



WITHLACOOCHEE  
REGIONAL  
WATER  
SUPPLY  
AUTHORITY



# Withlacoochee Regional Water Supply Authority Regional Water Supply Plan Update

## Final Status Report

Gregg Jones, PhD, PG  
Tel. 813.367.0989  
[gregg.jones@cardno.com](mailto:gregg.jones@cardno.com)

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# 01 Water Supply Plan Overview

# Water Supply Plan Overview

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- Key elements of the Water Supply Plan
  - Population and water demand projections for all use categories through 2040.
  - Water Source Availability Evaluation
    - Groundwater (Upper & Lower Floridan Aquifers)
    - Water Conservation
    - Reclaimed Water
    - Rivers
    - Seawater Desalination
  - Identification and engineering feasibility study of water supply project options to meet the future public water supply needs
  - Opportunities for regionalization of the WRWSA

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# Population and Water Demand Projections

# Population & Demand Projections (Public Supply, Dom. Self Supply)

## Four-County Overview

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County	2015 Population	2040 Population	Population Increase	2015 Water Demand (mgd)	2040 Water Demand (mgd)	Demand Increase (mgd)
Hernando	176,671	236,200	59,529	19.9	23.5	7.5
Citrus	141,736	167,100	25,364	24.3	31.8	3.6
Marion	340,435	452,000	111,565	42.7	55.0	12.3
Sumter	113,352	236,400	123,048	28.0	47.1	19.1
<b>Total</b>	<b>772,194</b>	<b>1,091,700</b>	<b>319,506</b>	<b>114.9</b>	<b>157.4</b>	<b>42.5</b>

# Water Demand Projections for All Use Categories in the WRWSA (2015-2040)

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<b>Water Use Type</b>	<b>2015 Base Demand</b>	<b>2040 Demand</b>	<b>Total Demand Increase</b>
<b>Agricultural</b>	18.3	32.1	13.8
<b>Domestic Self-Supply</b>	23.9	40.7	16.8
<b>Industrial/Commercial</b>	9.0	10.2	1.1
<b>Public Supply</b>	91.0	116.9	25.8
<b>Recreational</b>	15.1	24.7	9.6
<b>Total</b>	<b>157.4</b>	<b>224.7</b>	<b>67.3</b>

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# 2040 Water Source Availability in the WRWSA Four-County Area (2040)

# Water Source Availability

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- Groundwater (Upper & Lower Floridan Aquifers)
- Water Conservation
- Reclaimed Water
- Rivers
- Seawater Desalination



# Water Source Availability in 2040 (mgd)

County	Water Conserv.	Reclaimed Water	Groundwater (Upper Floridan Aquifer)	River Water	Seawater Desal	Total
Citrus	5.2	1.6	5.4	16.5	15.0	43.7
Hernando	1.7	1.6	11.4			14.8
Marion	3.7	1.3	29.0			34.0
Sumter	2.3	2.2	21.5	16.5		42.5
<b>Total</b>	<b>12.9</b>	<b>6.8</b>	<b>67.3</b>	<b>33.0</b>	<b>15.0</b>	<b>135.0</b>

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# 04 Identification of Water Supply Project Options & Engineering Feasibility Analysis

# Water Supply Project Options - Costs

<b>Option</b>	<b>Capacity</b>	<b>Capital Cost</b>	<b>Cost/1,000 gals</b>
Water Conservation	N/A	N/A	\$0.26 - \$0.35
Reclaimed Water	1.7	\$8.5 Million	\$1.38
Groundwater (UFA)	5.0	\$8.0 Million	\$0.75 - \$1.25
Withlacoochee River Near Lake Rousseau	25 mgd	\$344 Million	\$3.80
Seawater Desalination	15 mgd	\$259 Million	\$6.22

