ECFTX 2003 STEADY-STATE MODEL FINAL CALIBRATION

Monday, May 21, 2018 1-4 PM

PEER REVIEW PANEL TELECONFERENCE

Agenda

1. Introductions
2. Summary of work performed since last meeting
3. Steady-state 2003 calibration summary
4. Panel Discussion
5. Path forward on 2004 through 2014 transient model
6. Public Comment

Summary of Work Completed on ECFTX 2003 SS Model since Jan 2018

Task item	Description	Start Date	Complete Date	Result
Recharge	Made further adjustments based on gaged data in three chronically low areas (NTB, LWR, Orange Co) – adjusted AG withdrawals and return water in portions of the domain to align with historical data	1/24/2018	5/8/2018	New Recharge package – slightly higher recharge in ridge areas/NTB and slightly lower in AG dominated areas
Flooded Cells	Mostly confined to portions of S Hill, Manatee, Sarasota Counties	1/24/2018	5/16/2018	Reduced areal extent and depth of flooded cells in southern domain with adjustment to AG return water recharge
Dry Cells	Dry Cells in Orlando, eastern Hillsborough, Clearwater, Brooksville Ridge, and Lake Apopka area	1/24/2018	2/24/2018	Largely eliminated dry cells in manual calibration
Water use	Groundwater withdrawals were too high in portions of SFWMD and adjusted based on historical data – removed SW component	1/24/2018	5/17/2018	Model-wide withdrawals reduced from about 1.9 bgd to about 1.7 bgd, minor rate changes for a few wells
K values from Regional models	K values were better aligned with other regional models and fit the conceptualization	1/24/2018	4/21/2018	Model parameters now align consistently with hydrogeology

Summary of Work Completed on ECFTX 2003 SS Model since Jan 2018

Task item	Description	Start Date	Complete Date	Result
Boundary and Vertical Flux	Checked lateral and vertical fluxes by layer. Adjusted GHB fluxes in layers 9 and 11.	1/24/2018	2/28/2018	Reduced conductance by order of magnitude and revised EFW heads to reduce ghb flux to reasonable values – converted layer 9 and 11 ghb boundaries to no flow to get better head field – substitute no flow boundary heads into revised GHB for these layers
Springs	Calibrated revised spring package through conductance, transmissivity, and pool stage adjustments.	1/24/2018	5/8/2018	Total springflow now within 10% of observed. Magnitude 1 springs each have mean error less than 5%.
Rivers	Grouped drain cell conductance by order of streams – calibrated to estimated baseflows	1/24/2018	5/8/2018	Simulated baseflow match good on Hillsborough, Withlacoochee, and Upper Peace. Poor for southern SWF streams (sim too high)

Summary of Work Completed on ECFTX 2003 SS Model since Jan 2018

Task item	Description	Start Date	Complete Date	Result
LFA Test Data	Staff collated all their recent LFA test data for K values, vertical head differences between UFA and LFA, and water quality	1/24/2018	4/24/2018	Revised LFA K fields and used observed head difference to calibrate leakance between UFA & LFA – represents hydrogeologic conditions based on latest test data
Target Wells	Revised target well sets – removed poor data or ones with well construction issues, moved some to correct layer, removed wells in perched systems	1/24/2018	4/24/2018	Slightly better head statistics
Anisotropy Ratios	Adjusted to 1:1 in all aquifer layers, 10:1 for confining layers	1/24/2018	4/24/2018	Text book examples rather than used as a calibration parameter since data limited
Calibrated Model	Manual calibration runs (> 100) consisted of adjustments of K values to match hydrogeology, heads, and fluxes	1/24/2018	5/15/2018	ECFTX 2003 SS model

Updates

- AG irrigation
- NEXRAD rainfall adjustments
- Mass balance corrections-AFSIRS
- CN changes to improve groundwater levels and runoff calibration

AG Irrigation

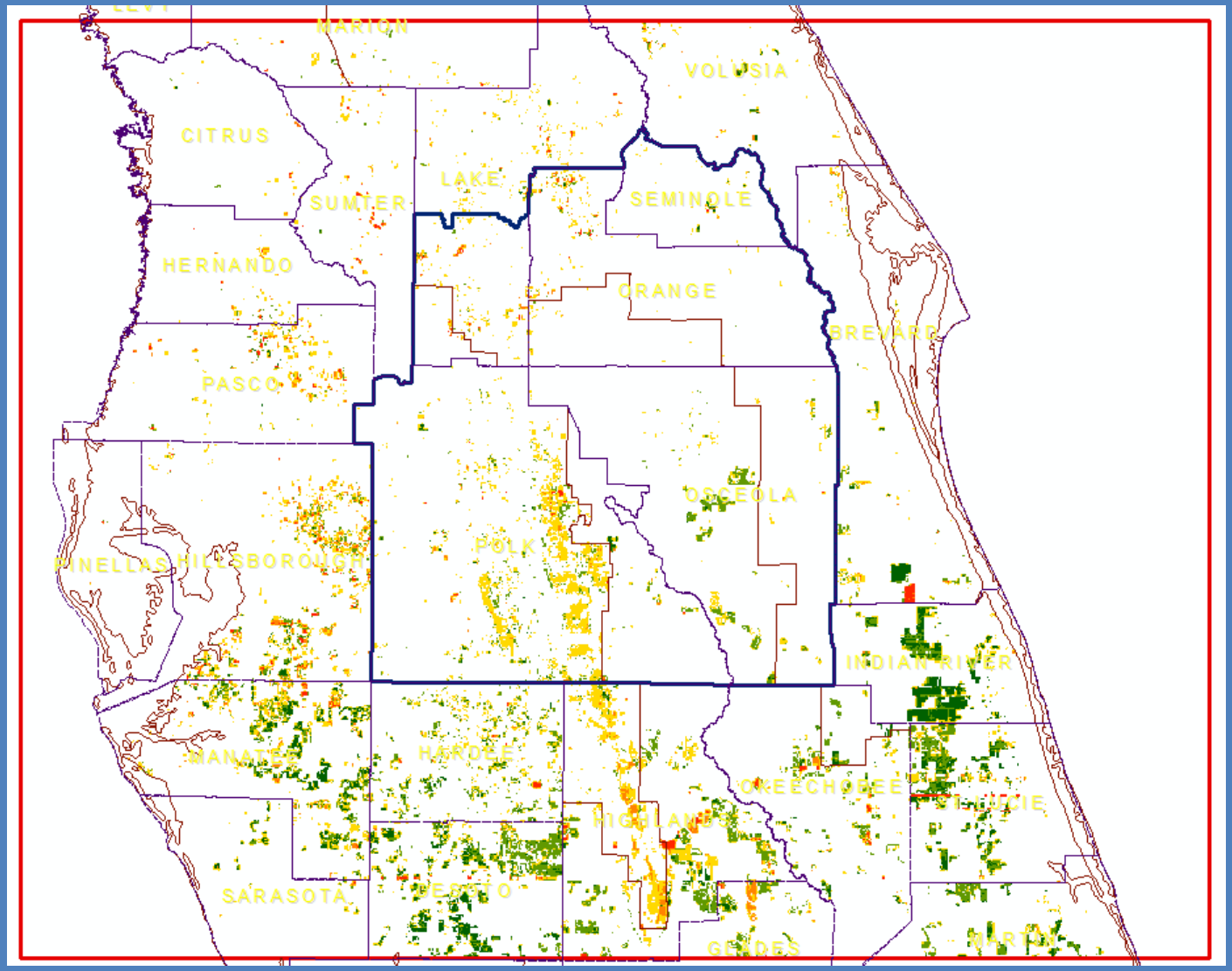
- Previously AG irrigation was applied through ET-RCH-AFSIRS program
  - Annual application rates are inconsistence with AG water use data base (AG WUDB)
- Updated the WUDB values (SFWMD portion) to better match with previously reported data from water supply planning
- Turn off ET-RCH-AFSIRS irrigation
  - Within AFSIRS program daily irrigation demand (NIR) is applied to soil zone
  - AFSIRS Source code was modified to turn off this irrigation
- Apply daily AG irrigation to rainfall array
  - Total Rain=Precipitation + LSI+ AGI
- Redistribute daily irrigation fluxes to avoid recharge spikes,
  - Redistribute very high irrigation application events (> 1 in/day) within the month between irrigated days-*Temporal*
  - Increase "Ridge" area application rate and decrease "Plain" area application rates by applying a weighting factor (20%)-*Spatial*

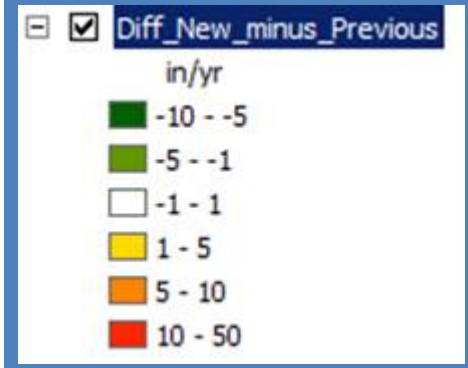
AG Irrigation Comparison

COUNTY [1]	NIR_032918 (mgd):[2]	WUGDB_Previous (mgd):[3]	WUGDB_41118 (mgd):[4]	WUGDB_Diff (mgd):[4]-[3]
BREVARD	21.29	27.48	27.48	0
CITRUS	0.56	1.8	1.8	0
DE SOTO	80.74	51.67	51.52	-0.15
GLADES	22.02	23.86	23.26	-0.6
HARDEE	42.14	38.65	38.65	0
HERNANDO	1.16	3.21	3.21	0
HIGHLANDS	109.24	250.59	118.97	-131.62
HILLSBOROUGH	18.47	59.4	59.4	0
INDIAN RIVER	49.56	18.02	18.01	-0.01
LAKE	8.75	25.04	24.99	-0.05
LEVY	0.03	0.02	0.02	0
MANATEE	49.40	60.96	60.96	0
MARION	2.17	3.39	3.39	0
MARTIN	22.16	14.39	14.37	-0.02
OKEECHOBEE	25.76	54.81	27.87	-26.94
ORANGE	1.36	8.3	8.02	-0.28
OSCEOLA	19.93	62.23	18.1	-44.13
PASCO	3.08	14.49	14.49	0
PINELLAS		0.28	0.28	0
POLK	67.44	87.8	87.59	-0.21
SARASOTA	3.66	3.44	3.44	0
SEMINOLE	1.12	2.29	2.29	0
ST. LUCIE	46.58	56.81	46.59	-10.22
SUMTER	2.32	9.68	9.68	0
VOLUSIA	2.22	4.1	4.1	0
	601.15	**882.71**	**668.48**	**214.23**

Col(2): Previously Applied Irrigation
Col(3): Previous Water Use Data Base
Col(4): Updated Water Use Data Base

Net Recharge Difference Between the Previous and New Method For AG Irrigation



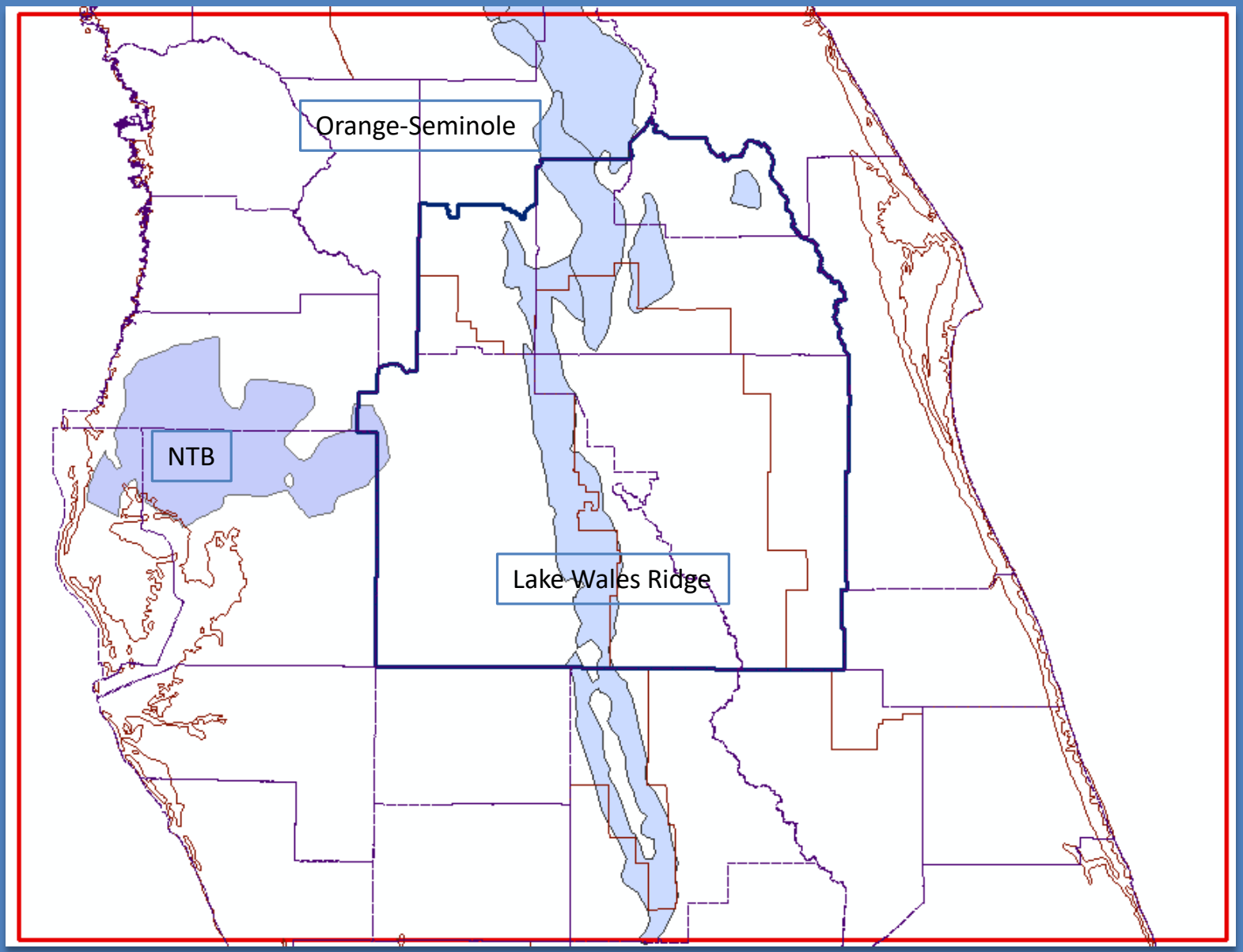


Negative values = decrease
Positive values = increase

NEXRAD Rainfall Adjustments

- Three areas of chronically low water levels
  - Lake Wales Ridge Area-*Rainfall*
  - Northern Tampa Bay Area-*Rainfall & CN*
  - Seminole, Volusia, Marion Counties-*Rainfall*

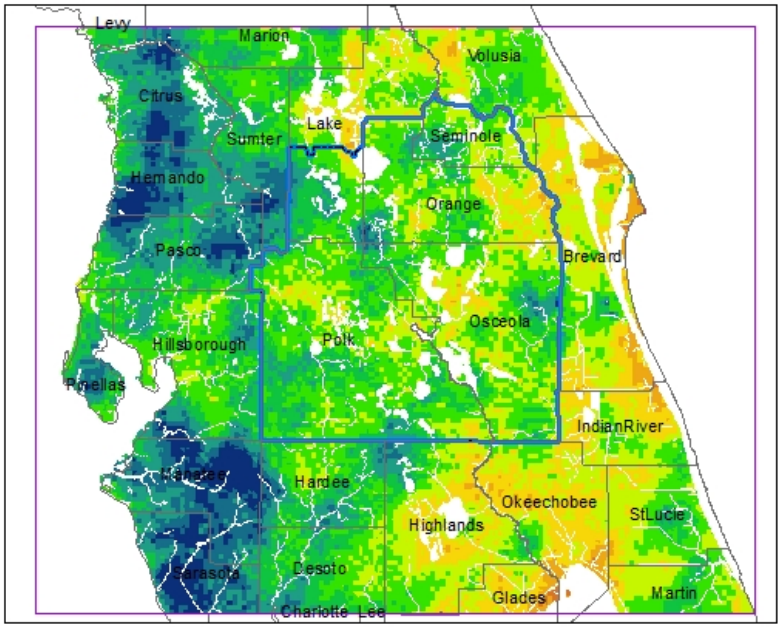
Low Simulated Recharge Areas



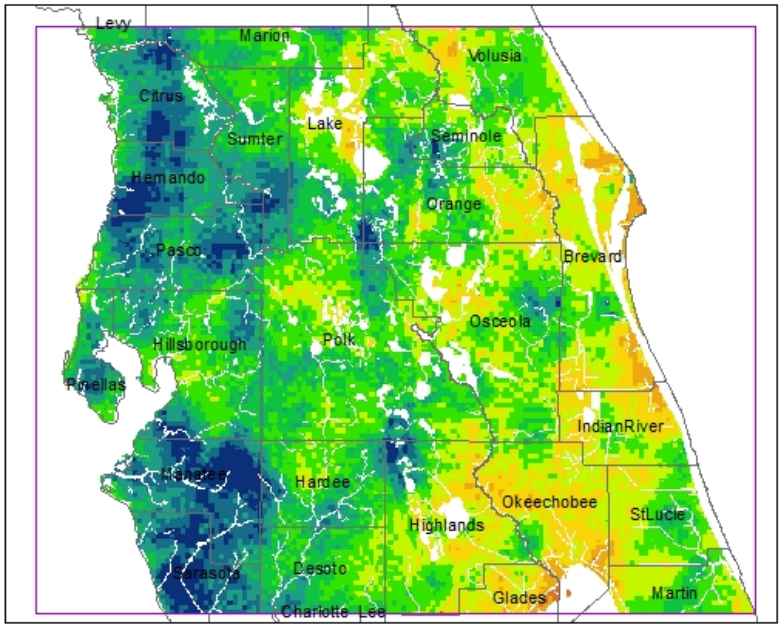
NEXRAD Rain Adjustments (Increase)

Area	Avg NEXRAD (in)	Avg Gage Rain (in)	Difference (in)	NEXRAD Adjustment (%)
Lake Wales Ridge	52.8	57.58	4.78	9.05
Northern Tampa Bay Area	53.8	57.1	3.3	6.13
Orlando Ridge	49.76	58.41	8.65	17.38
Mount Dora Ridge	49.75	54.88	5.13	10.31
Marion Upland	48.48	50.15	1.67	3.44
Geneva Hill	50.26	51.89	1.63	3.24

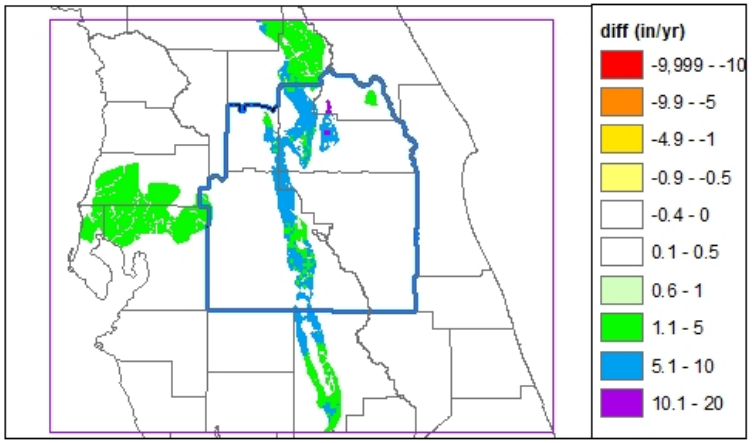
Previous: ETRCH 20180501



Current: ETRCH 20180509



Difference (Current - Prev)



Legend

Rain (in/yr)

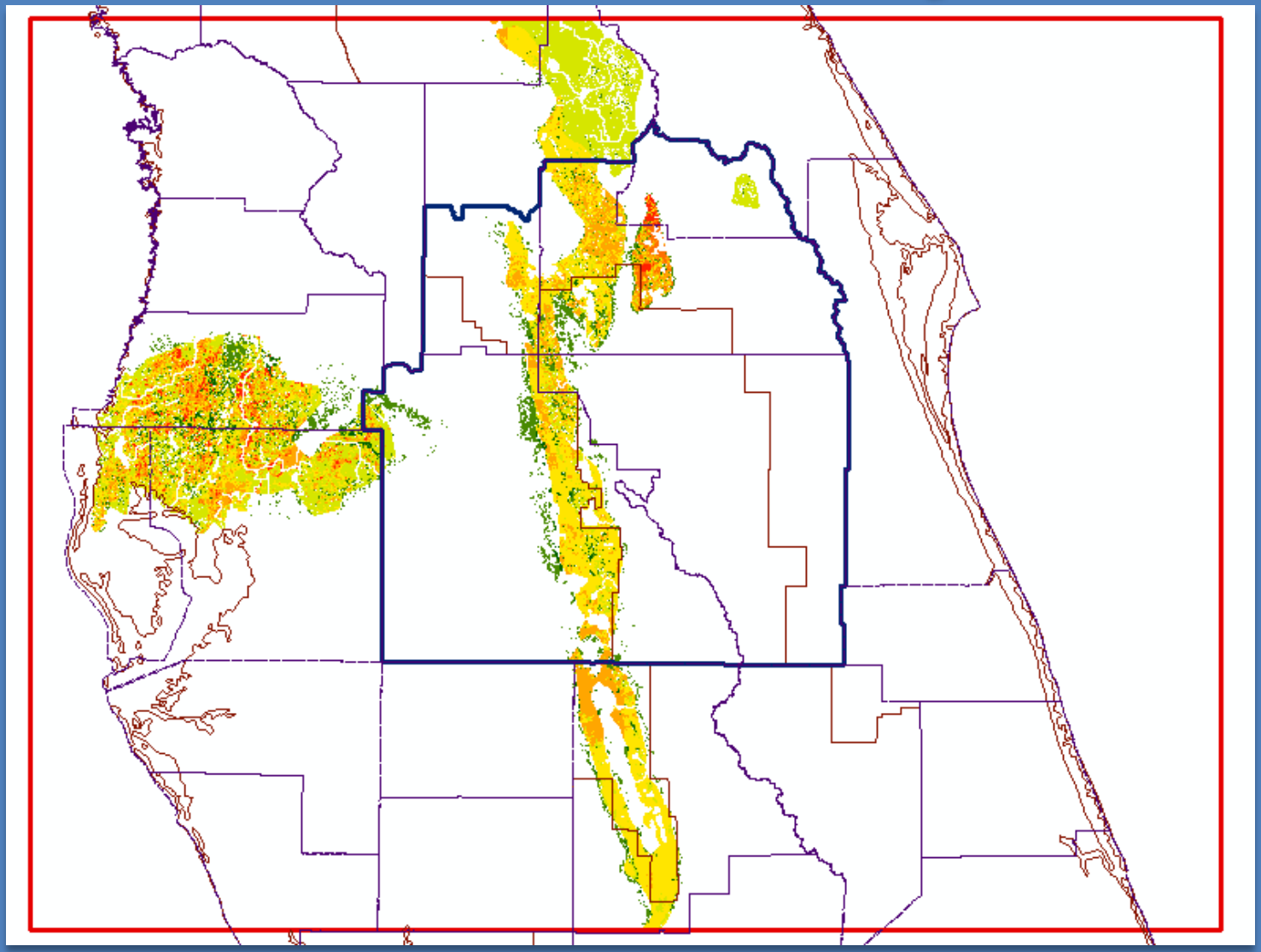
31	41 - 45	61 - 65
32 - 35	46 - 50	66 - 70
36 - 40	51 - 55	71 - 75
	56 - 60	

Previous: ETRCH 20180501

Current: ETRCH 20180509

ETRCH Parameter: RAIN

Net Recharge Diff: Before and After NEXRAD Rain Adjustment



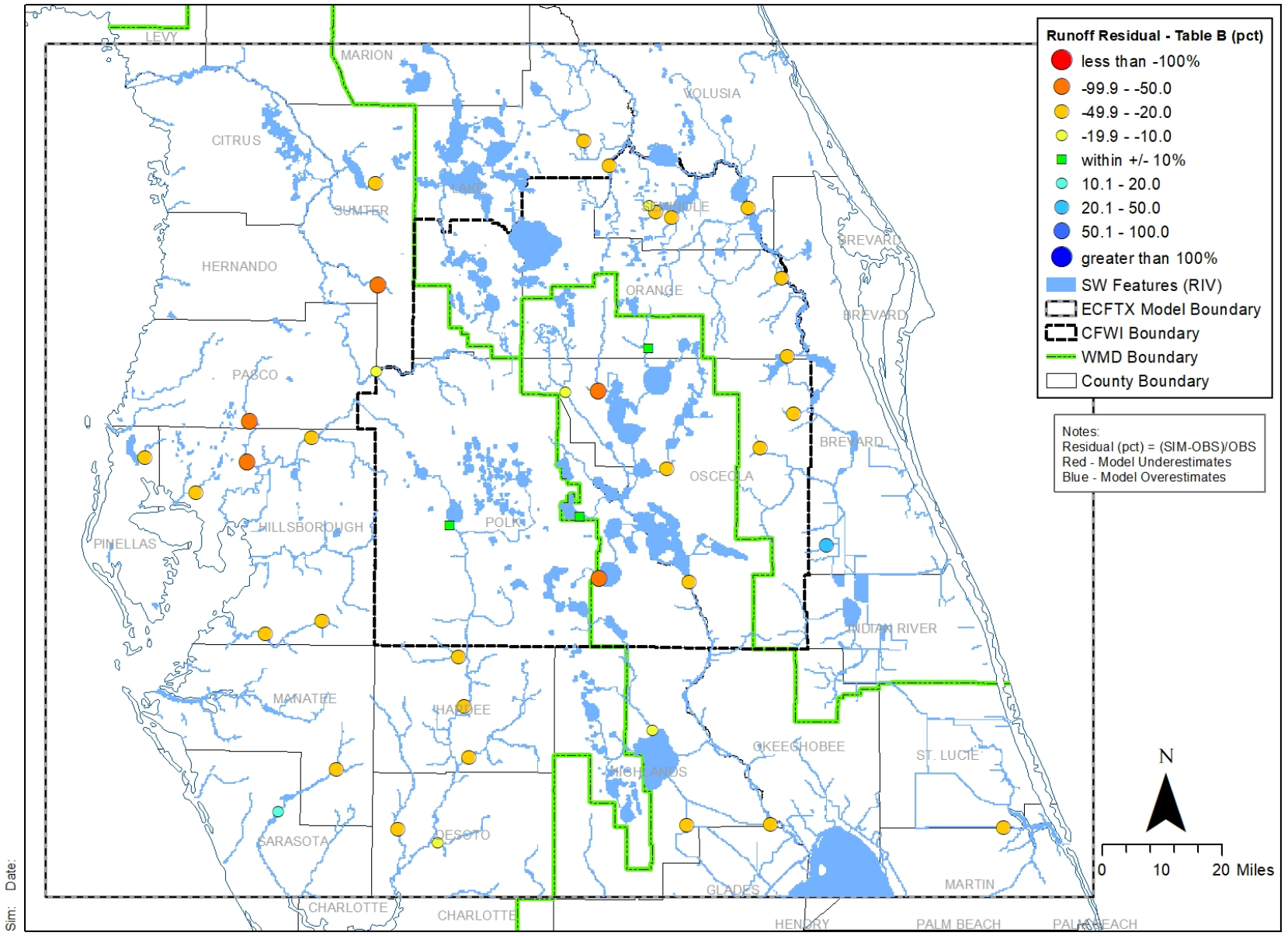
Minus_NETin27
in/yr
-14.36045456 - -3
-2.999999999 - -0.5
-0.5 - 0.5
0.5 - 3
3.000000001 - 5
5.000000001 - 8
8.000000001 - 10
10.00000001 - 15

