Minimum Flow Reevaluations for Chassahowitzka and Homosassa River Systems

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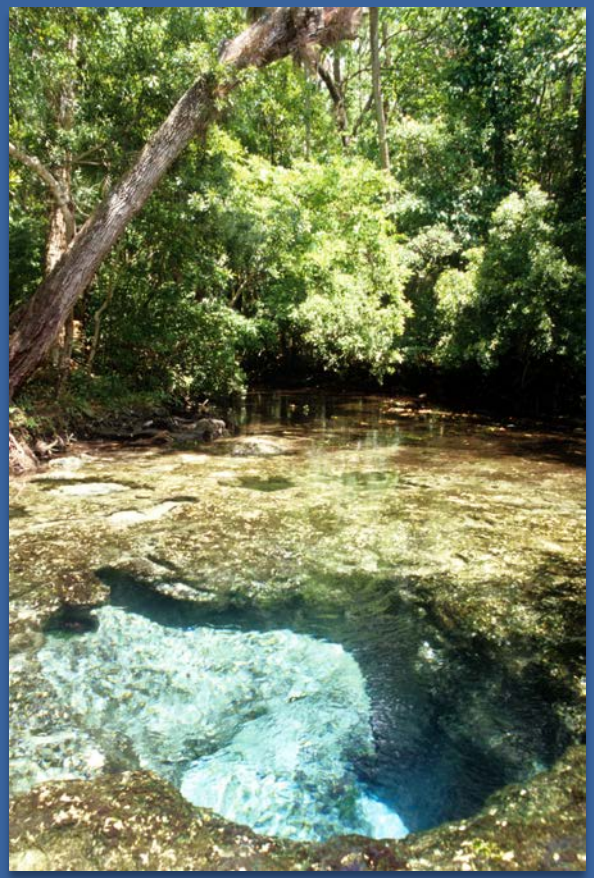
Water Management District

What are MFLs?



MFLs refer to **m**inimum **f**lows and minimum water **l**evels

- Minimum flows protect rivers, streams and springs
- Minimum water levels protect lakes, wetlands and aquifers

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Why Establish MFLs?

- Required by law
- Established to protect water bodies from harm caused by ground and surface water withdrawals
- Tool used by the District to:
  - Review requests for withdrawals of ground and surface water
  - Plan for future water needs

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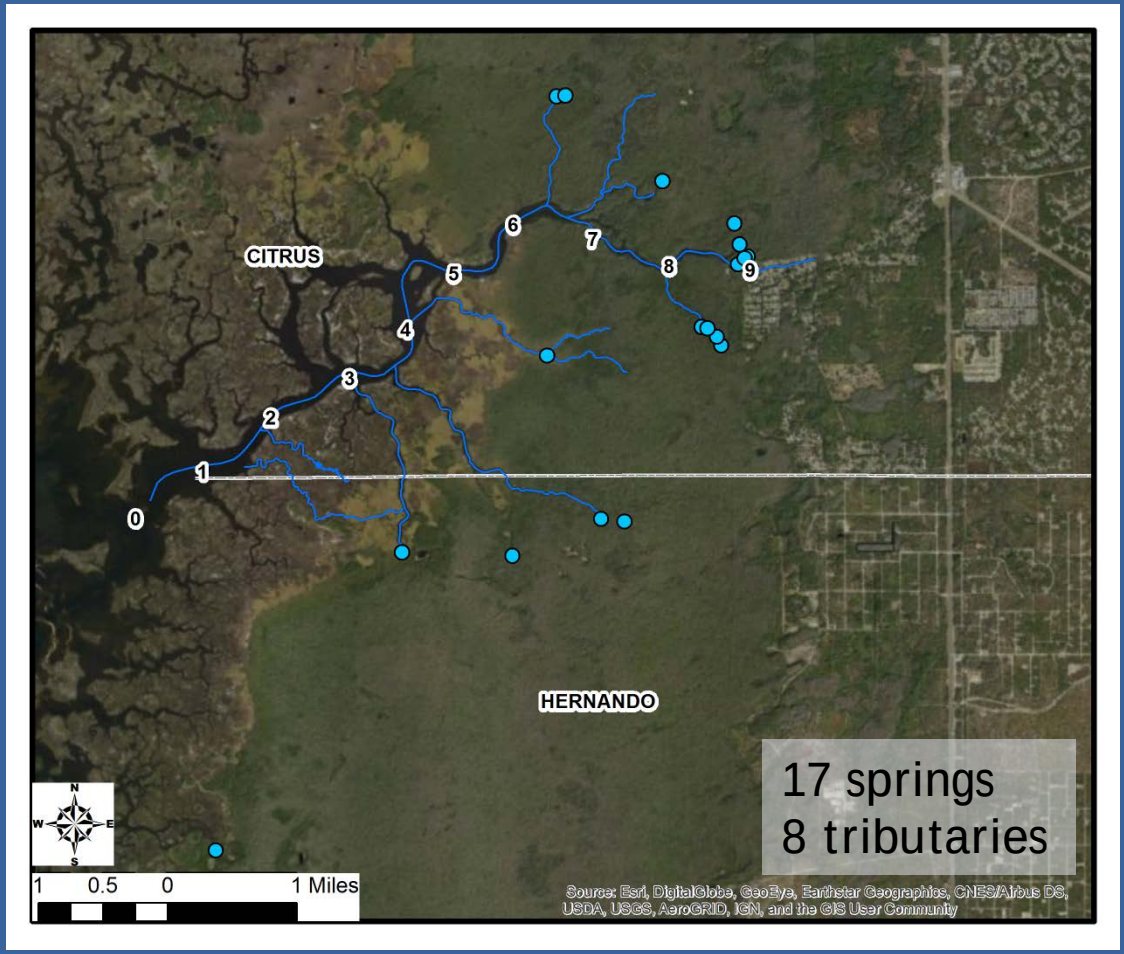
Schedule