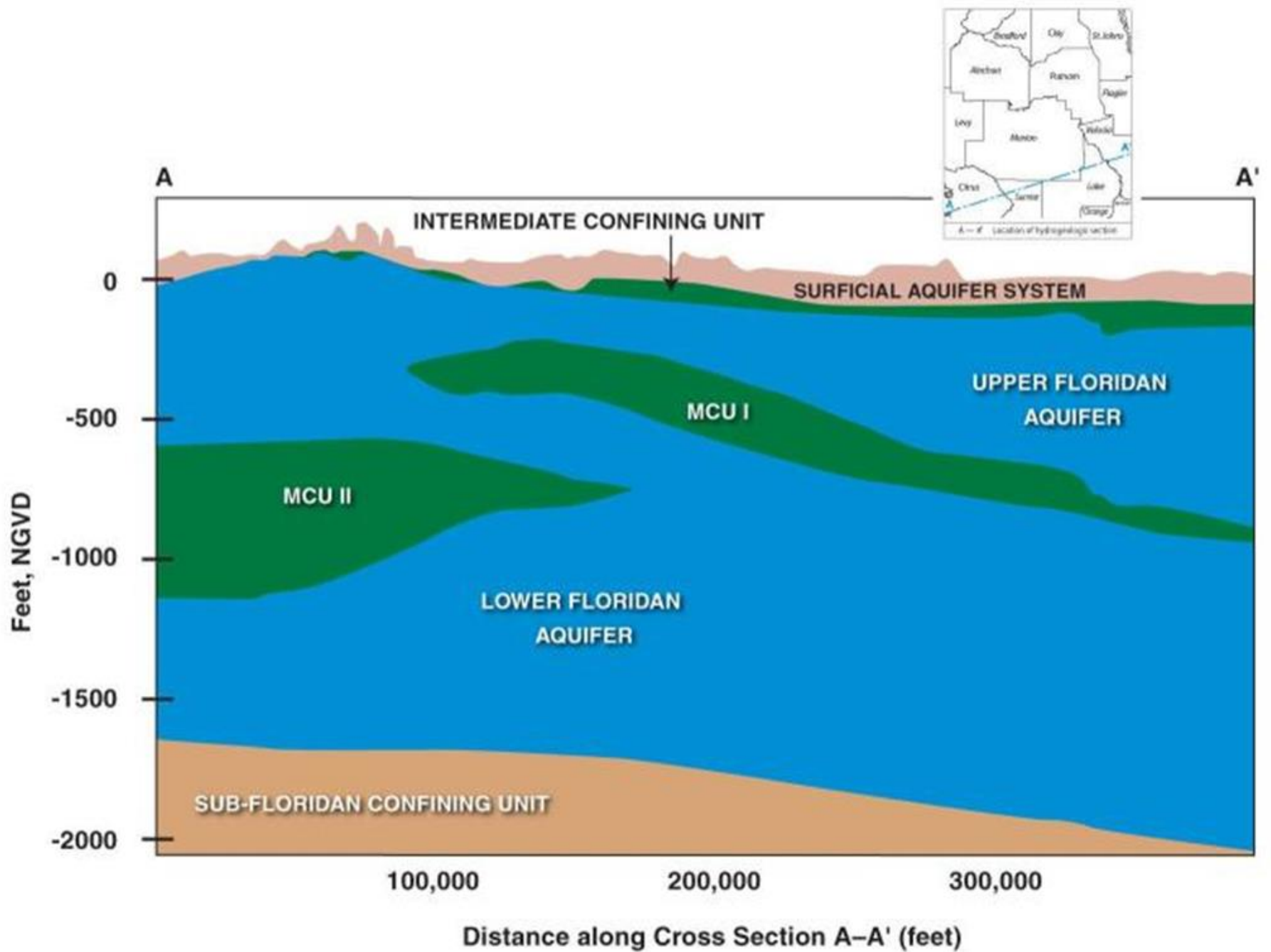
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# 04 Groundwater Availability Evaluation

# Groundwater Availability Evaluation

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- All water demand in the WRWSA region is currently met with groundwater, mostly from the Upper Floridan aquifer.
- Groundwater from the Upper Floridan aquifer and Lower Floridan aquifer will meet all projected water demands through 2040 and beyond.