Negative values = decrease
Positive values = increase

Errors with DR term-AFSIRS

- AFSIRS maintains the water balance within the root zone, which is sufficient to develop irrigation demands
- AFSIRS does not tightly balance the water budget outside the rootzone
- Some errors associated with DR term, which is used to develop MODFLOW recharge

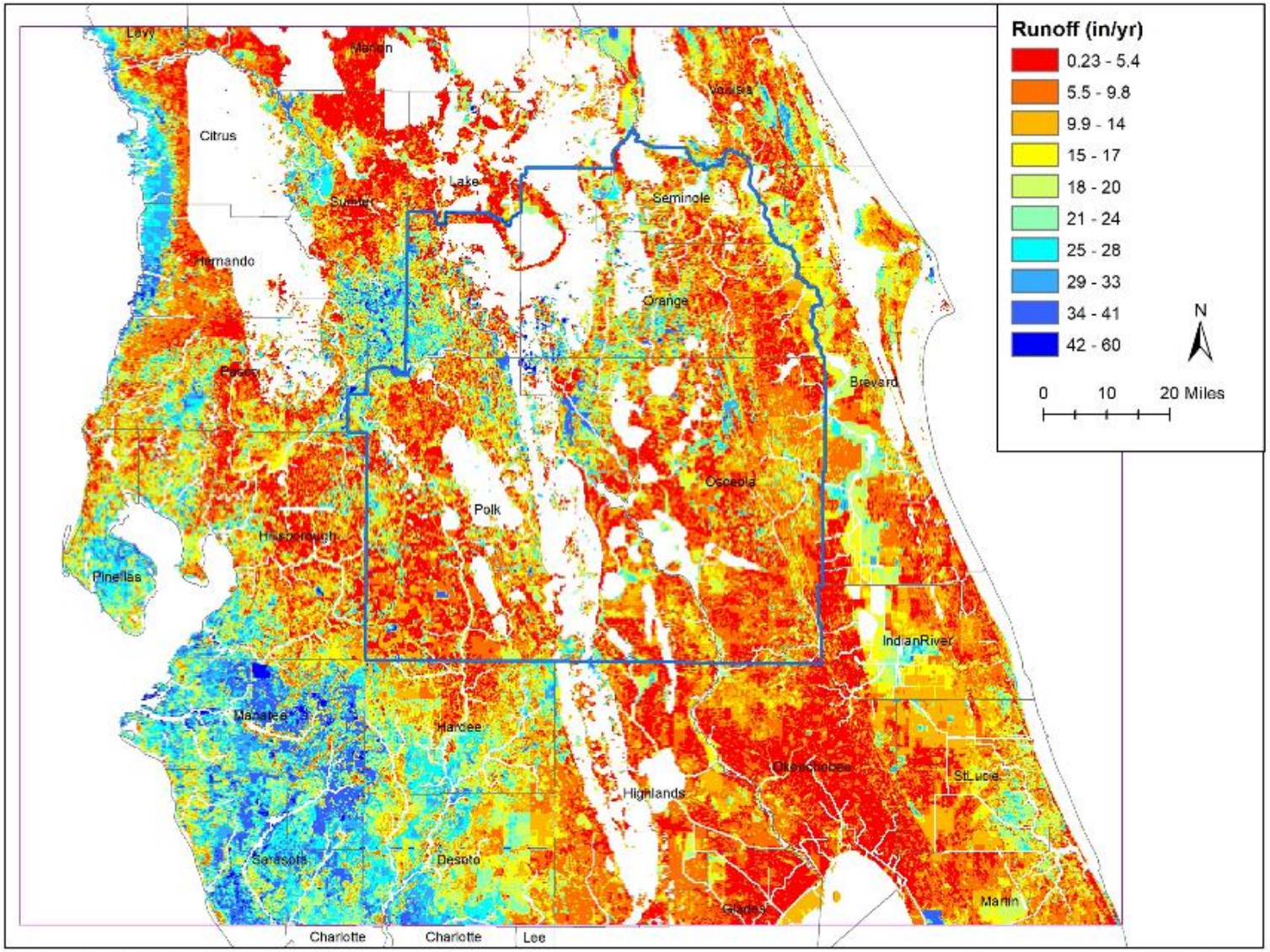
Runoff – simulated vs observed (% error)



Sim: Date:

Simulated Baseflow Residuals (Table B)

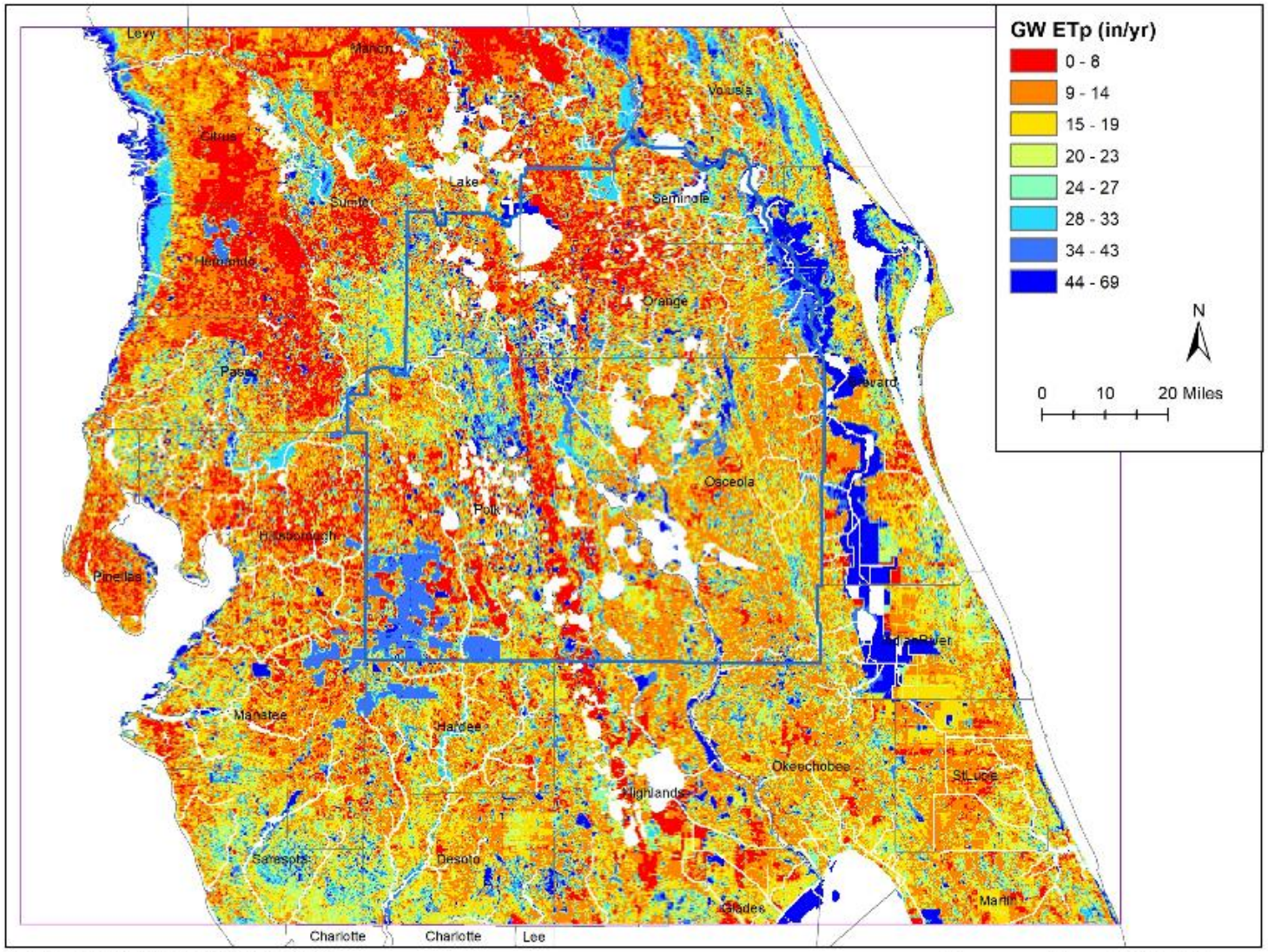
Updated Average Runoff-2003



Ver: ETRCH 20180510

Parameter: RUNOFF

Updated Average Potential Groundwater ET -2003

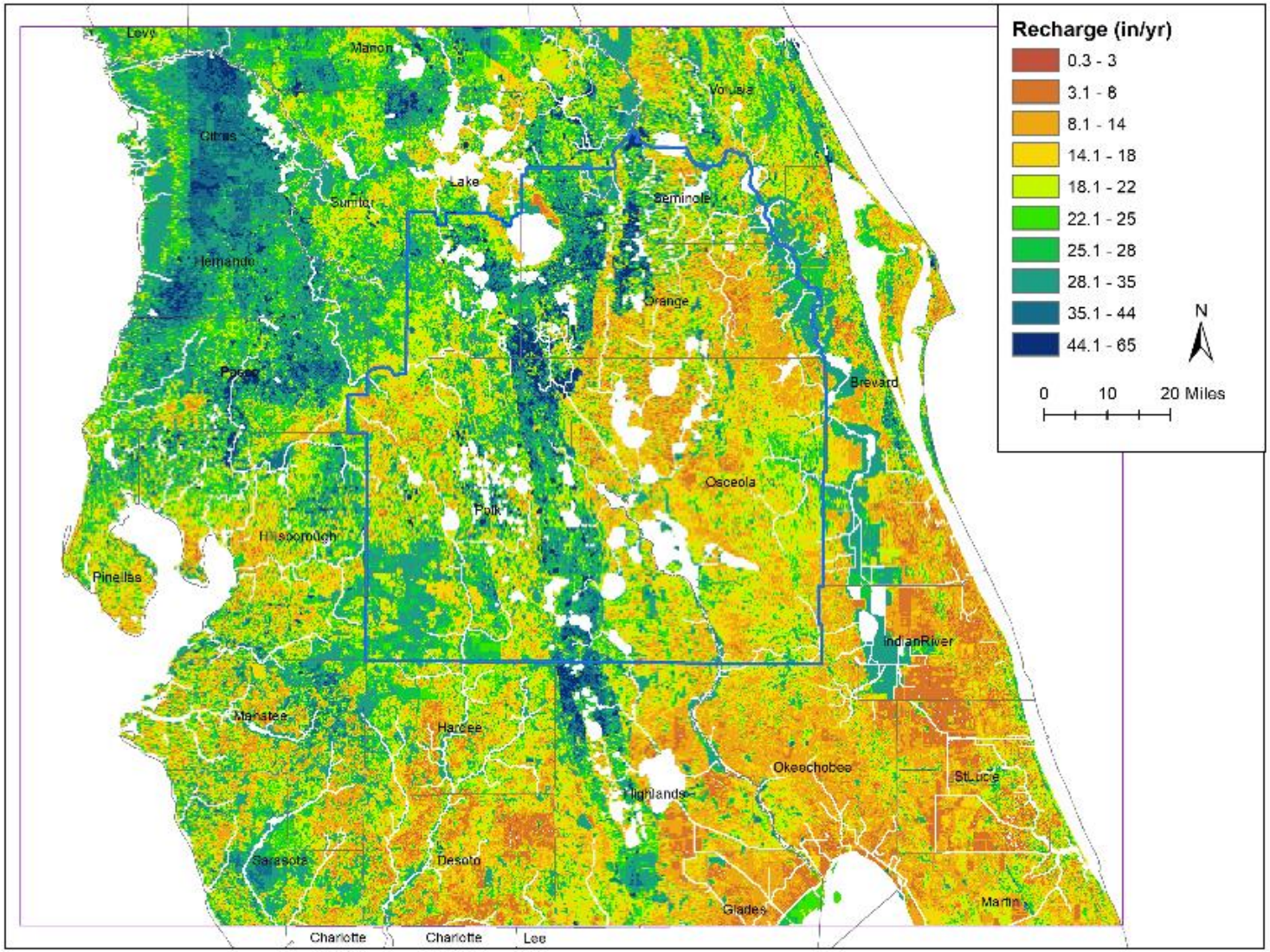


Ver: ETRCH 20180510

Parameter: GWETmax

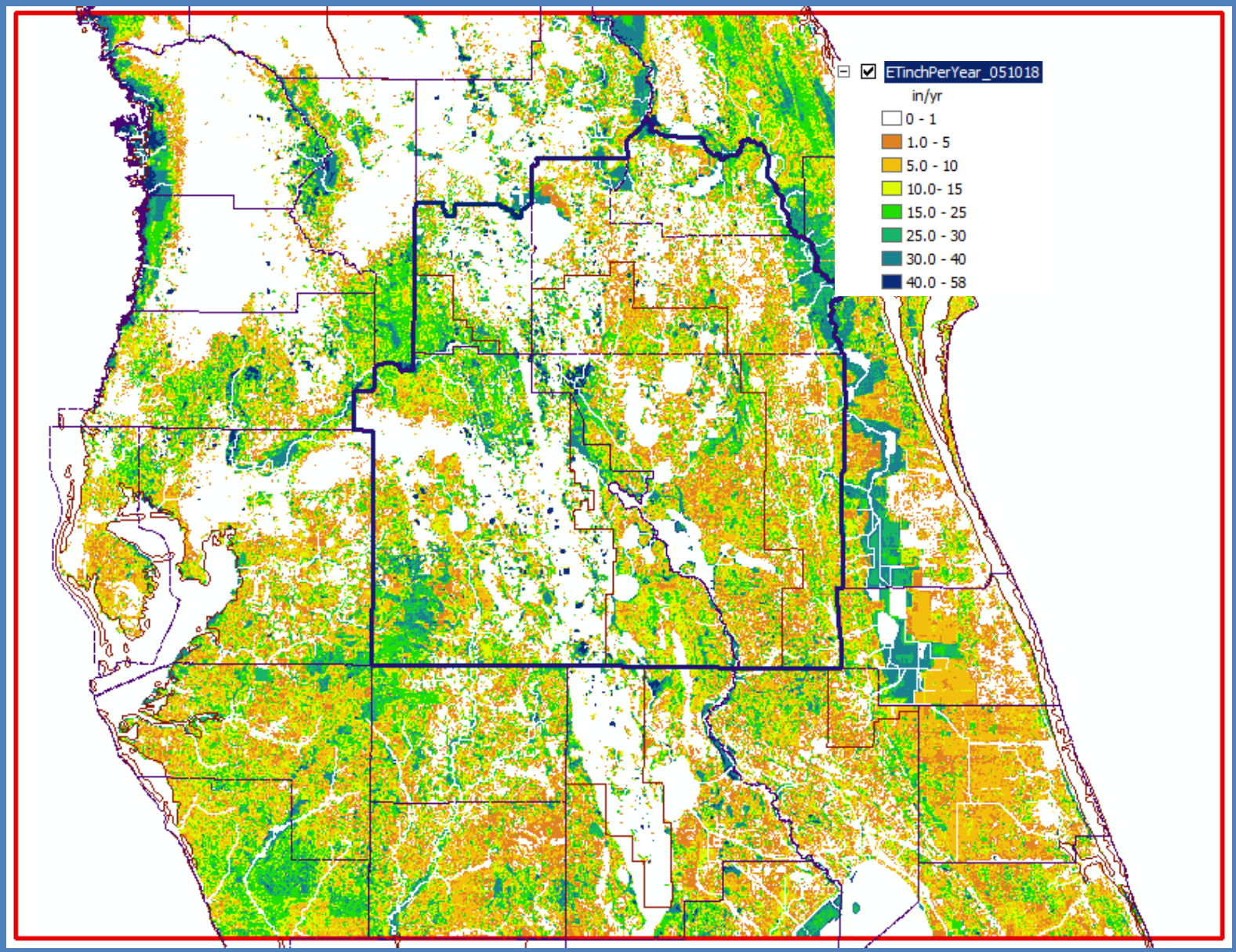
Updated Average Recharge (MODFLOW Input)-2003

Domain Average = 16 in/yr



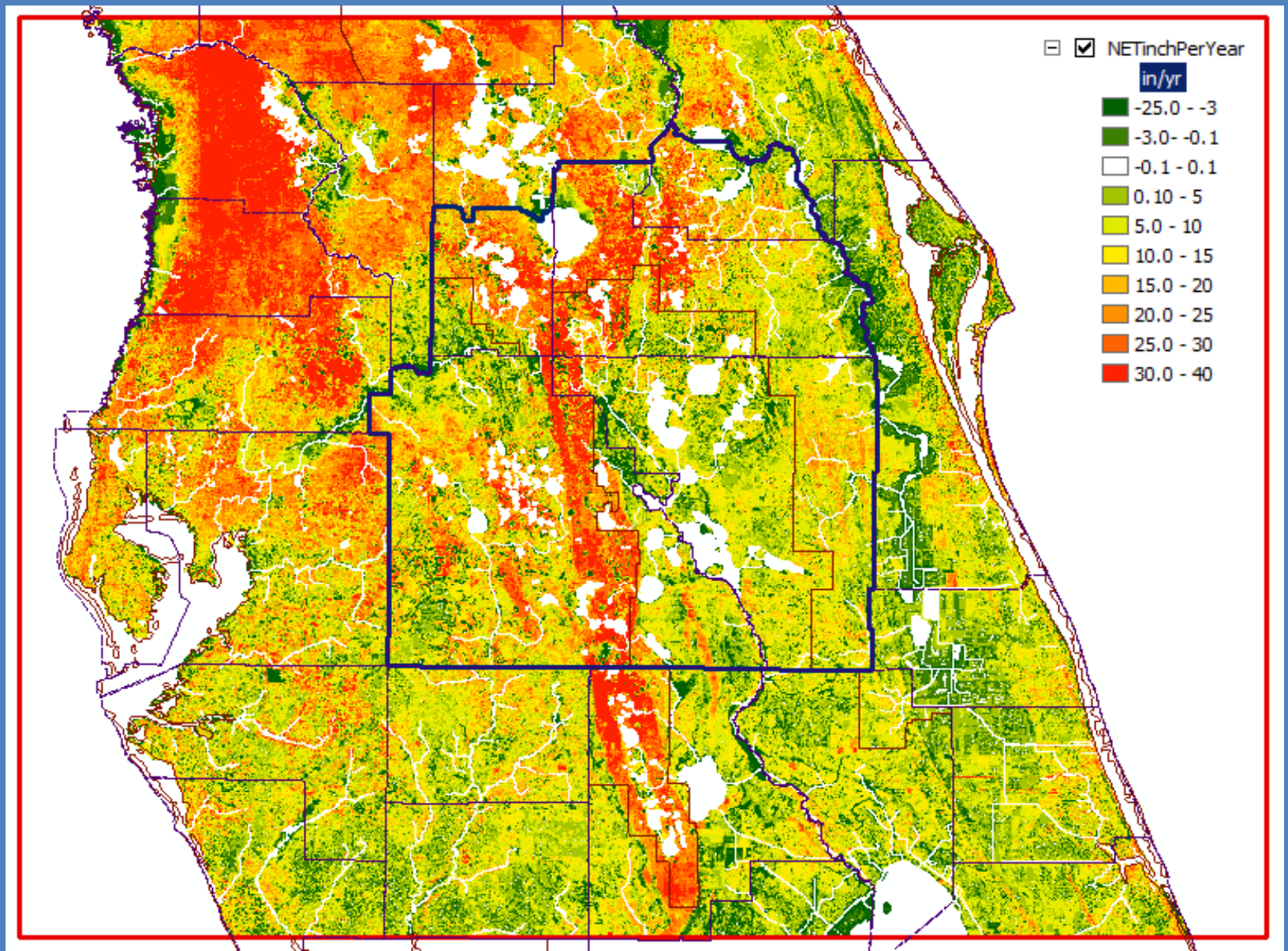
Updated Average Actual Groundwater ET -2003

Domain Average = 7.1 in/yr



Updated Average NET Recharge (Recharge-GWET)-2003

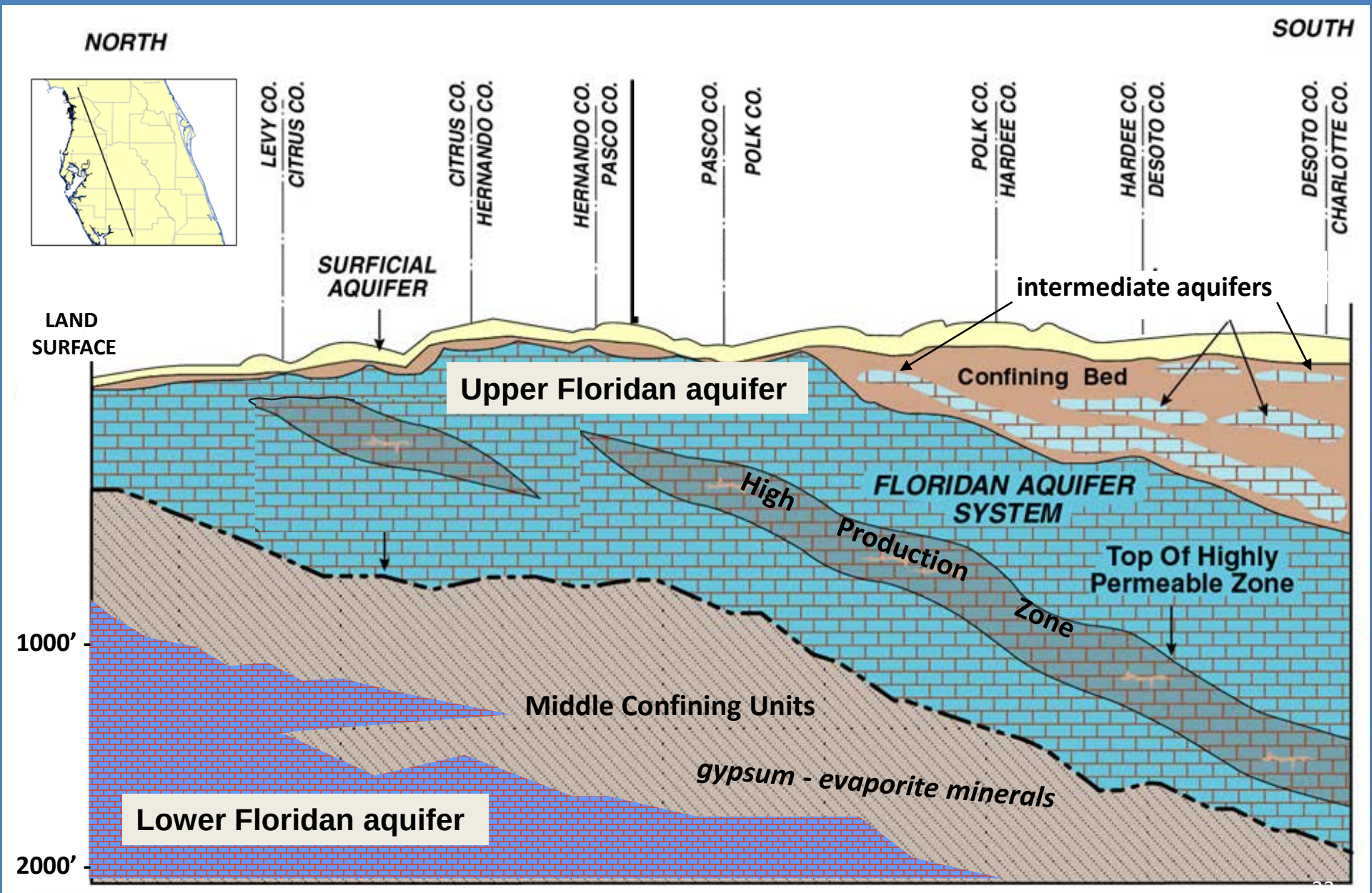
Domain Average = 8.9 in/yr



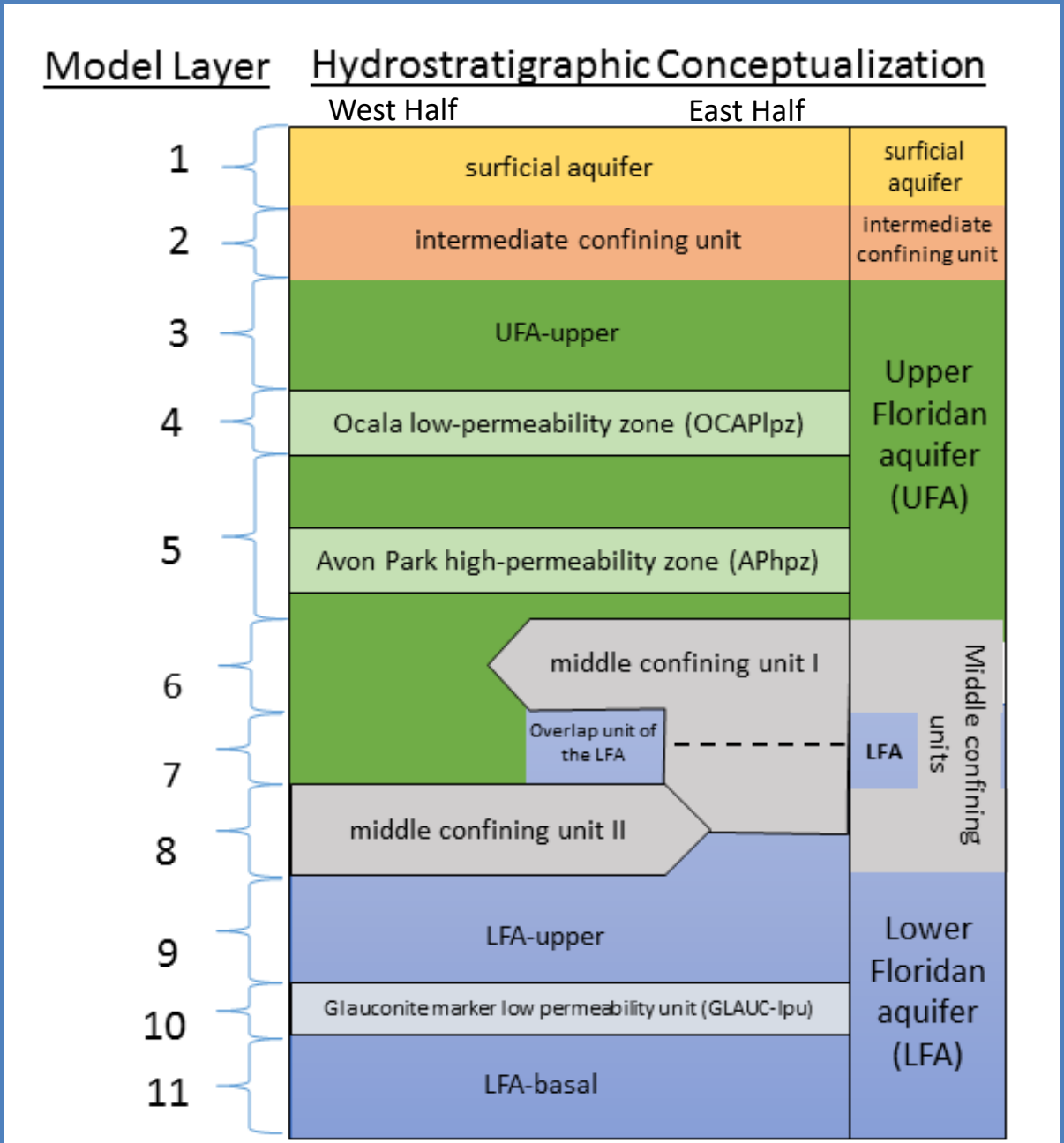
Calibration Assessment of 2003 ECFTX SS model