- 2013 rules: Reevaluate in six years
- March-May 2019: Peer review
- March-June 2019: Stakeholder outreach
- June 2019: Public workshop TBD
- Fall 2019: District Governing Board meeting – Approve recommendation and initiate rulemaking
- December 2019: Rulemaking to adopt minimum flow

Chassahowitzka River System



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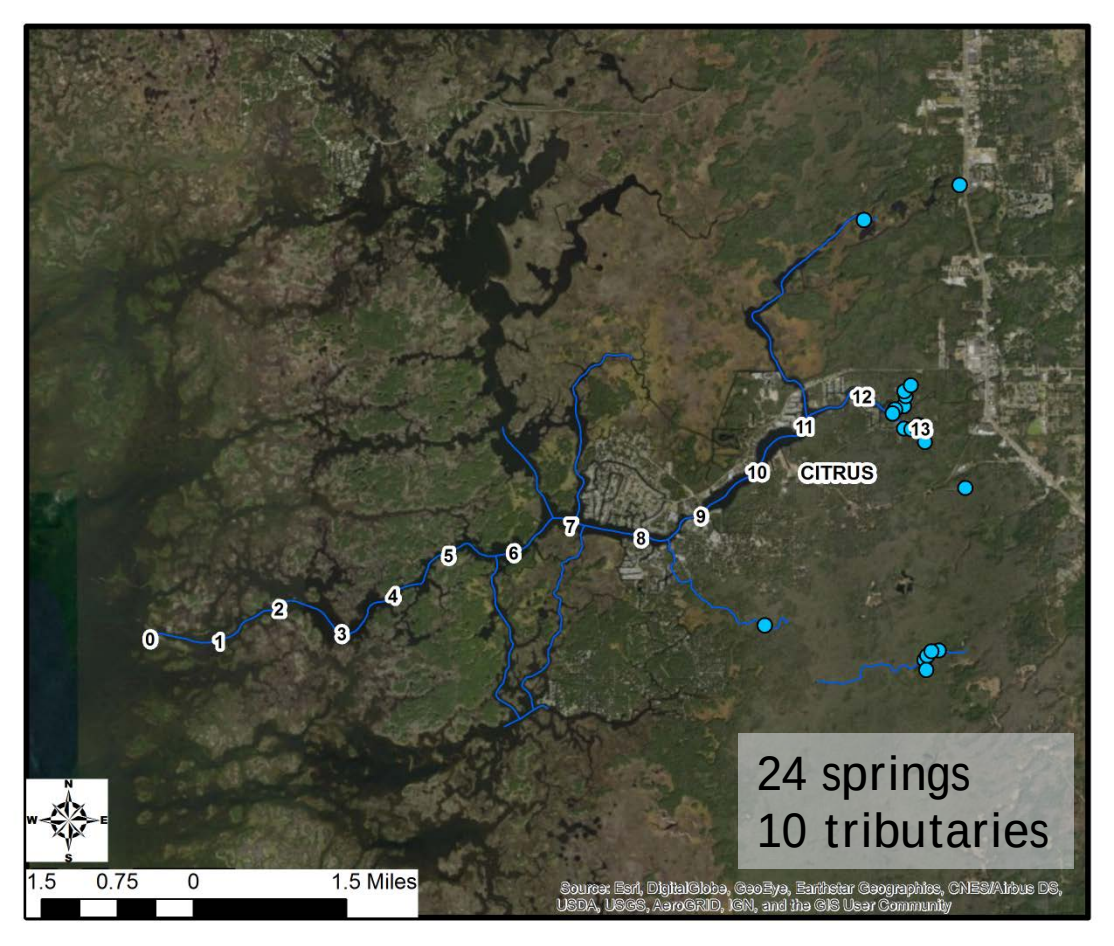
Homosassa River System



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Ongoing monitoring and assessment

- Surface water modeling
- Environmental Values
- Flow Data: 11 total gages funded
- WQ monitoring and analysis
- Groundwater modeling
- Fish, vegetation, oysters, others

