Gap Analysis Technical Memorandum

Suwannee-Satilla Regional Water Planning Council

Banks Lake, Lanier County

Supplemental Material

Suwannee-Satilla Regional Water Plan

May 2019

CDM Smith

Banks Lake, Lanier County
photo courtesy of the Georgia Department of Industry, Trade & Tourism

Table of Contents

List of Figures

List of Tables

Appendices

Section 1
Introduction

In February 2008, the Georgia General Assembly adopted the Georgia Comprehensive State-wide Water Plan (Plan) dated January 8, 2008. The Plan established the Regional Planning process that was officially kicked off in March 2009. The Suwannee-Satilla Regional Water Planning Council (Suwannee-Satilla Council) is one of the 11 planning regions established throughout the state. The Suwannee-Satilla Council is charged with several tasks including: 1) reviewing and considering water and wastewater forecasts for the region through the year 2050 and resource assessment prepared by EPD; and 2) identification of management practices to help meet forecasted demands and address regional needs. The Suwannee-Satilla Council boundaries are shown in **Figure 1-1**.

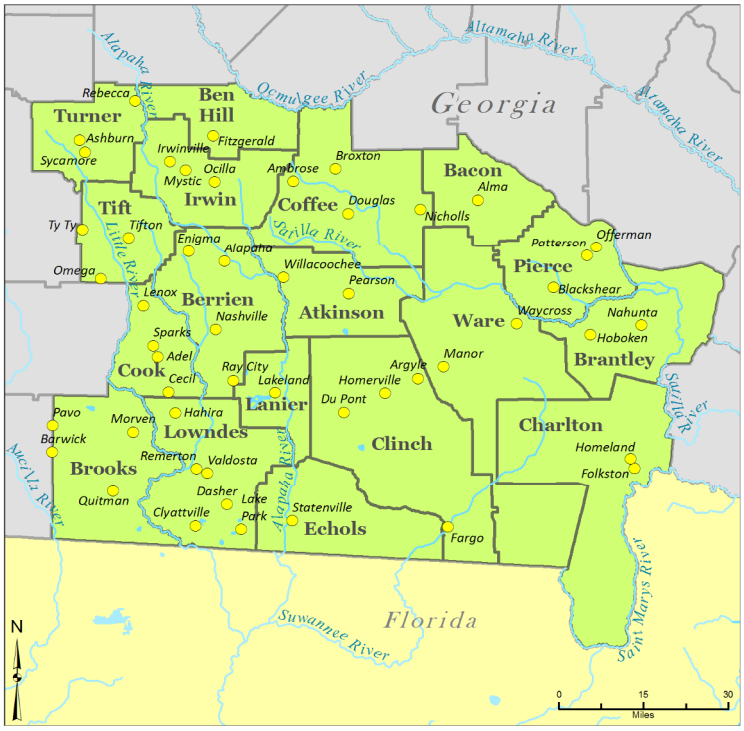

Figure 1-1: Suwannee-Satilla Council Boundary

The purpose of this technical memorandum is to compare the water and wastewater demand forecasts to the available resources. Areas where future demands exceed the estimated capacity of the resource have a gap that may be addressed through water management practices as part of the larger regional water planning effort. This technical memorandum summarizes:

- Water and wastewater forecasts for regional surface and groundwater resources;
- Identification of known existing permit capacity in relationship to forecasts;

- Estimated sustainable yield of the prioritized aquifers used in the Suwannee-Satilla Region in relationship to forecasts;
- Estimated surface water availability in relationship to the forecasts while maintaining the instream flow regime; and
- Water quality considerations.

Section 2

Water and Wastewater Forecast Overview

Water and wastewater forecasts have been developed beginning in 2015 and extending to 2050 for the 18 counties within the region. The major water and wastewater sectors include: municipal (domestic and commercial), industrial, agricultural, and energy (thermoelectric power production).

A brief summary is provided in this document, but for more detail concerning the forecast methodology and development please see the Water and Wastewater Forecasting Technical Memorandum for the Suwannee-Satilla Council.

2.1 Water Demand Summary

Figure 2-1 shows the aggregated county water forecasts for the Suwannee-Satilla Council region (the Suwannee-Satilla Region) in 2015 and 2050. Overall, the regional forecasted water need is expected to increase by 42.9 mgd. The forecasts are associated with a water source, either surface water (SW) shown in blue or groundwater (GW) shown in yellow/brown as well as the sector associated with the demand. The consumptive demand rather than total withdrawals from the energy sector are included. The agricultural demands represent dry year conditions (75th percentile demands). The alternate forecast is shown for the industrial sector, which includes an additional 5 MGD of growth.

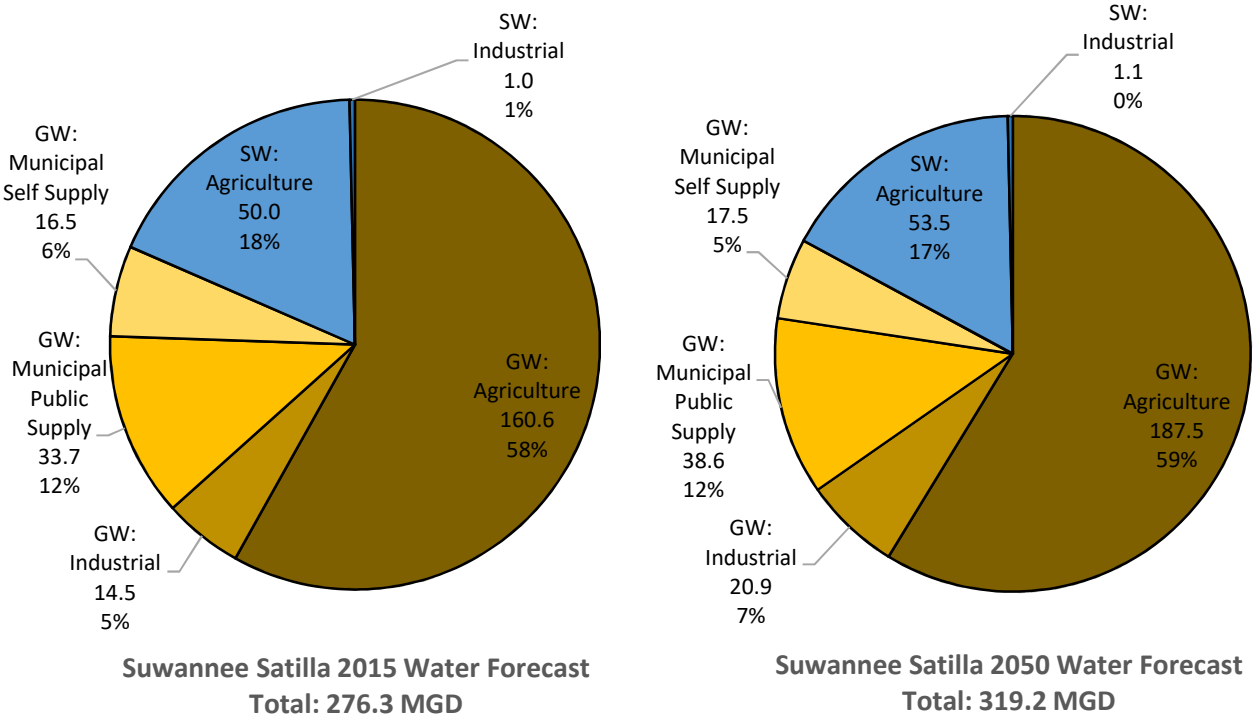

Figure 2-1: Suwannee-Satilla Regional Water Forecast by Sector and Supply Source

2.1.1 Groundwater Forecasts and Comparison to Groundwater Permits

Out of the 42.9 mgd increase in total water need by 2050, 39.3 mgd is projected to come from groundwater sources. **Table 2-1** shows the breakdown of this groundwater forecast by prioritized aquifer. Note that almost all groundwater is forecast to come from the Floridan aquifer.

Table 2-1: Regional Groundwater Forecast by Aquifer (MGD)

Aquifer	2015	2050	Difference
Brunswick	3.4	4.1	0.7
Claiborne	0.13	0.14	0.01
Cretaceous	0.06	0.08	0.02
Floridan	221.6	260.3	38.7
Total	**225.3**	**264.6**	**39.3**

Table 2-2 shows the portion of the groundwater forecast for publicly-supplied municipal use. The existing permitted capacity by county is shown as well as any gap between the permitted capacity and the 2050 forecast.

Table 2-2: 2050 Municipal Forecast versus Groundwater Permitted Capacity

County	2015 Public Demand Forecast (AAD – MGD)	2050 Public Demand Forecast (AAD – MGD)	Existing Permitted Capacity (AAD – MGD)	Additional Permitted Capacity Needed in 2050 (AAD – MGD)*
Atkinson	0.43	0.38	0.90	-
Bacon	0.66	0.80	1.50	-
Ben Hill	2.47	2.63	5.50	-
Berrien	1.10	0.83	1.73	-
Brantley	0.25	0.24	0.20	0.04
Brooks	0.97	0.73	3.55	-
Charlton	0.71	0.75	1.40	-
Clinch	0.45	0.42	0.75	-
Coffee	2.53	2.95	6.80	-
Cook	1.29	1.36	4.00	-
Echols	0.08	0.07	0	0.07
Irwin	0.52	0.43	0.70	-
Lanier	0.60	0.83	0.70	0.13
Lowndes	12.35	16.60	19.04	-
Pierce	0.71	0.96	0.83	0.13
Tift	4.50	5.16	9.18	-
Turner	0.74	0.41	1.90	-
Ware	3.32	3.00	7.40	-

*Analysis does not account for demands in one county that may be met by permits from another county. Values provided are average annual demands in millions of gallons per day (AAD-MGD)

2.1.2 Surface Water Forecasts

For the Suwannee-Satilla Region, surface water is utilized to meet agricultural demands and some small industrial demands. Total surface water demands are expected to increase by 3.6 mgd by 2050 (3.5 mgd from agricultural demands and 0.1 mgd from industrial demands). Counties with the largest projected growth in agricultural surface water usage include Berrien, Irwin, Tift, Turner, and Coffee counties.

2.2 Wastewater Forecast Summary

Figure 2-2 shows the aggregated county wastewater forecasts for the Suwannee-Satilla Region in 2015 and 2050. Overall, the regional forecasted wastewater flows are expected to increase by approximately 13.6 MGD.

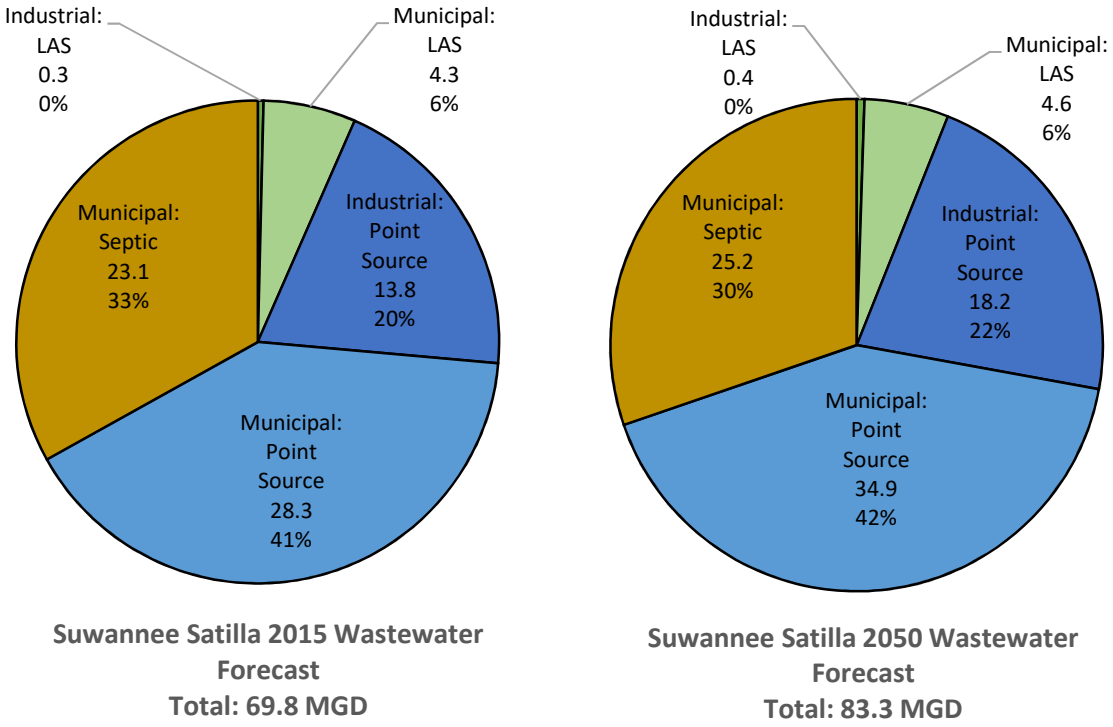

Figure 2-2: Suwannee-Satilla Regional Wastewater Forecast by Discharge Method and Sector

2.2.1 Comparing Wastewater Forecasts to Permitted Capacity

About 47% of the total regional wastewater flow is directed to municipal centralized treatment with ultimate discharge either directly to streams (point source) or through land application systems (LAS). This includes municipal wastewater as well as industrial wastewater that is treated and discharged through municipal centralized treatment facilities. **Table 2-3** shows the wastewater forecasts and permitted capacity for these municipal facilities summarized by county. The difference between the existing permitted capacity and the 2050 forecast is also listed for each county in terms of either surplus or gap. Bacon, Echols, and Pierce counties may exceed their current permitted capacity by 2050.

Table 2-3: 2050 Municipal Wastewater Forecast versus Existing Permitted Capacity (MGD)

County	Point Source (PS)			Land Application Systems (LAS)		
	2050 Forecast[1]	Permitted Capacity	2050 Surplus or Gap (-)	2050 Forecast[1]	Permitted Capacity	2050 Surplus or Gap (-)
Atkinson	0.25	0.90	0.65	0.12	0.36	0.24
Bacon	0.80	0.75	-0.05	0	0.75	0.75
Ben Hill	3.17	6.00	2.83	0.18	0.30	0.12
Berrien	0.11	1.20	1.09	0	0	0
Brantley	0	0	0	0.11	0.12	0.01
Brooks	0	0	0	0.86	1.32	0.46
Charlton	0.65	1.08	0.43	0	0	0
Clinch	0.36	0.75	0.39	0	0	0
Coffee	4.14	6	1.86	0.56	0.66	0.10
Cook	2.55	3.19	0.64	0	0	0
Echols	0	0	0	0.003	0	-0.003
Irwin	0	0	0	0.50	0.85	0.35
Lanier	0.41	0.50	0.09	0	0	0
Lowndes	10.73	14.92	4.19	1.71	2.05	0.34
Pierce	0.34	0.21	-0.13	0.425	0.50	0.08
Tift	6.39	8.09	1.70	0.11	0.13	0.02
Turner	0.48	1.17	0.69	0.03	0.08	0.05
Ware	4.51	6.70	2.19	0	0	0
Total	**34.90**	**50.71**	**15.81**	**4.60**	**7.12**	**2.51**

[1] Includes industrial wastewater expected to be treated at municipal facilities.

Section 3
Groundwater Availability

A Groundwater Availability Resource Assessment was performed by CDM Smith in March 2010 with updated information on the Cretaceous and Claiborne aquifers provided in September 2012. This resource assessment evaluated the estimated sustainable yield of a group of prioritized aquifers. Sustainable yield is the amount of water that can be withdrawn from the modeled area of an aquifer without reaching specific thresholds of local or regional impacts.

3.1 Floridan Aquifer

Groundwater from the Floridan aquifer is a vital resource for the Suwannee-Satilla Region. Overall, water from the Floridan aquifer is used to meet 80% of the 2015 forecasted water demand for the whole region.

Within the groundwater resource assessment, an estimated range of sustainable yield of 868 to 982 mgd was determined for the Floridan aquifer in south-central Georgia and the eastern Coastal Plain of Georgia. This modeled area encompasses more than just the Suwannee-Satilla region. Other regions utilizing portions of the modeled Floridan aquifer include: Altamaha, Coastal Georgia, Middle Ocmulgee, Savannah-Upper Ogeechee, Upper Oconee, Lower Flint-Ochlockonee, and Upper Flint. **Figure 3-1** shows the forecasted demand for all regions utilizing the modeled portion of the Floridan aquifer. The portion of the demand coming from the Suwannee-Satilla Region is highlighted. Demands are projected to remain under the estimated range of sustainable yield for this aquifer.