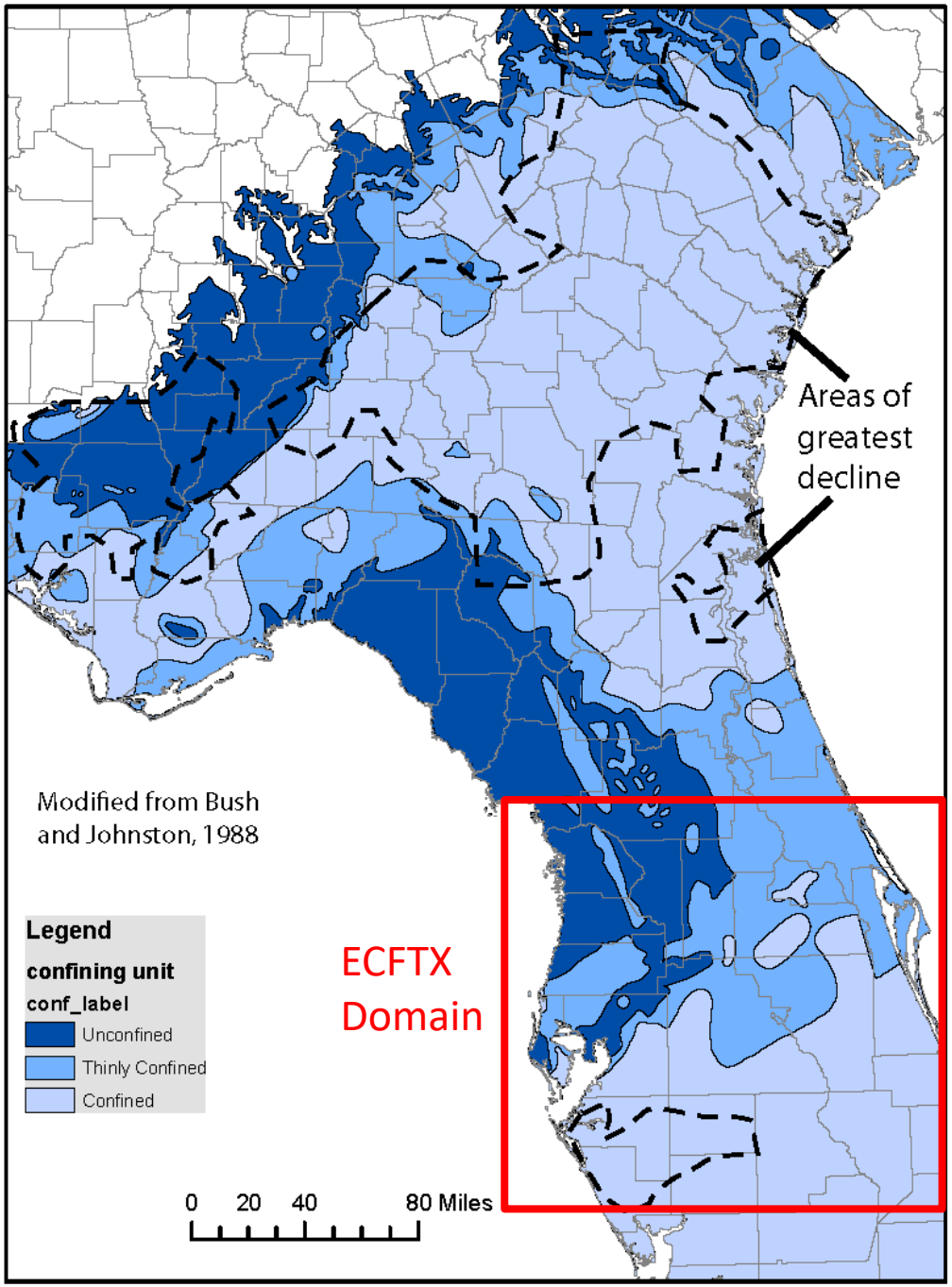
1. Conceptual model
2. Recharge, GW ET, and net recharge
3. Groundwater withdrawals (aquifer)
4. Model Parameter Maps (K, leakance, Transmissivity)
5. Anisotropy ratios
6. Simulated vs. observed water table depths
7. Simulated vs. observed vertical SA-UFA and UFA-LFA head differences
8. Simulated vs kriged 2003 avg UFA heads at 10 ft intervals
9. Mean error spatial plots for SA , UFA, and LFA) – domain-wide and CFWI
10. Head Stat tables (SA, UFA, and LFA) – domain-wide and CFWI
11. Springflow and baseflow calibration stats – tables and spatial error
12. Flooded cells
13. Dry cells
14. Water Budget Summary (layer and domain-wide)

Generalized North to South Hydrogeologic Cross-Section (SWFWMD)



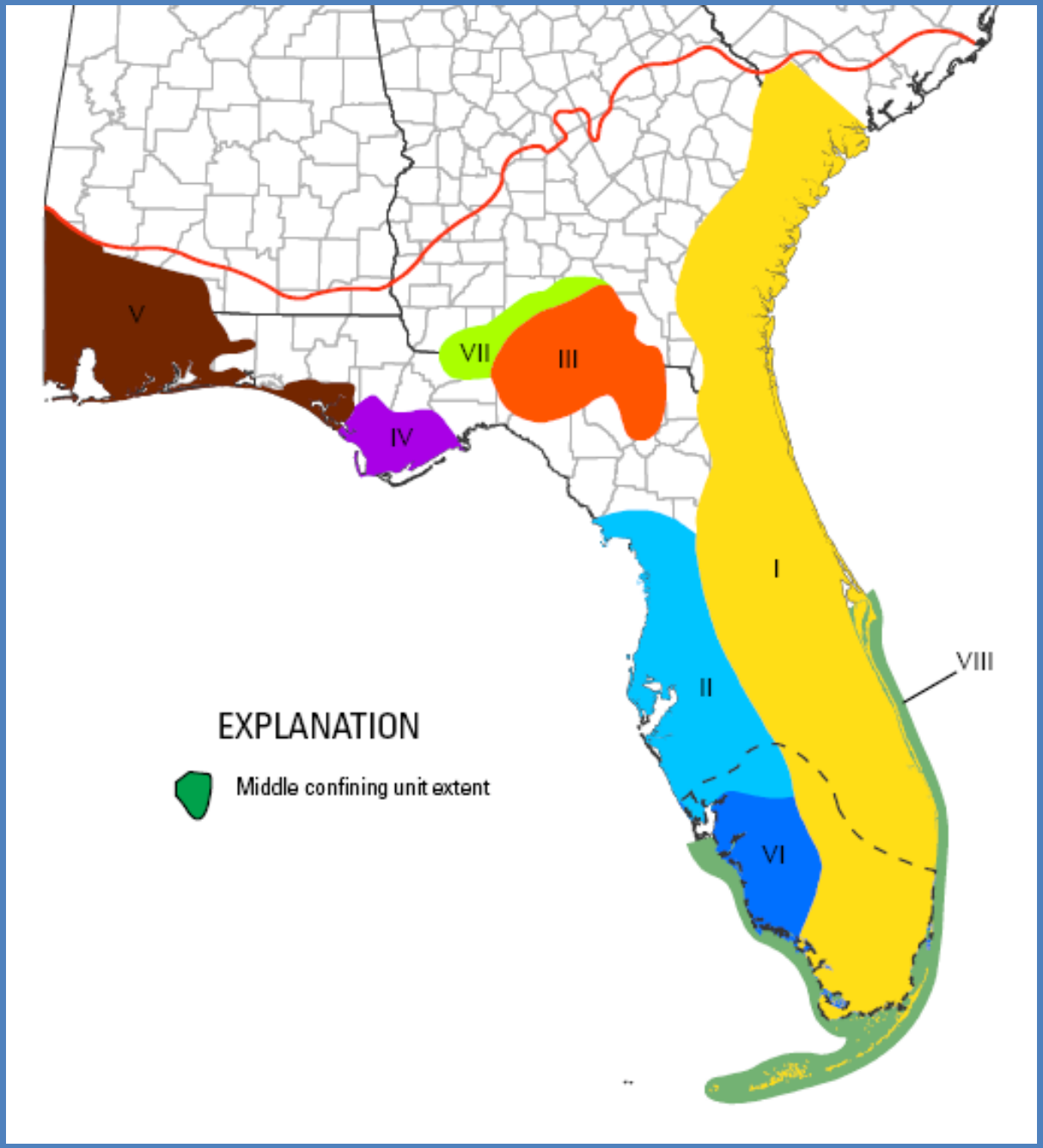
ECFTX Model Conceptualization



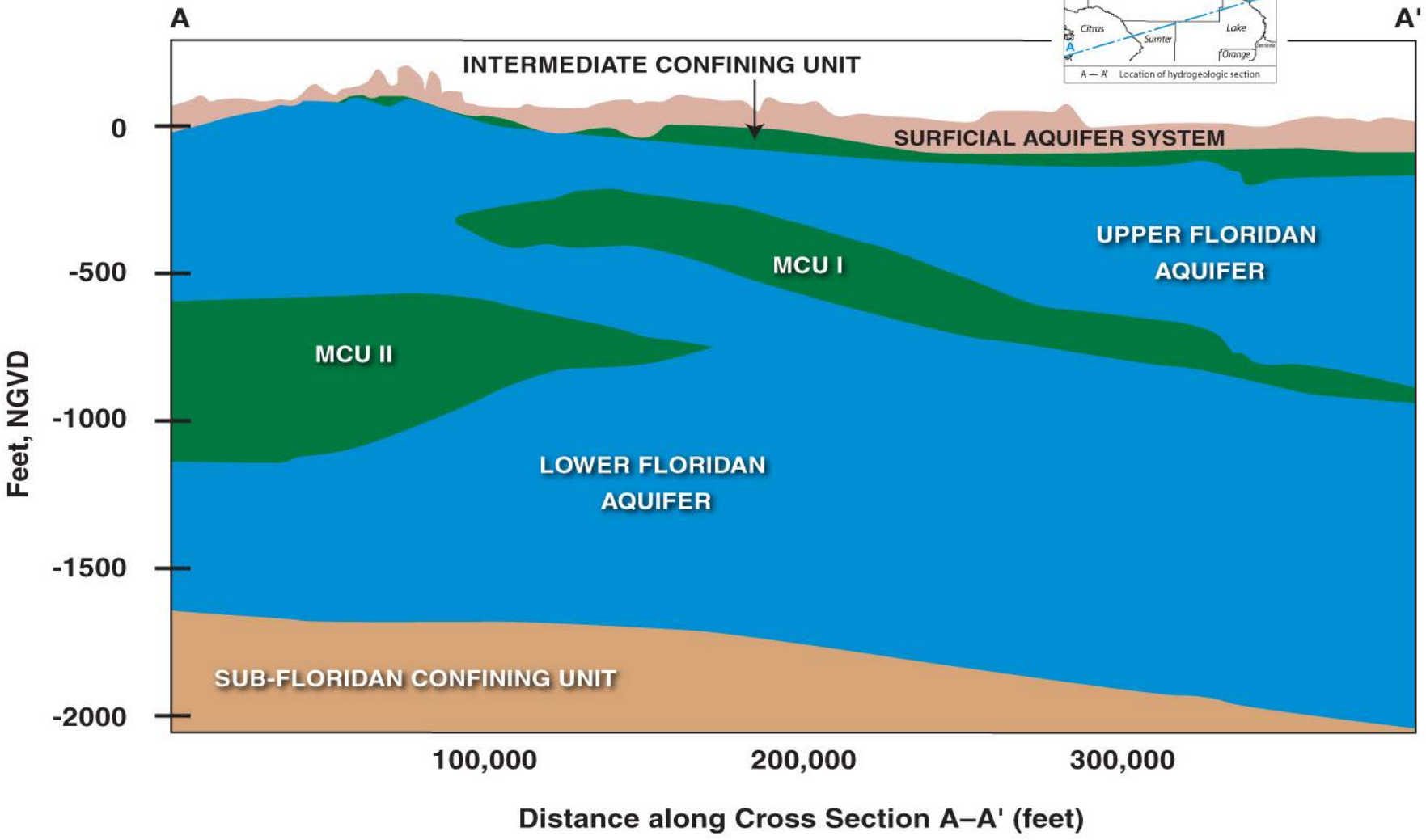


Degree of Confinement of the Floridan Aquifer System (USGS)

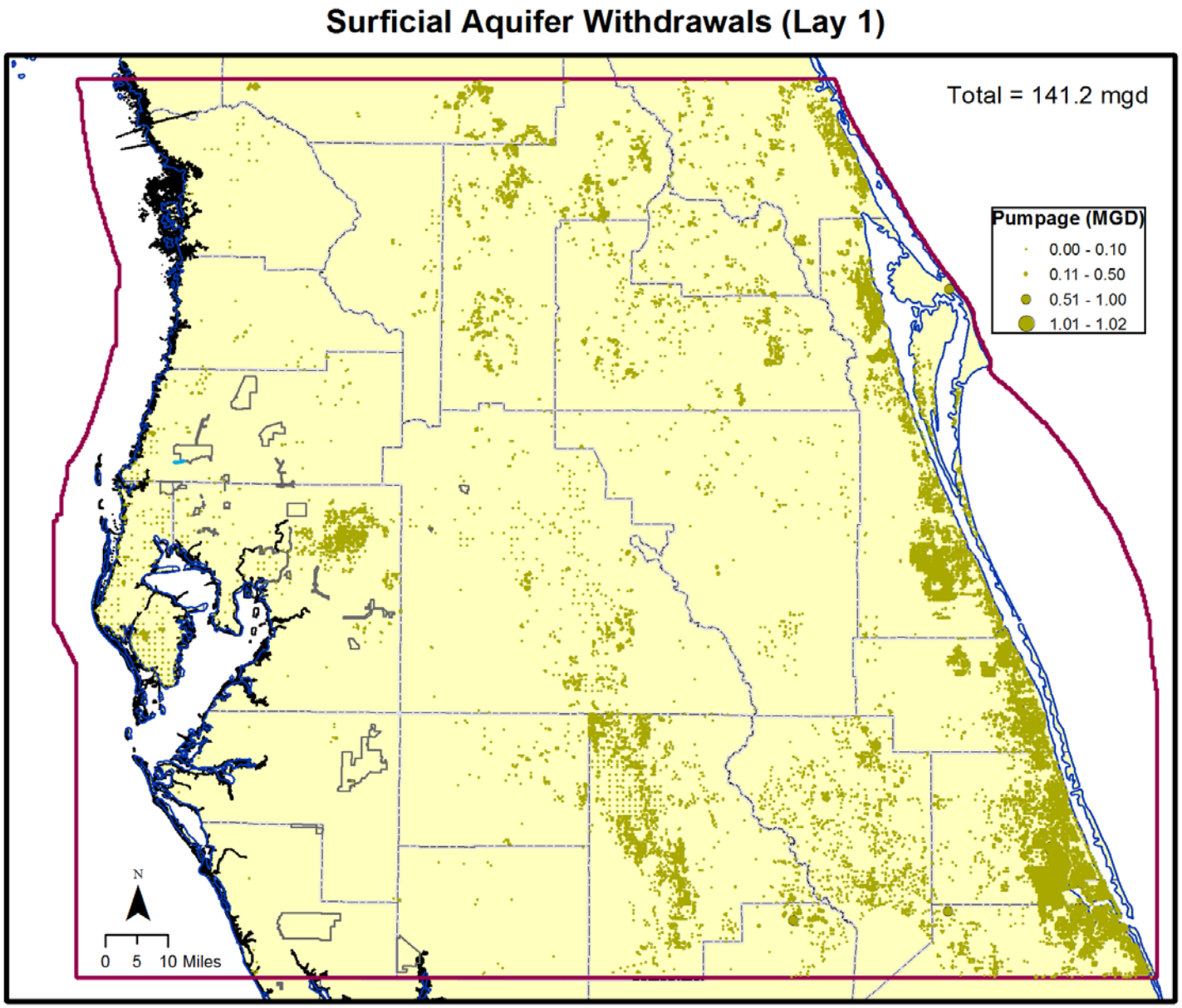
Miller (1986) Middle Confining Units of the Floridan aquifer system



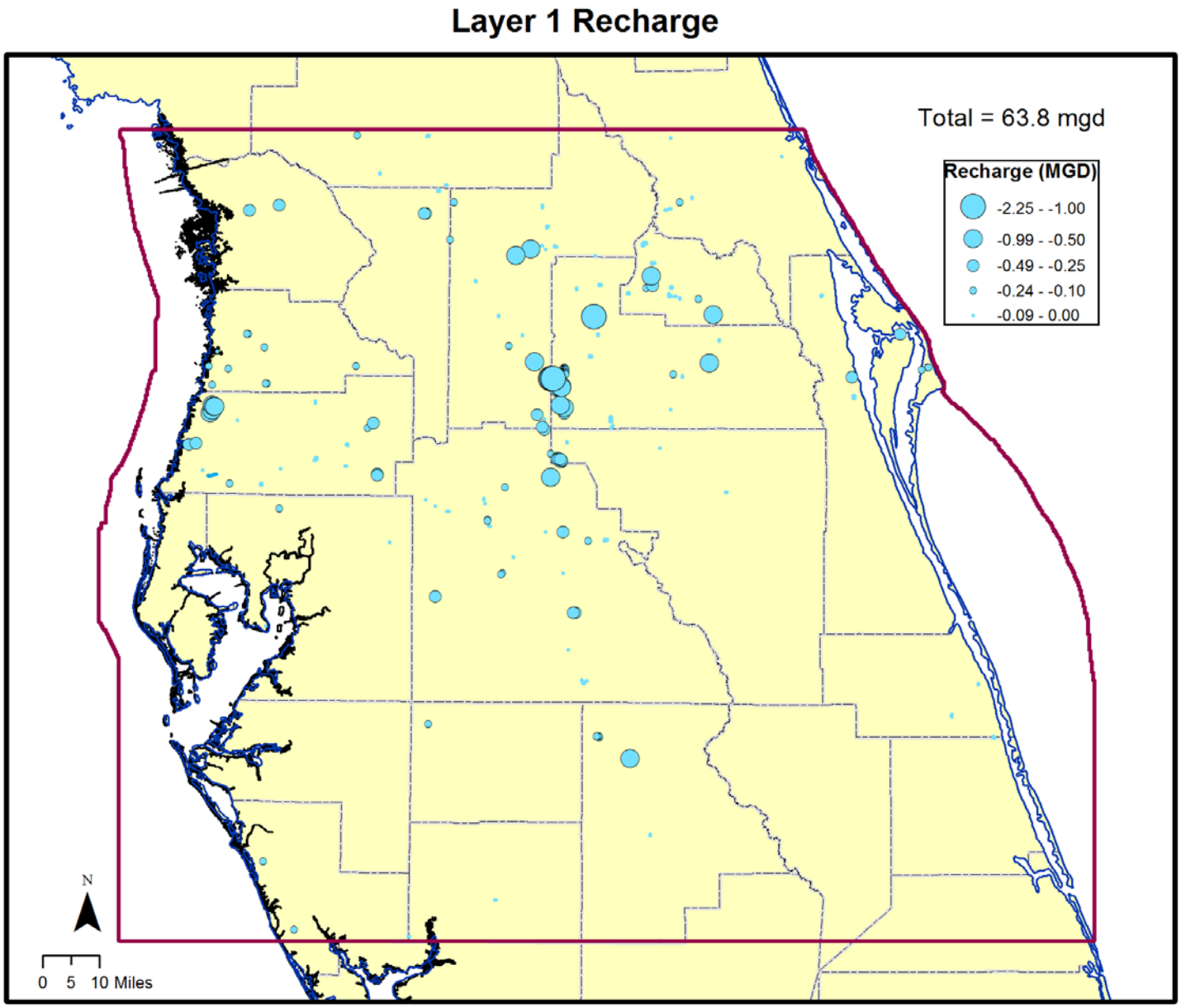
Cross-section of groundwater units across Citrus, Sumter, Marion, Lake, and Volusia counties



