

Table S-1
Sustainable Yield Estimates Using Numerical Models

Aquifer	Modeled Sustainable Yield (mgd)		Baseline Groundwater Withdrawal (mgd)
	Minimum	Maximum	
Upper Floridan Aquifer in Dougherty Plain ⁽¹⁾	237	328	157
Upper Floridan Aquifer in South-Central Georgia	622	836	329
Upper Floridan Aquifer in South-Central Georgia & Eastern Coastal Plain	868	982	475
Claiborne Aquifer	100	250	67
Cretaceous Aquifer	198	201	124
South-Central Georgia & Eastern Coastal Plain Upper Floridan & Claiborne & Cretaceous Aquifer Withdrawing Separately	1,166	1,433	667
South-Central Georgia & Eastern Coastal Plain Upper Floridan & Claiborne & Cretaceous Aquifer Withdrawing Together	1,066	1,229	667
Paleozoic-Rock Aquifer in Northwestern Georgia Valley and Ridge	27	70	15

⁽¹⁾ October 1999 Baseline Withdrawal

Table S-2
Sustainable Yield Estimates Using Water Budget Models

Aquifer	Current Groundwater Consumption (mgd)	Basin Sustainable Yield ¹ (mgd)		Area Normalized Sustainable Yield ¹ (mgd/mi ²)	
		Minimum	Maximum	Minimum	Maximum
Crystalline Rock Aquifer in Piedmont	1.2	1.6	7.9	0.010	0.049
Crystalline Rock Aquifer in Blue Ridge	2.4	19.9	99.5	0.063	0.316

¹ Based on Mid-level (50%) Steamflow Reduction Category. See Section 3.2 for Details.

Table S-3
Groundwater Sustainability Measures for Study Basins in the Piedmont and Blue Ridge

Basin	Basin Area Upstream of Station ¹ (sq. miles)	Units	Tennant Method Thresholds					Net Amount Available For Use		Measures of Low Flow	
			Mean Annual Flow (Q _{MA})	Minimum Streamflow Reduction Category (0.6 x Q _{MA})	Mid-level Streamflow Reduction Category (0.5 x Q _{MA})	Maximum Streamflow Reduction Category (0.4 x Q _{MA})	Mean Sept. Flow	Based on Mean Sept. Flow Minus Tennant Threshold ²	Based on Mean Sept. Flow Minus Tennant Threshold X 20% ³	7Q10	30Q2
Piedmont											
Oconee River (by Athens)	398	cfs	488	293	244	195	274	0 to 79	0 to 15.8	20	119
USGS Station No. 2217500		in/yr	16.6	10.0	8.3	6.7	9.3	0 to 2.7	0 to 0.5	0.7	4.1
		mgd	315	189	158	126	177	0 to 50.9	0 to 10.2	12.6	77
		mgd/mi ²	0.8	0.5	0.4	0.3	0.4	0 to 0.13	0 to 0.03	0.03	0.2
Blue Ridge											
Chattahoochee River (by Cornelia)	315	cfs	740	444	370	296	524	80 to 228	16.0 to 45.6	132	298
USGS Station No. 2331600		in/yr	31.9	19.1	15.9	12.8	22.6	3.4 to 9.8	0.7 to 2.0	5.7	12.8
		mgd	478	287	239	191	339	51.7 to 147.4	10.3 to 29.5	85.3	193
		mgd/mi ²	1.5	0.9	0.8	0.6	1.1	0.16 to 0.47	0.03 to 0.1	0.27	0.6

¹ In the Piedmont, the study basin was not at the headwaters of the basin, therefore the flows (in cfs and mgd) do not match the flows shown in Table S-4. Table S-4 uses 40.95% of the flows shown here to account for the basin size.

² The net amount available for use (range) was calculated by subtracting the range of Streamflow Categories from the Mean September Flow.

³ The net amount available for use (range) was calculated by subtracting the Streamflow Categories from the Mean September Flow, then multiplying by 0.20.

Table S-4

Comparison of Groundwater Sustainability Measures to Net Groundwater Consumption Using Tennant Thresholds