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Environmental Values

- Recreation
- Fish
- Estuaries
- Detritus
- Water supply
- Scenery
- Nutrients
- Sediment
- Water quality
- Navigation

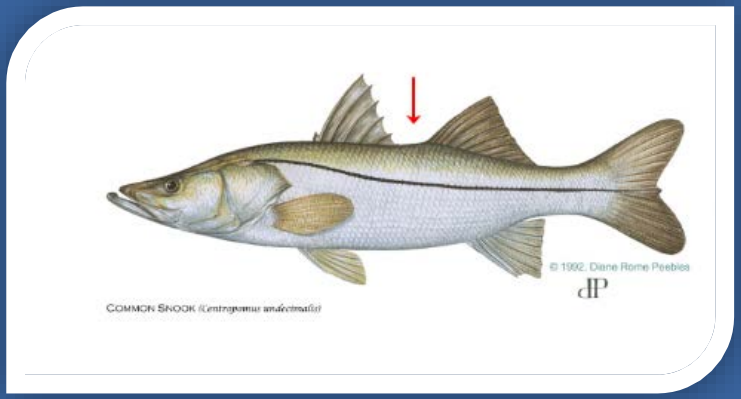
Using the criteria most sensitive to reductions in flow protects all environmental values.

Significant Harm

- Minimum flows are the limit at which further ***withdrawals*** would be ***significantly harmful*** to the water resources or ecology of the area
- Habitat-based 15% standard which is conservative and sensitive to differences among systems
- 17 panels: best available method

Minimum Flows results

Criteria	Chassahowitzka		Homosassa	
	2013	2019	2013	2019
Salinity	13%	**8%**	3%	11%
Common Snook Temperatures	--	**8%**	--	**5%**
Manatee Temperatures	9%*	10%	8%	6%



* Governing Board revised to 3% based on policy decision

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Groundwater Withdrawal Impacts to Chassahowitzka and Homosassa Spring Groups

Ron Basso, P.G.,
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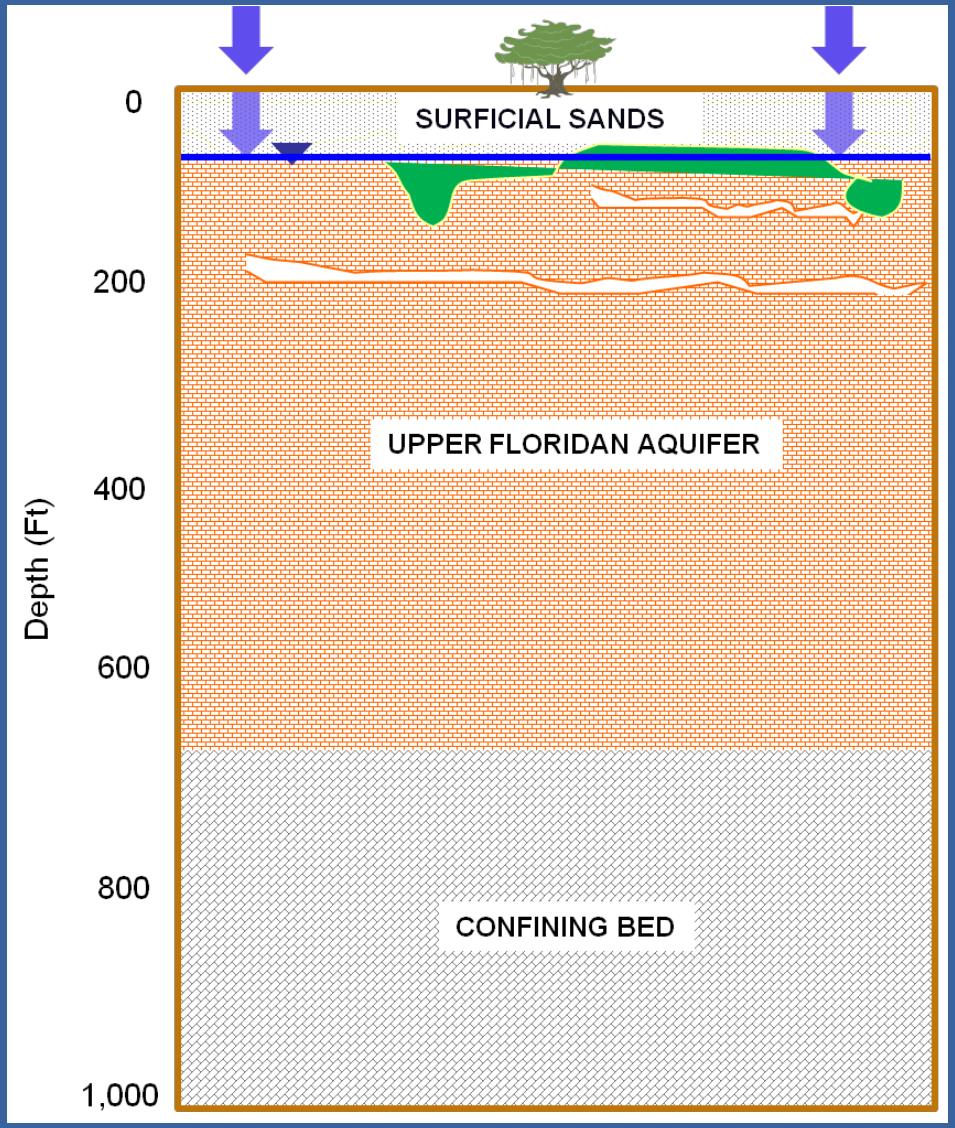
20 inches/year – Highest Recharge in the State