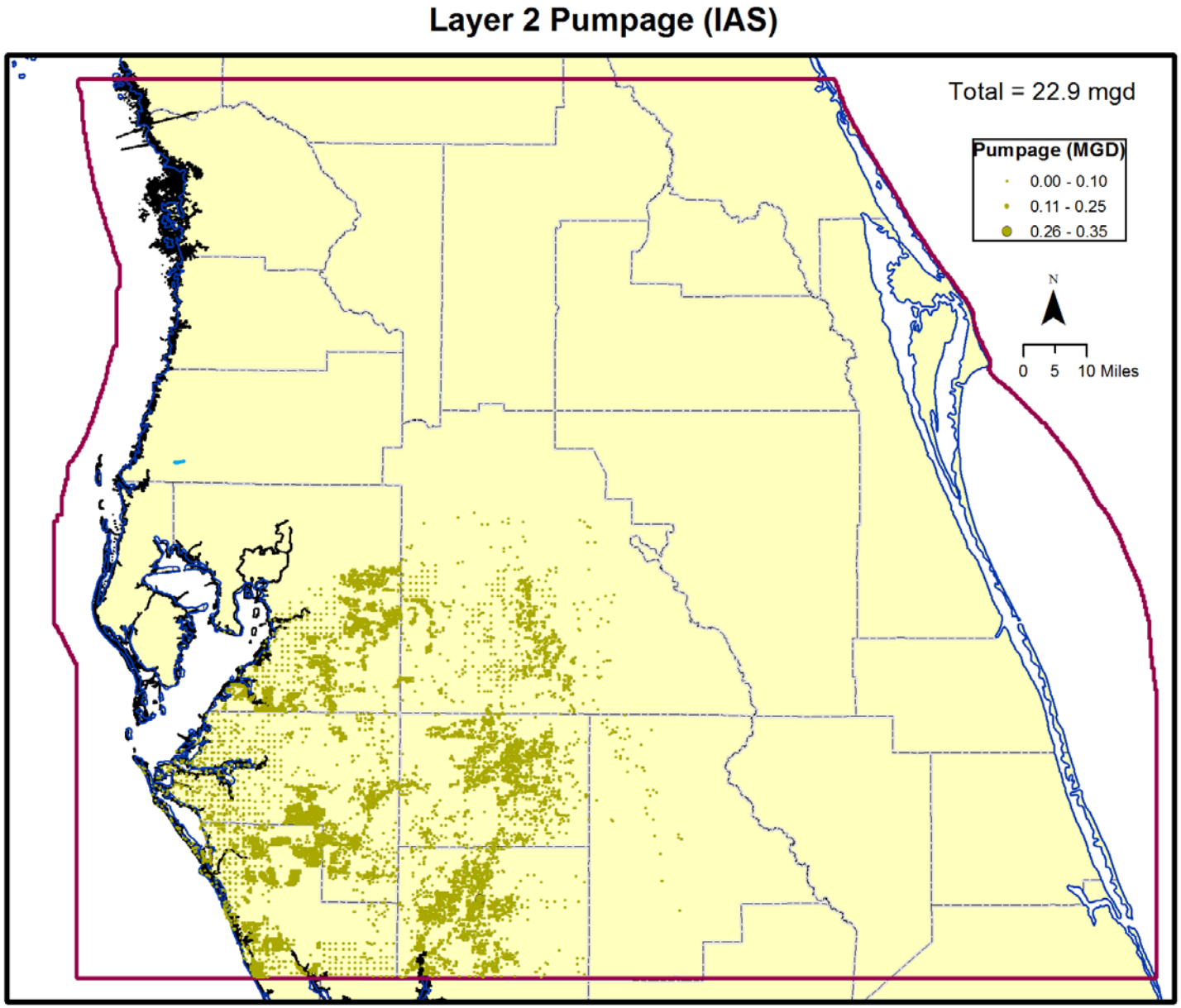
Surficial Aquifer Groundwater Withdrawn



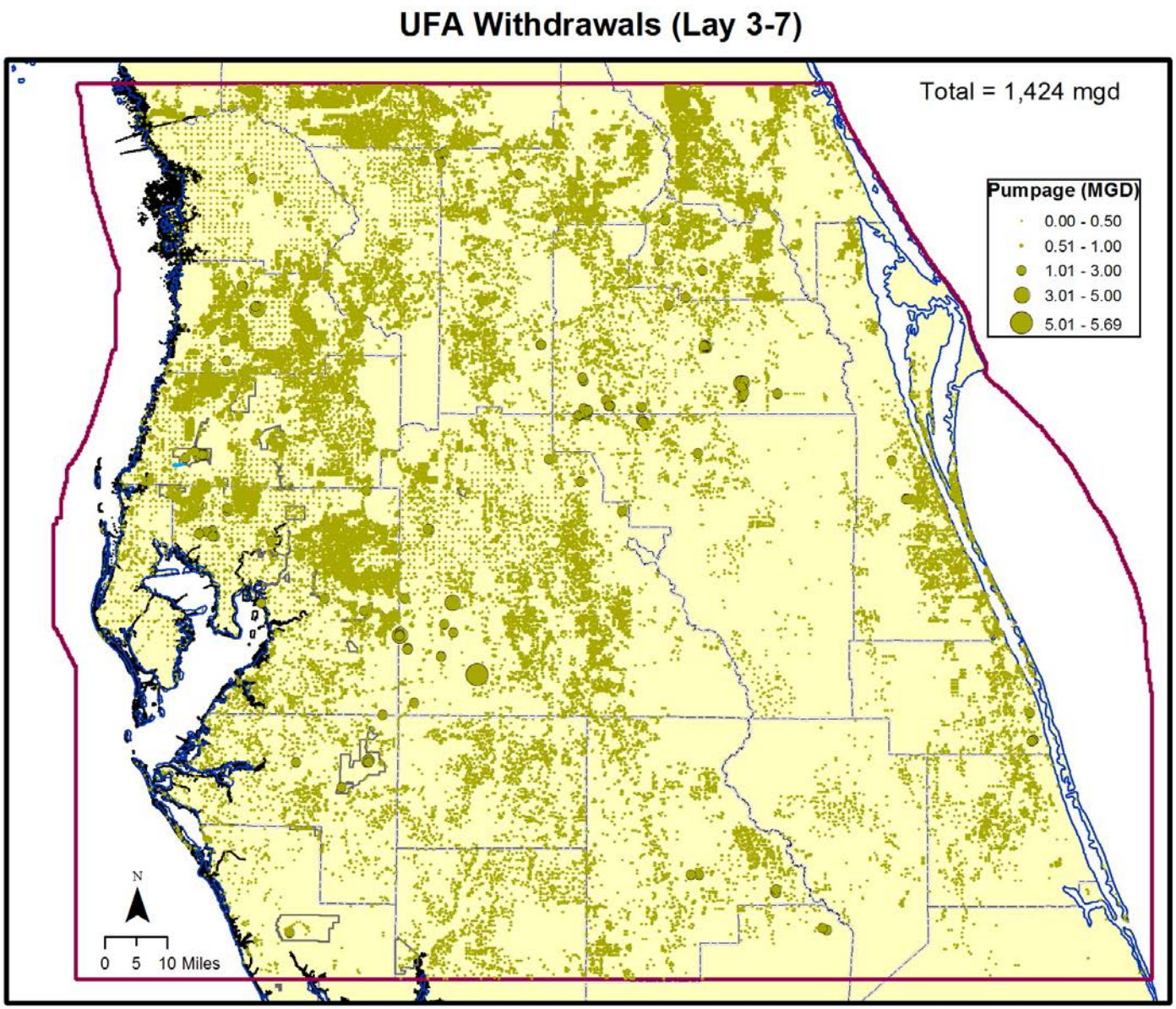
Surficial Aquifer Return Recharge



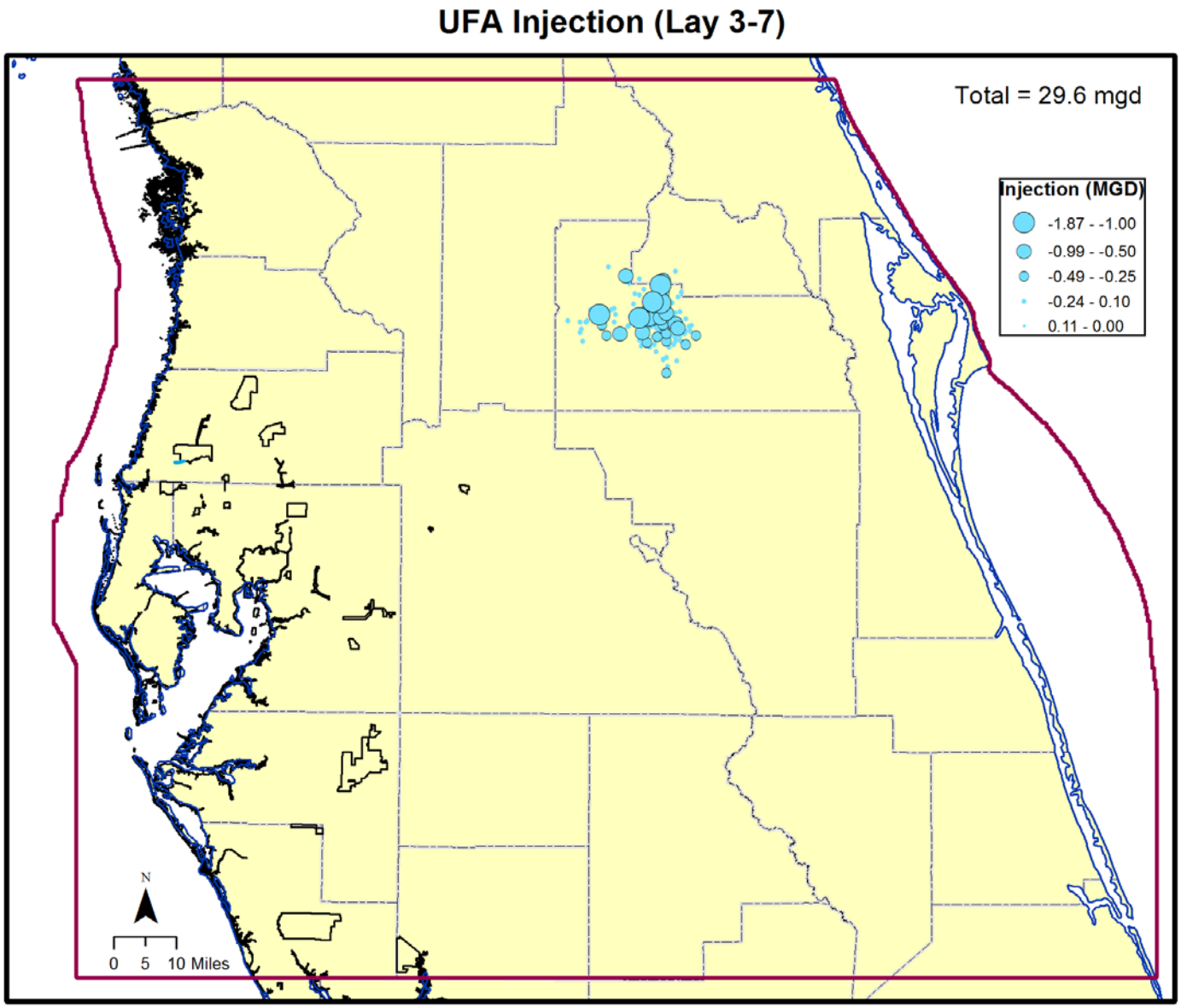
Intermediate Aquifer Groundwater Withdrawn



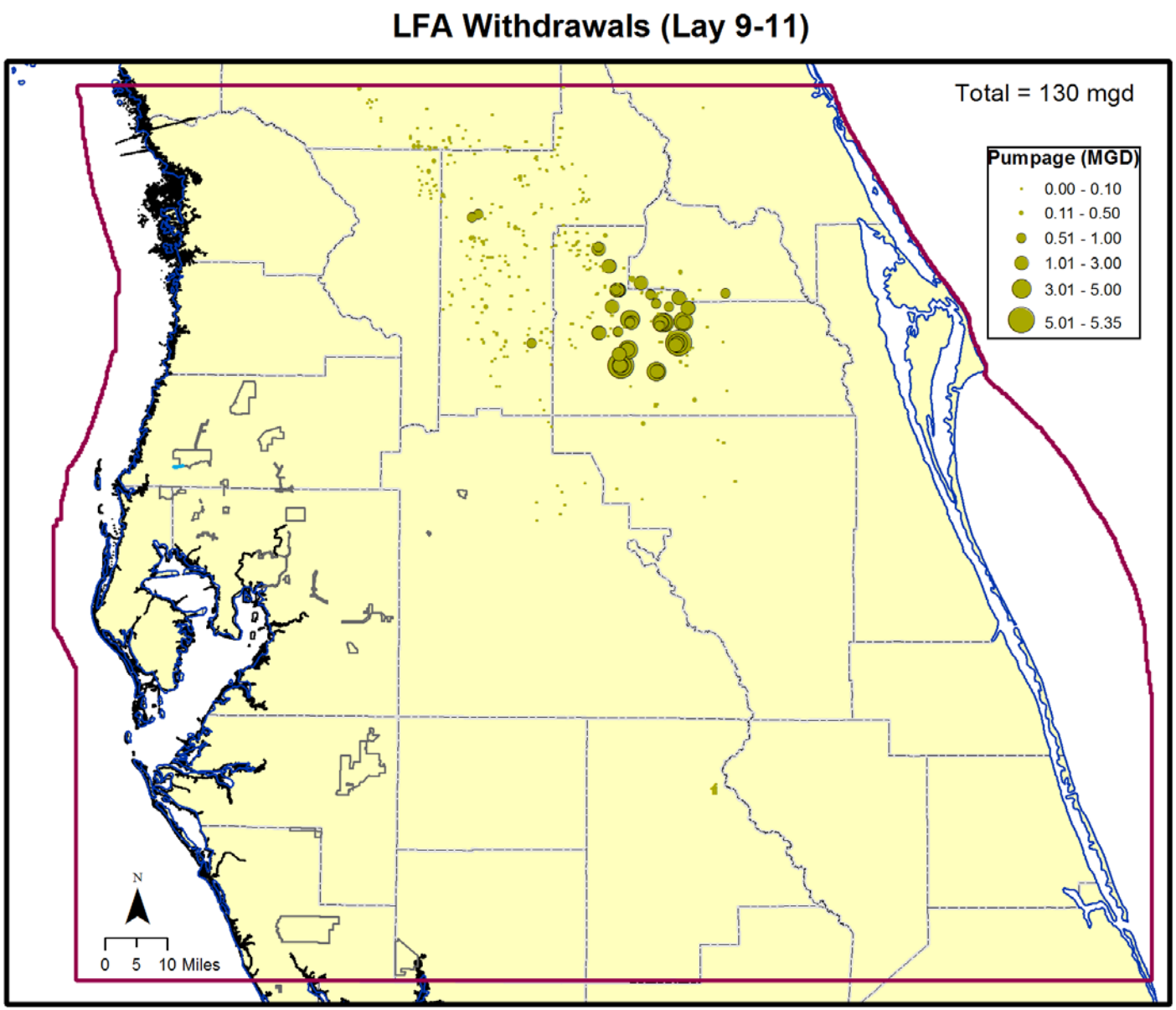
Upper Floridan Aquifer Groundwater Withdrawn



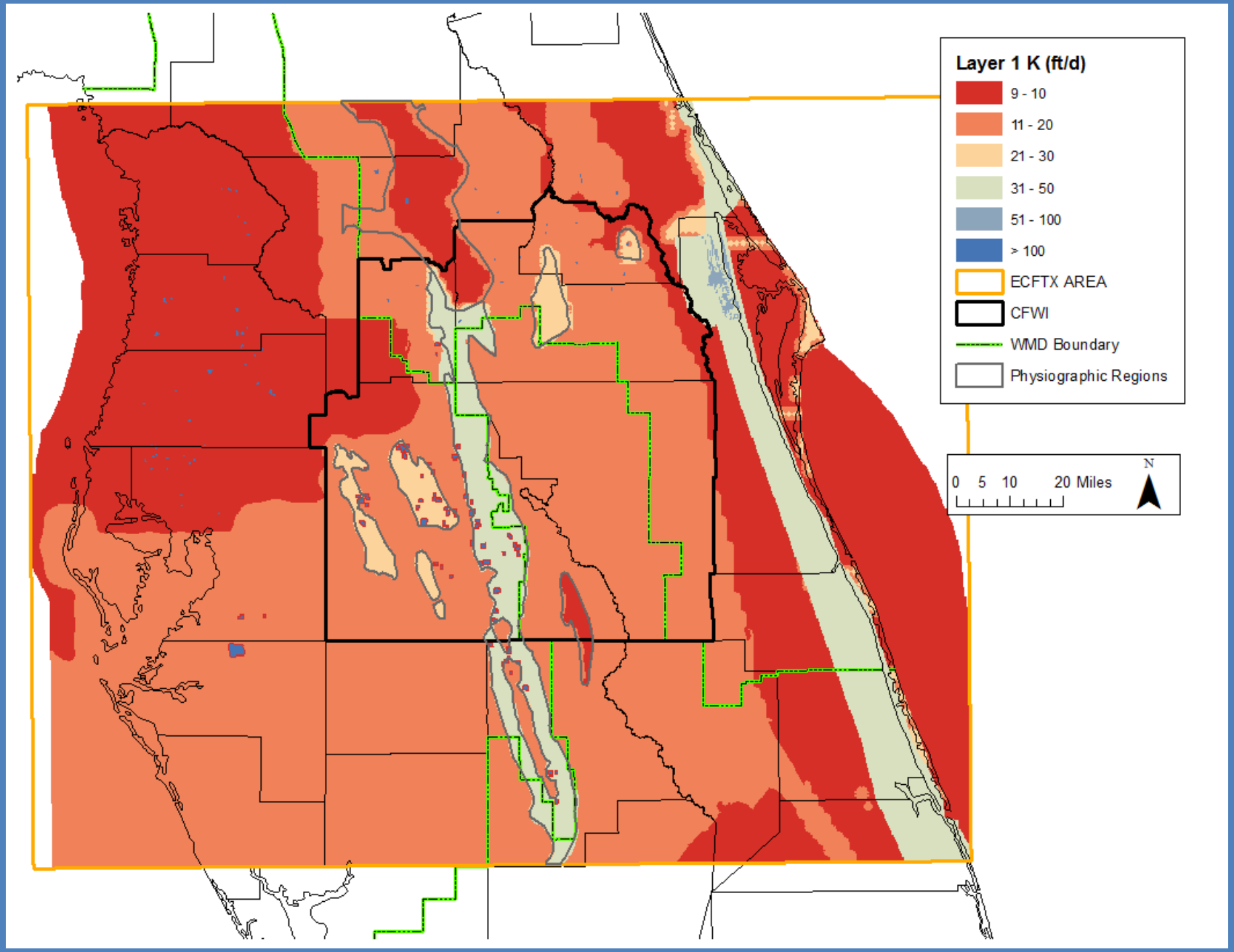
Upper Floridan Aquifer Injection Quantities



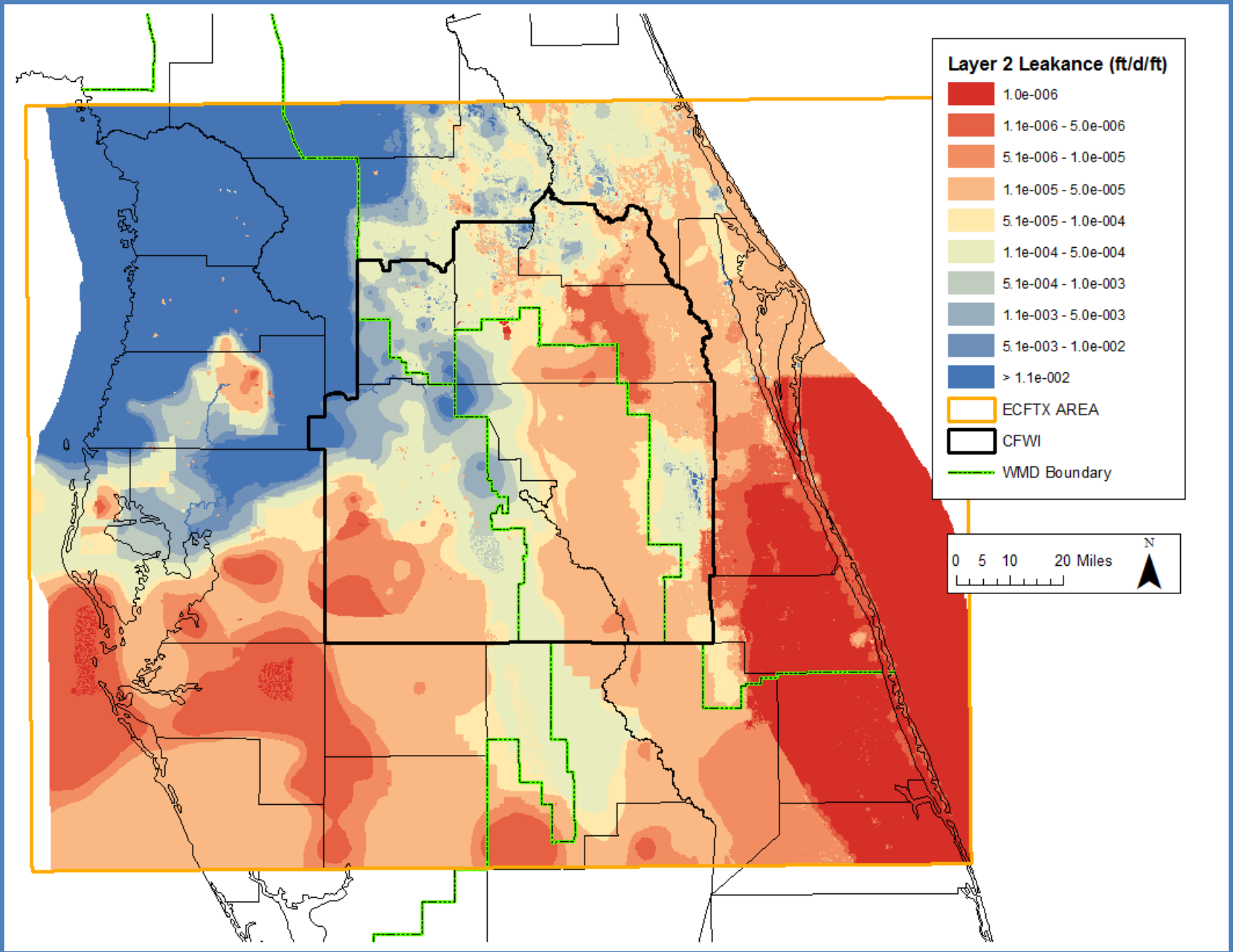
Lower Floridan Aquifer Groundwater Withdrawn



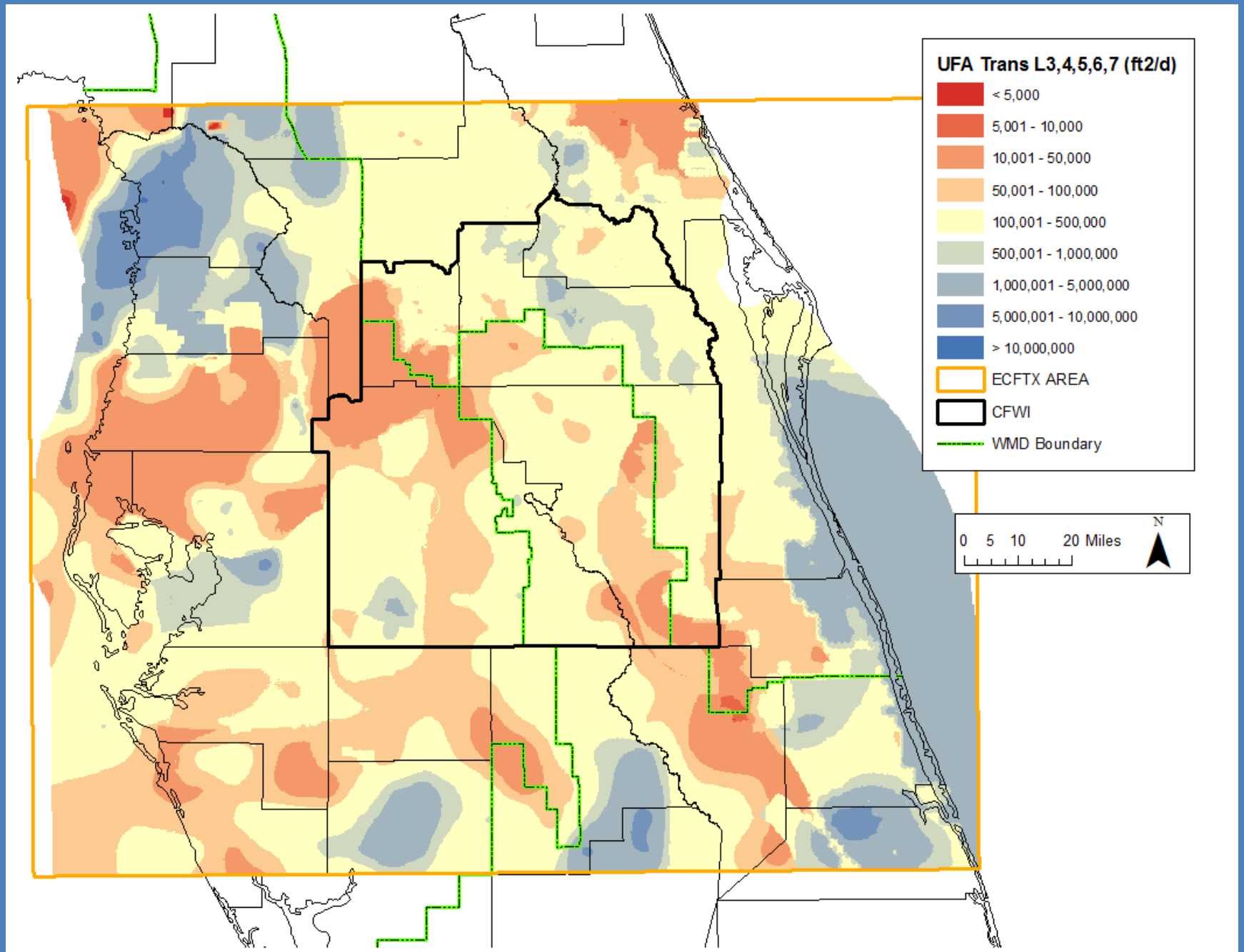
Surficial Aquifer hydraulic conductivity