Basin	Units	(a) Net Amount Available for Use Based on Mean Sept. Flow Minus Tennant Threshold ¹	(b) (c) Dry Year Conditions		(d) [c/a X 100] Net Groundwater Consumption as a Percentage of Amount Available	(e) [a - c] Net Groundwater Available
			Groundwater Use	Net Groundwater Consumption		
Piedmont²						
Middle Oconee River Lower Basin (163 sq. miles)	<i>cfs</i>	12.3	1.86	-0.74	0%	13.0
	<i>in/yr</i>	1.0	0.16	-0.06		1.08
	<i>mgd</i>	7.9	1.20	-0.48		8.4
	<i>mgd/mi²</i>	0.049	0.007	-0.003		0.052
Blue Ridge						
Chattahoochee River-Chickamauga Creek and Soque River Basin (315 sq. miles)	<i>cfs</i>	154	3.71	1.28	0.9%	152.7
	<i>in/yr</i>	6.6	0.16	0.06		6.58
	<i>mgd</i>	99.5	2.40	0.83		98.7
	<i>mgd/mi²</i>	0.316	0.008	0.003		0.313
Basin	Units	(a) Net Amount Available for Use Based on Mean Sept. Flow Minus Tennant Threshold X 20% ¹	(b) (c) Dry Year Conditions		(d) [c/a X 100] Net Groundwater Consumption as a Percentage of Amount Available	(e) [a - c] Net Groundwater Available
			Groundwater Use	Net Groundwater Consumption		
Piedmont²						
Middle Oconee River Lower Basin (163 sq. miles)	<i>cfs</i>	2.5	1.86	-0.74	0%	3.2
	<i>in/yr</i>	0.20	0.16	-0.06		0.26
	<i>mgd</i>	1.6	1.20	-0.48		2.1
	<i>mgd/mi²</i>	0.010	0.007	-0.003		0.013
Blue Ridge						
Chattahoochee River-Chickamauga Creek and Soque River Basin (315 sq. miles)	<i>cfs</i>	30.8	3.71	1.28	4.5%	29.5
	<i>in/yr</i>	1.33	0.16	0.06		1.27
	<i>mgd</i>	19.9	2.40	0.83		19.1
	<i>mgd/mi²</i>	0.063	0.008	0.003		0.061

¹ Based on Mid-level (50%) Streamflow Reduction Category.

² The Middle Oconee River Lower basin is 163 square miles, and is 40.95% of the larger 398 square mile basin upstream of the USGS Station where flow records were available (see Table S-3). The flows shown in column a (in *cfs* and *mgd*) were adjusted to reflect the smaller basin size (40.95% of total basin values), and therefore, do not match the flows shown in Table S-3; however, the normalized flows (in *in/yr* and *mgd/mi²*) are identical.

**Table S-5
 Dougherty Plain Concurrent Groundwater Withdrawal Increase Factors**

HUC	Baseline October 1999 Withdrawals (mgd)	Revised Withdrawals without HUC 03130004		Revised Withdrawals with HUC 03130004	
		Multiplier	Withdrawal (mgd)	Multiplier	Withdrawal (mgd)
03130007	3.97	1.73	6.88	1.73	6.88
03130006 03110202 03110204	11.39	1.87	21.34	1.87	21.34
03130009	9.86	4.22	41.62	4.22	41.62
03130010	39.91	1.21	48.33	1.21	48.33
03130008 03120002 03120003	77.64	1.33	102.95	1.33	102.95
03130004	11.21	1.00	11.21	9.17	102.80
03130011	2.99	1.51	4.53	1.51	4.53
Totals	157		237		328

Table S-6
Summary of Sustainable Yield Estimates
for Withdrawals from Individual Prioritized Aquifers
in the Coastal Plain of Georgia

Aquifer	Baseline Groundwater Withdrawal	Sustainable Yield of Individual Aquifer	
	(mgd)	(mgd)	
South-Central Georgia Upper Floridan Aquifer	329	Min Max	622 836
South-Central Georgia & Eastern Coastal Plain Upper Floridan Aquifer ¹	475	Min Max	868 982
Claiborne Aquifer	67	Min Max	100 250
Cretaceous Aquifer	124	Min Max	198 201
Total for the Prioritized Aquifers	667	Min Max	1,166 1,433

¹ The increased withdrawals from the Upper Floridan Aquifer for the eastern coastal plain were evaluated in combination with the south-central area of Georgia.

**Table S-7
 Summary of Sustainable Yield Estimates
 for Simultaneous Withdrawals
 from All of the Prioritized Aquifers in the Coastal Plain of Georgia**

Aquifer	Baseline Groundwater Withdrawal	Simulated Groundwater Withdrawal Range from Prioritized Aquifers	
	(mgd)	(mgd)	
South-Central Georgia & Eastern Coastal Plain Upper Floridan Aquifer ¹	475	Min Max	768 859
Claiborne Aquifer	67	Min Max	100 183
Cretaceous Aquifer	124	Min Max	198 187
Total for the Prioritized Aquifers	667	Min Max	1,066 1,229

¹ The increased withdrawals from the Upper Floridan Aquifer for the eastern coastal plain were evaluated in combination with the south-central area of Georgia.

Table S-8
Total Sustainable Yield of All Prioritized Coastal Plan Aquifers

Total of Sustainable Yields of Individual Prioritized Aquifers with Aquifer Withdrawals Modeled Individually	Min Max	1,166 mgd 1,433 mgd
Total of Sustainable Yields of Individual Prioritized Aquifers with Aquifer Withdrawals Modeled Simultaneously	Min Max	1,066 mgd 1,229 mgd