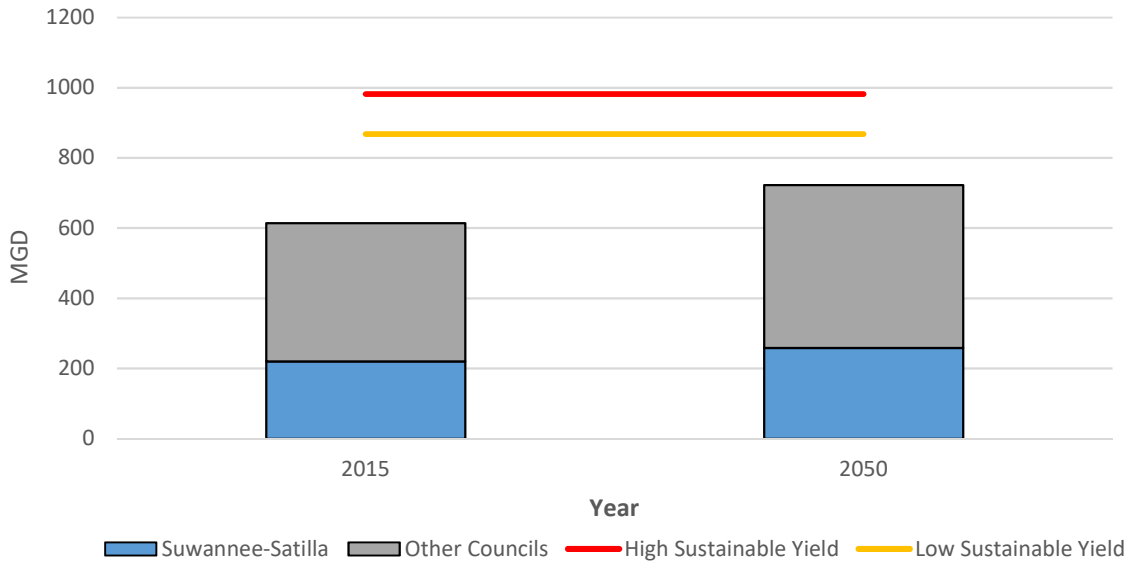

Figure 3-1: Floridan Aquifer in South Central Georgia & Eastern Coastal Plain Forecasted Groundwater Demand

3.2 Cretaceous Aquifer

Utilization of the Cretaceous aquifer is negligible for the Suwannee-Satilla Region. There is a small amount (0.06 mgd) utilized for agricultural demand in Clinch and Turner counties.

3.3 Brunswick Aquifer

The Brunswick aquifer was not one of the modeled aquifers as a part of the resource assessment. Utilization of the Brunswick aquifer makes up 1% of the total water use in the Suwannee-Satilla Region. Demands from this aquifer are for agricultural water use within 13 counties of the region.

3.4 Claiborne Aquifer

Utilization of the Claiborne aquifer is negligible for the Suwannee-Satilla Region. There are some small amounts utilized (0.13 mgd) to meet agricultural demands in Turner County.

Section 4
Surface Water Availability

The Surface Water Availability Resource Assessment estimates the availability of surface water to meet current and future water needs as well as the needs of instream and downstream users. The Surface Water Availability Resource Assessment methodology and modeling results are presented in full in the *Synopsis Report: Surface Water Availability Resource Assessment* (May 2017).

4.1 Surface Water Planning Node Summary

There are several surface water planning nodes located within and near the Suwannee-Satilla Region. The modeling analysis conducted at these nodes under the Surface Water Availability Resource Assessment indicated the following under current and future conditions (bolded nodes are located within the planning region boundaries):

- **Atkinson (Satilla River) – Potential surface water gaps under current and future conditions.**
- **Fargo (Suwannee River) – No potential surface water gaps predicted.**
- Gross (Saint Marys River) – No potential surface water gaps predicted.
- **Jennings (Alapaha River) – Potential surface water gaps under current and future conditions.**
- Lumber City (Ocmulgee River) – No potential surface water gaps predicted.
- **Pinetta (Withlacoochee River) – Potential surface water gaps under current and future conditions.**
- **Statenville (Alapaha River) - Potential surface water gaps under current and future conditions.**

While the Gross and Lumber City nodes are not located in the region, a portion of the local drainage area (LDA) or watershed of the nodes falls within the Suwannee-Satilla Region. The location of the planning nodes and the portion of the Suwannee-Satilla Region that is within the LDA of a node with a potential surface water gap is shown in **Figure 4-1**.

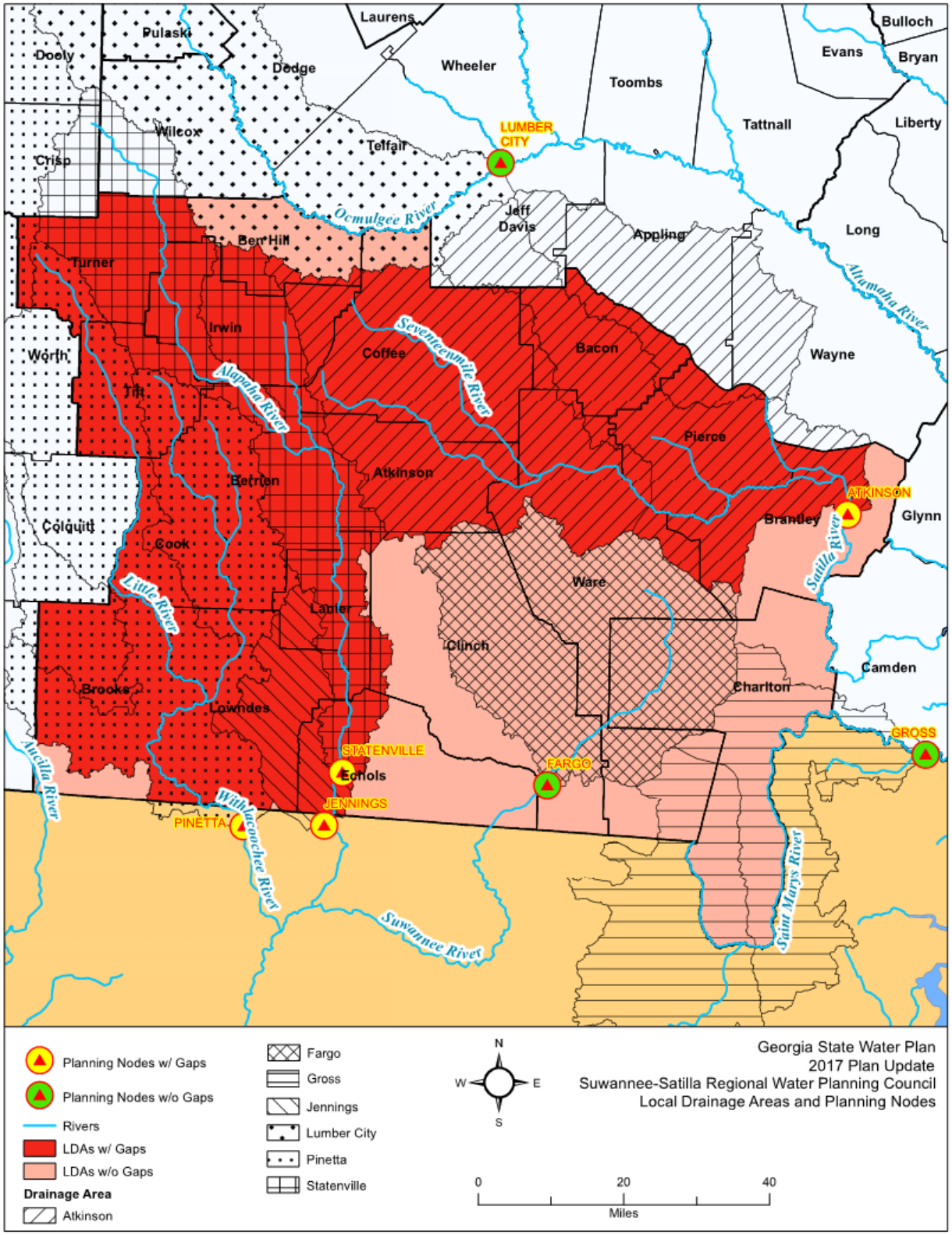

Figure 4-1: Potential Surface Water Gap Summary

4.2 Detailed Potential Gap Analysis

Modeled surface water gaps are driven by both net consumption (withdrawal minus returns) and year to year variation in river flows. In wet years, the region is less likely to experience any potential gaps to instream needs. In dry years, the potential gaps are likely to be more frequent and larger. **Table 4-1** provides a quantification and frequency of modeled potential surface water gaps. The majority of the modeled potential gaps were shorter in duration (1-7 days and 8 -14 days potential gap events).

Table 4-1: Characteristics of Modeled 2050 Potential Surface Water Gaps

Gap Event Duration	Number of Gap Events (% of Total Gap Events)[1]		Total Gap Days (% of Total Days)[2]		Average Daily Flow Deficit per Event	Average Cumulative Flow Deficit per Event
Atkinson Node						
1-7 days	43	(51.2%)	146	(0.5%)	9 cfs (6 MGD)	35 cfsd (23 MG)
8-14 days	11	(13.1%)	109	(0.4%)	16 cfs (10 MGD)	158 cfsd (103 MG)
15-30 days	17	(20.2%)	403	(1.5%)	21 cfs (14 MGD)	498 cfsd (324 MG)
>30 days	13	(15.5%)	608	(2.2%)	22 cfs (14 MGD)	1,031 cfsd (670 MG)
Totals	84	(100.0%)	1266	(4.6%)		
Jennings Node						
1-7 days	88	(54.3%)	249	(0.9%)	11 cfs (7 MGD)	42 cfsd (27 MG)
8-14 days	30	(18.5%)	316	(1.2%)	28 cfs (18 MGD)	308 cfsd (200 MG)
15-30 days	22	(13.6%)	478	(1.7%)	36 cfs (23 MGD)	796 cfsd (517 MG)
>30 days	22	(13.6%)	1,208	(4.4%)	38 cfs (25 MGD)	2,255 cfsd (1,466 MG)
Totals	162	(100.0%)	2,251	(8.2%)		
Pinetta Node						
1-7 days	96	(51.3%)	313	(1.1%)	16 cfs (10 MGD)	63 cfsd (41 MG)
8-14 days	40	(21.4%)	417	(1.5%)	26 cfs (17 MGD)	274 cfsd (178 MG)
15-30 days	29	(15.5%)	563	(2.1%)	46 cfs (30 MGD)	920 cfsd (598 MG)
>30 days	22	(11.8%)	1,134	(4.1%)	59 cfs (38 MGD)	3,064 cfsd (1,992 MG)
Totals	187	(100.0%)	2,427	(8.9%)		
Statenville Node						
1-7 days	91	(48.4%)	298	(1.1%)	9 cfs (6 MGD)	37 cfsd (24 MG)
8-14 days	37	(19.7%)	405	(1.5%)	21 cfs (14 MGD)	229 cfsd (149 MG)
15-30 days	27	(14.4%)	554	(2.0%)	26 cfs (17 MGD)	536 cfsd (348 MG)
>30 days	33	(17.6%)	2044	(7.5%)	38 cfs (25 MGD)	2,444 cfsd (1,589 MG)
Totals	188	(100.0%)	3301	(12.1%)		

[1] The total number of modeled gap events is presented for each duration range, as well as the percentage in that duration range to the total number of all modeled gap events.

[2] The total number of days within the modeling period (1939-2013) in which a potential gap occurred is presented, as well as the percentage of that total to the total number of days analyzed in the modeling period.

The following subsections provide a more detailed look at the potential gaps at each planning node. Each subsection provides a comparison of the potential gaps under current demands and projected 2050 future demands. The potentials gaps are then compared against the forecasted surface water demands for the Councils and counties within the local drainage area of each node.

4.2.1 Potential Gaps at the Atkinson Node

The Atkinson node is located on the Satilla River in Atkinson, Georgia. Surface water withdrawals and discharges in the local drainage area for this node includes municipal returns, industrial demands, and agricultural use. **Table 4-2** provides an overview of the potential gaps at the Atkinson node under current conditions and future conditions. **Table 4-3** shows the Regional Water Planning Councils and counties within the local drainage area of the node, the forecasted surface water demand and the potential gaps for comparison.

Table 4-2: Potential Surface Water Gaps at Atkinson Node

Scenario	Duration of Gap (% of total days)	Average Flow Deficit	Long-term Average Flow	Maximum 1-Day Gap	Corresponding Flow Regime
Current Demands	10	24 cfs / 16 MGD	2,208 cfs / 1,427 MGD	69 cfs / 45 MGD	118 cfs / 76 MGD
Future (2050) Demands	5	20 cfs / 13 MGD	2,236 cfs / 1,445 MGD	42 cfs / 27 MGD	85 cfs / 55 MGD

Table 4-3: Atkinson Planning Node Surface Water Forecast and Summary of Potential Gaps by Region

Councils and Associated Counties That Are Within in the Local Drainage Area with Potential Gaps	Total 2050 Forecasted Surface Water Demand at Planning Node Summarized by Sector (MGD)	2050 Potential Gap Information: Average Daily Flow Deficit per Gap Event Summarized by Planning Node		2050 Forecasted Surface Water Withdrawals Summarized by Planning Council (MGD)
		1-7 Day Duration	8 - 14 Day Duration	
Satilla River				
Altamaha – Appling, Jeff Davis, Wayne	Agriculture: 2.82	6 MGD (9 cfs) 51.2% of all potential gap events	10 MGD (16 cfs) 13.1% of all potential gap events	2.82
Suwannee-Satilla – Atkinson, Bacon, Ben Hill, Brantley, Coffee, Irwin, Pierce, Ware	Agriculture: 13.06 Industrial: 1.08			14.14
			Total:	**16.96**

4.2.2 Potential Gaps at Jennings Node

The Jennings node is located on the Alapaha River near Jennings, Florida. Surface water withdrawals and discharges in the local drainage area for this node includes agricultural use. **Table 4-4** provides an overview of the potential gaps at the Jennings node under current conditions and future conditions. **Table 4-5** shows the Regional Water Planning Councils and counties within the local drainage area of the node, the forecasted surface water demand and the potential gaps for comparison.

Table 4-4: Potential Surface Water Gaps at Jennings Node

Scenario	Duration of Gap (% of total days)	Average Flow Deficit	Long-term Average Flow	Maximum 1-Day Gap	Corresponding Flow Regime
Current Demands	11	33 cfs (21 MGD)	1,367 cfs (883 MGD)	103 cfs (67 MGD)	161 cfs (104 MGD)
Future (2050) Demands	8	36 cfs (23 MGD)	1,380 cfs (892 MGD)	109 cfs (70 MGD)	135 cfs (87 MGD)

Table 4-5: Jennings Planning Node Surface Water Forecast and Summary of Potential Gaps by Region

Councils and Associated Counties That Are Within in the Local Drainage Area with Potential Gaps	Total 2050 Forecasted Surface Water Demand at Planning Node Summarized by Sector (MGD)	2050 Potential Gap Information: Average Daily Flow Deficit per Gap Event Summarized by Planning Node		2050 Forecasted Surface Water Withdrawals Summarized by Planning Council (MGD)
		1-7 Day Duration	8 - 14 Day Duration	
Alapaha River				
Altamaha – Wilcox	Agriculture: 2.27	7 MGD (11 cfs) 54.3% of all potential gap events	18 MGD (28 cfs) 18.5% of all potential gap events	2.27
Suwannee-Satilla – Atkinson, Ben Hill, Berrien, Coffee, Echols, Irwin, Lanier, Lowndes, Tift, Turner	Agriculture: 20.84			20.84
Upper Flint – Crisp, Dooly	Agriculture: 3.99			3.99
			Total:	**27.1**

4.2.3 Potential Gaps at Pinetta Node

The Pinetta node is located on the Withlacoochee River near Concord, Florida. Surface water withdrawals and discharges in the local drainage area for this node includes municipal returns, industrial returns, and agricultural use. **Table 4-6** provides an overview of the potential gaps at the Atkinson node under current conditions and future conditions. **Table 4-7** shows the Regional Water Planning Councils and counties within the local drainage area of the node, the forecasted surface water demand and the potential gaps for comparison.