Unconsolidated Sediments
Clays
Limestone
Dolomitic-Limestone
Water-Level

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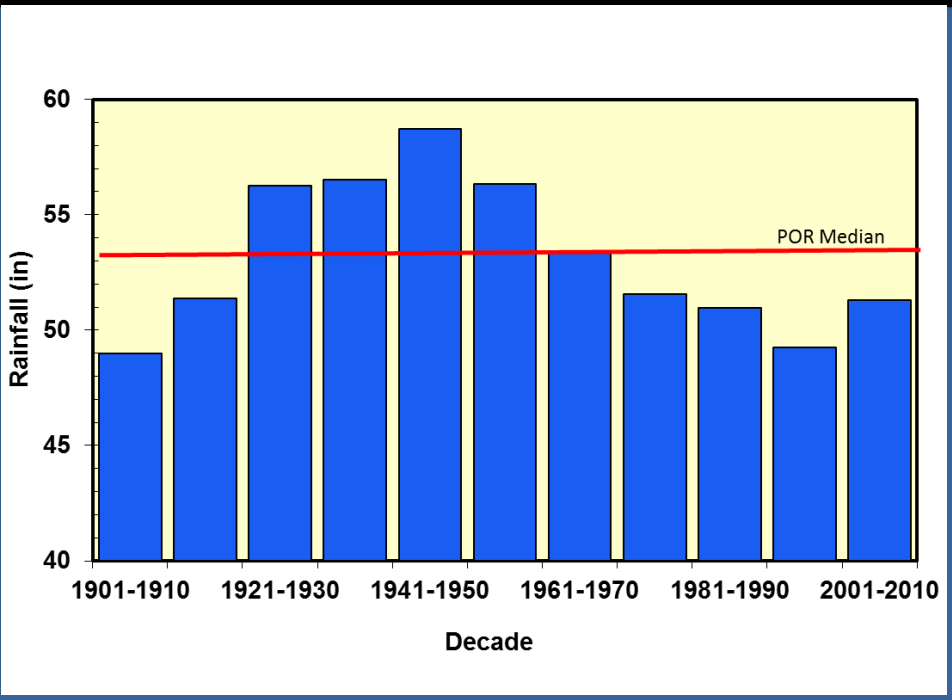
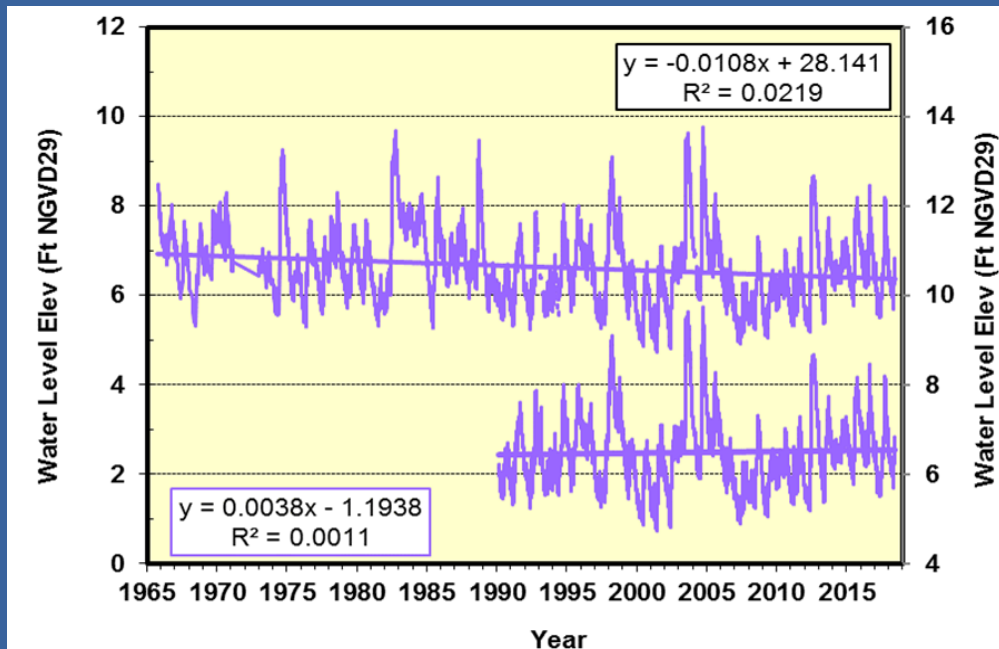