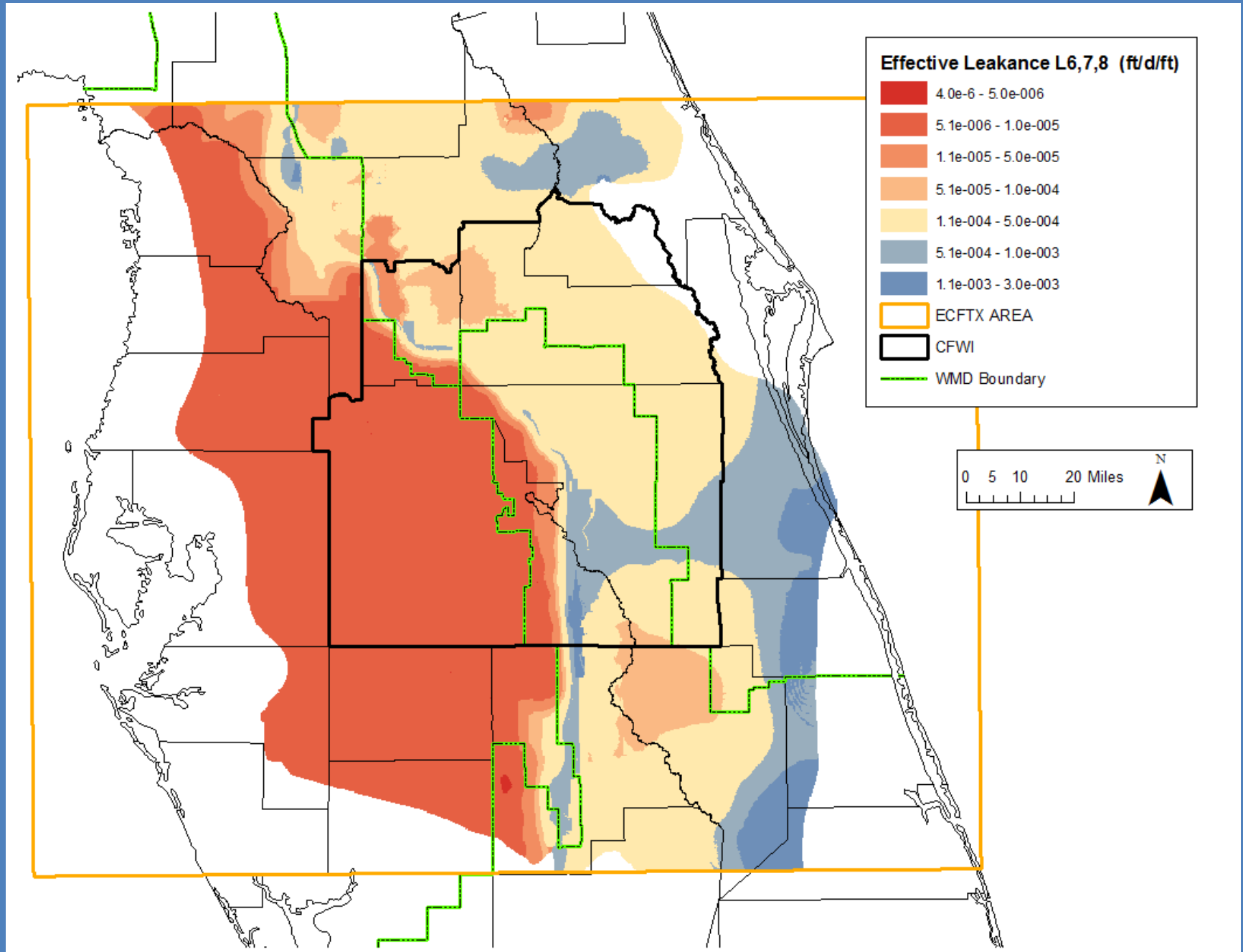
ICU Leakance



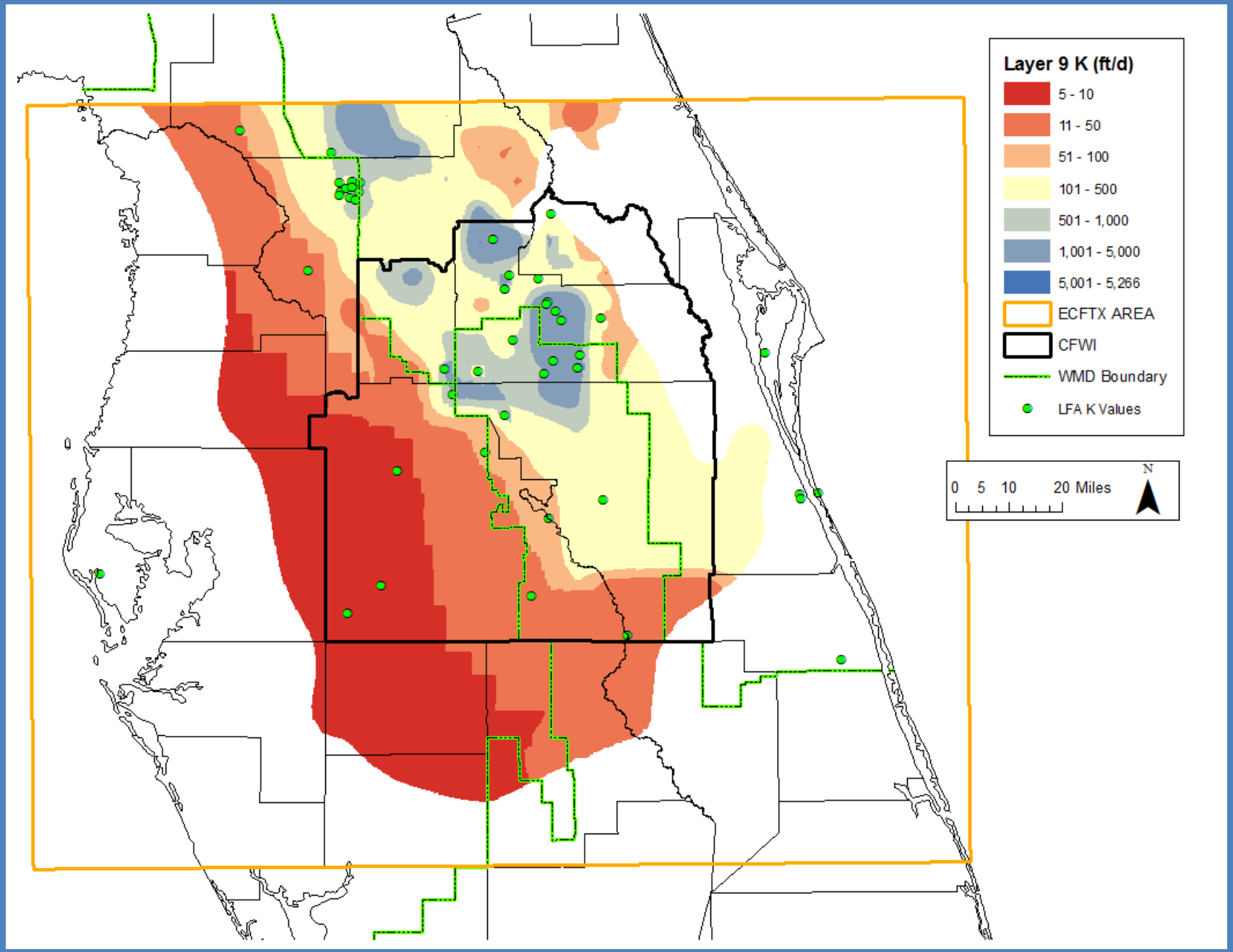
UFA Transmissivity (Layers 3-7)



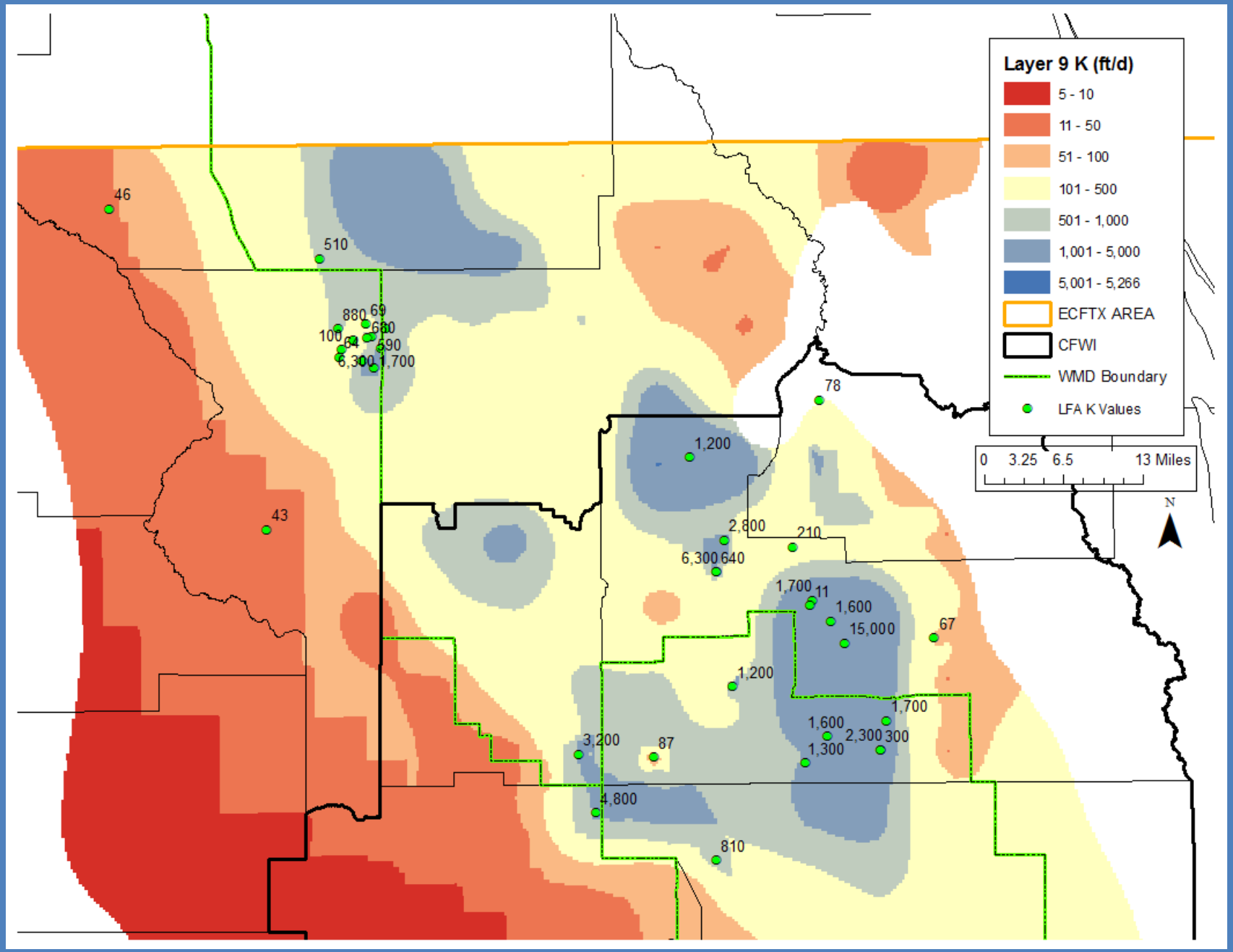
MCU Leakance (layers 6-8)



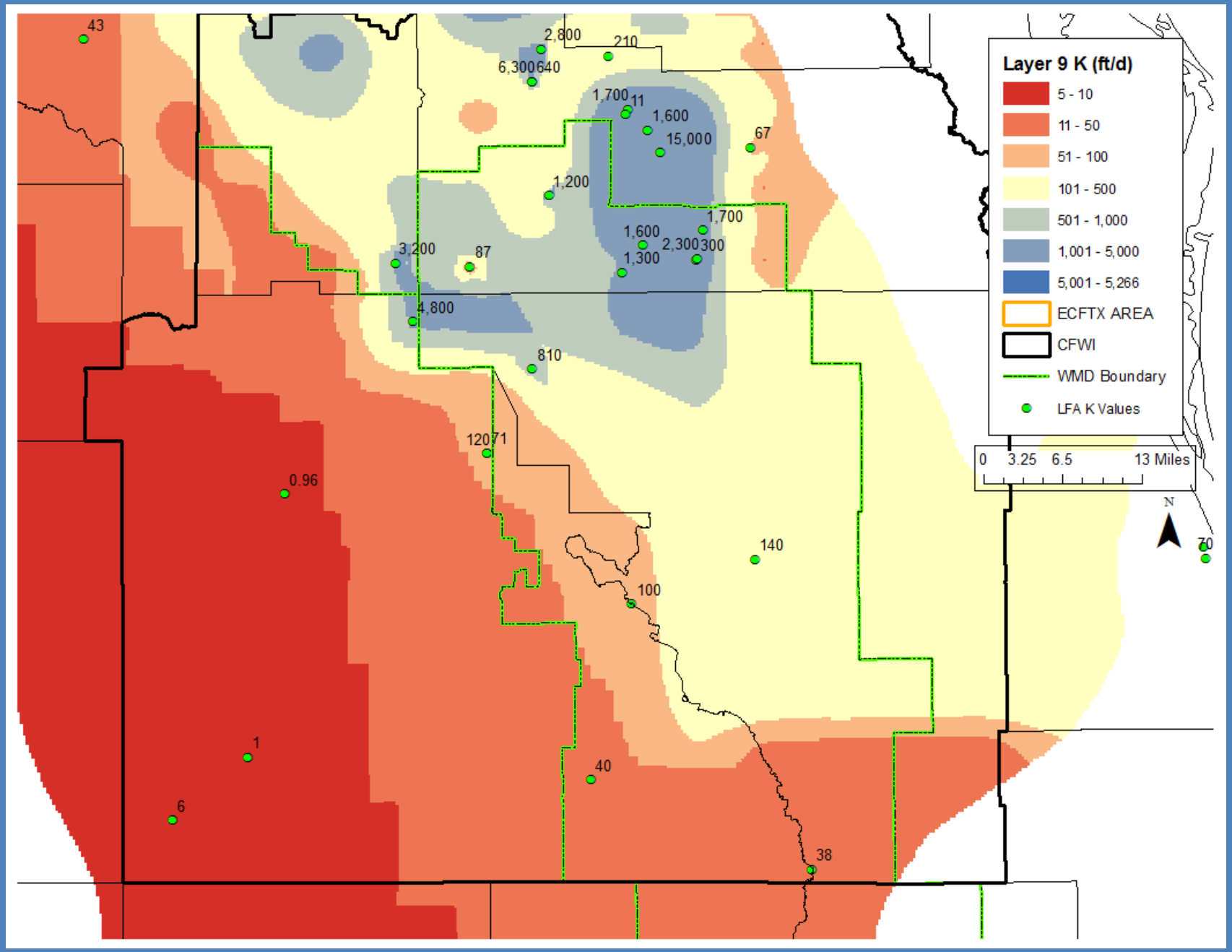
LFA Hydraulic Conductivity (Layer 9)



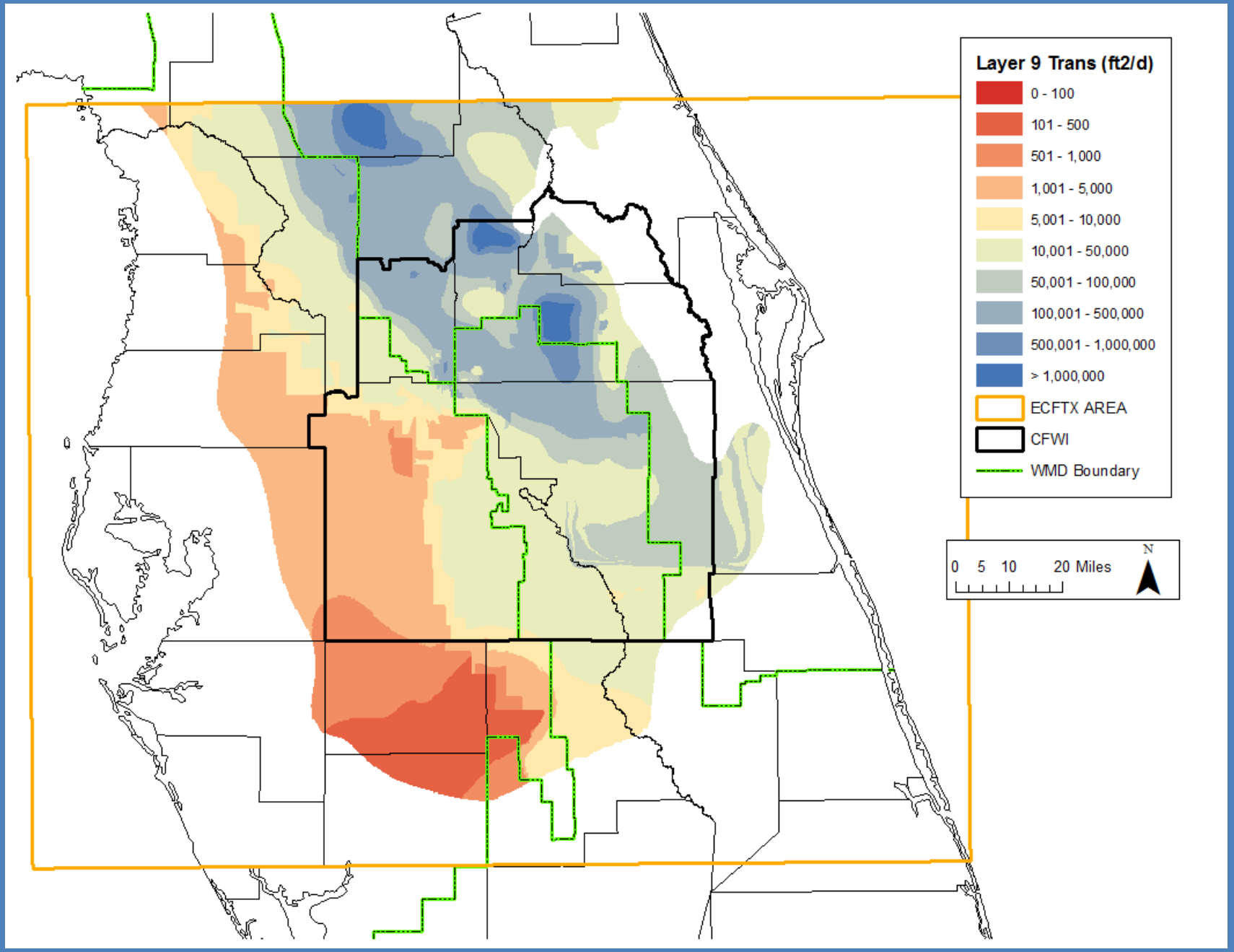
LFA Hydraulic Conductivity (Layer 9) - Northern extent with APT K Values



LFA Hydraulic Conductivity (Layer 9) - Southern extent with APT K Values



Layer 9 Transmissivity

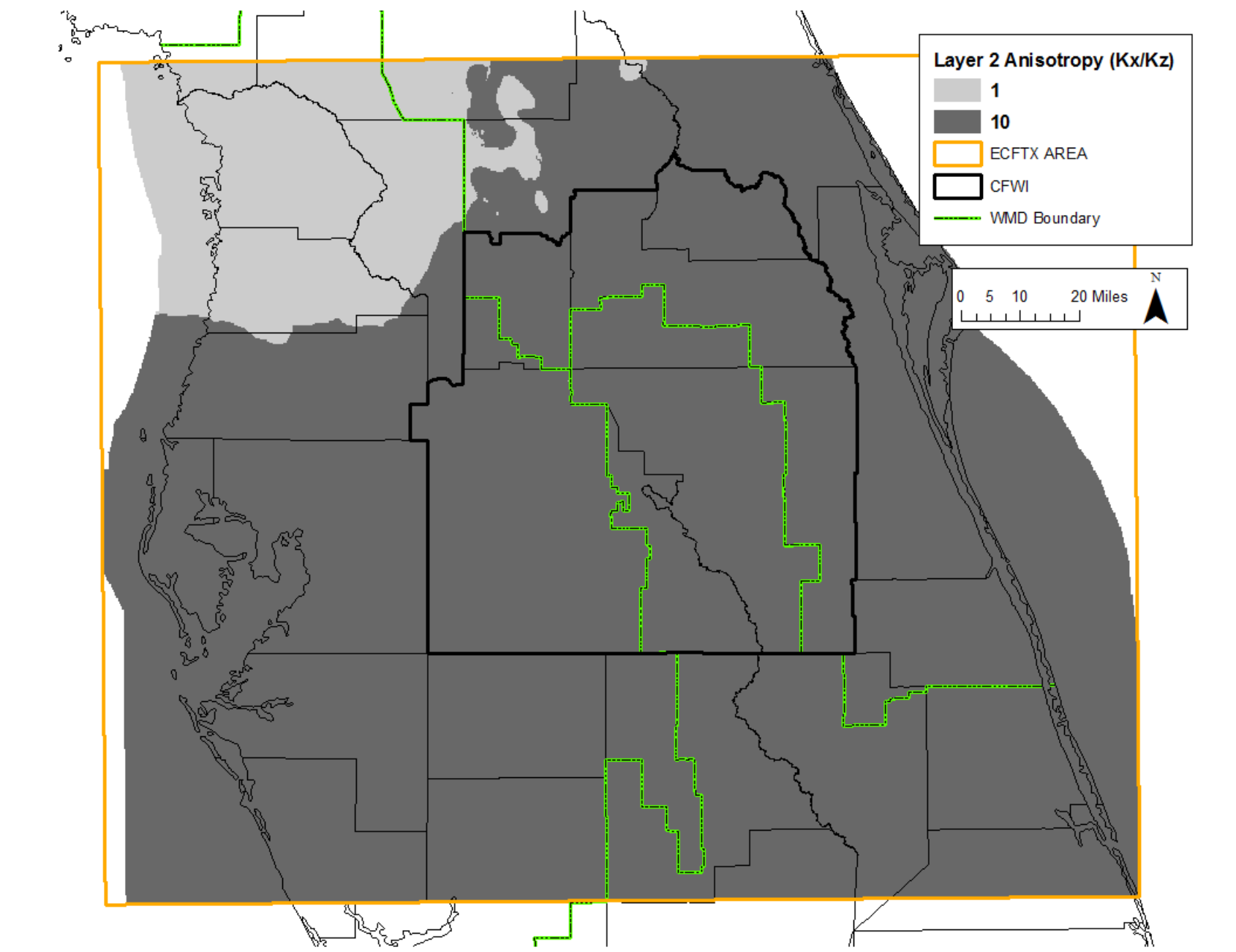


Anisotropy Ratio by Layer

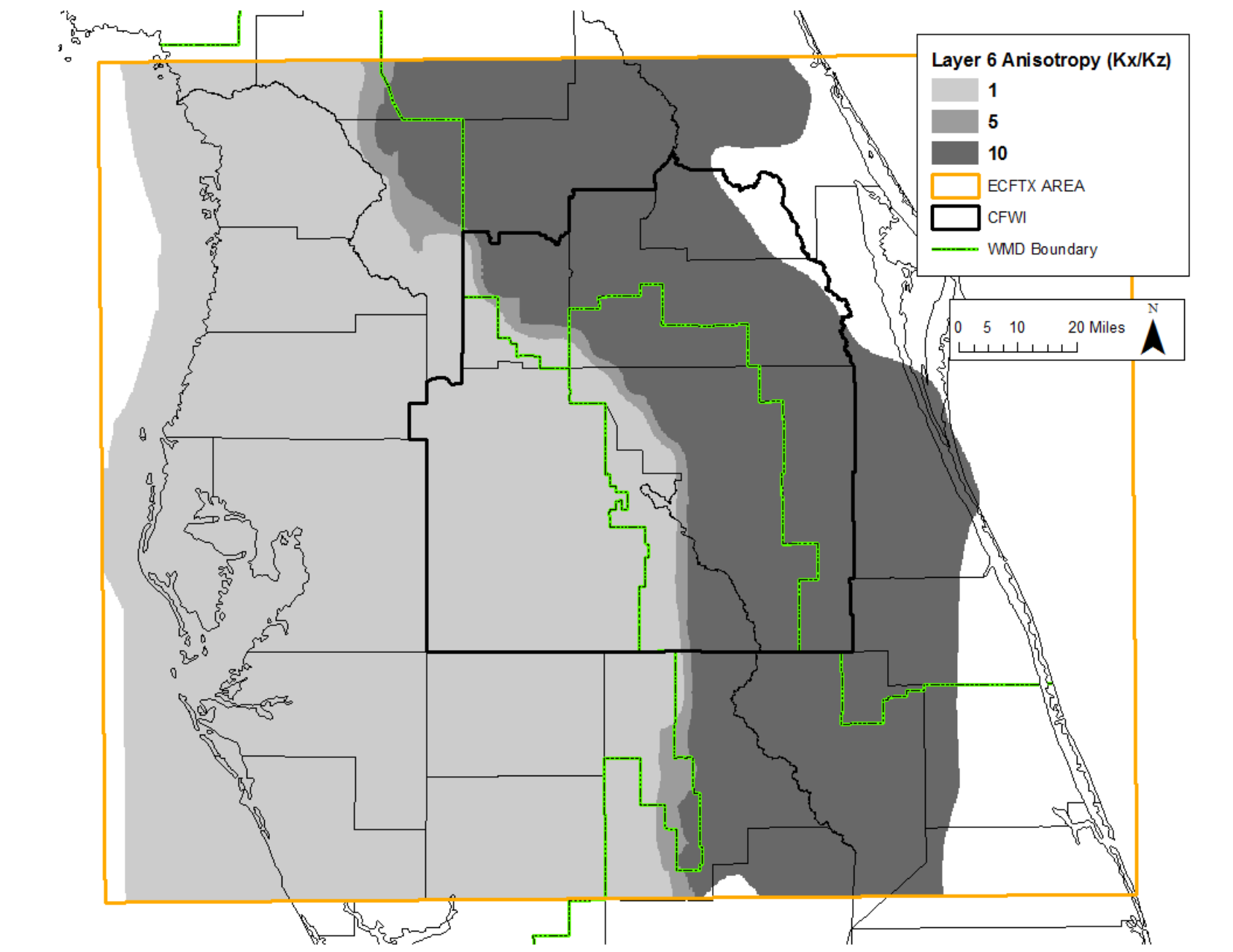
Anisotropy Table (Kx:Kz)				
Layer 1	SWF	1:1	SJR/SF	1:1
*Layer 2	SWF	10:1	SJR/SF	10:1
Layer 3	SWF	1:1	SJR/SF	1:1
Layer 4	SWF	1:1	SJR/SF	1:1
Layer 5	SWF	1:1	SJR/SF	1:1
Layer 6	SWF	1:1	SJR/SF	10:1
Layer 7	SWF	1:1	SJR/SF	1:1
Layer 8	SWF	10:1	SJR/SF	1:1
Layer 9	SWF	1:1	SJR/SF	1:1
Layer 10	SWF	10:1	SJR/SF	10:1
Layer 11	SWF	1:1	SJR/SF	1:1

*Northwest portion of model domain is 1:1

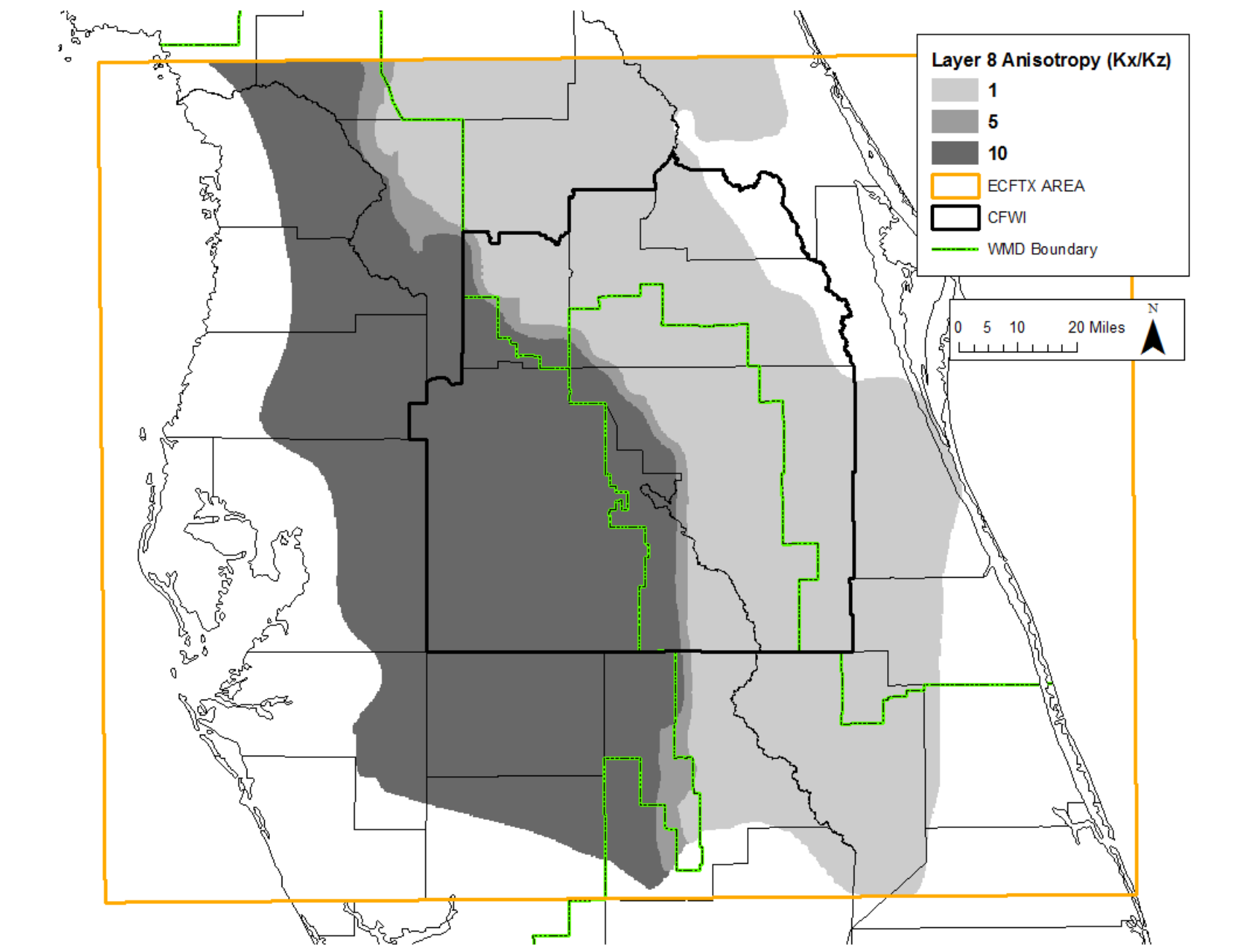
ICU Anisotropy (Layer 2)



