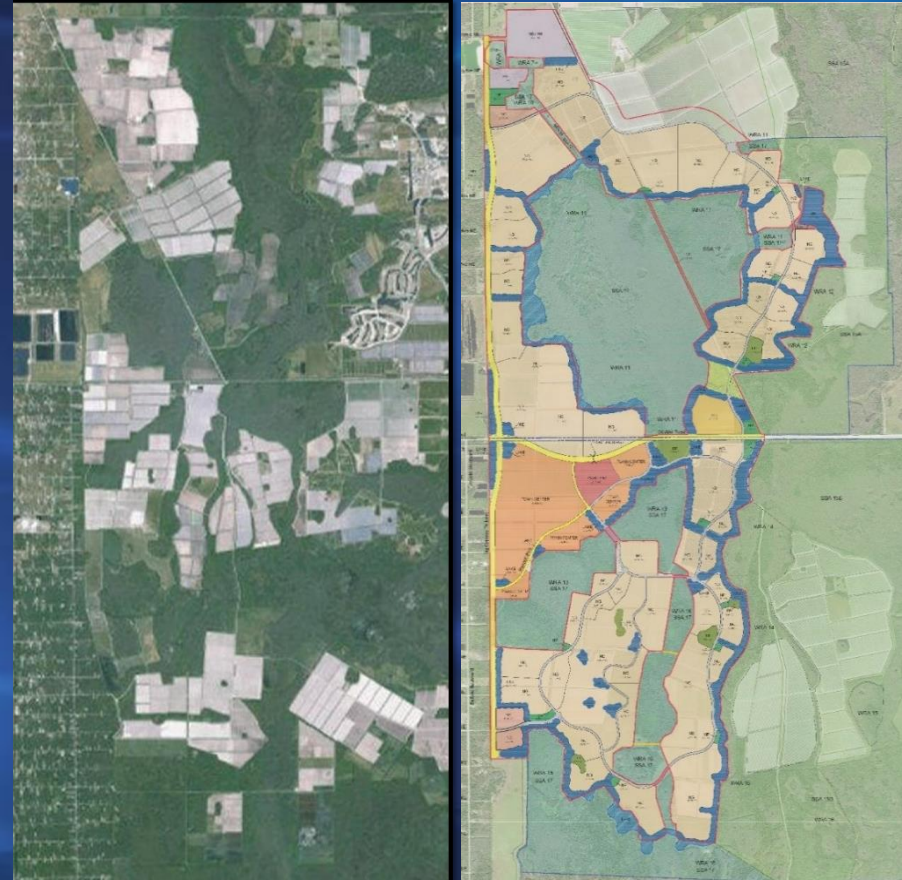




# Opportunities for Water Supply Management

## RURAL LANDS WEST

- Proposed 4000 acre “new town”
- Part of Florida’s first RLSA
- 5500 acres of active agriculture to be taken out of service
- 12,500 acres to be put in permanent protected preserve
- Ecological and hydrological restoration of preserves
- Large and proven historic agricultural water use