Long-term rainfall trends from Brooksville, Inverness, & Ocala

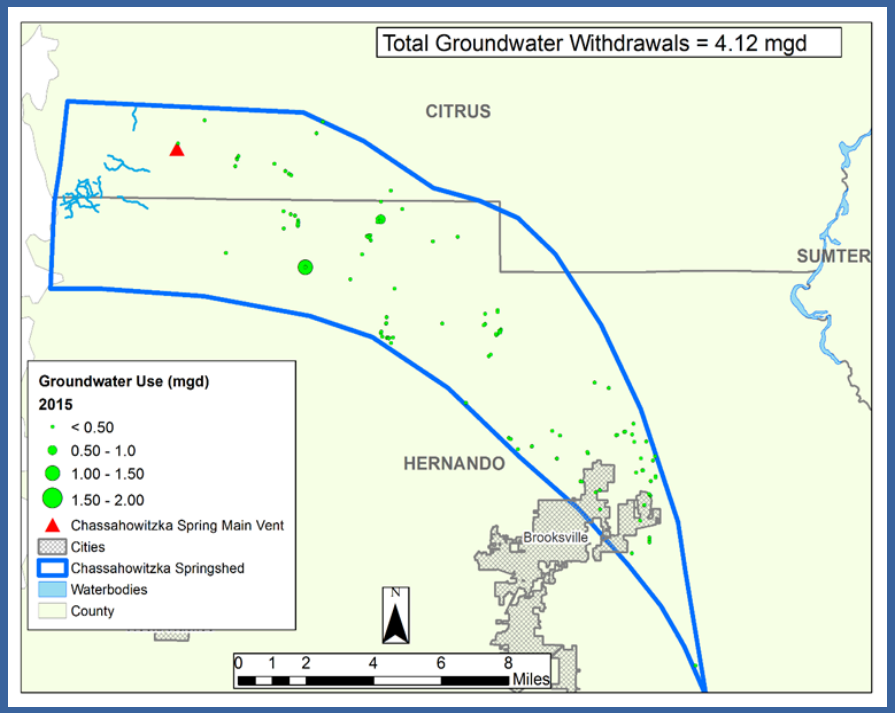
Long-term trend in Upper Floridan aquifer water levels at Chassahowitzka 1 Dp

Period of Record	Total Water Level Change (feet)
1965-2018	-0.56
1990-2018	+0.11

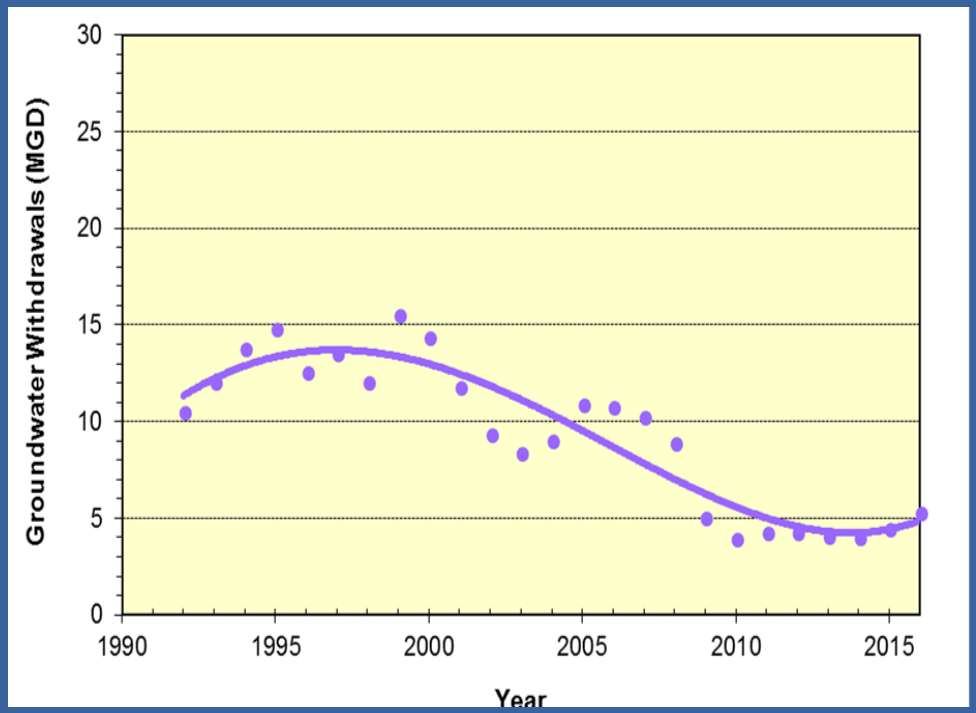


Chassahowitzka Springshed Groundwater Withdrawals (1992-2016)

2015 Water Use Permitted Withdrawals



Estimated & Metered Groundwater Use History (Includes Domestic Self-Supply)