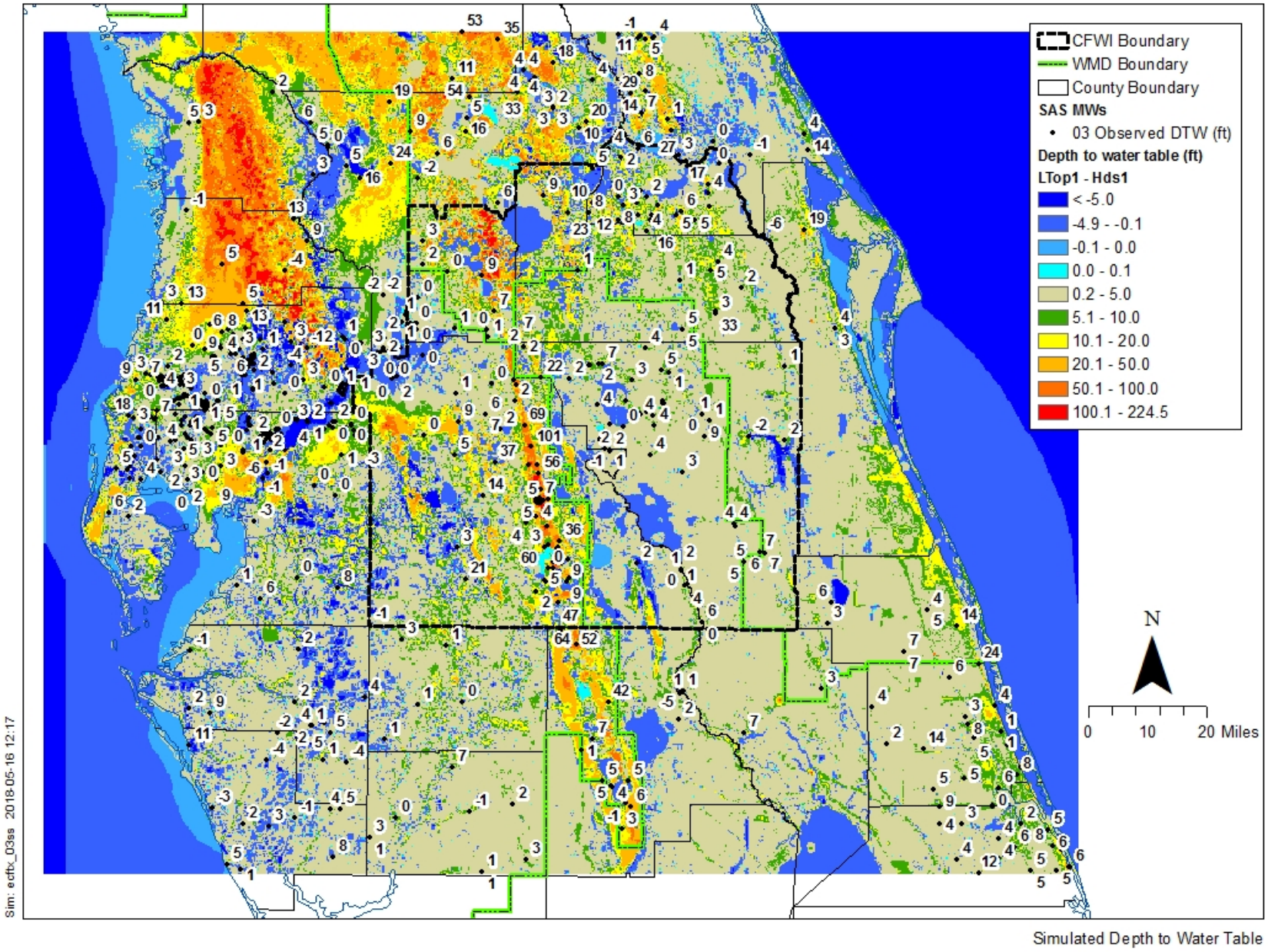
MCU 1 anisotropy (layer 6)



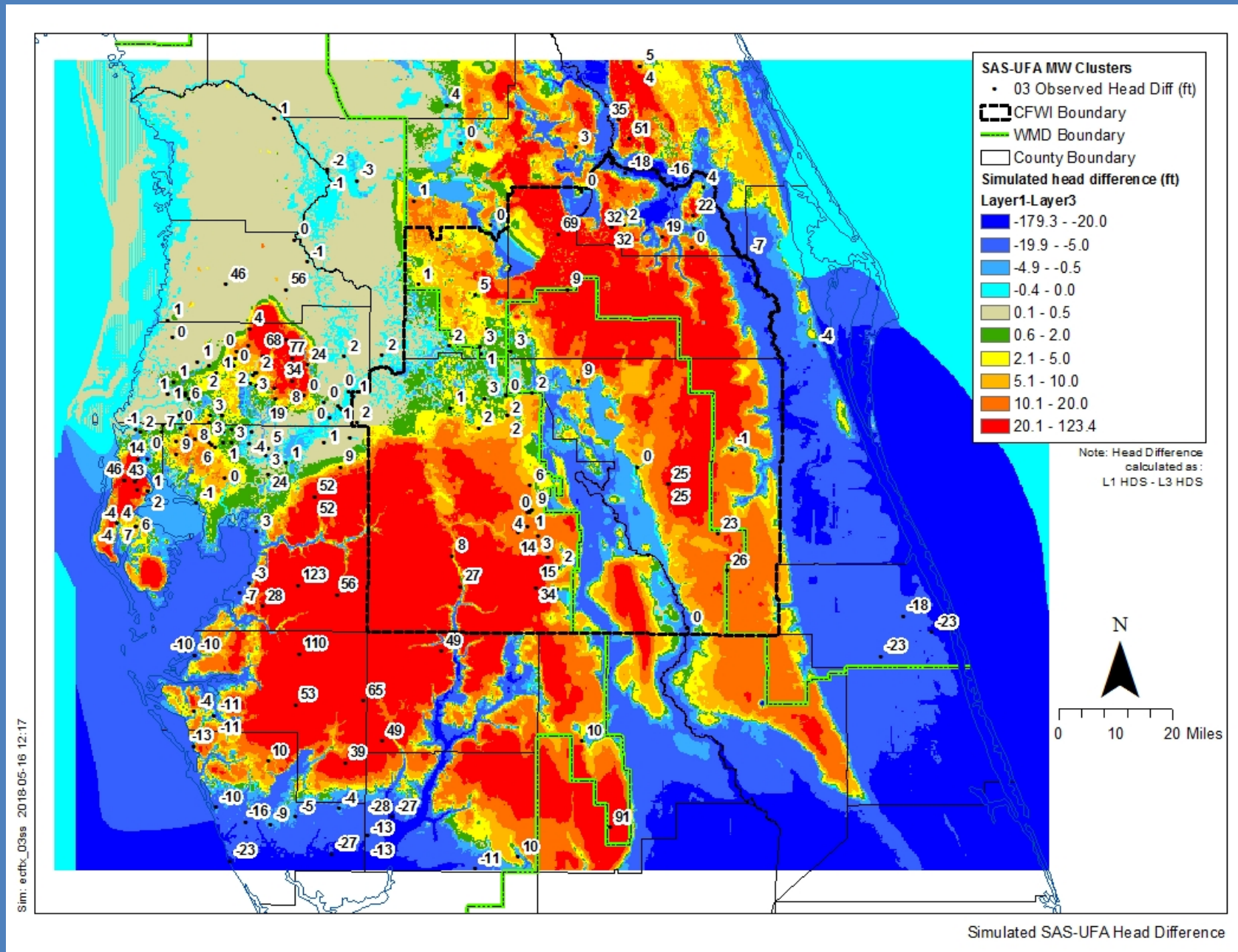
MCU 2 Anisotropy (layer 8)



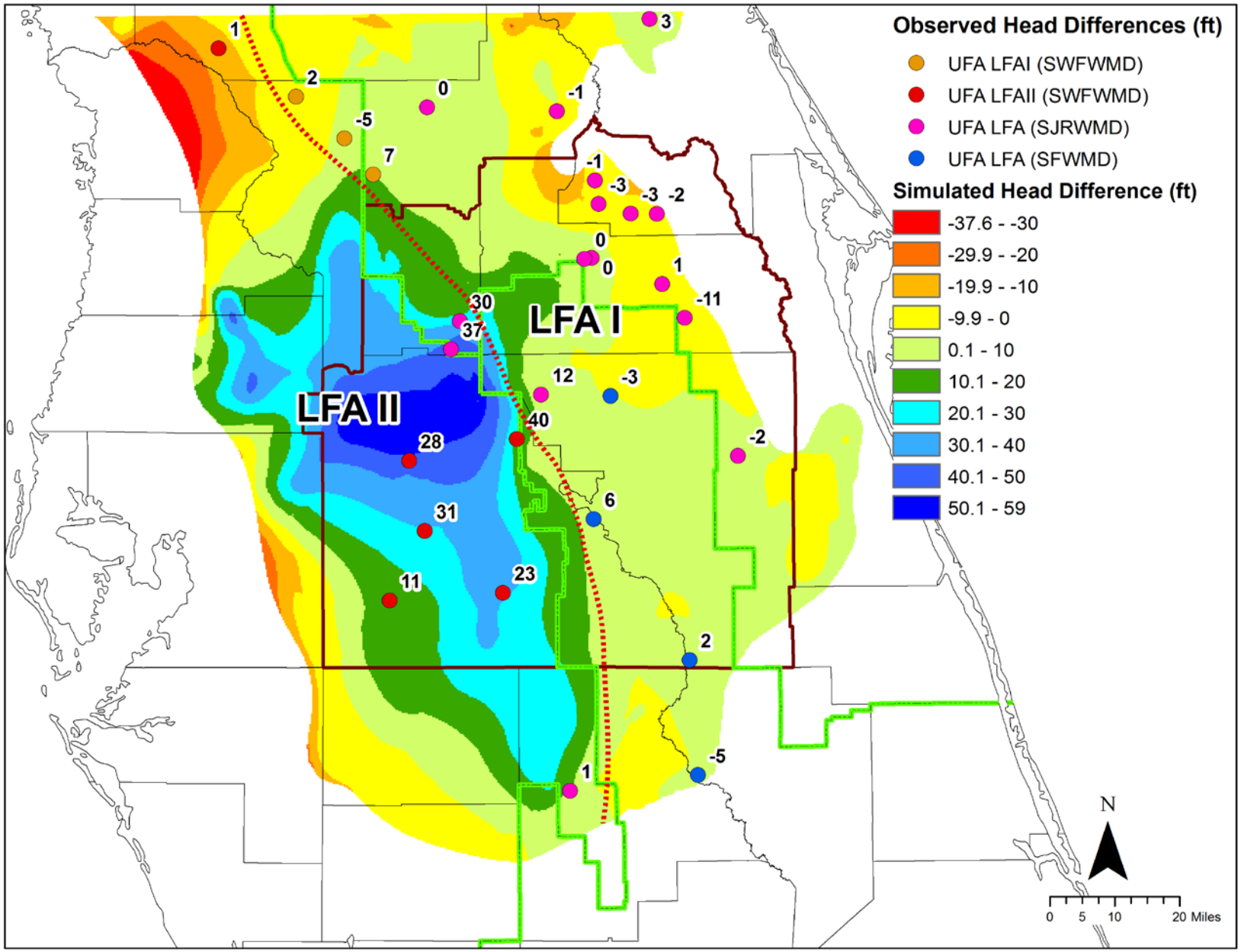
Simulated vs. observed water table depth



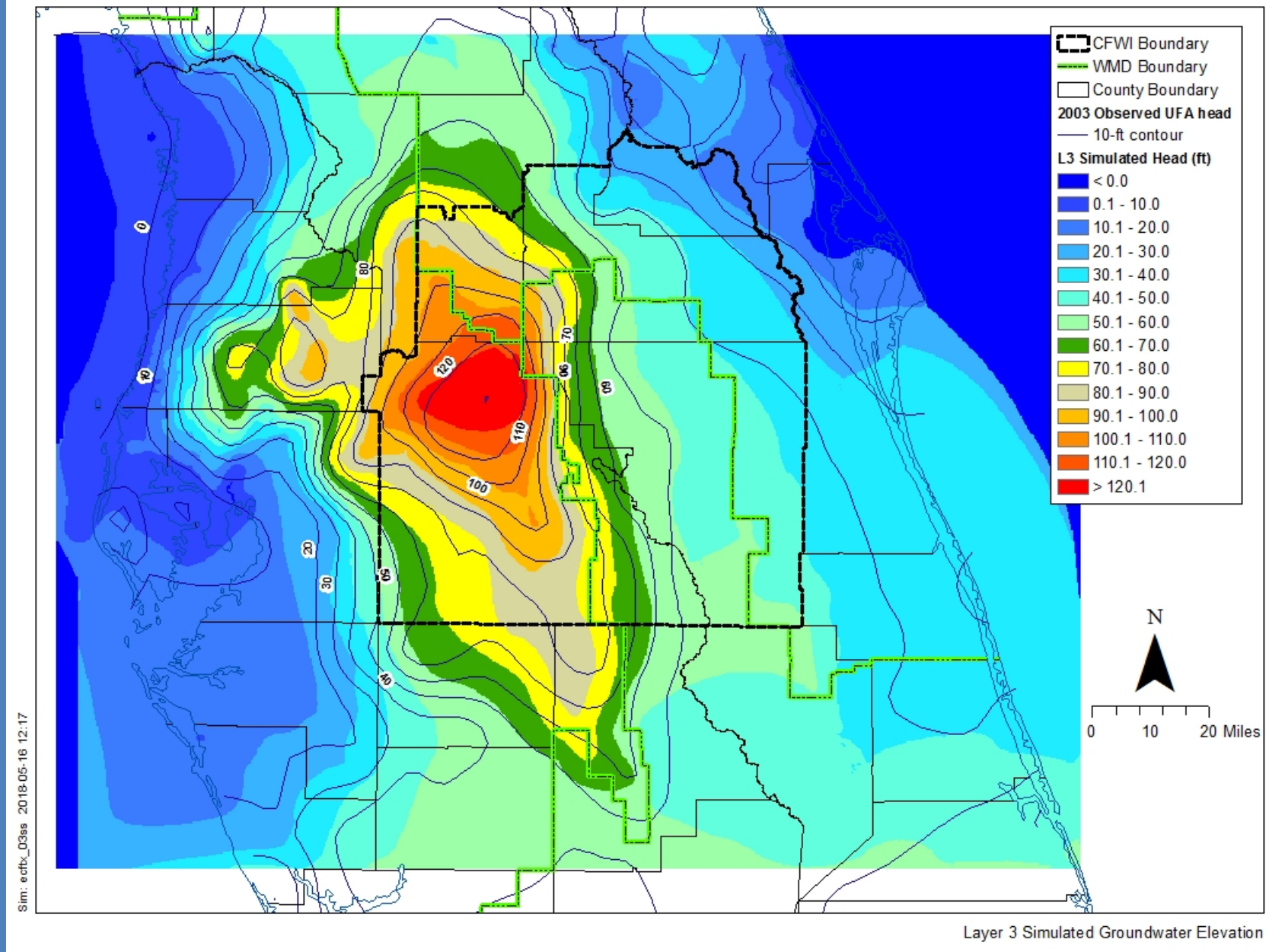
Simulated vs. observed SAS-UFA head difference



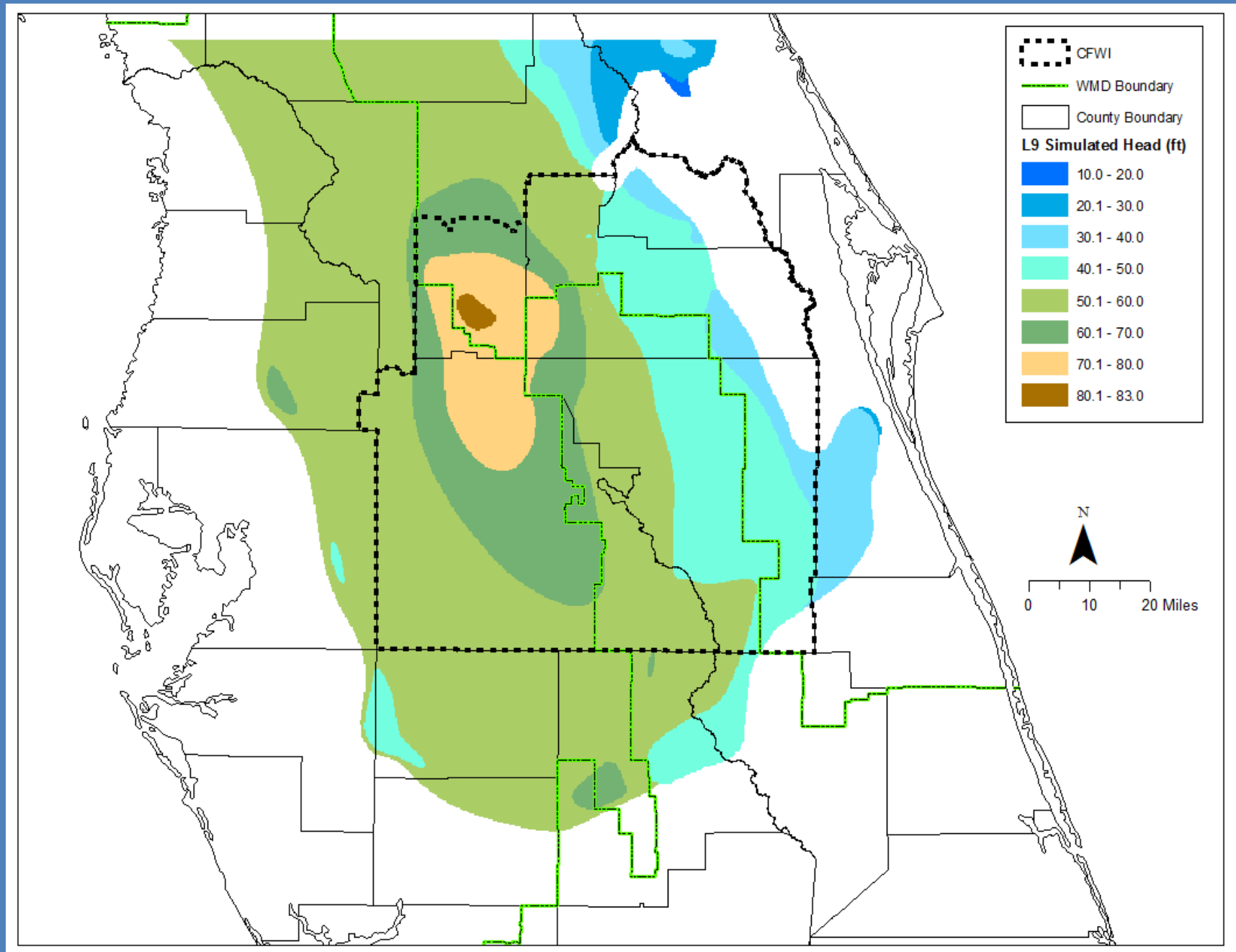
Simulated vs. observed UFA-LFA head differences



Simulated vs. interpolated 2003 Observed UFA Head



Simulated 2003 LFA Head

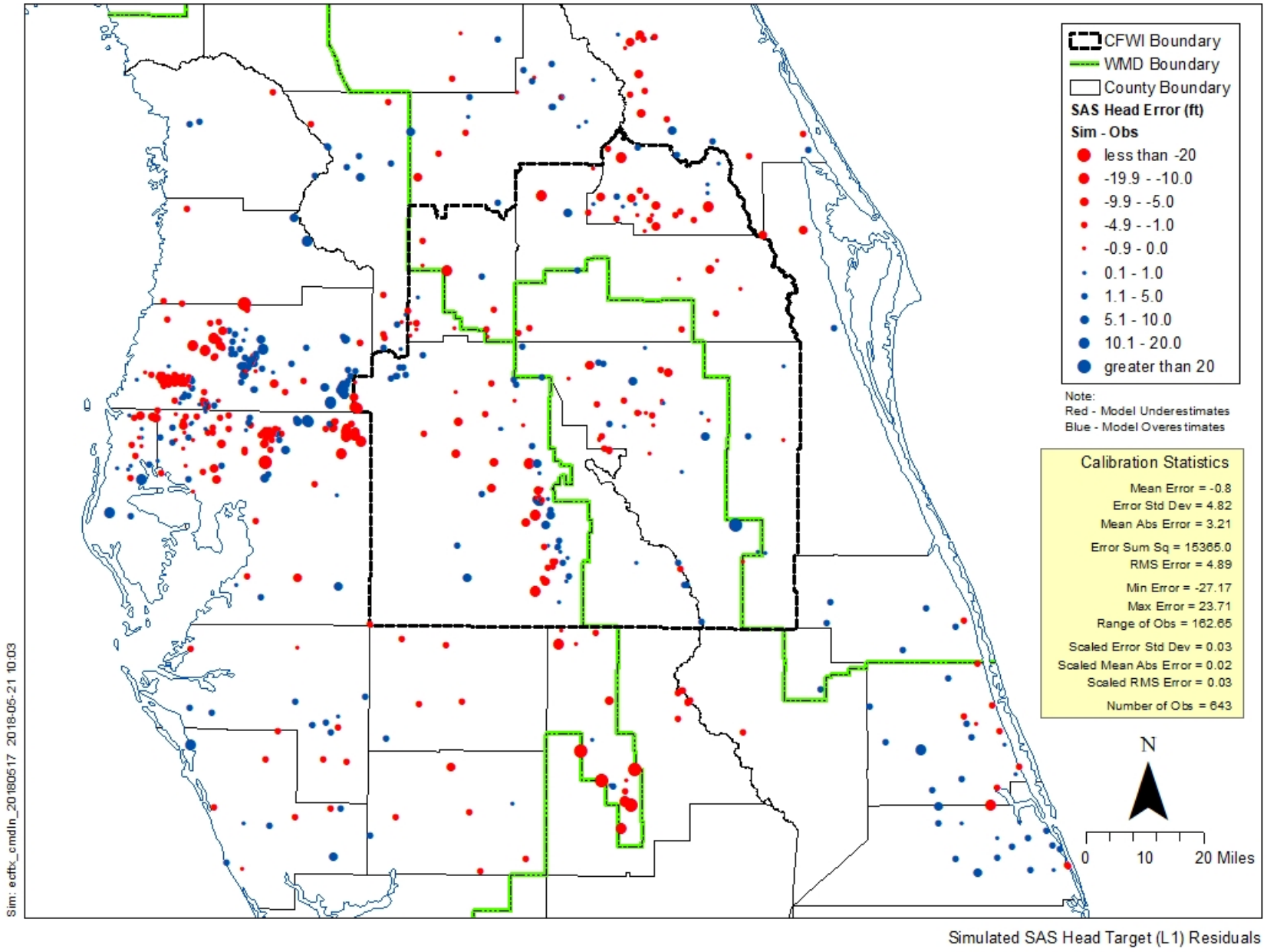


Statistics of domain-wide and CFWI model targets

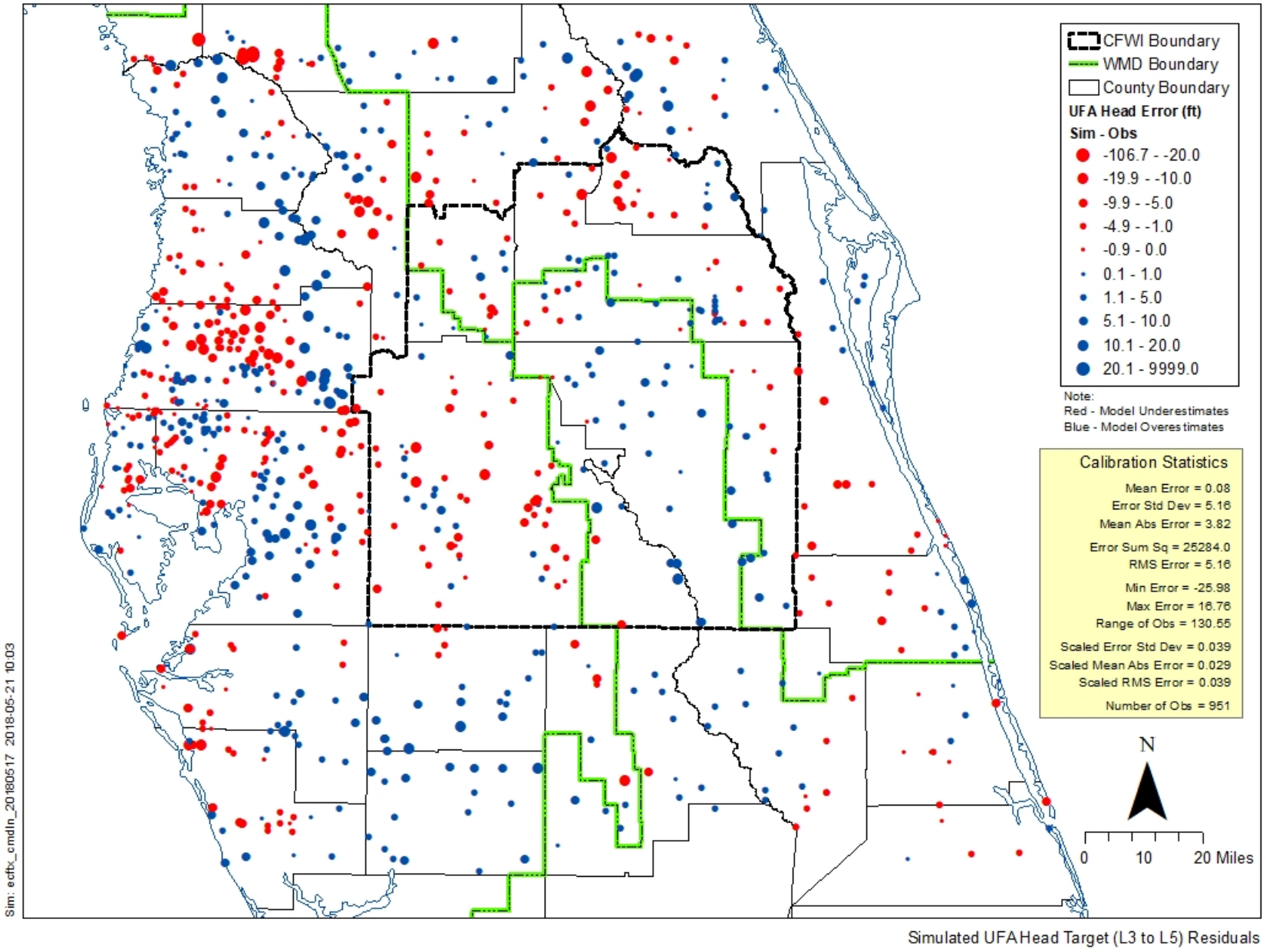
	ECFTX Model Domain			CFWI Domain		
	SAS	UFA	LFA	SAS	UFA	LFA
Mean Error	-0.8	0.08	-0.44	-0.82	-0.35	0.57
Error Std Dev.	4.82	5.16	5.01	4.32	4.14	4.76
Mean Abs Error	3.21	3.82	3.88	2.81	3.12	3.6
Error Sum of Squares	15365	25284	582	3474	3727	437
RMS Error	4.89	5.16	5.03	4.39	4.15	4.8
Min Error	-27.17	-25.98	-10.92	-16.27	-14.38	-10.92
Max Error	23.72	16.76	9.58	23.71	12.24	9.58
Range of Obs	162.65	130.55	50.1	156.19	120.73	50.1
Scaled Error Std Dev	0.03	0.038	0.1	0.028	0.034	0.095
Scaled Abs Mean	0.02	0.029	0.077	0.018	0.026	0.072
Scaled RMS	0.03	0.039	0.1	0.028	0.034	0.096
Number of Obs	643	951	23	180	216	19