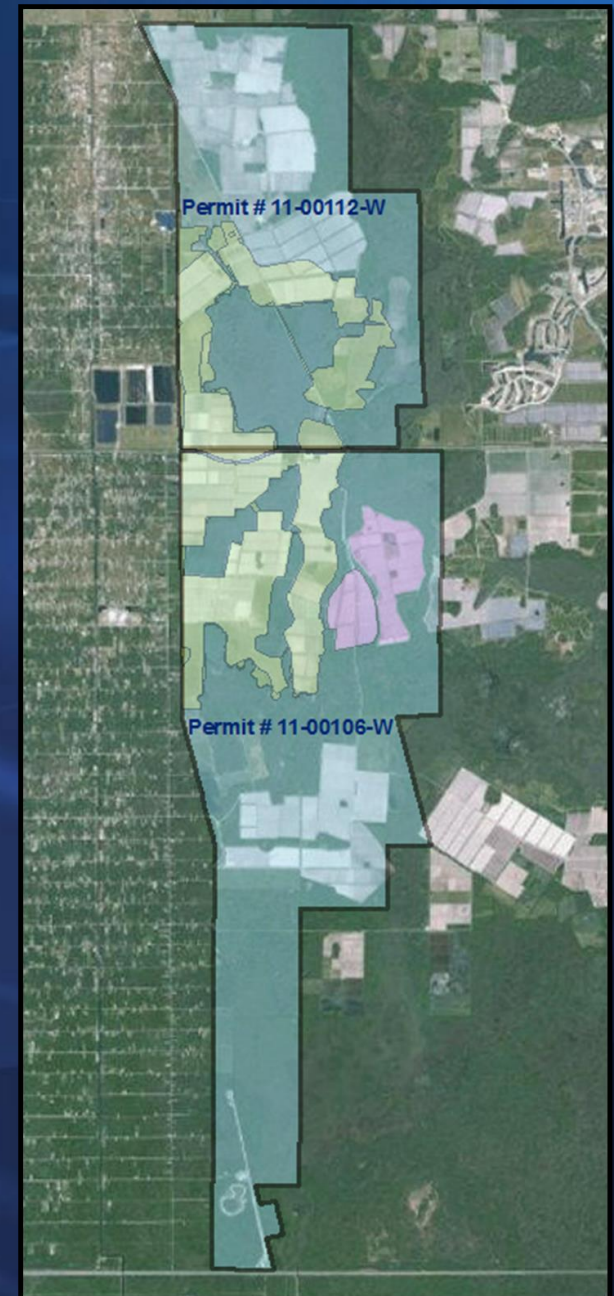
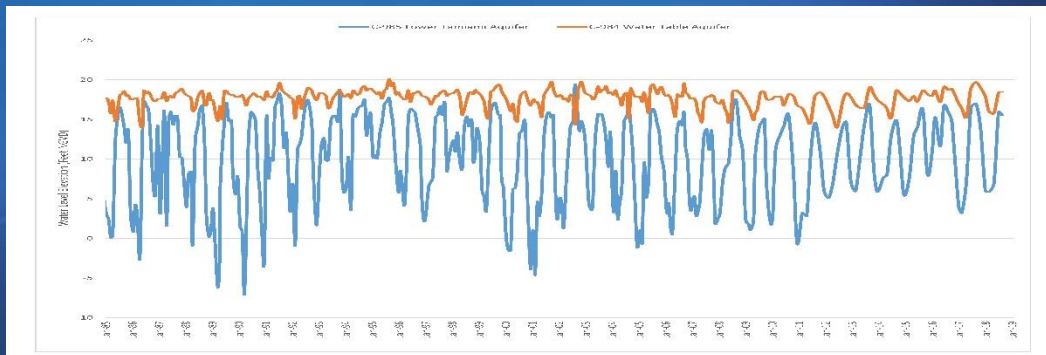
# RURAL LANDS WEST

## Current Permitted Allocations

	<u>11-00112-W</u>	<u>11-00106-W</u>	<u>Totals</u>
Irrigated Acreage	4059	4928	8987
Annual (MGD)	13.44	16.63	30.07
Max Month (MGD)	36.51	43.62	80.13

## Historic Water Use

Max Annual (MGD)	17.9	19.3	37.2
Max Month (MGD)	42.55	47.36	89.91



# RURAL LANDS WEST

## Rural Lands West Conversion

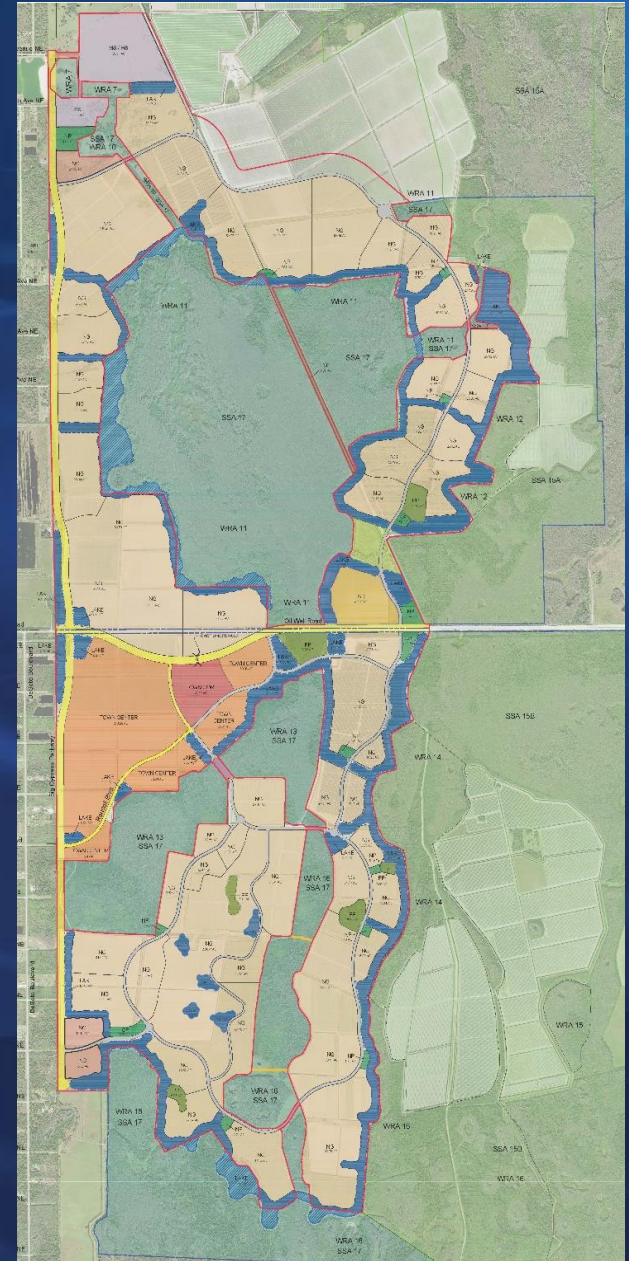
Farm Acres Absorbed	1775	2951	4726
% Permitted Acreage	44%	60%	53%
Reallocation within RLW			
Annual (MGD)	5.88	9.96	15.84
Max Month (MGD)	15.97	26.12	42.09