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Homosassa Springshed Groundwater Withdrawals (1992-2016)

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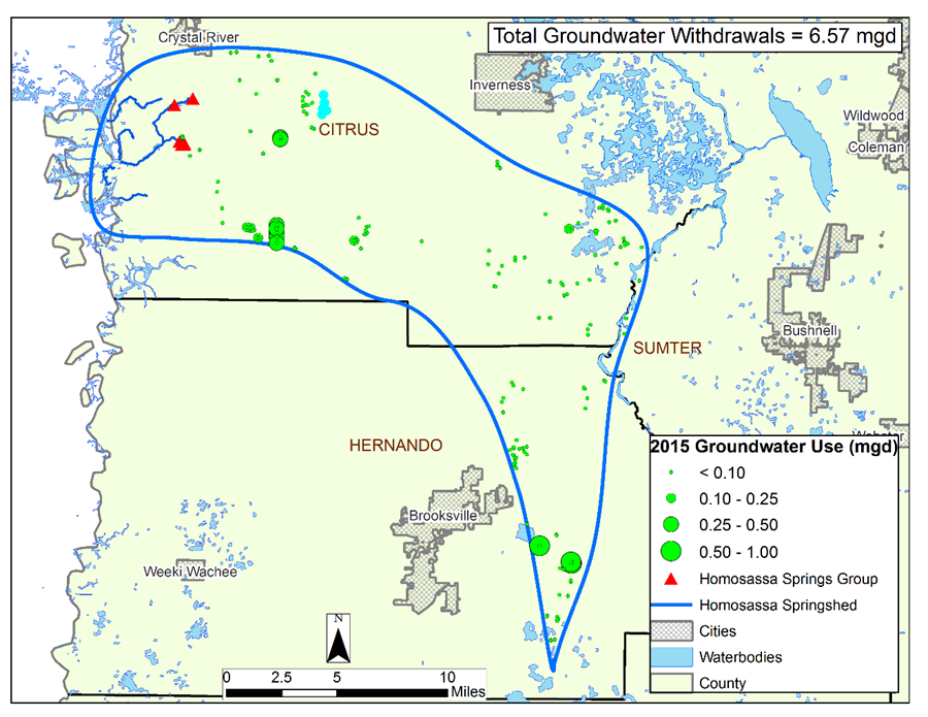

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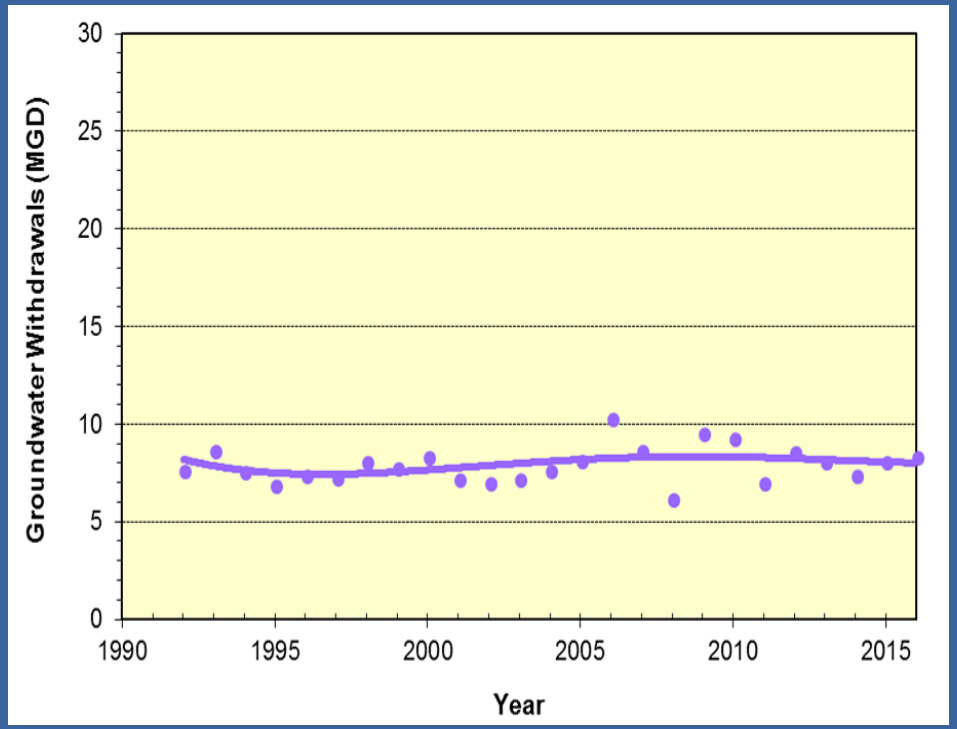