Mean Error = Simulated - Observed

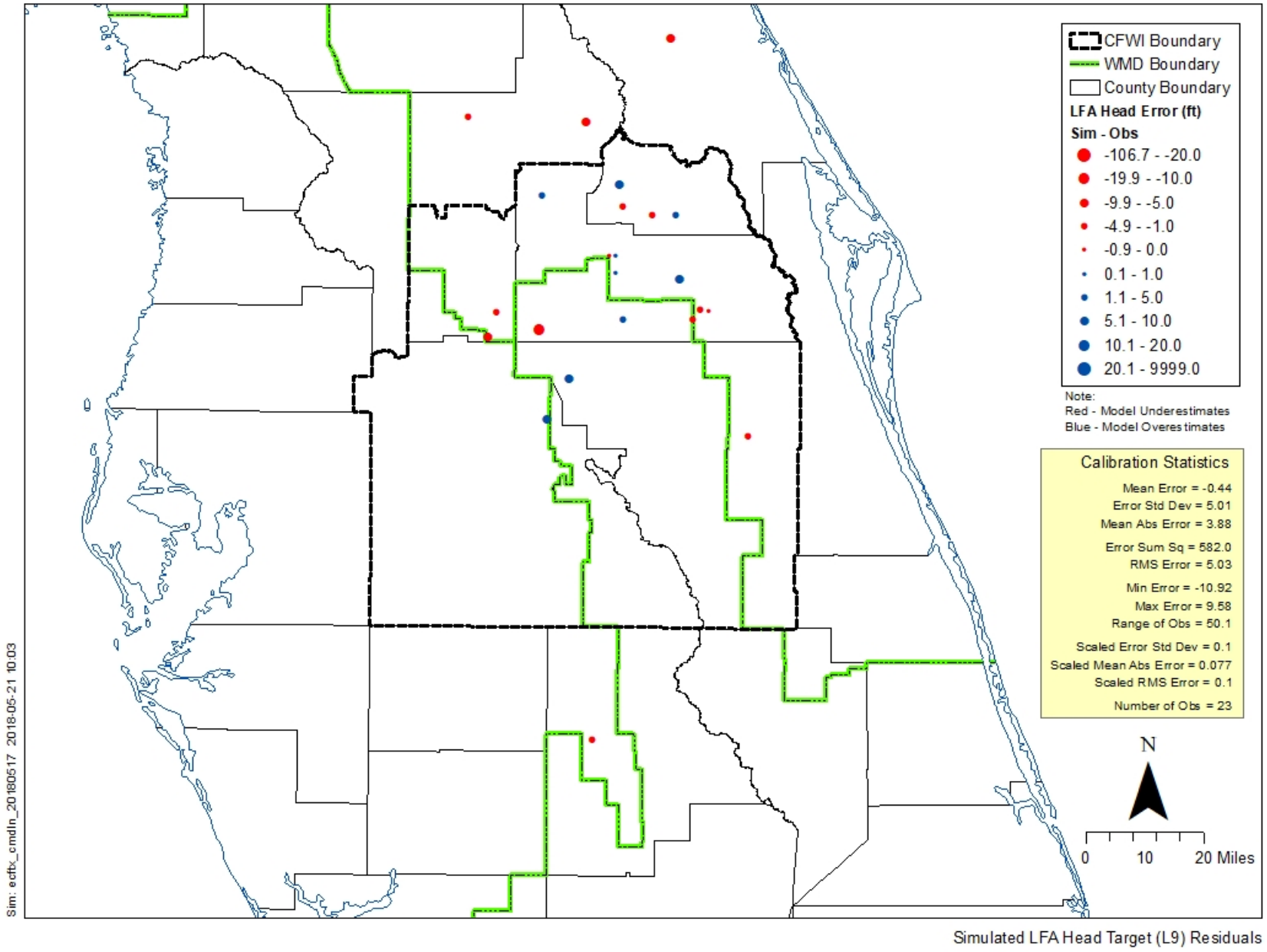
SAS head error



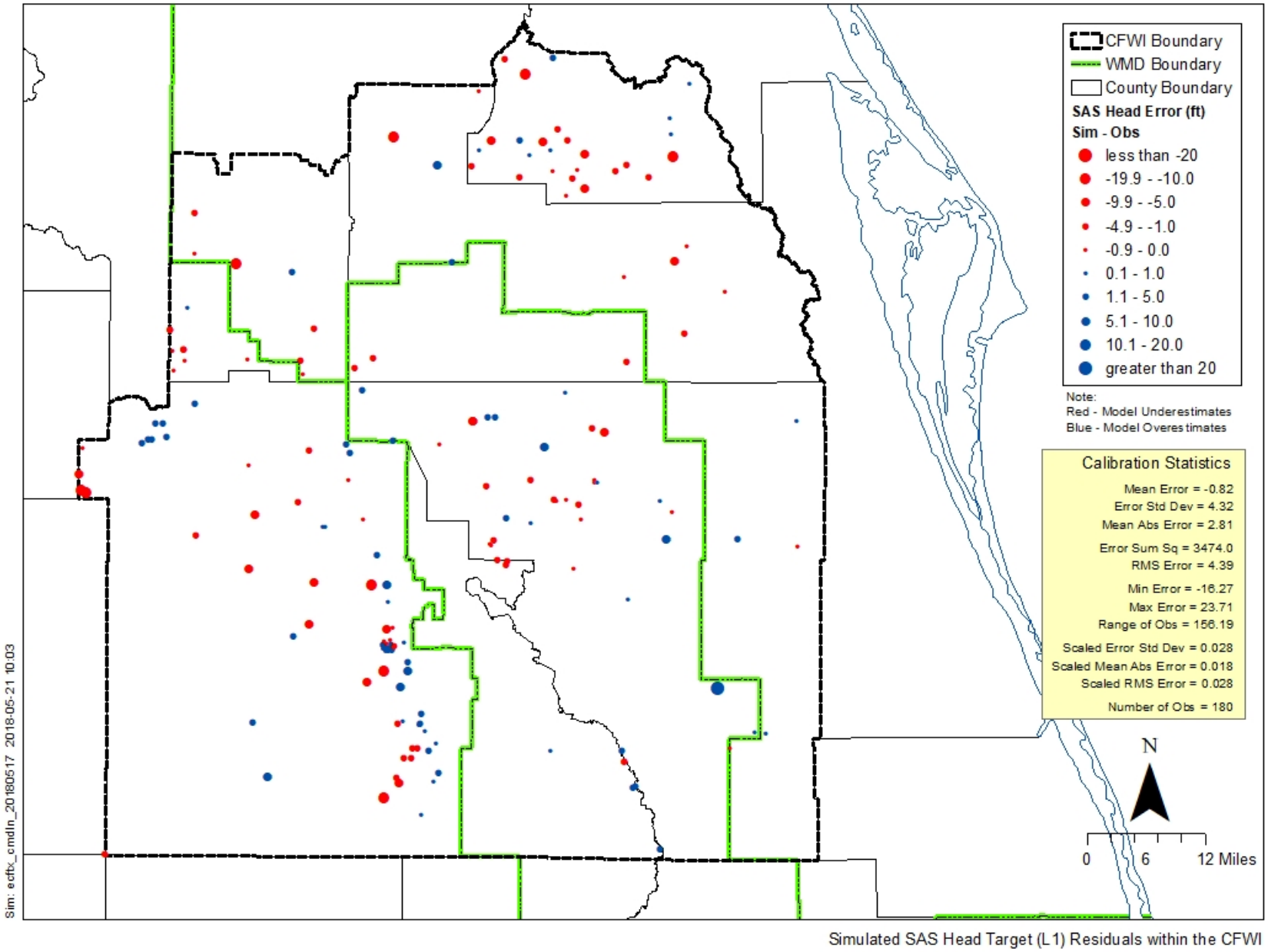
UFA head error



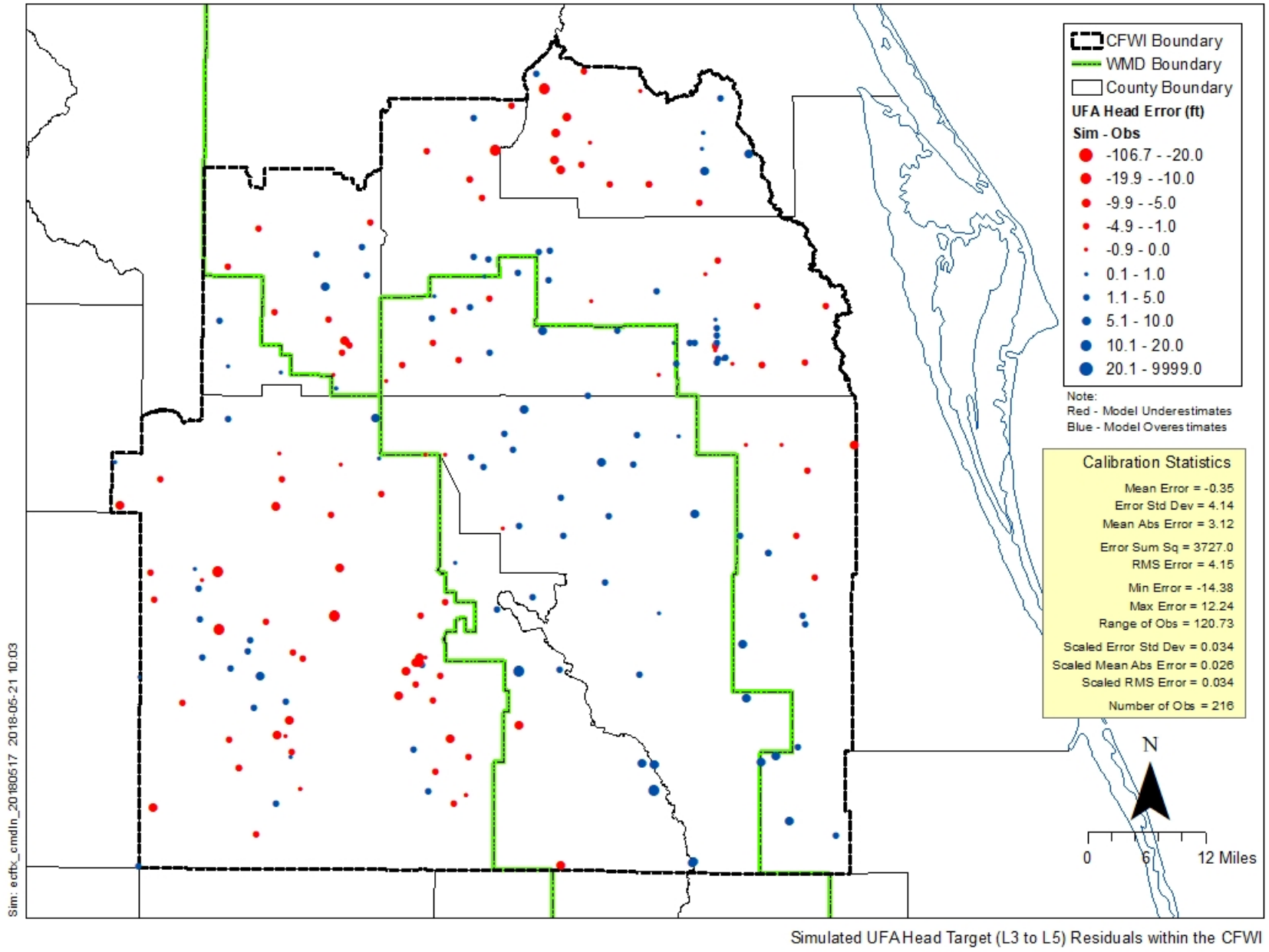
LFA head error



SAS head error inside CFWI

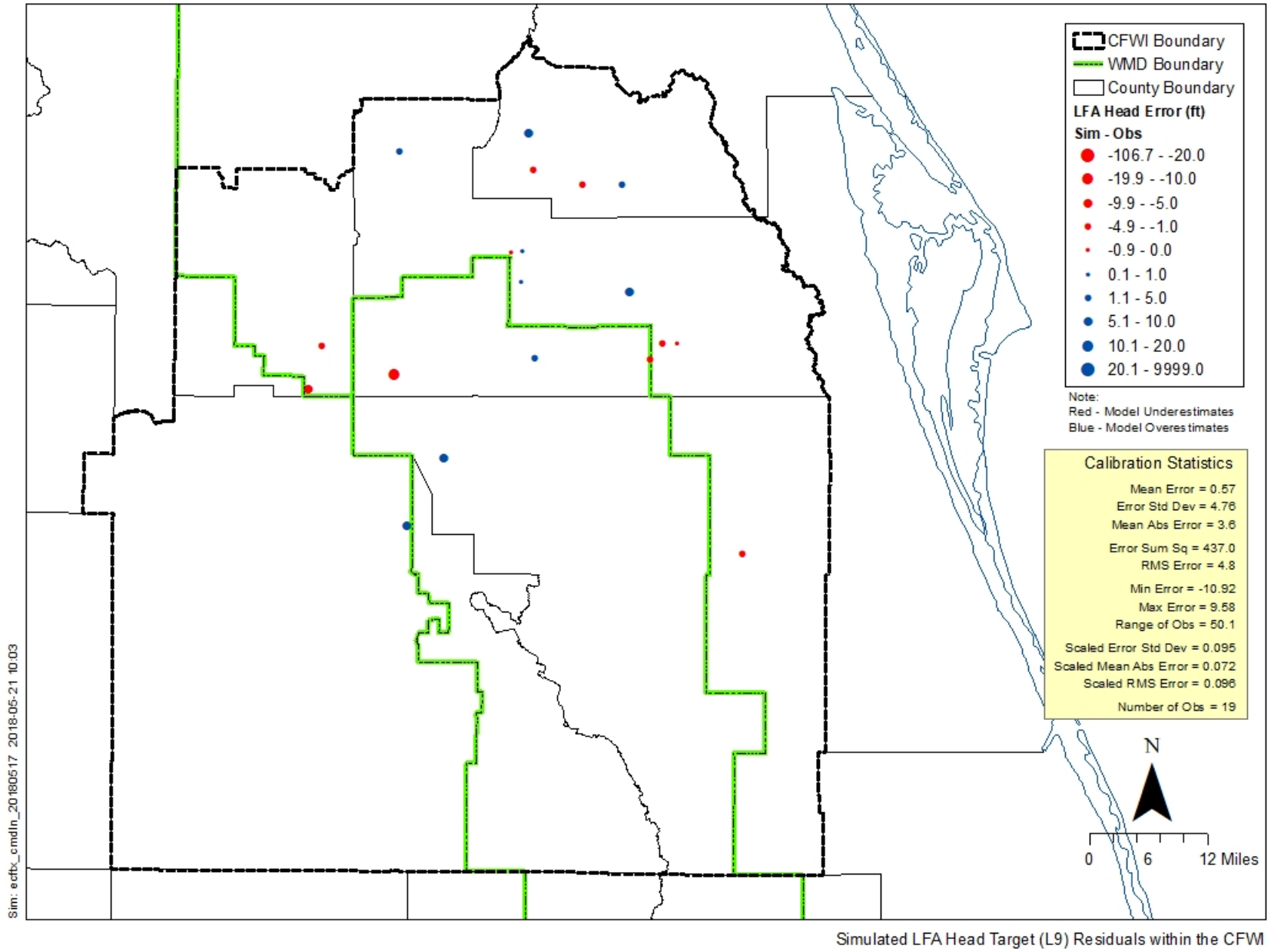


UFA head error inside CFWI



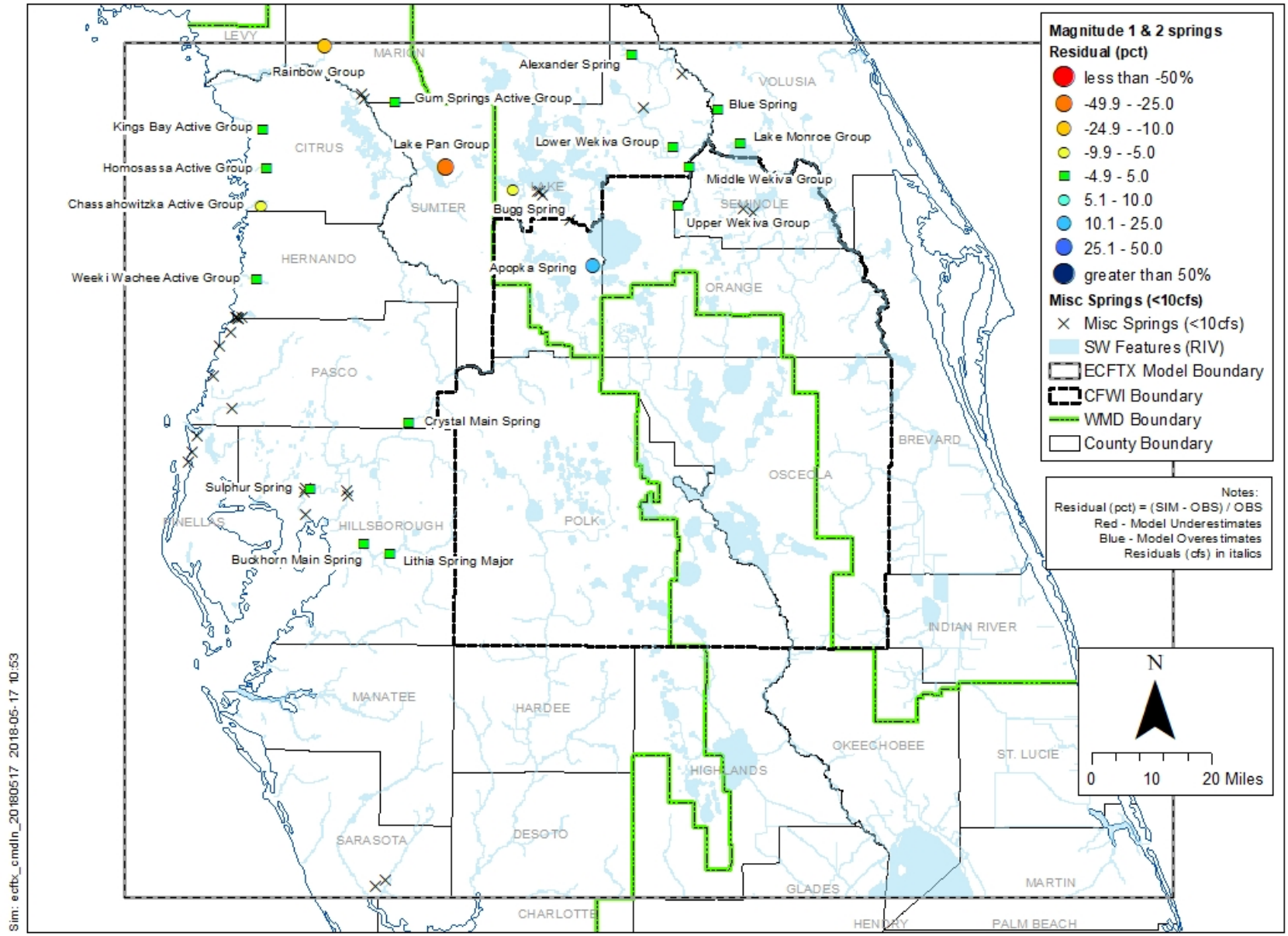
Simulated UFA Head Target (L3 to L5) Residuals within the CFWI

LFA head error inside CFWI



Simulated LFA Head Target (L9) Residuals within the CFWI

Simulated vs. Observed Springflow Mean Error (%)