Table 4-6: Potential Surface Water Gaps at Pinetta Node

Scenario	Duration of Gap (% of total days)	Average Flow Deficit	Long-term Average Flow	Maximum 1-Day Gap	Corresponding Flow Regime
Current Demands	12	45 cfs (29 MGD)	1,687 cfs (1,090 MGD)	118 cfs (76 MGD)	190 cfs (123 MGD)
Future (2050) Demands	9	46 cfs (30 MGD)	1,721 cfs (1,112 MGD)	108 cfs (70 MGD)	155 cfs (100 MGD)

Table 4-7: Pinetta Planning Node Surface Water Forecast and Summary of Potential Gaps by Region

Councils and Associated Counties That Are Within in the Local Drainage Area with Potential Gaps	Total 2050 Forecasted Surface Water Demand at Planning Node Summarized by Sector (MGD)	2050 Potential Gap Information: Average Daily Flow Deficit per Gap Event Summarized by Planning Node		2050 Forecasted Surface Water Withdrawals Summarized by Planning Council (MGD)
		1-7 Day Duration	8-14 Day Duration	
Ogeechee River				
Lower Flint-Ochlockonee – Colquitt, Thomas, Worth	Agriculture: 16.09	10 MGD (16 cfs) 51.3% of all potential gap events	17 MGD (26 cfs) 21.4% of all potential gap events	16.09
Suwannee-Satilla – Berrien, Brooks, Cook, Lanier, Lowndes, Tift, Turner	Agriculture: 17.98 Golf Course: 0.07			18.05
Upper Flint – Crisp, Dooly	0			0
			Total:	**34.14**

4.2.4 Potential Gaps at Statenville Node

The Statenville node is located on the Alapaha River at Statenville, Georgia. Surface water withdrawals and discharges in the local drainage area for this node includes municipal returns and agricultural use. **Table 4-8** provides an overview of the potential gaps at the Statenville node under current conditions and future conditions. **Table 4-9** shows the Regional Water Planning Councils and counties within the local drainage area of the node, the forecasted surface water demand and the potential gaps for comparison.

Table 4-8: Potential Surface Water Gaps at Statenville Node

Scenario	Duration of Gap (% of total days)	Average Flow Deficit	Long-term Average Flow	Maximum 1-Day Gap	Corresponding Flow Regime
Current Demands	17	26 cfs / 17 MGD	1,047 cfs / 677 MGD	89 cfs / 58 MGD	100 cfs / 65 MGD
Future (2050) Demands	12	32 cfs / 21 MGD	1,058 cfs / 684 MGD	77 cfs / 50 MGD	77 cfs / 50 MGD

Table 4-9: Statenville Planning Node Surface Water Forecast and Summary of Potential Gaps by Region

Councils and Associated Counties That Are Within in the Local Drainage Area with Potential Gaps	Total 2050 Forecasted Surface Water Demand at Planning Node Summarized by Sector (MGD)	2050 Potential Gap Information: Average Daily Flow Deficit per Gap Event Summarized by Planning Node		2050 Forecasted Surface Water Withdrawals Summarized by Planning Council (MGD)
		1-7 Day Duration	8-14 Day Duration	
Alapaha River				
Altamaha – Wilcox	Agriculture: 2.27	6 MGD (9 cfs) 48.4% of all potential gap events	14 MGD (21 cfs) 19.7% of all potential gap events	2.27
Suwannee-Satilla – Atkinson, Ben Hill, Berrien, Coffee, Echols, Irwin, Lanier, Tift, Turner	Agriculture: 19.45			19.45
Upper Flint – Crisp, Dooly	Agriculture:3.99			3.99
			Total:	**25.71**

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Section 5
Surface Water Quality

The Surface Water Quality (Assimilative Capacity) Resource Assessment estimated the capacity of Georgia's surface waters to assimilate pollutants without unacceptable degradation of water quality. This section describes the relevant finding of the assessment for the Suwannee-Satilla Region.

5.1 Dissolved Oxygen Assimilative Capacity

One measure of the capacity of a stream to maintain its health and the health of the aquatic species living therein is the amount of residual dissolved oxygen (DO) in the waters of the stream. The Assimilative Capacity Resource Assessment drew upon water quality modeling tools to estimate the ability of streams and estuaries to assimilate pollutants under current and future conditions. The current conditions modeling incorporated all municipal and industrial wastewater facilities operating at their full permitted discharge levels (flow and effluent discharge limits as of 2014). The results for the Suwannee-Satilla Region at current permitted conditions are presented in **Table 5-1** and **Figure 5-1**.

Table 5-1: Permitted Assimilative Capacity for DO in the Suwannee-Satilla Region

Basin	Available Assimilative Capacity (Total Mileage)						Modeled Miles in Council Region
	Very Good (≥1.0 mg/L)	Good (0.5 to <1.0 mg/L)	Moderate (0.2 to <0.5 mg/L)	Limited (>0.0 to <0.2 mg/L)	None or Exceeded (<0.0 mg/L)	Unmodeled	
Ochlockonee	0	0	0	0	3	0	3
Ocmulgee	3	33	0	0	0	0	36
Satilla	73	91	31	14	60	0	269
St Marys	0	0	6	3	12	0	21
Suwannee	289	91	54	0	85	5	524

Source: GIS Files from the Updated Permitted Water Quality Resource Assessment; EPD, January 2017

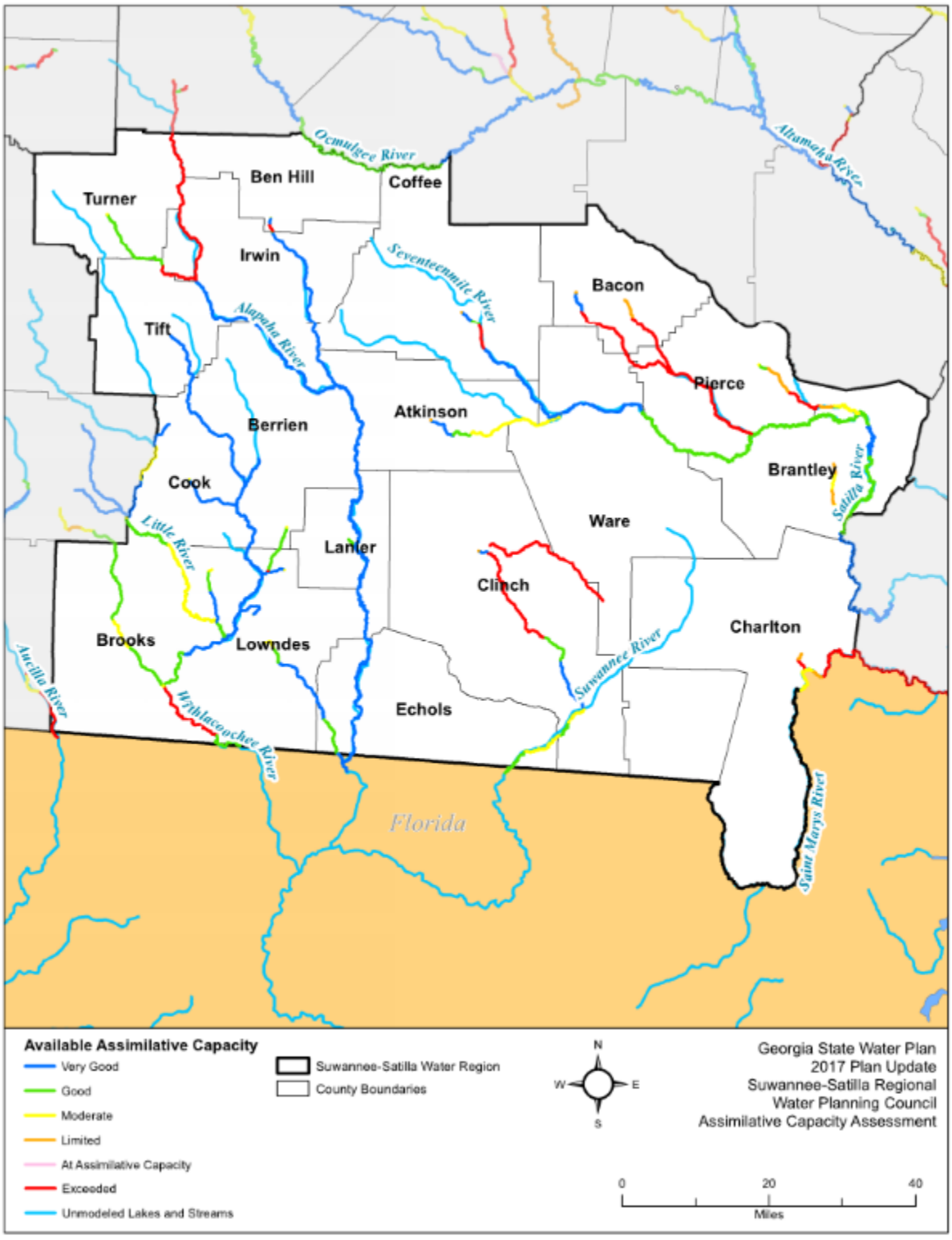

Figure 5-1: Results of DO Assimilative Capacity Assessment at Permitted Conditions

The stream segments at or exceeding their assimilative capacity within the Suwannee-Satilla Region are listed in **Table 5-2**.

Table 5-2: Stream Segments with No or Exceeded Assimilative Capacity under Current Permitted Conditions

Basin	Stream Segment	Length (miles)
Ochlockonee	Aucilla River - Cat Creek to StateLine	2.0
	Aucilla River - SR 133 to Cat Creek	1.2
Satilla	Alabaha River - Little Hurricane to Satilla River	19.4
	Hurricane Creek - 125' Contour to Little Hurricane	10.8
	Little Hurricane - 140' Contour to Hurricane Creek	15.5
	Little Hurricane - 155' Contour to 140' Contour	4.0
	Little Satilla - Otter Ck to Little Satilla	6.2
	Seventeen Mile River	3.1
	Seventeen Mile River	0.5
St Marys	Spanish Creek - Clay Branch to St. Marys River	1.9
	St Marys River - Folkston Proposed discharge to Hwy 17	9.7
Suwannee	Alapaha River - Alapaha River to Trib X	13.6
	Alapaha River - Trib X to Hat Creek	11.4
	Cane Creek - Cane Creek to Swamp	15.6
	Cat Creek - Beatty Branch	0.1
	Hat Creek - Location T to Alapaha River	6.3
	Tatum Creek - Unnamed Trib to Bird Sandhill Trib	17.1
	Willacoochee River - Dam	1.2
	Withlacoochee River - Okapilco Creek to Clyatt Mill Creek	13.4
	Woodyard Creek - Homerville WPCP to Woodyard Ck	0.3
	Woodyard Creek - Woodyard Ck to Cane Creek	5.9

5.2 Non-Point Source Pollution

Under Section 303(d) of the federal Clean Water Act, total maximum daily loads (TMDLs) are developed for waters that do not meet their designated uses. A TMDL represents the maximum pollutant loading that a water body can assimilate and continue meeting its designated use (i.e., not exceeding State water quality standards).

For the Suwannee-Satilla Region, there are 83 impaired stream reaches (total impaired length of 946 miles) that are listed as impaired based on the 2014 list of impaired waters developed by EPD.

Of the impaired reaches in the region (note that a reach may be impaired for more than one parameter):

- 35% are impaired for trophic-weighted residual mercury in fish tissue
- 30% are impaired for low dissolved oxygen
- 28% are impaired for fecal coliform
- 3% are impaired for lead
- 1% are impaired for Biological (Fish Community)
- 1% are impaired for Biological (Macroinvertebrate Community)
- 1% are impaired for pH
- 1% are impaired for algae
- <1% are impaired for Arsenic

A map of the impaired waters is provided in **Figure 5-2**. TMDLs have been completed for 73 of the impaired stream reaches.

5.3 Nutrient Loading

In addition to assimilative capacity modeling for DO, EPD completed nutrient (total nitrogen and total phosphorous) modeling for the watersheds in the Suwannee-Satilla Region. The watershed models evaluate point and non-point source nutrient loadings. Results are provided within the resource assessment for wet, dry and normal years. Example figures of nutrient loading for the Suwannee River Watershed under 2050 future conditions for a wet year are provided in **Figure 5-3** for total nitrogen and **Figure 5-4** for total phosphorus. There are currently no nutrient standards for total nitrogen and total phosphorus in the region.