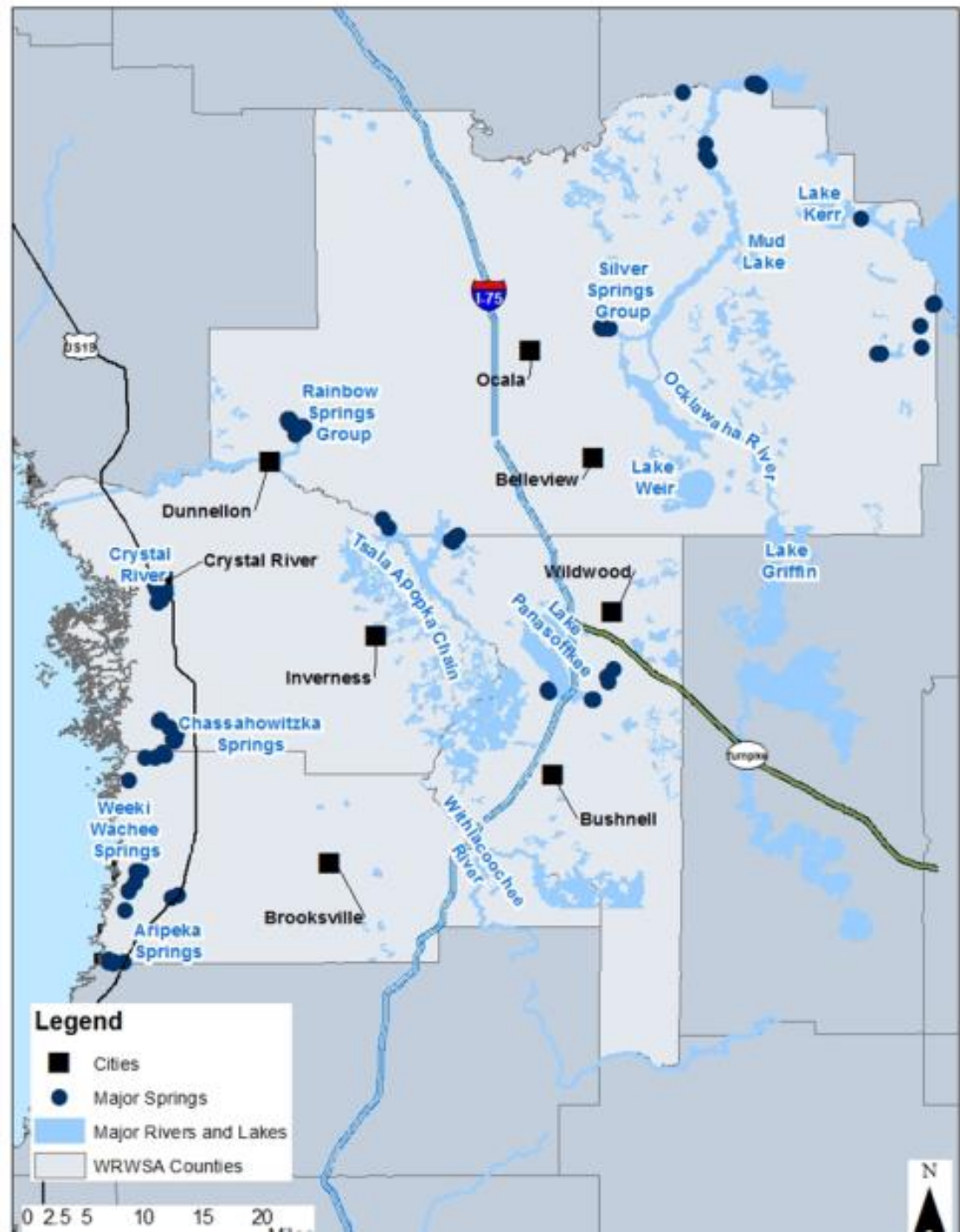


# Groundwater Availability Evaluation

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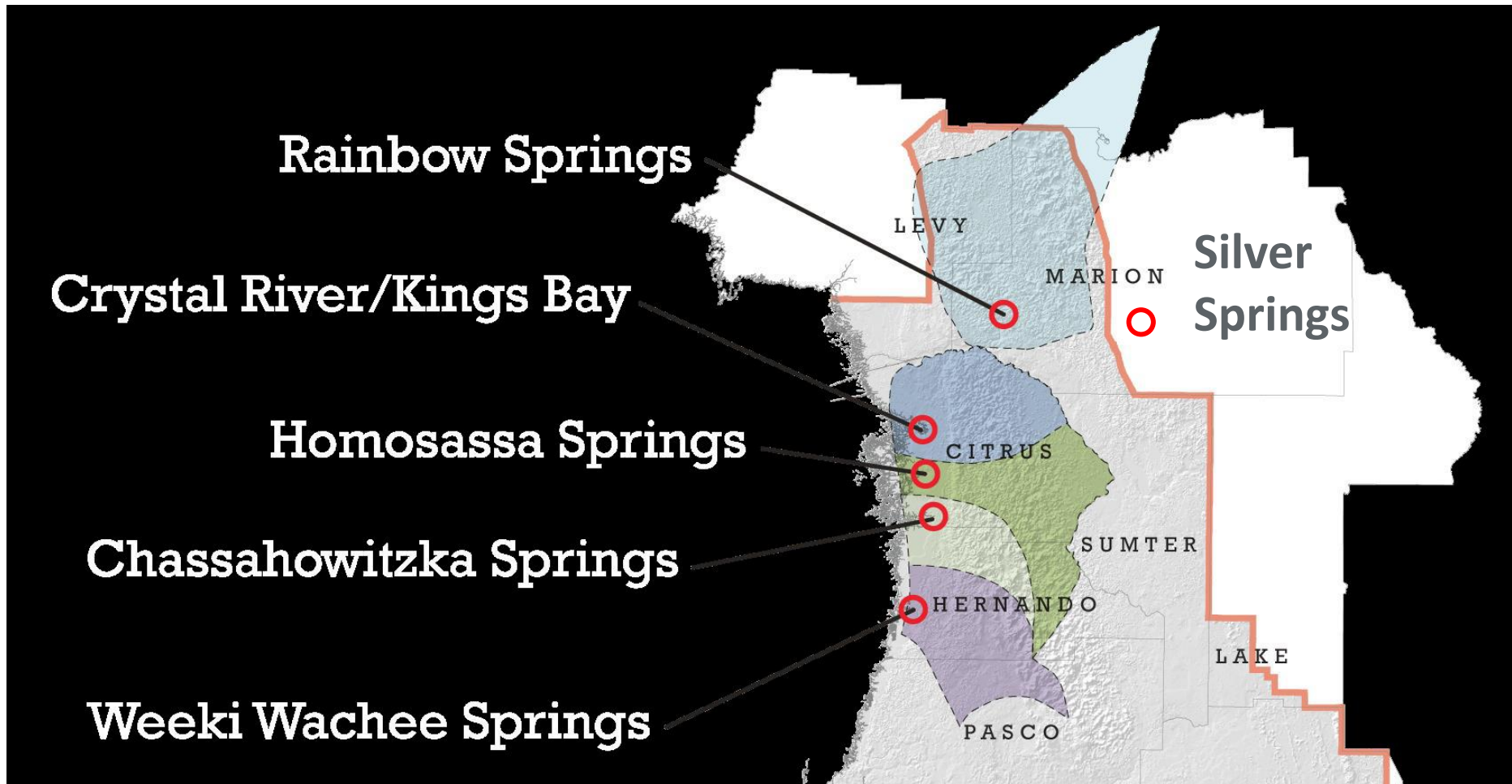
- How will we know when groundwater in the Upper Floridan aquifer is running out?
  - When MFLs for springs, lakes, and wetlands near their exceedances.
- This was determined through a groundwater modeling investigation that predicted when springs MFLs would be exceeded.