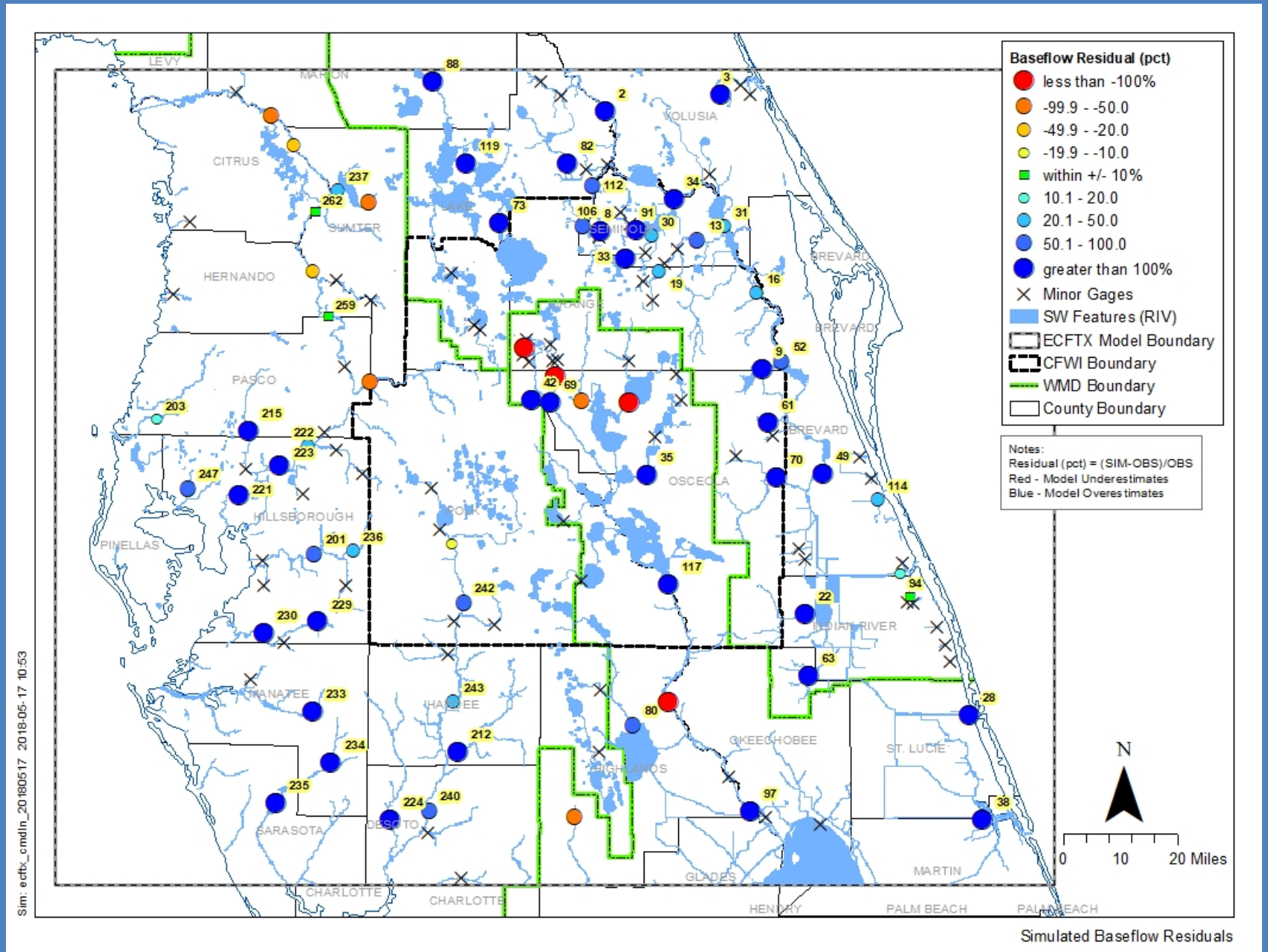


Simulated Residuals (pct) for Magnitude 1 & 2 Springs

Simulated and Observed Spring Flow Residual for Spring Groups and Large Springs

SpringGroup	SPRING_NAM	COUNTY	Observed Flow (cfs)	Simulated Flow (cfs)	Residual (cfs) (Sim-Obs)	Residual (pct) (Sim-Obs)
Chassahowitzka	POTTER CREEK SPRING (CITRUS)	Citrus	17.0	16.2	-0.8	-5%
Chassahowitzka	BLIND SPRING	Hernando	43.0	40.1	-2.9	-7%
Chassahowitzka	CRAB CREEK SPRING	Citrus	47.0	47.0	0.0	0%
Chassahowitzka	CHASSAHOWITZKA SPRING MAIN	Citrus	69.0	69.0	0.0	0%
Chassahowitzka	Group Chassahowitzka	Citrus	201.4	187.4	-14.0	-7%
Gum	GUM SPRING MAIN	Sumter	68.0	74.0	6.0	9%
Gum	Group Gum	Sumter	73.0	75.3	2.3	3%
Homosassa	HIDDEN RIVER HEAD SPRING	Citrus	13.0	12.8	-0.2	-2%
Homosassa	HOMOSASSA SE FORK HEADSPRING	Citrus	40.0	38.9	-1.1	-3%
Homosassa	HOMOSASSA SPRING #1	Citrus	102.0	101.9	-0.1	0%
Homosassa	HALLS RIVER HEAD SPRING	Citrus	123.0	122.4	-0.6	0%
Homosassa	Group Homosassa	Citrus	324.0	330.3	6.3	2%
KingsBay	MANATEE SANCTUARY SPRING COMPLEX	Citrus	100.0	100.6	0.6	1%
KingsBay	PARKER ISLAND SPRING	Citrus	350.0	335.0	-15.0	-4%
KingsBay	Group KingsBay	Citrus	474.0	457.5	-16.5	-3%
LakePan	FENNEY SPRING	Sumter	15.0	14.2	-0.8	-5%
LakePan	Group LakePan	Sumter	51.0	37.3	-13.7	-27%
Rainbow	RAINBOW SPRING #1	Marion	56.0	53.8	-2.2	-4%
Rainbow	Group Rainbow	Marion	89.0	73.7	-15.3	-17%
Weeki Wachee	JENKINS CREEK SPRING	Hernando	15.0	16.2	1.2	8%
Weeki Wachee	MUD SPRING (HERNANDO)	Hernando	17.0	17.8	0.8	4%
Weeki Wachee	SALT SPRING (HERNANDO)	Hernando	22.0	23.6	1.6	7%
Weeki Wachee	WEEKI WACHEE SPRING	Hernando	203.0	206.5	3.5	2%
Weeki Wachee	Group Weeki Wachee	Hernando	259.0	266.7	7.7	3%
Lake Monroe	Group Lake Monroe	Volusia	13.6	13.7	0.1	1%
Lower Wekiva	MESSANT SPRING	Lake	15.0	15.9	0.9	6%
Lower Wekiva	SEMINOLE SPRING (LAKE)	Lake	30.0	30.5	0.5	2%
Lower Wekiva	Group Lower Wekiva	Lake	49.2	50.6	1.4	3%
Middle Wekiva	WEKIVA FALLS RESORT (FLOWING 14" BOREHOLE)	Seminole	18.3	18.6	0.3	2%
Middle Wekiva	Group Middle Wekiva	Seminole	35.0	35.4	0.5	1%
Upper Wekiva	STARBUCK SPRING	Seminole	14.2	14.8	0.5	4%
Upper Wekiva	SANLANDO SPRINGS	Seminole	20.4	21.3	0.9	4%
Upper Wekiva	ROCK SPRINGS (ORANGE)	Orange	59.3	64.1	4.8	8%
Upper Wekiva	WEKIWA SPRING (ORANGE)	Orange	66.8	67.7	0.9	1%
Upper Wekiva	Group Upper Wekiva	Orange	180.2	187.7	7.5	4%
Misc	HORSESHOE SPRING	Pasco	10.0	12.2	2.2	22%
Misc	BUCKHORN MAIN SPRING	Hillsborough	13.0	13.1	0.1	1%
Misc	LITHIA SPRING MAJOR	Hillsborough	35.0	34.5	-0.5	-2%
Misc	SULPHUR SPRING (HILLSBOROUGH)	Hillsborough	35.0	36.6	1.6	5%
Misc	CRYSTAL MAIN SPRING (PASCO)	Pasco	54.0	54.6	0.6	1%
Misc	BUGG SPRING (LAKE)	Lake	13.1	12.4	-0.7	-5%
Misc	APOPKA SPRING	Lake	27.7	30.7	3.0	11%
Misc	ALEXANDER SPRING	Lake	105.6	109.2	3.7	3%
Misc	VOLUSIA BLUE SPRING	Volusia	162.9	165.8	2.9	2%

Simulated vs. Observed Baseflow Mean Error (%)

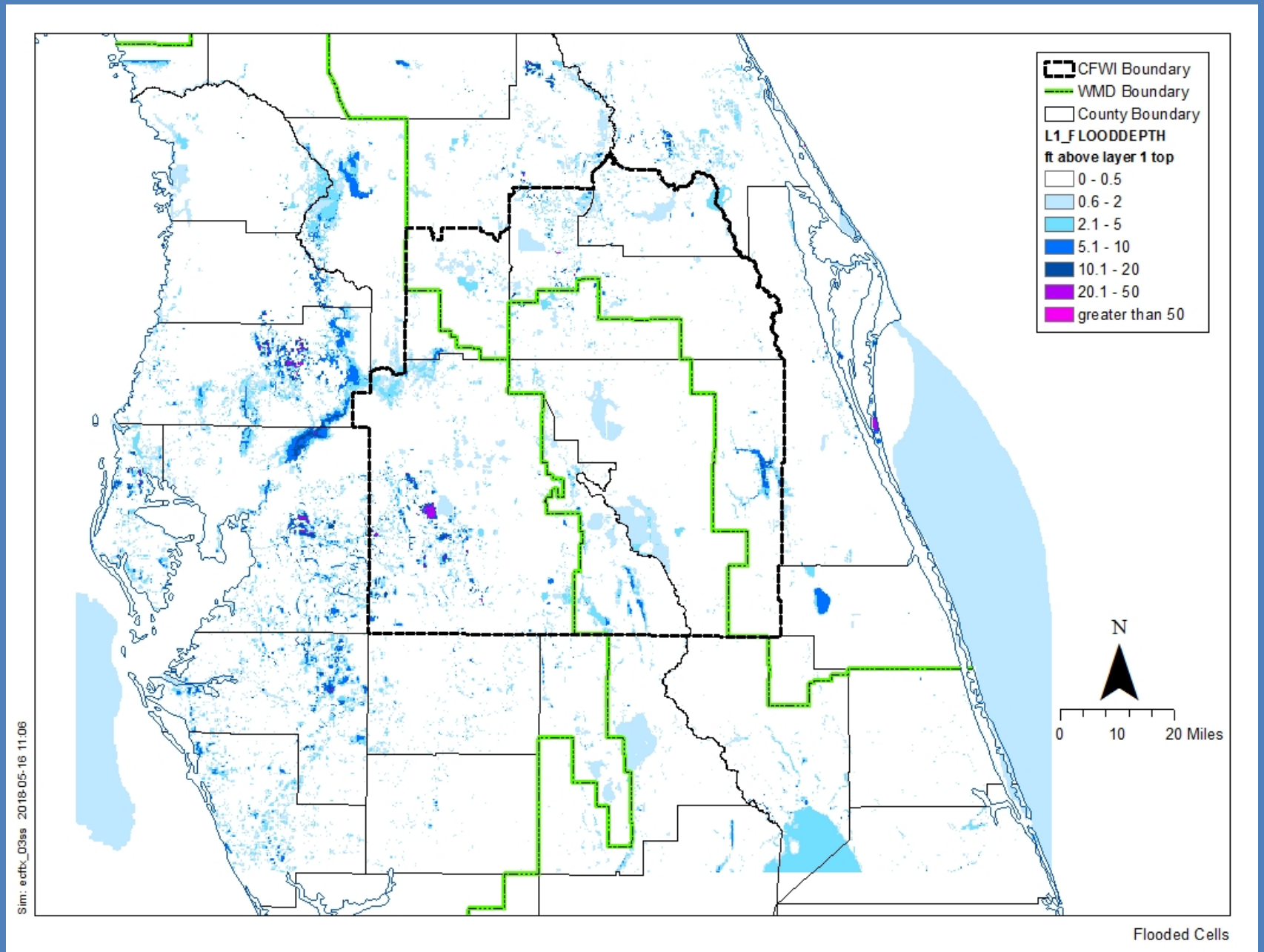


Simulated Baseflow Residuals

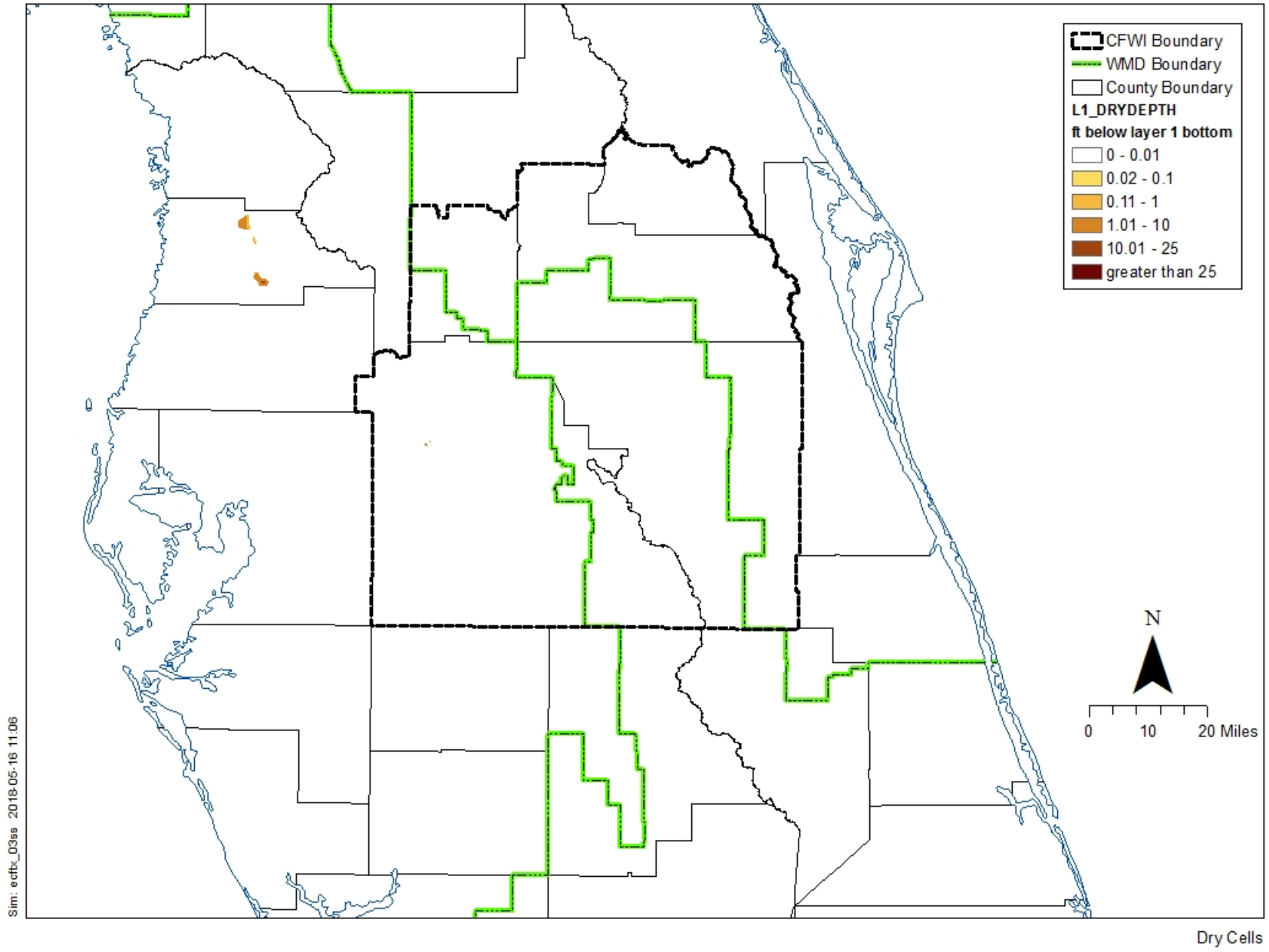
Simulated and Observed Baseflow at Major Gages (cfs)`

Group	Gage	Station Name	Area (sq miles)	SIMULATED				Obs	Resid	Resid (pct)
				SPRNG	RIV	DRN	TOTAL			
UpperSJR	52	ST_JOHNS_RIVER_NEAR_COCOA_FL	1331.7	0.0	81.1	277.3	358.4	186.5	172.0	92%
UpperSJR	16	ST_JOHNS_RIVER_NEAR_CHRISTMAS_FL	1540.9	0.0	87.8	315.5	403.3	310.4	92.9	30%
MiddleSJR	31	ST_JOHNS_RIVER_ABOVE_LAKE_HARNEY_NEAR_GENEVA_FL	2027.7	0.0	142.8	522.1	664.8	479.1	185.7	39%
MiddleSJR	2	ST_JOHNS_RIVER_NEAR_DE_LAND_FL	2908.7	455.9	296.2	1045.3	1797.4	767.0	1030.4	134%
KISS	117	S65_FLOW	1555.0	0.0	188.2	408.0	596.2	214.2	382.0	178%
KISS	97	S65E_FLOW	2916.2	0.0	386.9	890.3	1277.2	183.6	1093.5	595%
OCK	119	HAYNES CREEK AT LISBON	496.0	52.9	-8.8	58.3	102.4	27.3	75.2	276%
OCK	88	OCLAWAHA RIVER AT MOSS BLUFF	643.6	52.9	122.5	85.4	260.8	6.6	254.2	3850%
WITH	259	WITHLACOOCHEE RIVER AT TRILBY	568.7	0.0	5.9	110.7	116.6	106.8	9.8	9%
WITH	258	WITHLACOOCHEE RIVER AT CROOM	798.0	0.0	24.0	157.6	181.6	238.7	-57.0	-24%
WITH	237	OUTLET RIVER AT PANACOOCHEE RETREATS	390.8	37.3	75.5	101.4	214.2	151.7	62.6	41%
WITH	264	WITHLACOOCHEE RIVER NR INVERNESS	1649.2	37.3	-179.4	430.7	288.6	501.3	-212.6	-42%
WITH	263	WITHLACOOCHEE RIVER NR HOLDER	1813.5	112.6	-271.4	440.6	281.8	669.3	-387.4	-58%
HILLS	222	HILLSBOROUGH RIVER NR ZEPHYRHILLS	225.1	54.6	7.8	83.5	146.0	102.2	43.8	43%
HILLS	221	HILLSBOROUGH RIVER NR TAMPA	625.2	54.6	-0.9	382.8	436.5	10.1	426.4	4215%
ALA	201	ALAFIA RIVER AT LITHIA	343.7	0.0	24.6	155.9	180.5	108.3	72.2	67%
MYA	235	MYAKKA RIVER NR SARASOTA	224.8	0.0	14.6	92.7	107.3	36.1	71.3	197%
PEACE	241	PEACE RIVER AT BARTOW	377.2	0.0	-28.5	77.9	49.3	60.1	-10.7	-18%
PEACE	242	PEACE RIVER AT FORT MEADE	451.9	0.0	-17.0	123.1	106.2	66.1	40.0	61%
PEACE	243	PEACE RIVER AT ZOLFO SPRINGS	811.1	0.0	24.5	212.2	236.7	179.2	57.6	32%
PEACE	240	PEACE RIVER AT ARCADIA	1344.1	0.0	80.6	405.2	485.8	243.9	241.9	99%
NW	203	ANCLOTE RIVER NR ELFERS	68.4	2.6	3.5	2.4	8.5	7.3	1.3	18%
LMAN	230	LITTLE MANATEE RIVER NR WIMAUMA	143.4	0.0	15.5	93.1	108.6	46.4	62.2	134%

Spatial distribution of flooded cells



Spatial distribution of dry cells

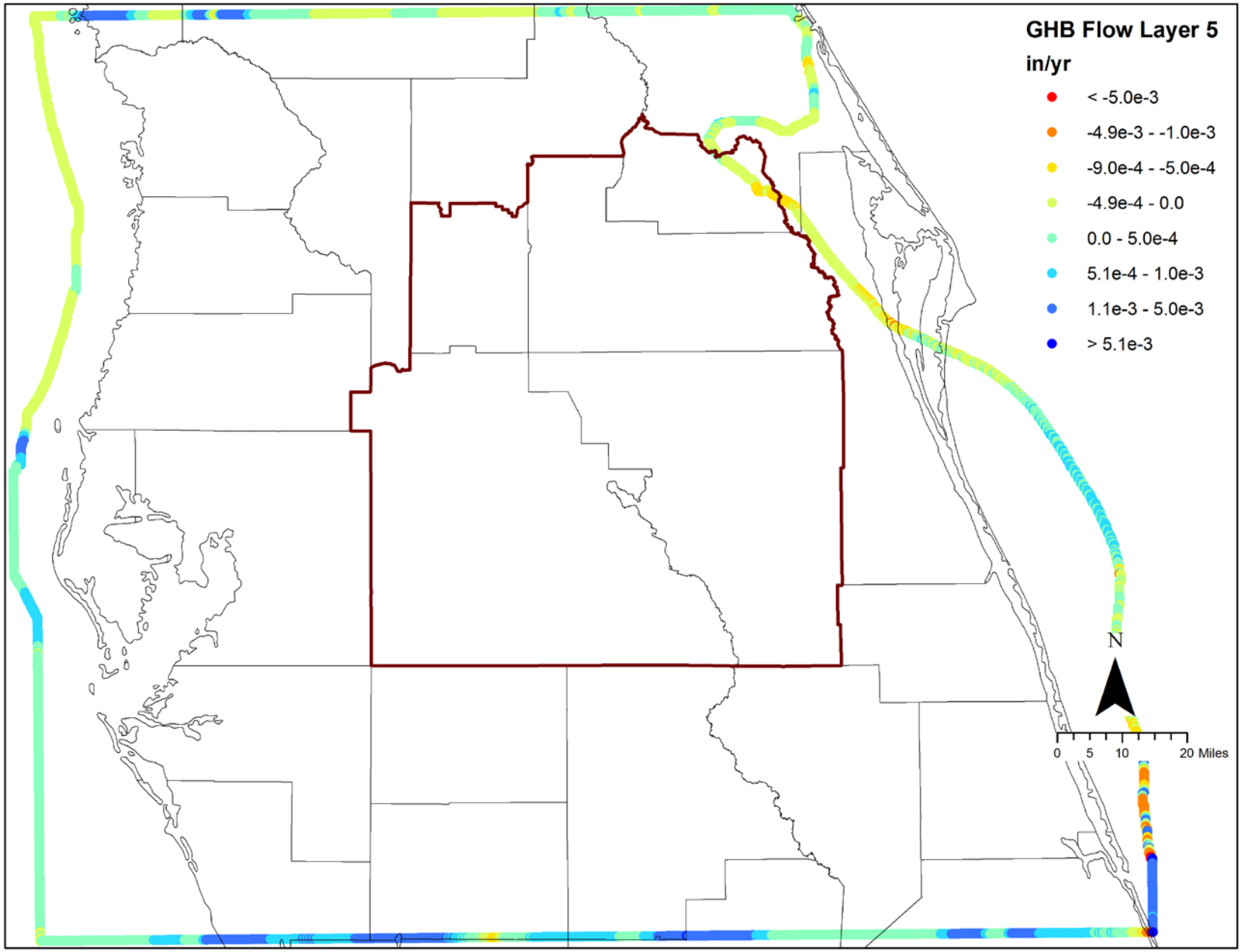


Flux over ECFTX Model Domain (unit: in/yr)

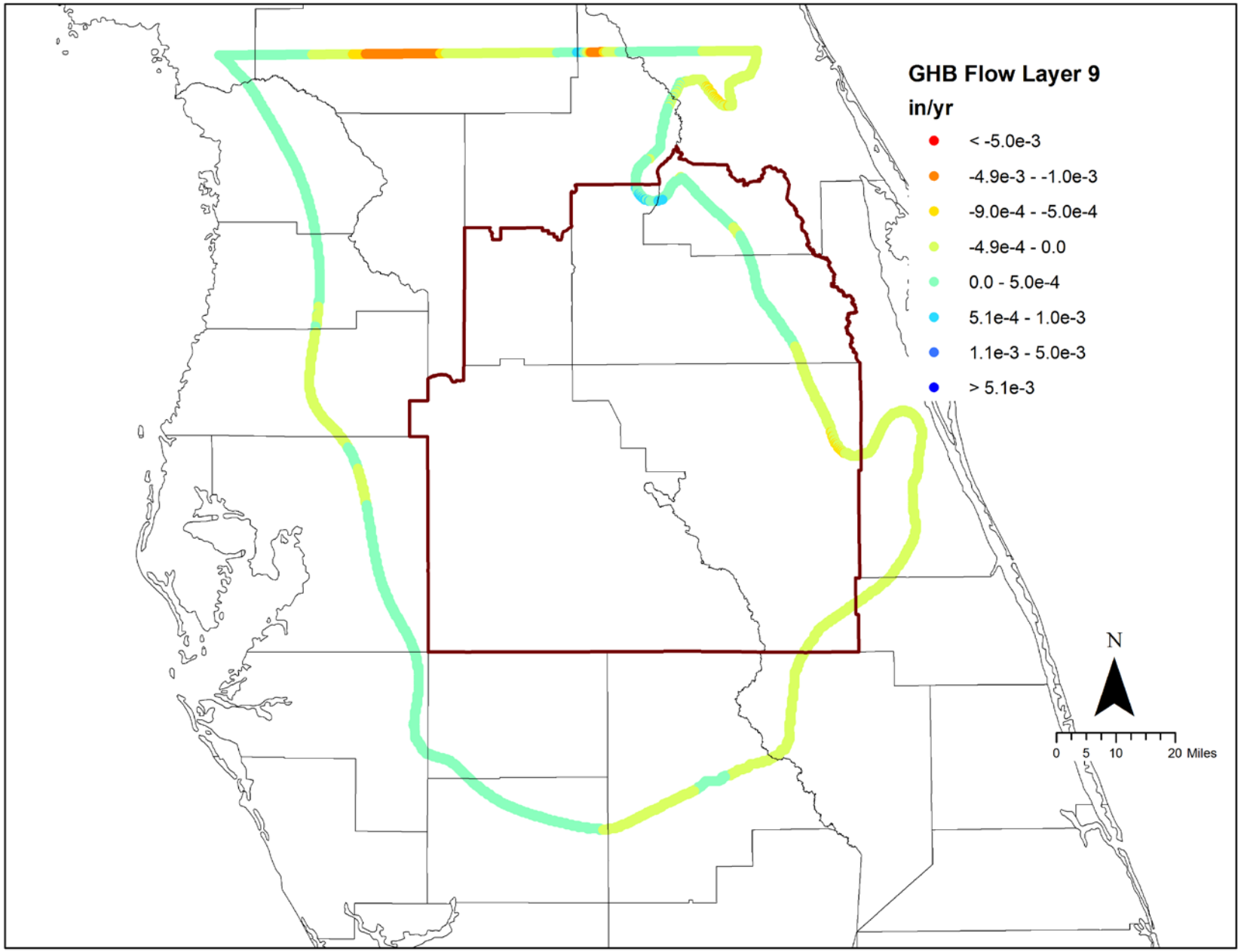
Aquifer	layers	Well	Recharge	ET	River		Drain	Spring	GHB		CHD	Net Vertical
					In	Out			In	Out		
SA	1	-0.07	15.96	-7.13	1.30	-1.83	-4.10	-	0.01	-0.01	-1.94	-2.19
ICU/IAS	2	-0.02	-	-	-	-	-	-	0.11	-0.02	-	-0.08
UFA-Upper	3	-0.52	-	-	-	-	0.04	-1.38	0.39	-0.41	-	1.88
OCAPlpz	4	-0.33	-	-	-	-	-	-	0.32	-0.24	-	0.24
Aphpz	5	-0.51	-	-	-	-	-	-0.01	1.04	-0.30	-	-0.22
UFA/MCU I	6	0.00	-	-	-	-	-	-	0.01	0.00	-	-0.01
UFA/Overlap/LFA	7	0.00	-	-	-	-	-	-	0.01	0.00	-	-0.01
MCU II/LFA	8	0.00	-	-	-	-	-	-	0.01	0.00	-	-0.01
LFA-Upper	9	-0.28	-	-	-	-	-	-	0.06	-0.30	-	0.53
GLAUC-lpz	10	0.00	-	-	-	-	-	-	-	-	-	0.00
LFA-Basal	11	-0.01	-	-	-	-	-	-	0.61	-1.23	-	0.63
UFA		-1.36	-	-	-	-	0.04	-1.39	1.76	-0.95	-	1.90
LFA		-0.29	-	-	-	-	-	-	0.67	-1.53	-	1.15
Overall		-1.75	15.96	-7.13	1.30	-1.83	-4.06	-1.39	2.58	-2.50	-1.94	

Note1: Negative values indicate the layer is losing water and positive values indicate the layer is gaining water
Note2: UFA = Layers 3, 4, 5; LFA = Layers 9, 10 and 11; Overall = Layers 1 through 11

Lateral GHB flows of UFA



Lateral GHB flows of LFA



Agenda

1. Introductions
2. Summary of work performed since last meeting
3. Steady-state 2003 calibration summary
4. Panel Discussion
5. Path forward on 2004 through 2014 transient model
6. Public Comment