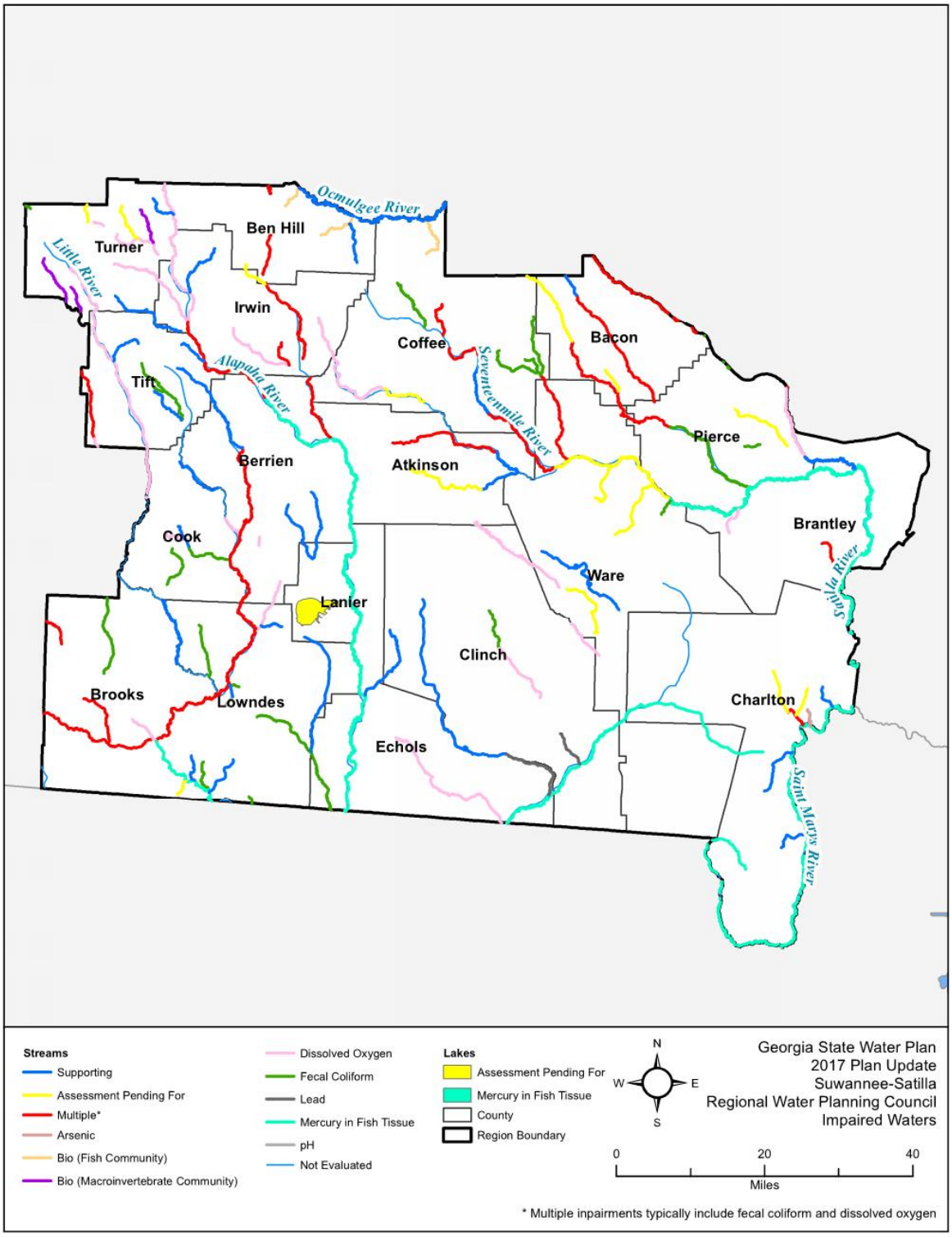

Figure 5-2: Impaired Water Bodies

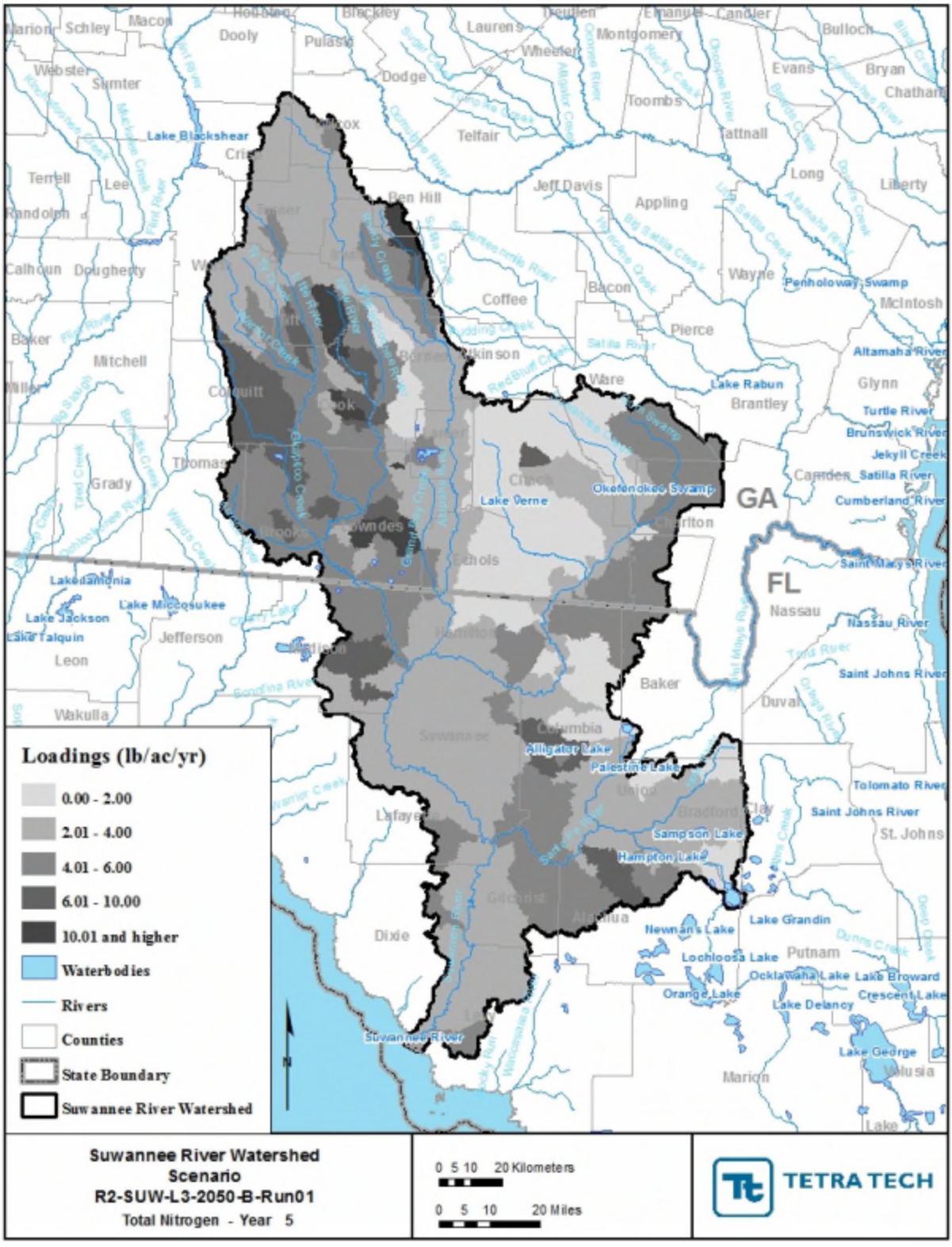

Figure 5-3: Total Nitrogen Loading for the Suwannee River Watershed during Wet Year Future (2050) Conditions

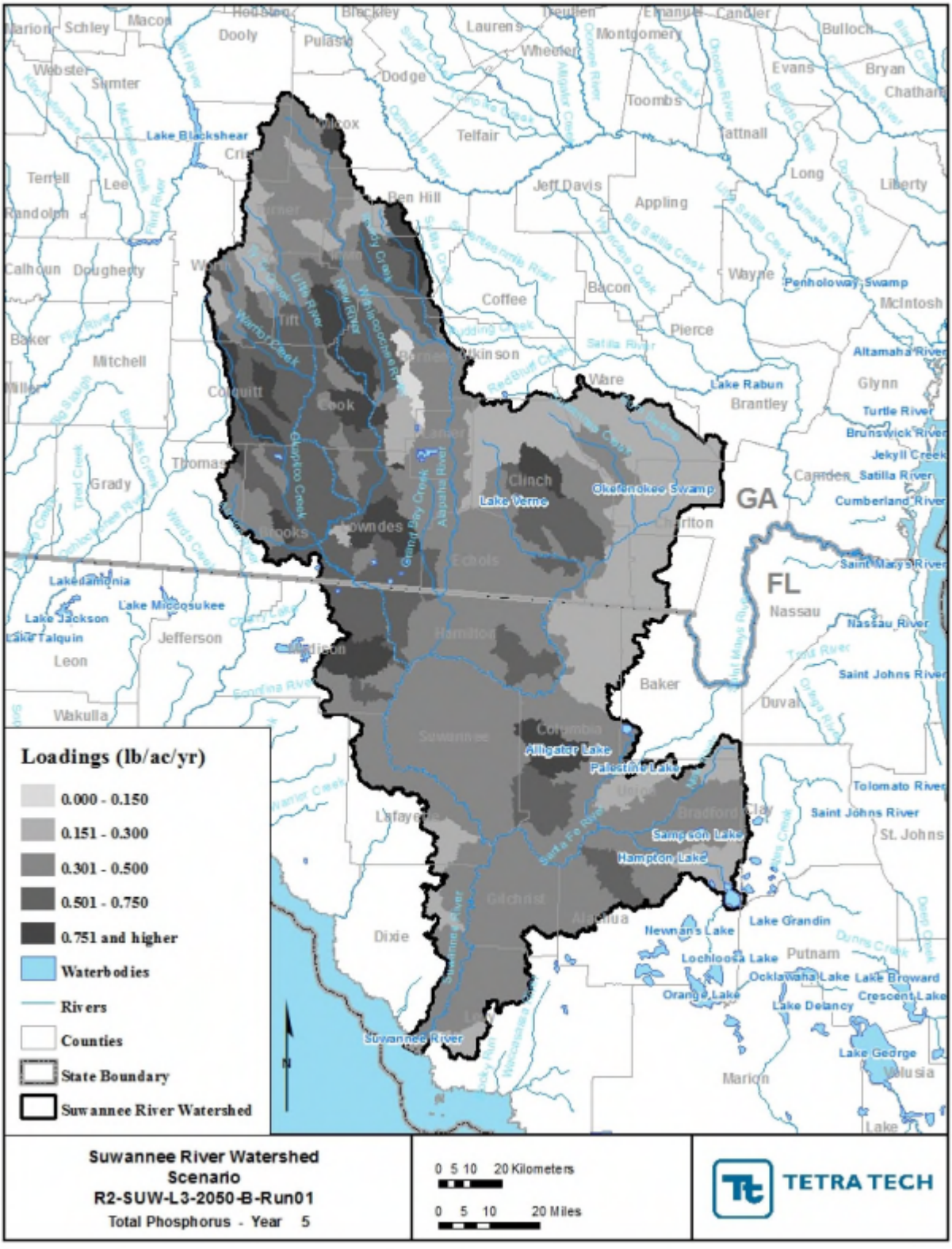

Figure 5-4: Total Phosphorus Loading for the Suwannee River Watershed during Wet Year Future (2050) Conditions

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Section 6
Gap Analysis Summary

This section summarizes the potential water resources issues in the Suwannee-Satilla Region. **Table 6-1** summarizes the potential water resource issues and permitted capacity needs in the Suwannee-Satilla Region by County. Potential water resource issues include:

- Over the planning horizon, forecasted surface water demands within and outside the region are projected to result in potential gaps at locations in the Region (Alapaha, Suwannee, Satilla, and Withlacoochee Rivers).
- Regionally, there is sufficient groundwater to meet forecasted needs over the planning horizon.
- Water quality conditions indicate the potential need for improved wastewater treatment within the Suwannee, Satilla, and St. Marys River basins.

Table 6-1: Summary of Potential Water Resource Issues by County

County	Municipal Water Permitted Capacity Need	Part of Drainage Area with Modeled Surface Water Gaps	Municipal Wastewater Permitted Capacity Need	Water Quality – DO Assimilative Capacity Issues
Source	*Table 2-2*	*Figure 4-1*	*Table 2-3*	*Figure 5-1*
Atkinson	-	Yes	-	-
Bacon	-	Yes	Yes	Yes
Ben Hill	-	Yes	-	Yes
Berrien	-	Yes	-	-
Brantley	Yes	Yes	-	Yes
Brooks	-	Yes	-	Yes
Charlton	-	-	-	-
Clinch	-	Yes	-	Yes
Coffee	-	Yes	-	Yes
Cook	-	Yes	-	-
Echols	Yes	Yes	Yes	-
Irwin	-	Yes	-	Yes
Lanier	Yes	Yes	-	-
Lowndes	-	Yes	-	Yes
Pierce	Yes	Yes	Yes	Yes
Tift	-	Yes	-	Yes
Turner	-	Yes	-	Yes
Ware	-	Yes	-	Yes

1) "Yes" indicates a predicted gap in the indicated county (for surface water, "yes" indicates part or all of the indicated county lies in the area contributing to a potential gap)

2) Permitted capacity need is based on the comparison of permitted municipal capacity versus 2050 forecasted demand.

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Appendix A

Municipal Forecasts versus Permitted Capacity by County

Within this appendix, the water and wastewater forecasts at the County level are compared to existing permitted capacities for facilities located within the County. These county level results should not be interpreted at the facility/municipality level, as they do not account for demands in one county that may be met by permits from another county. Water and wastewater providers should review the information presented here and incorporate the general trends into their actual planning and permit needs.

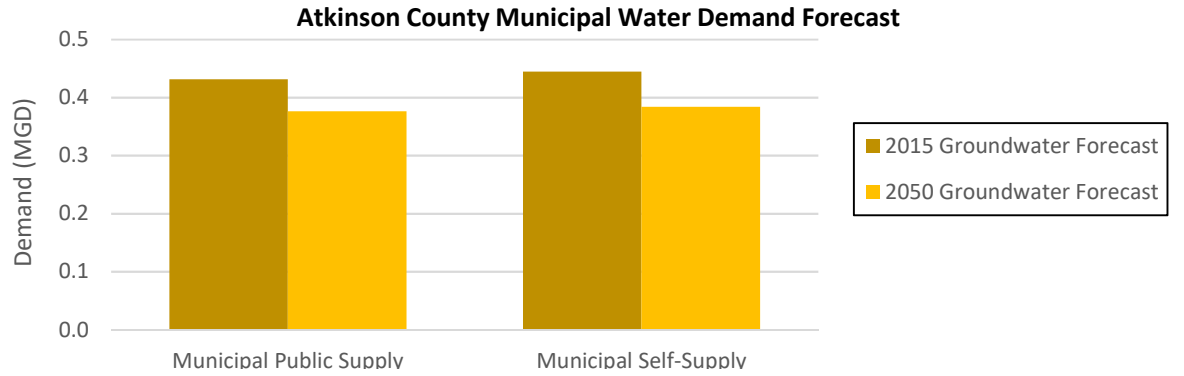
Atkinson County

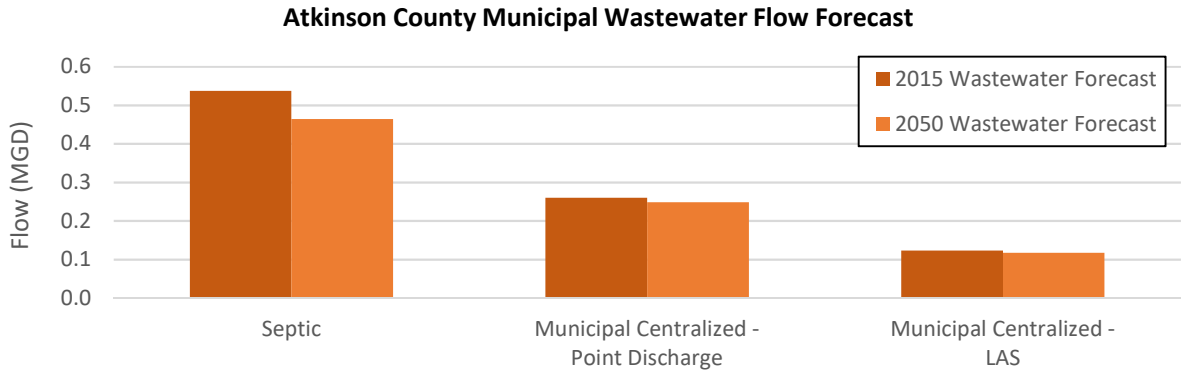
Municipal Water and Wastewater Permits Compared to Forecasts

Permit Type	Permit Limit (MGD)	2050 Forecast	Surplus (+) Shortage (-)
Municipal Water Demands (MGD)			
Groundwater	0.9	0.4	0.5
Surface Water	0	0	0.0
Municipal Wastewater (MGD)			
NPDES (Point Source)	0.9	0.2	0.7
LAS (Land Application)	0.4	0.1	0.3

List of Individual Municipal Permits

Permit Holder	Permit Number	Permit Limit (MGD)	Source / Receiving Stream
Existing Withdrawal Permits			
Pearson, City of	002-0001	0.4	Floridan Aquifer
Willacoochee, City of	002-0002	0.5	Floridan Aquifer
Existing Permitted Wastewater Facility			
Pearson (City of) WPCP	GA0038334	0.9	Little Red Bluff Creek Tributary
Willacoochee LAS	GAJ020164	0.355	LAS





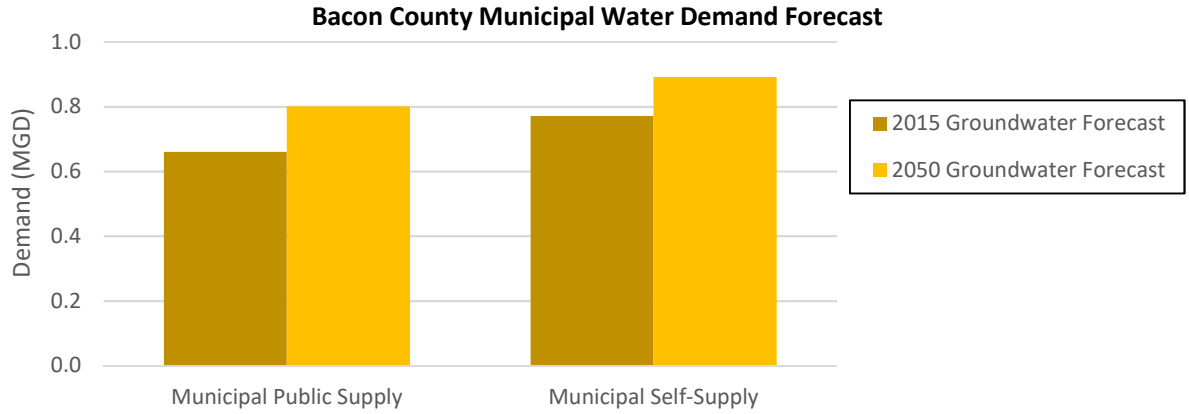
Bacon County

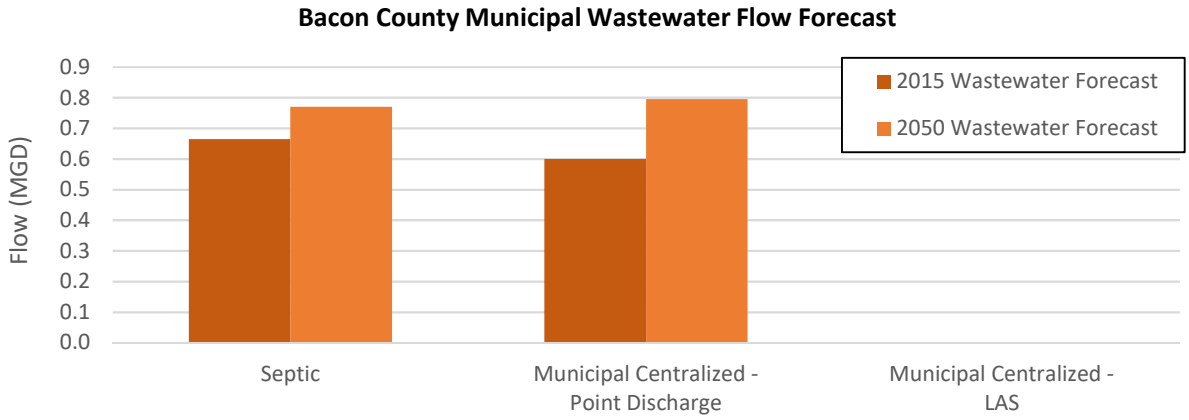
Municipal Water and Wastewater Permits Compared to Forecasts

Permit Type	Permit Limit (MGD)	2050 Forecast	Surplus (+) Shortage (-)
Municipal Water Demands (MGD)			
Groundwater	1.5	0.8	0.7
Surface Water	0	0	0
Municipal Wastewater (MGD)			
NPDES (Point Source)	0.75	0.8	-0.05
LAS (Land Application)	0.75	0	0.75