## RLW Irrigation Demand

Annual (MGD)	5.5
Max Month (MGD)	8.3

## Remaining Allocations

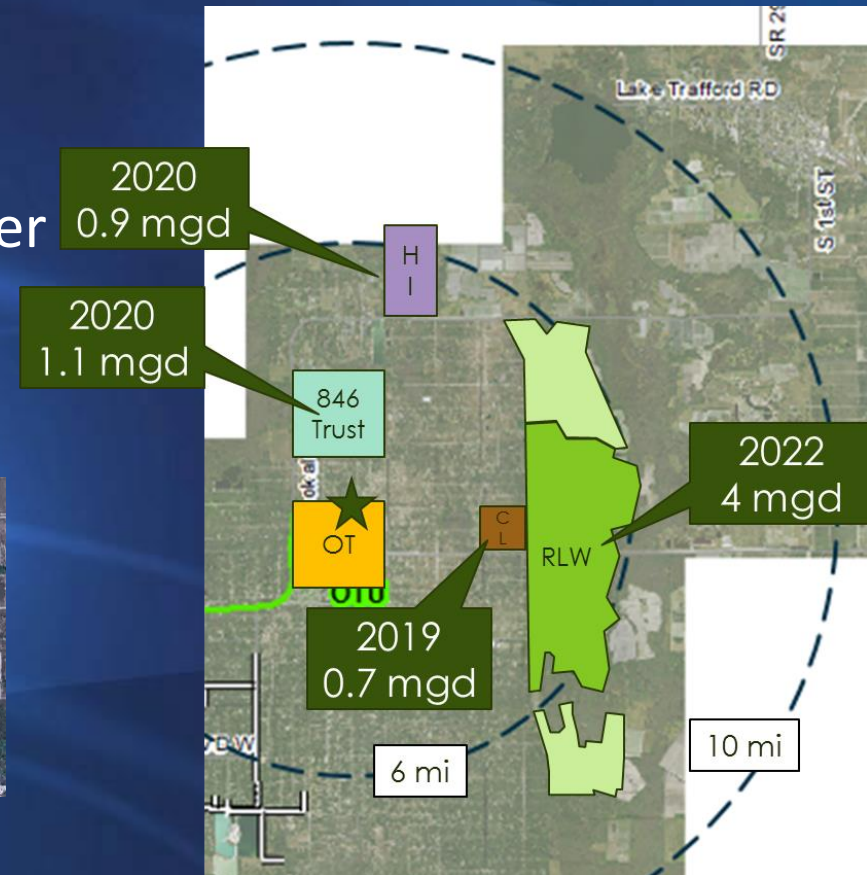
Annual (MGD)	10.34
Max Month (MGD)	33.79





# Plans for Utility Services in NE Collier

- County currently providing water services from existing facilities
- Temporary WW services planned for the NE WTP/WRF Site
- Permanent Water and Wastewater Facilities Planned for Future





# RLSA Opportunities for Water Supply

- Conversion of agricultural acreage to RLW development will significantly reduce current water demand
- County will provide potable water and wastewater services to RLW
- RLW will meet reduced irrigation demands from onsite wells
- RLW will provide additional freshwater to County
  - Initially to meet irrigation demands in County IQ water system
  - Later to supply NERWTP when constructed
  - NERWRF to provide IQ water when constructed

# Summary

- Collier County has a long and highly respected history of prudent and progressive water resource management
- Providing an area-appropriate mix of fresh groundwater, brackish groundwater, and reclaimed water to meet total water demands
- Conversion of RLSA lands in Eastern Collier County provides a new opportunity for improved water supply management
- Development of proven sustainable freshwater supplies in the RLSA for public utility use will
  - Provide greater flexibility and reliability in County water sources
  - Reduce concentration and impacts of freshwater withdrawals
  - Reduce reliance on expensive and high maintenance brackish sources
  - Expand opportunities for provision of critical IQ water supplies
  - Provide new resources for coastal aquifer recharge via IQ system



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# Water Levels Trends Collier County Wellfield