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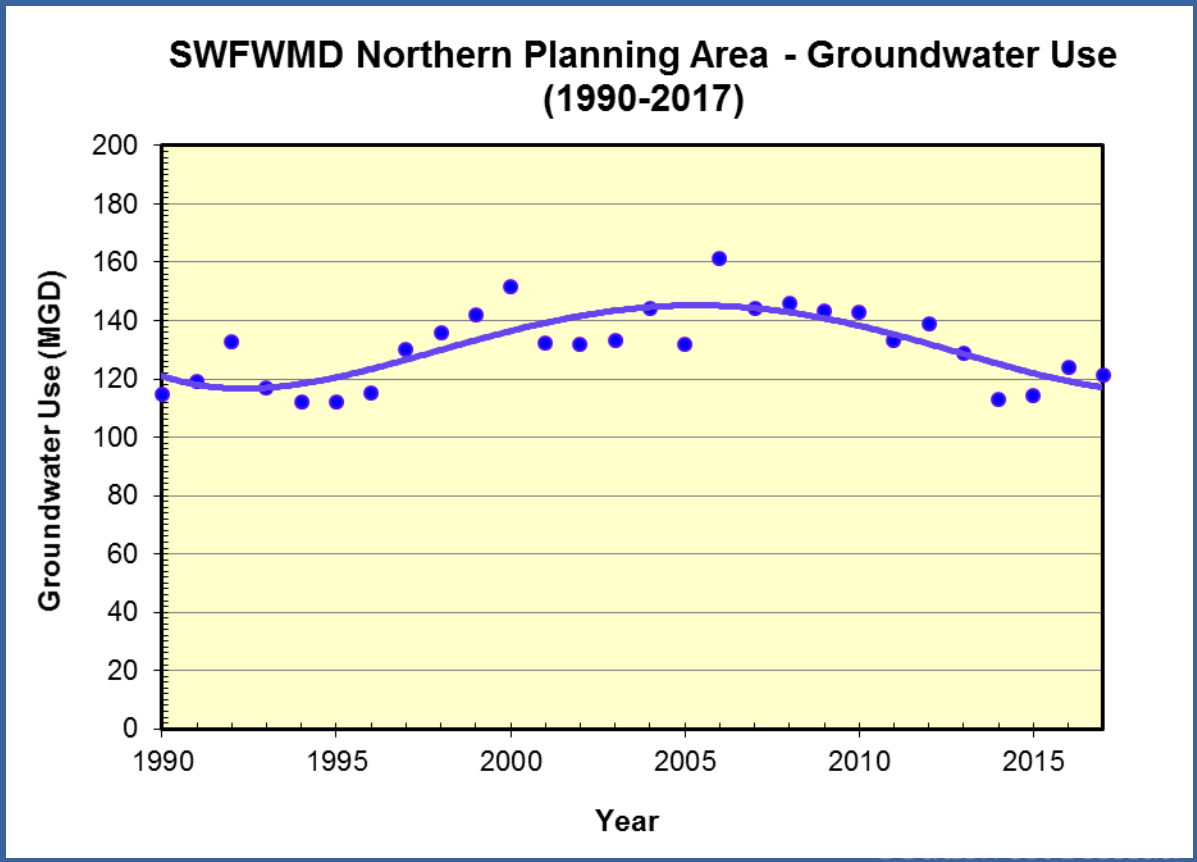
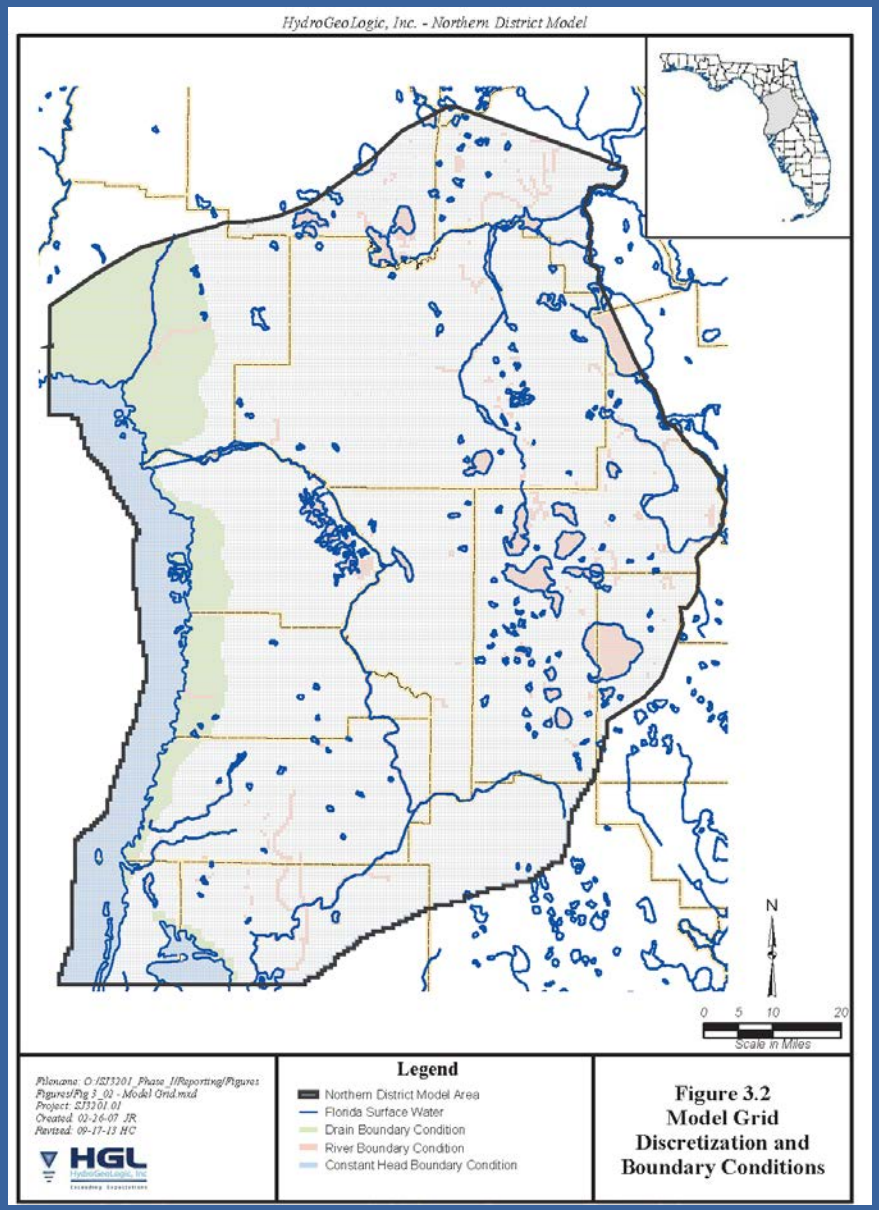
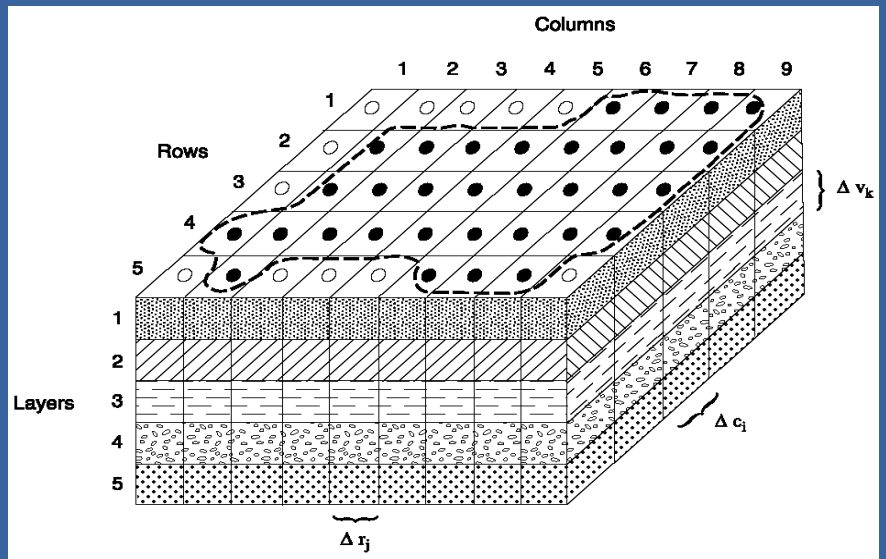
Northern Planning Region
Groundwater Withdrawal History (1990-2017)