List of Individual Municipal Permits

Permit Holder	Permit Number	Permit Limit (MGD)	Source / Receiving Stream
Existing Withdrawal Permits			
Alma, City of	003-0001	1.5	Floridan Aquifer
Existing Permitted Wastewater Facility			
Alma (City of) WPCP	GA0032328	0.75	Hurricane Creek Tributary
Alma LAS	GAJ020044	0.75	LAS





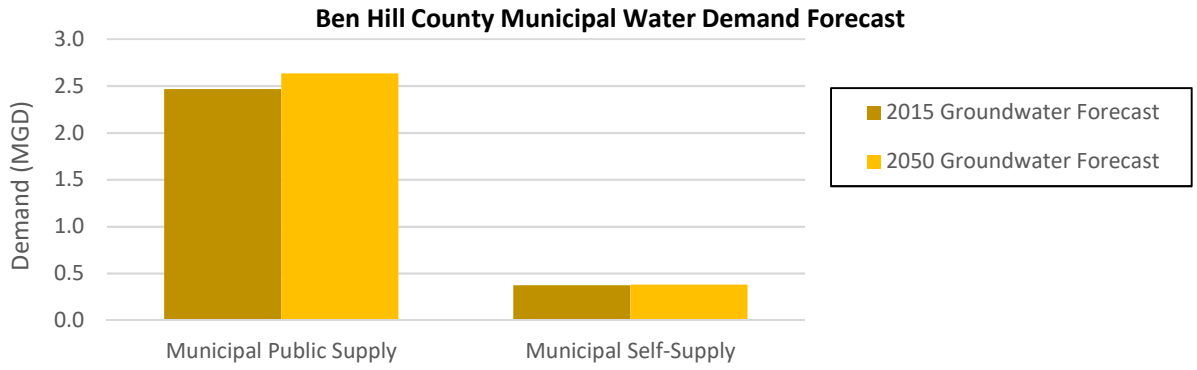
Ben Hill County

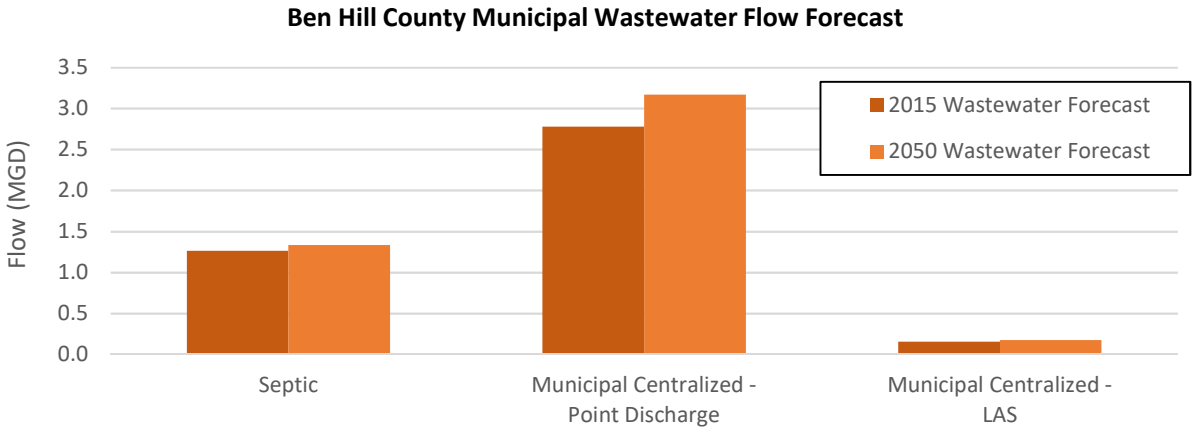
Municipal Water and Wastewater Permits Compared to Forecasts

Permit Type	Permit Limit (MGD)	2050 Forecast	Surplus (+) Shortage (-)
Municipal Water Demands (MGD)			
Groundwater	5.5	2.6	2.9
Surface Water	0	0	0
Municipal Wastewater (MGD)			
NPDES (Point Source)	6	3.2	2.8
LAS (Land Application)	0.3	0.2	0.1

List of Individual Municipal Permits

Permit Holder	Permit Number	Permit Limit (MGD)	Source / Receiving Stream
Existing Withdrawal Permits			
Fitzgerald Water, Light, & Bond Commission	009-0001	5.5	Floridan Aquifer
Existing Permitted Wastewater Facility			
Fitzgerald (City of) - C.A. Newcomer WPCP	GA0047236	6	Turkey Creek
Fitzgerald	GAJ020240	0.3	LAS





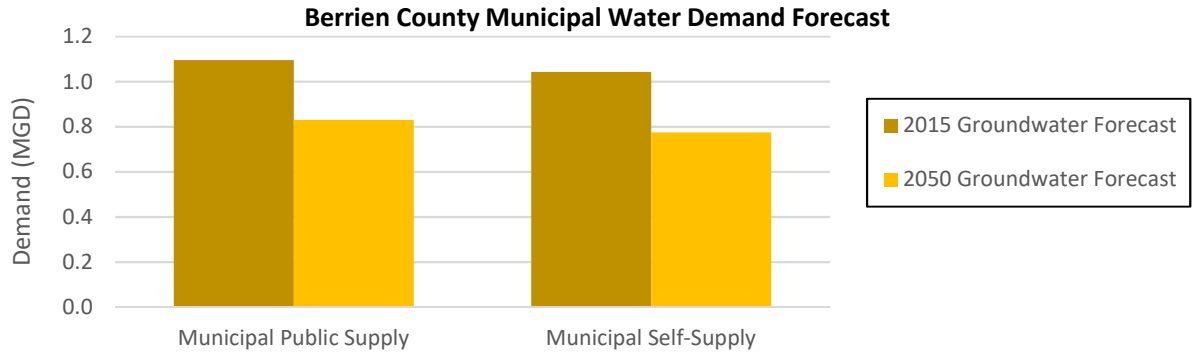
Berrien County

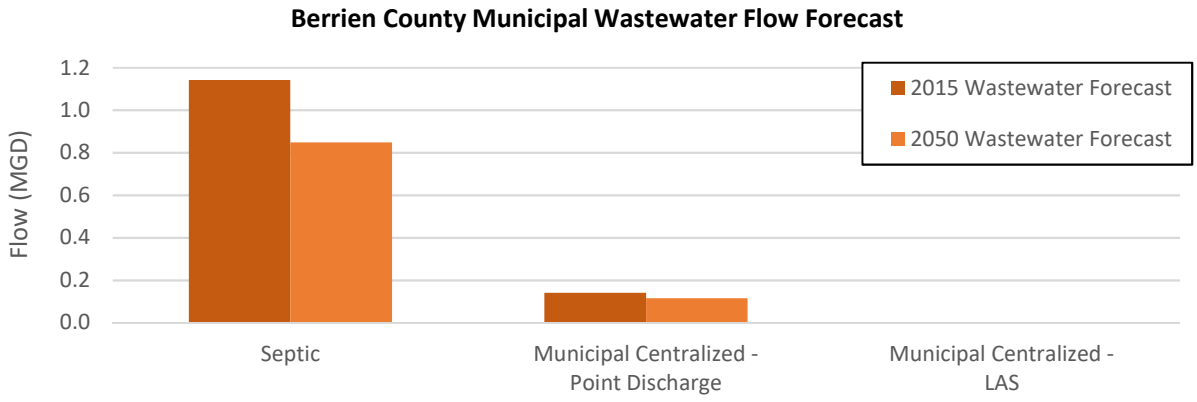
Municipal Water and Wastewater Permits Compared to Forecasts

Permit Type	Permit Limit (MGD)	2050 Forecast	Surplus (+) Shortage (-)
Municipal Water Demands (MGD)			
Groundwater	1.7	0.8	0.9
Surface Water	0	0	0
Municipal Wastewater (MGD)			
NPDES (Point Source)	1.2	0.1	1.1
LAS (Land Application)	0	0	0

List of Individual Municipal Permits

Permit Holder	Permit Number	Permit Limit (MGD)	Source / Receiving Stream
Existing Withdrawal Permits			
City of Nashville	010-0001	1.5	Floridan Aquifer
Enigma, Town of	010-0003	0.225	Floridan Aquifer
Existing Permitted Wastewater Facility			
Nashville (City of) WPCP	GA0039365	1	Proposed-Withlacoochee River
Ray City (City of) WPCP	GA0033553	0.1	Cat Creek
Alapaha (Town of) WPCP	GA0033596	0.1	Alapaha River Tributary





Brantley County

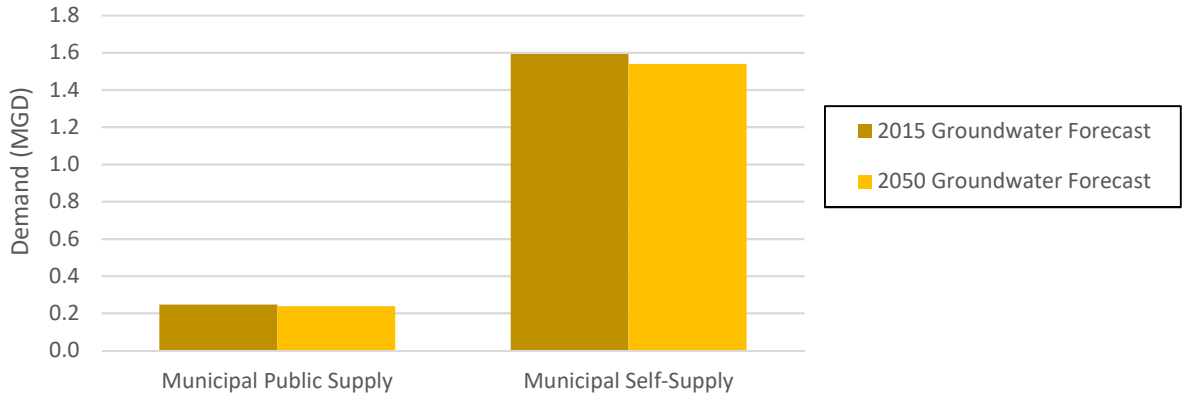
Municipal Water and Wastewater Permits Compared to Forecasts

Permit Type	Permit Limit (MGD)	2050 Forecast	Surplus (+) Shortage (-)
Municipal Water Demands (MGD)			
Groundwater	0.20	0.24	-0.04
Surface Water	0	0	0
Municipal Wastewater (MGD)			
NPDES (Point Source)	0	0	0
LAS (Land Application)	0.12	0.11	0.01

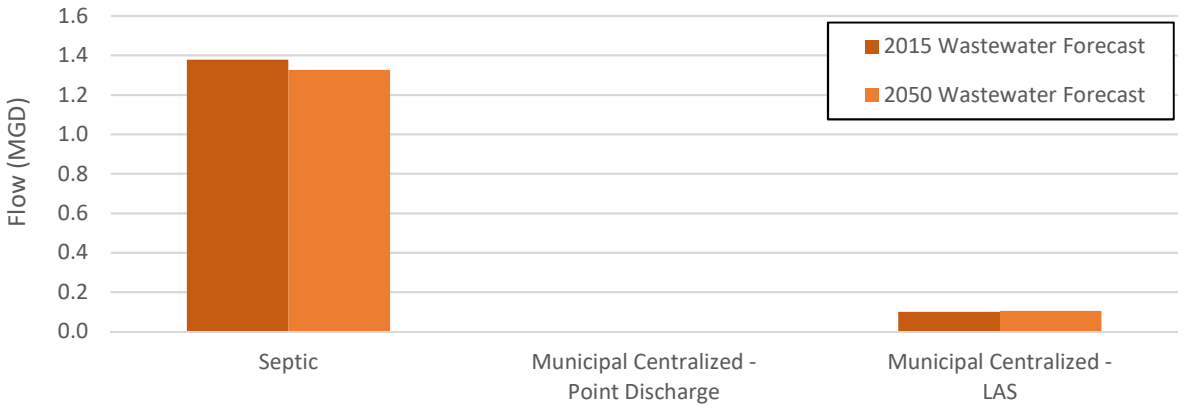
List of Individual Municipal Permits

Permit Holder	Permit Number	Permit Limit (MGD)	Source / Receiving Stream
Existing Withdrawal Permits			
Nahunta, City of	013-0001	0.2	Floridan Aquifer
Existing Permitted Wastewater Facility			
Nahunta (City of) LAS	GAJ020062	0.12	LAS

Brantley County Municipal Water Demand Forecast



Brantley County Municipal Wastewater Flow Forecast



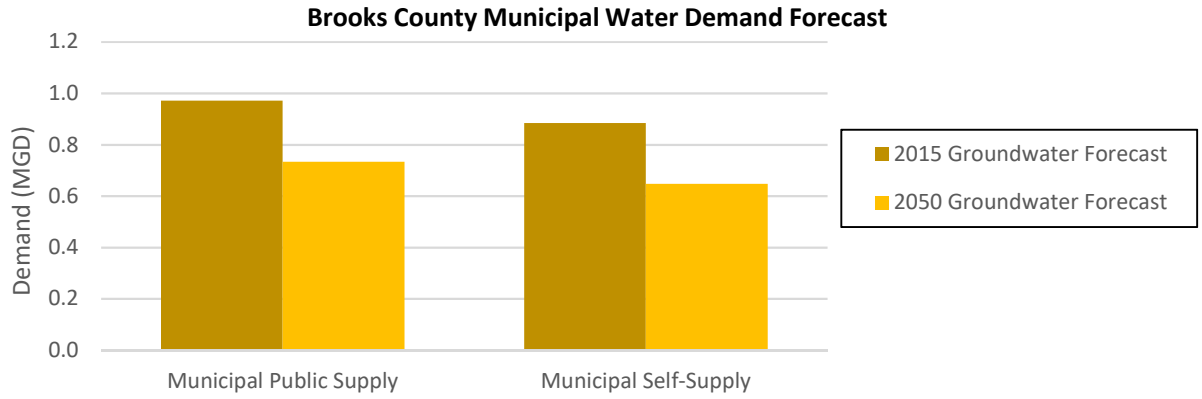
Brooks County

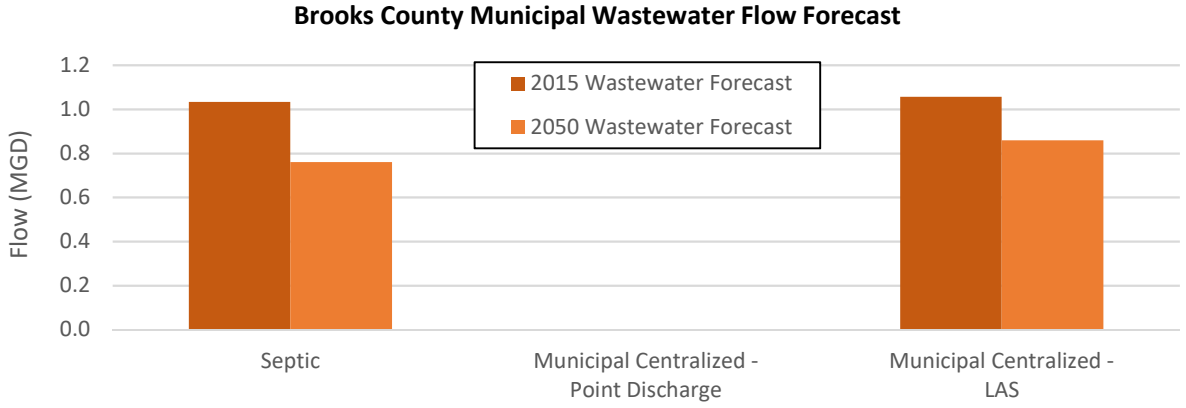
Municipal Water and Wastewater Permits Compared to Forecasts

Permit Type	Permit Limit (MGD)	2050 Forecast	Surplus (+) Shortage (-)
Municipal Water Demands (MGD)			
Groundwater	3.5	0.7	2.8
Surface Water	0	0	0
Municipal Wastewater (MGD)			
NPDES (Point Source)	0	0	0
LAS (Land Application)	1.3	0.9	0.4

List of Individual Municipal Permits

Permit Holder	Permit Number	Permit Limit (MGD)	Source / Receiving Stream
Existing Withdrawal Permits			
Quitman, City of	014-0001	1.4	Floridan Aquifer
Triangle Utility Company, Inc.	014-0003	2	Floridan Aquifer
Water Service Company of Georgia, Inc.	014-0004	0.145	Floridan Aquifer
Existing Permitted Wastewater Facility			
City of Quitman LAS	GAJ020022	1.3	LAS
Lahood's Fellowship Home	GAJ030963	0.015	LAS