# Groundwater Impact Modeling of the WRWSA Region





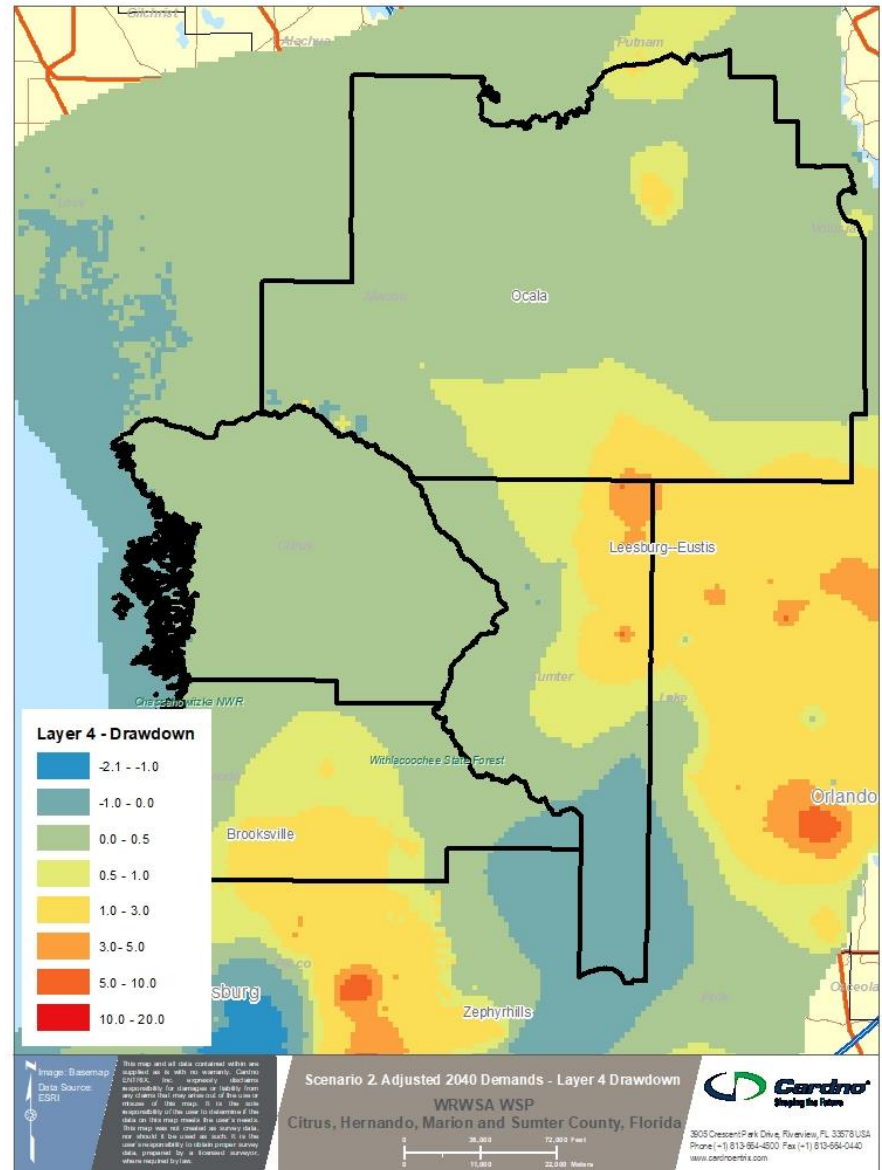
# Major Springs in the WRWSA Four-County Region



# Springs MFLs - Percent Allowable Flow Reduction in Response to Additional Groundwater Withdrawals

<b>Spring</b>	<b>Discharge (mgd)</b>	<b>2020 (%)</b>	<b>2040 (%)</b>
Rainbow	409.0	5.0	3.4
Crystal River/Kings Bay	630.0	11.0	9.4
Homosassa	56.0	5.0	2.9
Chassahowitzka	34.3	8.0	6.3
Weeki Wachee	104.0	10.0	3.0
Silver Springs (SJRWMD)	359.0	Prevention Mode	

# Predicted 2040 Upper Floridan Aquifer Drawdown



# Opportunities for Regionalization of the WRWSA

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- Near-Term Period (2020-2030)
  - The WRWSA, its member governments, and the water management districts, should consider a plan to regionally develop and distribute Lower Floridan aquifer groundwater in central Marion/northeast Sumter Counties where the Upper Floridan aquifer is stressed.
  - The WRWSA could own and operate the wellfields and could wholesale the water to its members.
- Mid-Term Period (2030-2040)
  - Construction should begin on Lower Floridan aquifer wellfields and distribution systems in central Marion/northeast Sumter County
  - These wellfields could be interconnected with nearby utilities.

# Questions?



Photograph by Wes C. Skiles

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