Northern District Model (Version 5.0)



- Based on geologic data from 50 sites and matching 300 well water levels
- Peer Reviewed by Outside Experts
  "NDM, Version 5.0, is the best numerical groundwater flow model currently available for assessing the effects of withdrawals in the central (Florida) springs region."
- Model developed cooperatively with SJRWMD, Marion County, and WRWSA



Chassahowitzka Spring Flow Change from Groundwater Withdrawals

Year	Flow Reduction (cfs)	Flow Reduction (%)
2010	2.78	-1.3
2015	2.85	-1.4
2035	4.13	-2.0
2035 w/ Conserv & Reuse	3.48	-1.7

Note: Groundwater withdrawal impact based on Northern District Model Version 5

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Homosassa Spring Flow Change from Groundwater Withdrawals

Year	Flow Reduction (cfs)	Flow Reduction (%)
2010	4.83	-1.8
2015	4.86	-1.9
2035	7.77	-3.0
2035 w/ Conserv & Reuse	6.70	-2.6

Note: Groundwater withdrawal impact based on Northern District Model Version 5

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Summary

- Geology and relatively low groundwater use have led to small flow changes of 1 to 2 percent
- Upper Floridan aquifer water levels are stable over the last three decades
- Current groundwater use trend is flat the last 8-10 years due to conservation, increased use of reclaimed water, and slower population growth
- The MFL allows an 8 percent reduction due to withdrawals at Chassahowitzka and a 5 percent reduction at Homosassa. Current springflow decline of 1 to 2 percent due to withdrawals. This is projected to increase to 2 to 3 percent in 2035. No recovery or additional prevention strategy is needed at this time.

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