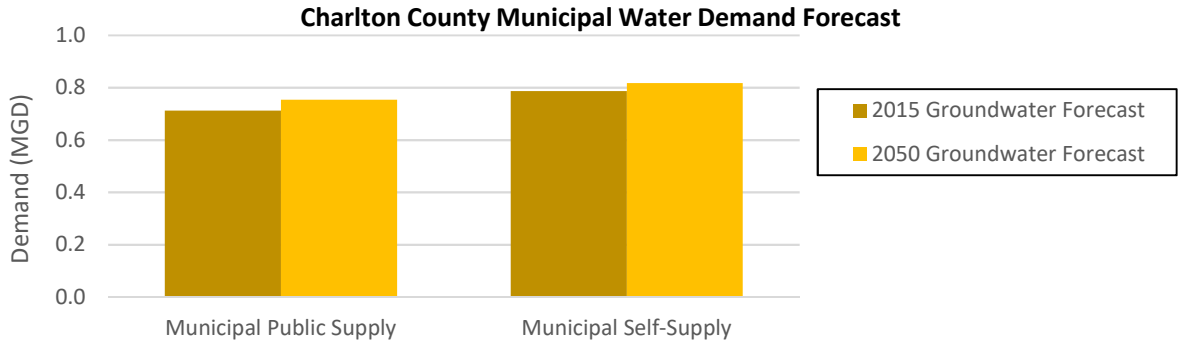
Charlton County

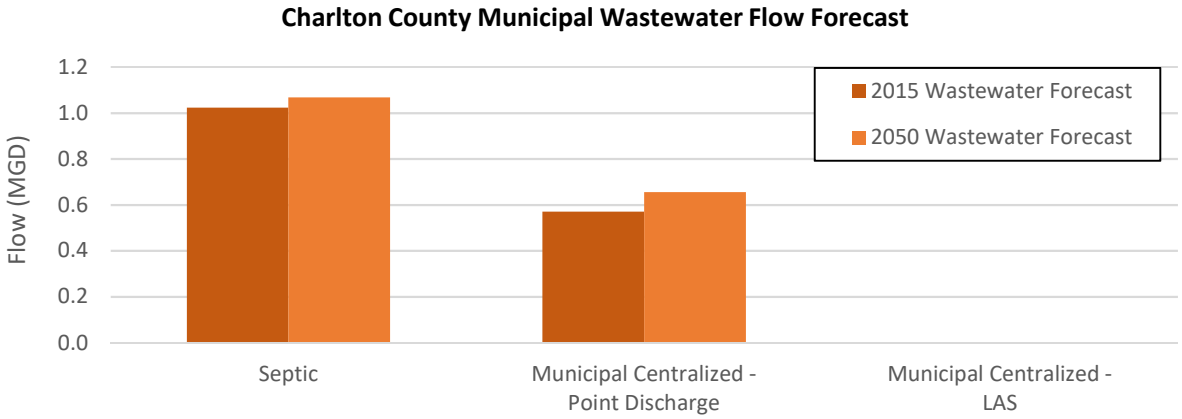
Municipal Water and Wastewater Permits Compared to Forecasts

Permit Type	Permit Limit (MGD)	2050 Forecast	Surplus (+) Shortage (-)
Municipal Water Demands (MGD)			
Groundwater	1.4	0.8	0.6
Surface Water	0	0	0
Municipal Wastewater (MGD)			
NPDES (Point Source)	1.1	0.7	0.4
LAS (Land Application)	0	0	0

List of Individual Municipal Permits

Permit Holder	Permit Number	Permit Limit (MGD)	Source / Receiving Stream
Existing Withdrawal Permits			
Folkston, City of	024-0001	1.25	Floridan Aquifer
Homeland, City of	024-0005	0.15	Floridan Aquifer
Existing Permitted Wastewater Facility			
Folkston WPCP	GA0027189	0.28	Clay Branch
Folkston WPCP	GA0037613	0.8	Spanish Branch





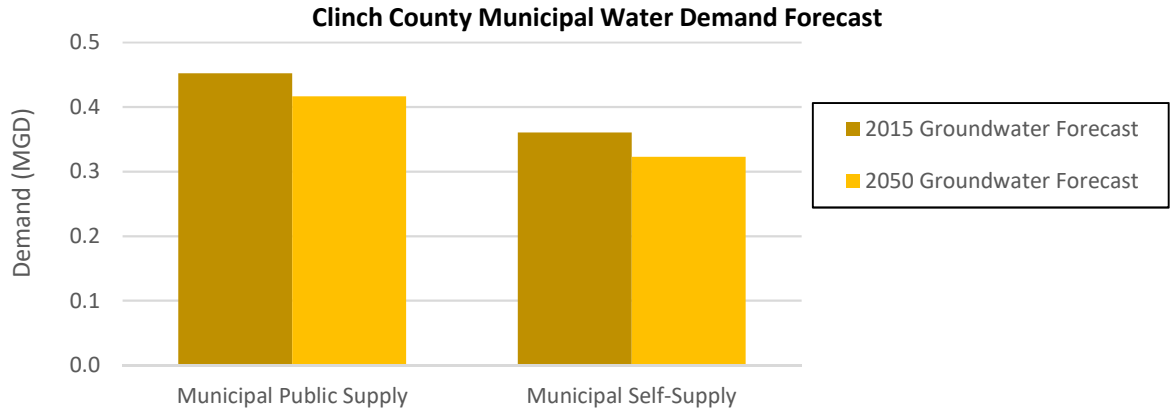
Clinch County

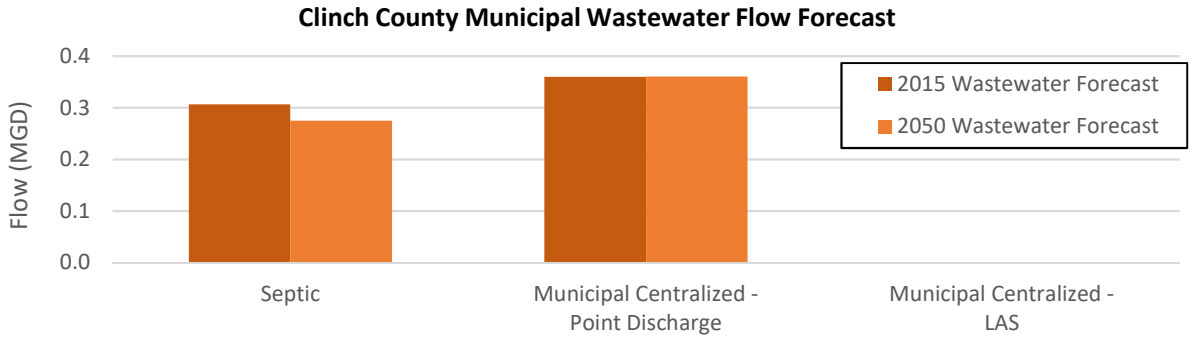
Municipal Water and Wastewater Permits Compared to Forecasts

Permit Type	Permit Limit (MGD)	2050 Forecast	Surplus (+) Shortage (-)
Municipal Water Demands (MGD)			
Groundwater	0.8	0.4	0.4
Surface Water	0	0	0
Municipal Wastewater (MGD)			
NPDES (Point Source)	0.8	0.4	0.4
LAS (Land Application)	0	0	0

List of Individual Municipal Permits

Permit Holder	Permit Number	Permit Limit (MGD)	Source / Receiving Stream
Existing Withdrawal Permits			
Homerville, City of	032-0001	0.75	Floridan Aquifer
Existing Permitted Wastewater Facility			
Homerville (City of) - Industrial Park WPCP	GA0037460	0.25	Tatum Creek
Homerville (City of) WPCP	GA0031828	0.5	Gallows Branch





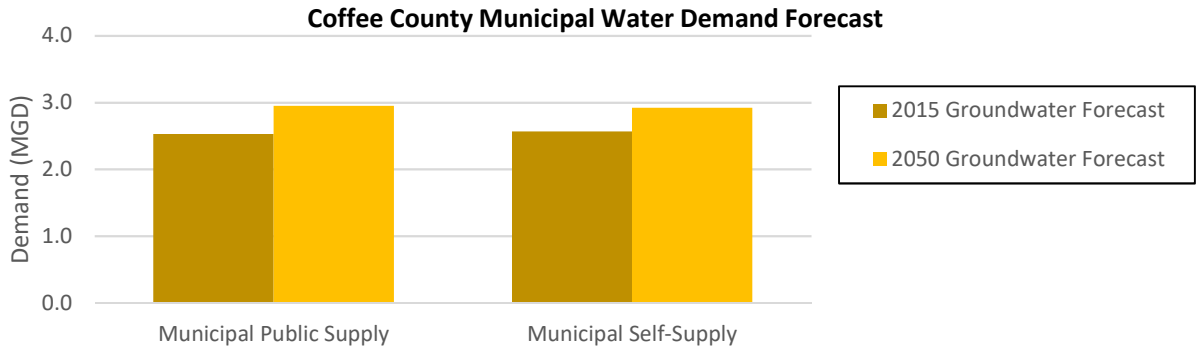
Coffee County

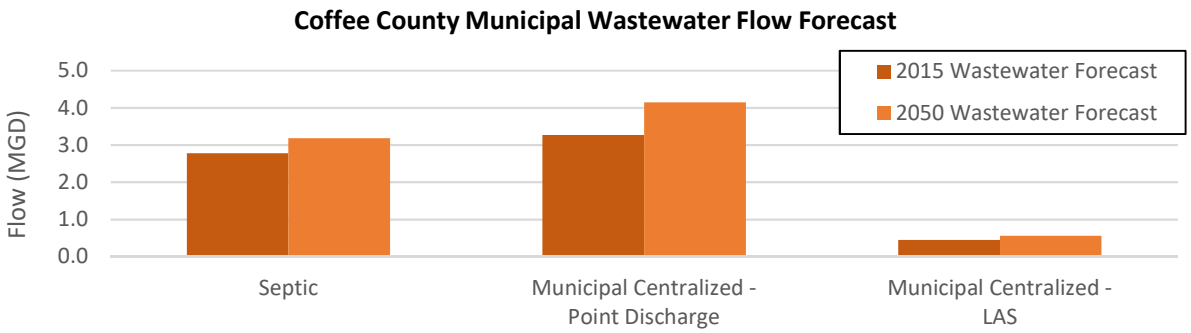
Municipal Water and Wastewater Permits Compared to Forecasts

Permit Type	Permit Limit (MGD)	2050 Forecast	Surplus (+) Shortage (-)
Municipal Water Demands (MGD)			
Groundwater	6.8	3.0	3.8
Surface Water	0	0	0
Municipal Wastewater (MGD)			
NPDES (Point Source)	6	4.1	1.9
LAS (Land Application)	0.7	0.6	0.1

List of Individual Municipal Permits

Permit Holder	Permit Number	Permit Limit (MGD)	Source / Receiving Stream
Existing Withdrawal Permits			
Douglas, City of	034-0001	5.75	Floridan Aquifer
City of Broxton	034-0002	0.25	Floridan Aquifer
Nicholls, City of	034-0003	0.5	Floridan Aquifer
Coffee County Board of Commissioners	034-0005	0.3	Floridan Aquifer
Existing Permitted Wastewater Facility			
Douglas (City of) - Southeast WPCP	GA0024431	6	Seventeen Mile Creek
Broxton LAS	GAJ020124	0.162	LAS
Nicholls (City of) LAS	GAJ020267	0.5	LAS





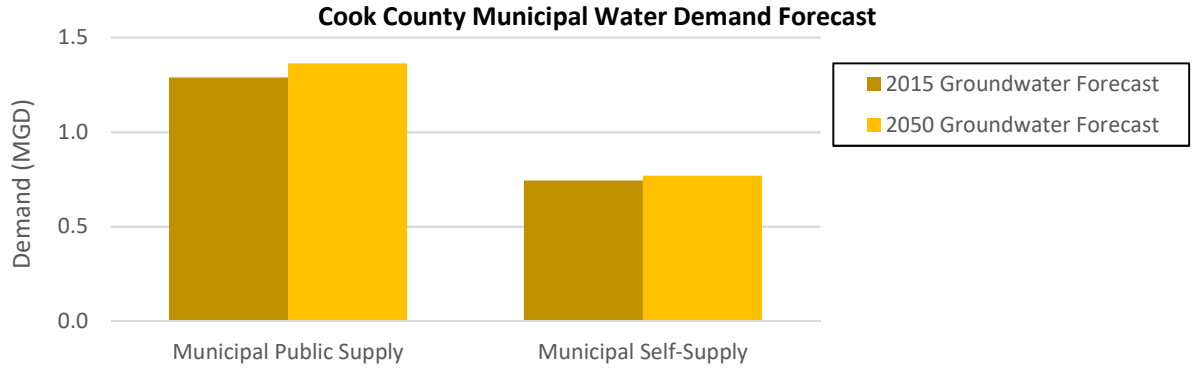
Cook County

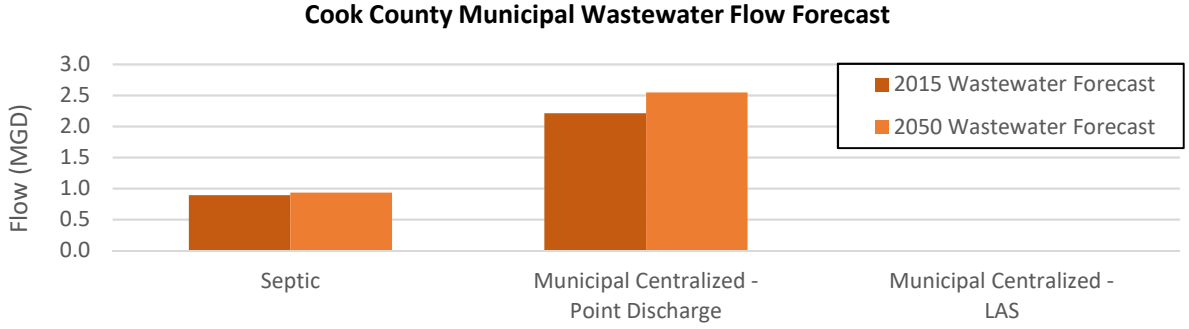
Municipal Water and Wastewater Permits Compared to Forecasts

Permit Type	Permit Limit (MGD)	2050 Forecast	Surplus (+) Shortage (-)
Municipal Water Demands (MGD)			
Groundwater	4	1.4	2.6
Surface Water	0	0	0
Municipal Wastewater (MGD)			
NPDES (Point Source)	3.2	2.5	0.7
LAS (Land Application)	0	0	0

List of Individual Municipal Permits

Permit Holder	Permit Number	Permit Limit (MGD)	Source / Receiving Stream
Existing Withdrawal Permits			
Adel, City of	037-0001	3.3	Floridan Aquifer
Sparks, City of	037-0003	0.55	Floridan Aquifer
Lenox, City of	037-0005	0.15	Claiborne Aquifer
Existing Permitted Wastewater Facility			
Lenox (City of) WPCP	GA0031950	0.17	Little River Tributary (Flat Creek)
Sparks (City of) WPCP	GA0021563	0.5	Bear Creek
Economy Inn WPCP	GA0034738	0.015	Little River
Adel (City of) WPCP	GA0024911	2.5	Bear Creek

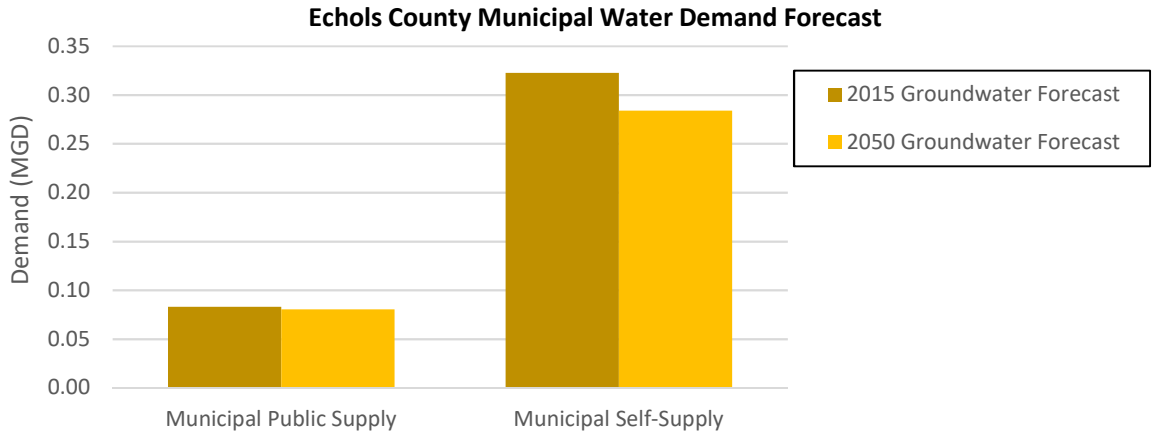


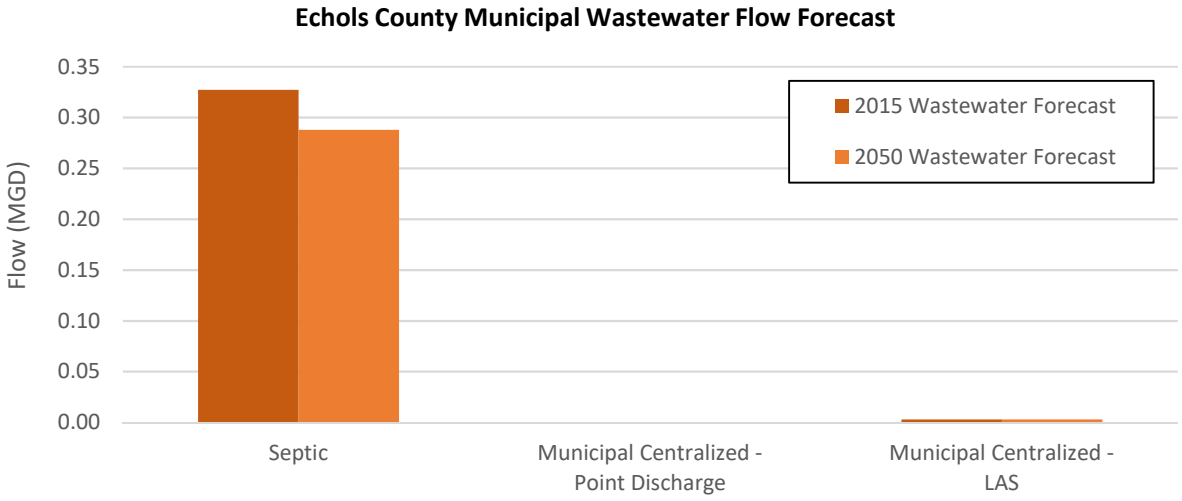


Echols County

Municipal Water and Wastewater Permits Compared to Forecasts

Permit Type	Permit Limit (MGD)	2050 Forecast	Surplus (+) Shortage (-)
Municipal Water Demands (MGD)			
Groundwater	0	0.1	-0.1
Surface Water	0	0	0
Municipal Wastewater (MGD)			
NPDES (Point Source)	0	0	0
LAS (Land Application)	0	0.003	-0.003





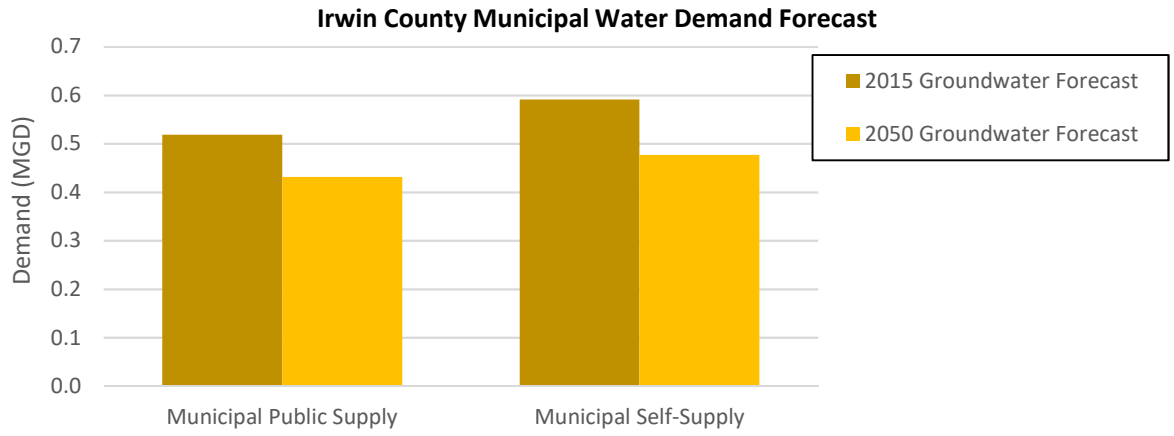
Irwin County

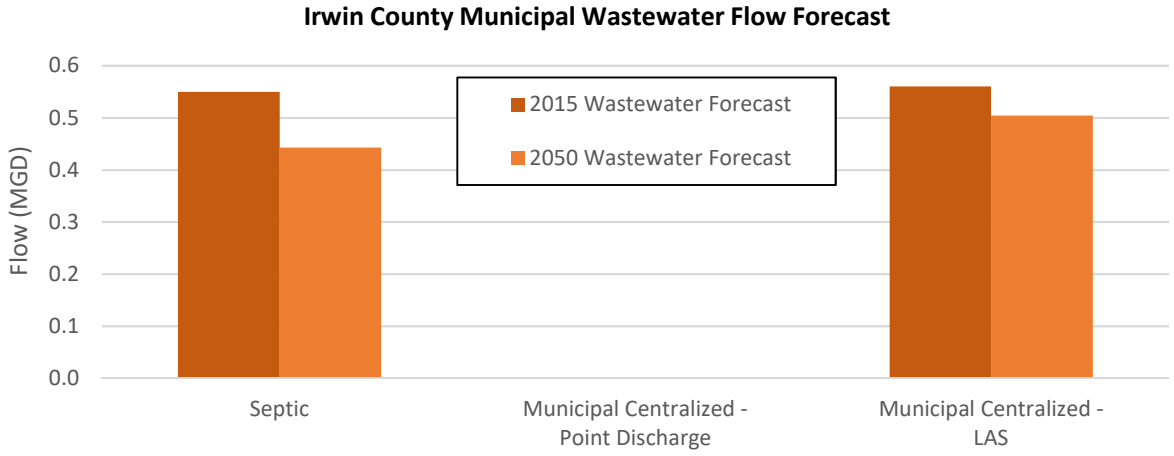
Municipal Water and Wastewater Permits Compared to Forecasts

Permit Type	Permit Limit (MGD)	2050 Forecast	Surplus (+) Shortage (-)
Municipal Water Demands (MGD)			
Groundwater	0.7	0.4	0.3
Surface Water	0	0	0
Municipal Wastewater (MGD)			
NPDES (Point Source)	0	0	0
LAS (Land Application)	0.9	0.5	0.4

List of Individual Municipal Permits

Permit Holder	Permit Number	Permit Limit (MGD)	Source / Receiving Stream
Existing Withdrawal Permits			
Ocilla, City of	077-0001	0.7	Floridan Aquifer
Existing Permitted Wastewater Facility			
Ocilla LAS	GAJ020180	0.85	LAS





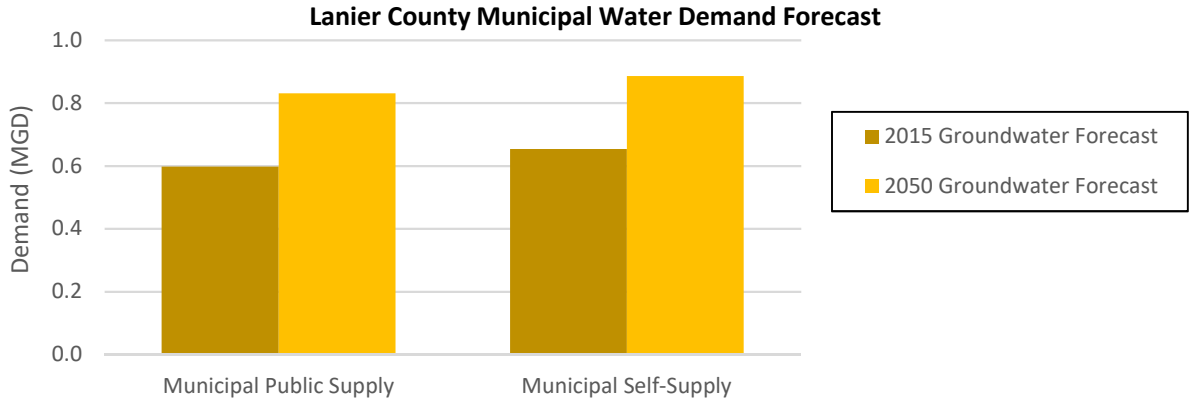
Lanier County

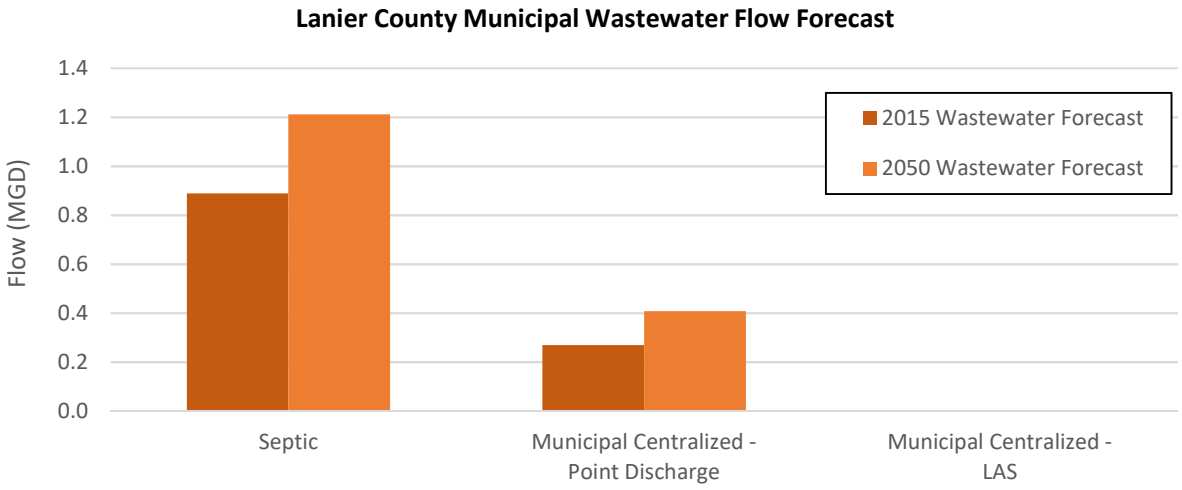
Municipal Water and Wastewater Permits Compared to Forecasts

Permit Type	Permit Limit (MGD)	2050 Forecast	Surplus (+) Shortage (-)
Municipal Water Demands (MGD)			
Groundwater	0.7	0.8	-0.1
Surface Water	0	0	0
Municipal Wastewater (MGD)			
NPDES (Point Source)	0.5	0.4	0.1
LAS (Land Application)	0	0	0

List of Individual Municipal Permits

Permit Holder	Permit Number	Permit Limit (MGD)	Source / Receiving Stream
Existing Withdrawal Permits			
Lakeland, City of	086-0001	0.7	Floridan Aquifer
Existing Permitted Wastewater Facility			
Lakeland (City of) WPCP	GA0021296	0.5	Big Creek





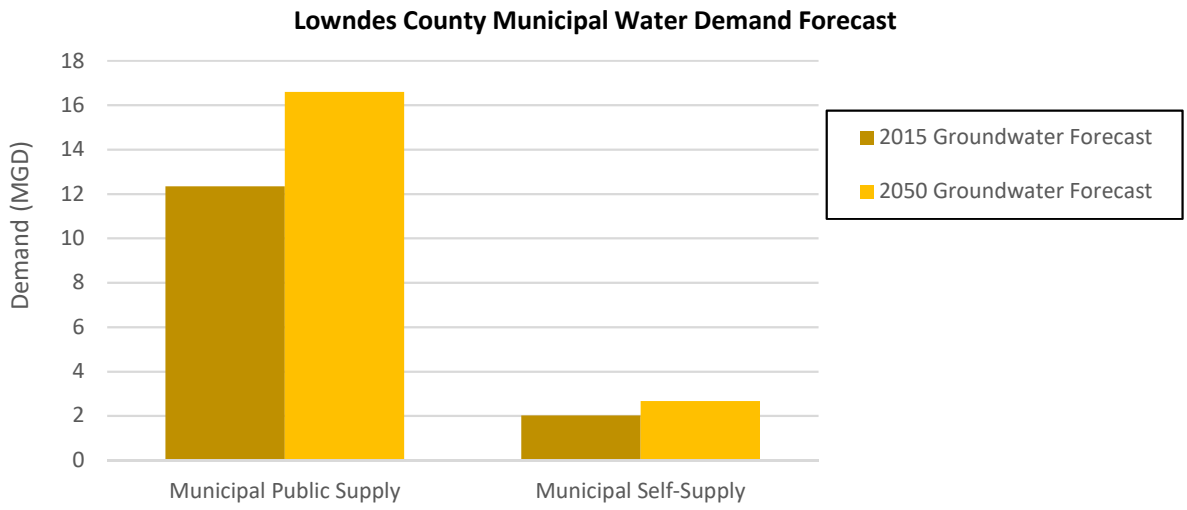
Lowndes County

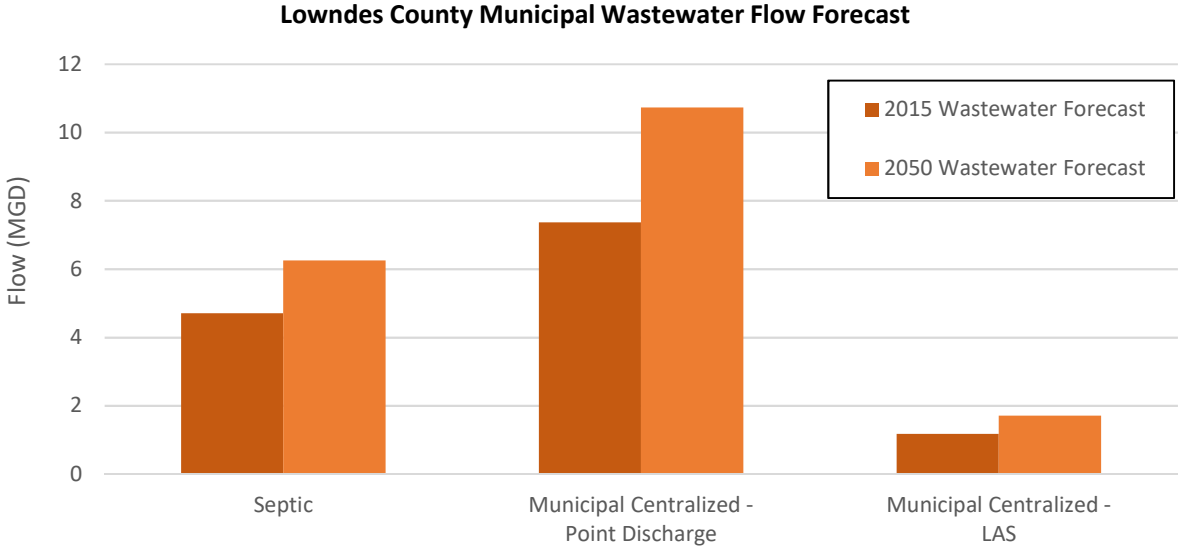
Municipal Water and Wastewater Permits Compared to Forecasts

Permit Type	Permit Limit (MGD)	2050 Forecast	Surplus (+) Shortage (-)
Municipal Water Demands (MGD)			
Groundwater	19	16.6	2.4
Surface Water	0	0	0
Municipal Wastewater (MGD)			
NPDES (Point Source)	14.9	10.7	4.2
LAS (Land Application)	2	1.7	0.3

List of Individual Municipal Permits

Permit Holder	Permit Number	Permit Limit (MGD)	Source / Receiving Stream
Existing Withdrawal Permits			
Hahira, City of	092-0003	0.4	Floridan Aquifer
Valdosta, City of	092-0004	11.4	Floridan Aquifer
Department of the Air Force - Moody Air Force Base	092-0006	0.8	Floridan Aquifer
Lowndes County Board of Commissioners - S. Lowndes System	092-0009	4.416	Floridan Aquifer
Lowndes County Board of Commissioners - N. Lowndes System	092-0011	1.52	Floridan Aquifer
Lowndes County Schools	092-0012	0	Floridan Aquifer
Lowndes County Board of Commissioners - Kinderlou Area	092-0013	0.5	Floridan Aquifer
Existing Permitted Wastewater Facility			
Moody AFB	GA0020001	0.75	Beatty Creek
Valdosta (City of) - Mud Creek WPCP	GA0020222	5.7	Mud Creek
Stoker Utilities, LLC - Oak Street Subdivision WPCP	GA0030104	0.1	Cherry Creek Tributary
Valdosta (City of) - Withlacoochee River WPCP	GA0033235	8	Withlacoochee River
Hahira (City of) WPCP	GA0037974	0.344	Franks Creek Tributary
GA Sheriff's Boy Ranch WPCP	GA0047228	0.025	Unnamed Creek to Withlacoochee River
Hamilton Point/Heather Woods Subd.	GAJ020030	0.05	LAS
Lowndes County South Lowndes Regional	GAJ020294	2	LAS


Lowndes County Municipal Water Demand Forecast
Demand (MGD)
18
16
14
12
10
8
6
4
2
0
Municipal Public Supply
Municipal Self-Supply
2015 Groundwater Forecast
2050 Groundwater Forecast


Lowndes County Municipal Wastewater Flow Forecast
Flow (MGD)
12
10
8
6
4
2
0
Septic
Municipal Centralized - Point Discharge
Municipal Centralized - LAS
2015 Wastewater Forecast
2050 Wastewater Forecast

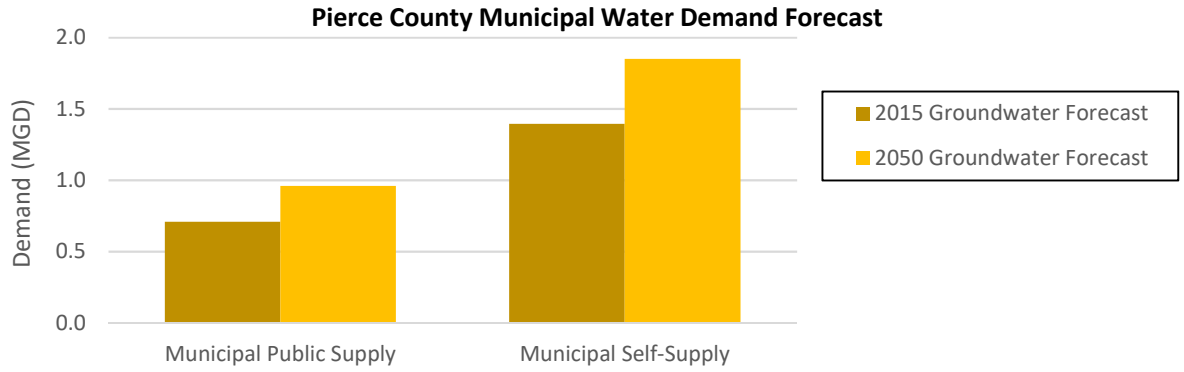
Pierce County

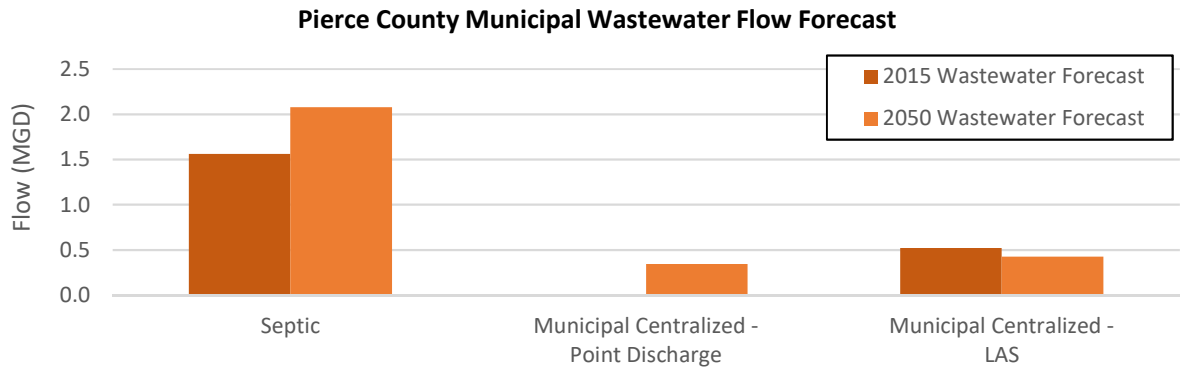
Municipal Water and Wastewater Permits Compared to Forecasts

Permit Type	Permit Limit (MGD)	2050 Forecast	Surplus (+) Shortage (-)
Municipal Water Demands (MGD)			
Groundwater	0.8	1.0	-0.2
Surface Water	0	0	0
Municipal Wastewater (MGD)			
NPDES (Point Source)	0.2	0.3	-0.1
LAS (Land Application)	0.5	0.4	0.1

List of Individual Municipal Permits

Permit Holder	Permit Number	Permit Limit (MGD)	Source / Receiving Stream
Existing Withdrawal Permits			
Blackshear, City of	113-0001	0.68	Floridan Aquifer
W&D Investments, Inc. - Okefenokee/Fairway Oaks Country Club	113-0004	0.15	Floridan Aquifer
Existing Permitted Wastewater Facility			
Patterson (City of) WRC	GA0037206	0.208	Patterson Creek
Blackshear (City of) LAS	GA02-001	0.5	LAS





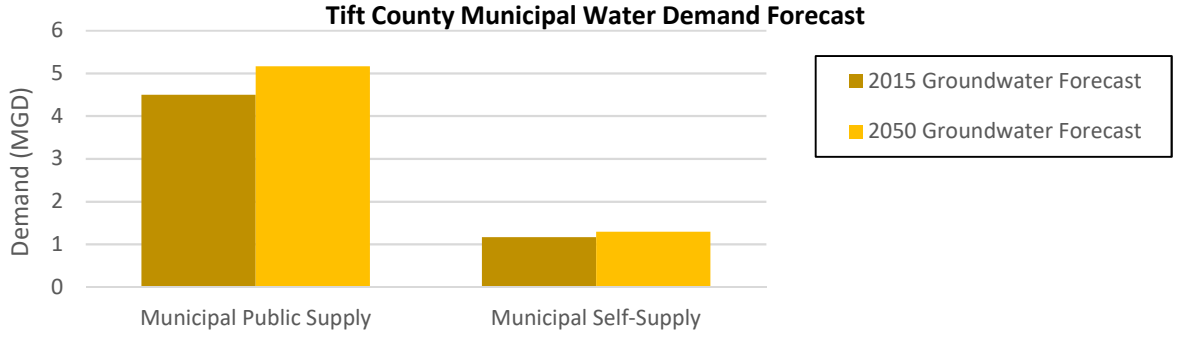
Tift County

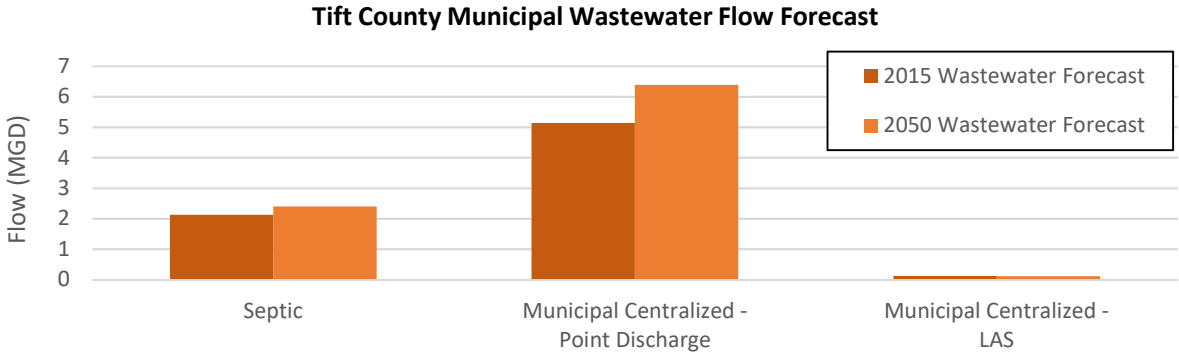
Municipal Water and Wastewater Permits Compared to Forecasts

Permit Type	Permit Limit (MGD)	2050 Forecast	Surplus (+) Shortage (-)
Municipal Water Demands (MGD)			
Groundwater	9.2	5.2	4
Surface Water	0	0	0
Municipal Wastewater (MGD)			
NPDES (Point Source)	8.1	6.4	1.7
LAS (Land Application)	0.1	0.1	0

List of Individual Municipal Permits

Permit Holder	Permit Number	Permit Limit (MGD)	Source / Receiving Stream
Existing Withdrawal Permits			
Tifton, City of	137-0001	8.36	Floridan Aquifer
Abraham Baldwin Agricultural College	137-0002	0.5	Floridan Aquifer
Omega, City of	137-0003	0.32	Floridan Aquifer
Existing Permitted Wastewater Facility			
Tifton (City of) - New River WPCP	GA0048470	8	New River Tributary
Economy Inn WPCP	GA0024465	0.016	Middle Creek
Ty Ty WPCP	GA0025500	0.078	Ty Ty Creek
Omega LAS	GAJ020219	0.131	LAS





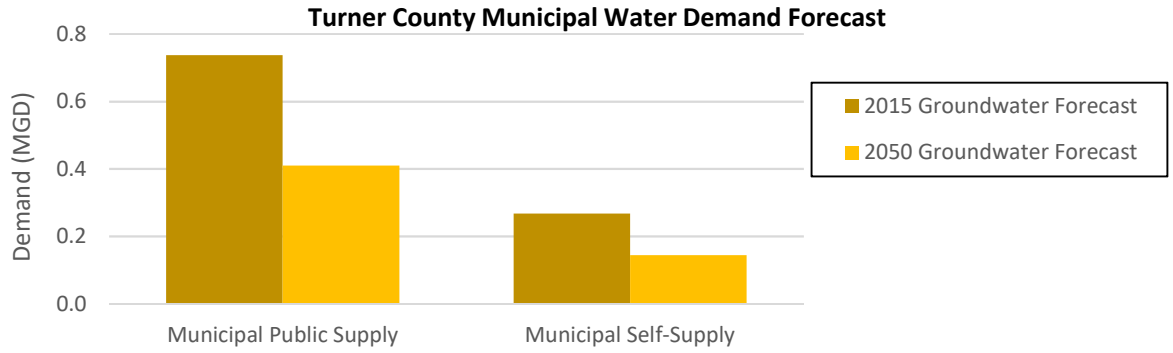
Turner County

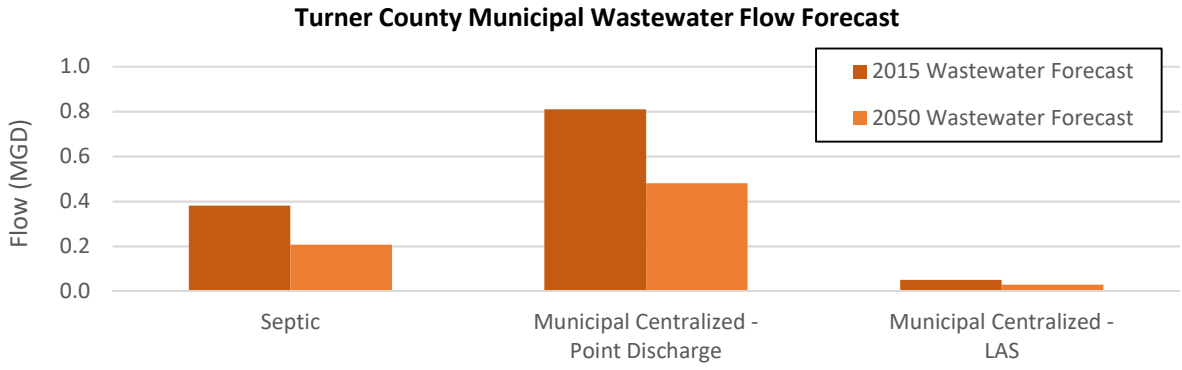
Municipal Water and Wastewater Permits Compared to Forecasts

Permit Type	Permit Limit (MGD)	2050 Forecast	Surplus (+) Shortage (-)
Municipal Water Demands (MGD)			
Groundwater	1.9	0.4	1.5
Surface Water	0	0	0
Municipal Wastewater (MGD)			
NPDES (Point Source)	1.2	0.5	0.7
LAS (Land Application)	0.08	0.03	0.05

List of Individual Municipal Permits

Permit Holder	Permit Number	Permit Limit (MGD)	Source / Receiving Stream
Existing Withdrawal Permits			
Ashburn, City of	142-0001	1.728	Floridan Aquifer
Sycamore, City of	142-0002	0.175	Floridan Aquifer
Existing Permitted Wastewater Facility			
SK Group Of Motels, Inc	GA0023370	0.014	Unnamed Creek to Deep Creek
Ashburn (City of) - Airport WPCP	GA0025852	1.16	Hat Creek
Sycamore LAS	GAJ020067	0.082	LAS





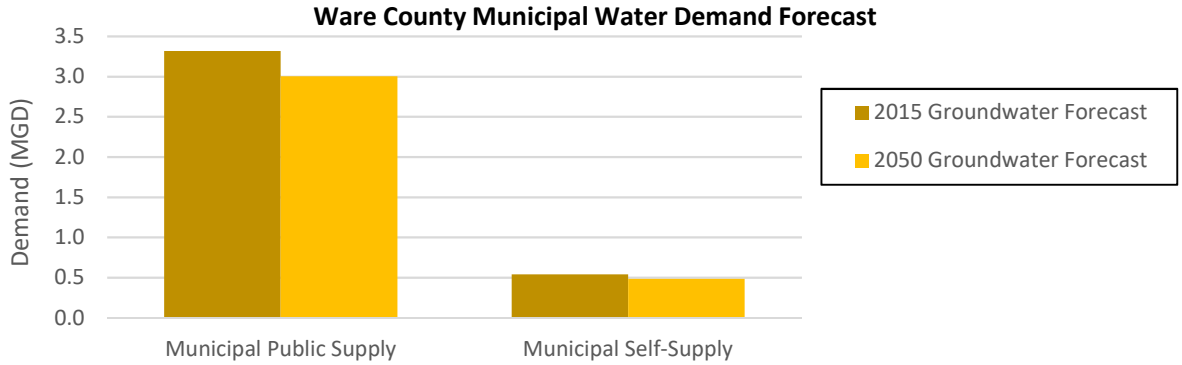
Ware County

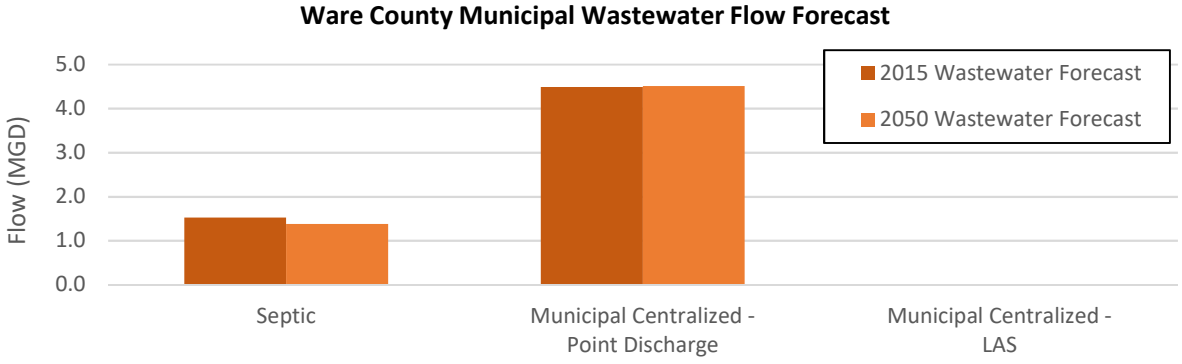
Municipal Water and Wastewater Permits Compared to Forecasts

Permit Type	Permit Limit (MGD)	2050 Forecast	Surplus (+) Shortage (-)
Municipal Water Demands (MGD)			
Groundwater	7.4	3.0	4.4
Surface Water	0	0	0
Municipal Wastewater (MGD)			
NPDES (Point Source)	6.7	4.5	2.2
LAS (Land Application)	0	0	0

List of Individual Municipal Permits

Permit Holder	Permit Number	Permit Limit (MGD)	Source / Receiving Stream
Existing Withdrawal Permits			
Waycross, City of	148-0001	2.6	Floridan Aquifer
Waycross, City of - Ware County Industrial Park	148-0004	3.0	Floridan Aquifer
Satilla Regional Water & Sewer Authority	148-0005	1.8	Floridan Aquifer
Existing Permitted Wastewater Facility			
Waycross (City of) WPCP	GA0020966	6.7	Satilla River





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