

# 2011 Reuse Inventory

May 2012

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Florida Department of Environmental Protection  
Water Reuse Program



# *2011 Reuse Inventory*

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Florida Department of Environmental Protection**

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# 2011 REUSE INVENTORY

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## Purpose

Water conservation and the promotion of reuse of reclaimed water have been established in Sections 403.064 and 373.250, Florida Statutes (F.S.), as formal state objectives. Florida maintains the largest and most comprehensive inventories of permitted reuse systems in the country. This inventory and future, annual updates of the inventory enable monitoring of the State's efforts to encourage and promote reuse of reclaimed water in Florida. In addition, the information contained in the inventory gives municipalities and utilities interested in developing reuse programs access to other communities and utilities that have already implemented such programs.

## Inventory Design

Chapter 62-610, Florida Administrative Code (F.A.C.), requires owners (permittees) of domestic wastewater facilities having permitted capacities of 0.1 million gallons per day (mgd) and above that provide reclaimed water for reuse to submit annual reuse reports on the Florida Department of Environmental Protection (FDEP) Form 62-610.300(4)(a)2., F.A.C. These annual reports are the basis for this inventory.

The forms for the 2011 reuse inventory were due on January 1, 2012, which covers a reporting period of October 1, 2010, through September 30, 2011. Information obtained from the report forms was entered into the Department's "Reuse Inventory Database," which is a Microsoft Access 2003 database. Over 97% of the 2011 annual reuse reports were received and entered into the database. For the 10 reuse systems that did not submit a 2011 annual reuse report form, data from the 2010 reuse inventory or the Department's wastewater facility regulation database were used.

In addition to the reuse reports received from the owners and operators of the wastewater treatment facilities and reuse systems, flow data and other information for facilities not engaged in reuse activities was obtained from the Department's wastewater facility regulation database.

The 2011 reuse inventory includes all active domestic wastewater treatment facilities having permitted capacities of 0.1 mgd or more, including those that do not engage in reuse activities. This threshold is also the minimum treatment plant capacity that is allowed by Chapter 62-610, F.A.C., to provide reclaimed water for irrigation of public access areas (such as parks and golf courses).

Appendix M provides definitions of terms, codes and abbreviations used in this report and appendices.

## Results

### *Reuse Facilities*

In 2011, a total of 487 domestic wastewater treatment facilities with permitted capacities of 0.1 mgd or above made reclaimed water available for reuse. These facilities had a permitted wastewater treatment facility (WWTF) capacity totaling 2,336 mgd and treated 1,373 mgd of domestic wastewater. These treatment facilities served 434 reuse systems which are listed in Appendix A. Approximately 722 mgd of reclaimed water from these facilities was reused for beneficial purposes. The total reuse capacity associated with these systems was 1,618 mgd. Appendices B<sup>1</sup>, D, E, and K provide information on these reuse facilities and reuse systems<sup>2</sup> as well as their reuse and disposal activities.

Reclaimed water from these systems was used to irrigate 311,068 residences, 546 golf courses, 998 parks, and 346 schools. Appendix F provides details on the numbers and types of public access reuse customers, including cooling towers and unique uses for reclaimed water. Table 1 summarizes the data in terms of the number of reuse facilities and reuse systems in each FDEP district and water management district, as well as the breakdown of certain public access reuse activities, such as number of residences, golf courses, parks, and schools irrigated by reclaimed water.

Table 2 provides a summary of reuse activities by reuse type, including the number of reuse systems, capacity, flow, and area for each reuse subtype. Irrigation of areas accessible to the public represented about 58 percent of the 722 mgd of reclaimed water reused. Figure 1 shows the percentage of reclaimed water utilization by flow for each reuse type. Table 3 compares the types of reclaimed water utilization in each FDEP district and water management district.

Over 14,056 acres of edible crops on 76 farms were reported to be irrigated with reclaimed water. Around 81% of the farmland was dedicated to the production of citrus (i.e., oranges, tangerines, grapefruit, etc.). Appendix G provides information on the 18 reuse systems providing reclaimed water for the irrigation of edible crops and the farms using the reclaimed water.

### *Disposal Facilities*

There are about 57 active domestic wastewater treatment facilities having permitted capacities of 0.1 mgd or greater that do not provide reuse of any kind. These facilities had a total WWTF capacity of 199 mgd and a total WWTF flow of 111 mgd. Appendix I provides information on facilities that engage in disposal activities only.

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<sup>1</sup> Due to the design of the reuse database, some facilities listed in Appendix B are assigned to the county where the reuse system is located. For example, the JEA-Julington Creek treatment facility is reported to be in Duval County, where JEA-South Grid is largely located, rather than St. Johns County where the treatment facility is actually located.

<sup>2</sup> See definitions in Appendix M for an explanation of the terms 'reuse facility' and 'reuse system' as used in this report.

## *All Facilities*

The 544 domestic wastewater treatment facilities with permitted capacities of 0.1 mgd or more had a total WWTF capacity of 2,535 mgd and a total WWTF flow of 1,485 mgd. Appendix L<sup>3</sup> provides information on all these facilities.

The 722 mgd of reclaimed water use represents approximately 49% of the total domestic wastewater flow in the state. The 1,618 mgd of reuse capacity represents approximately 64% of the total domestic wastewater treatment capacity in the state. Table 4 provides the reuse capacity and flow ratios for each FDEP district and water management district.

Table 5 provides a summary, by county, of the total domestic wastewater treatment plant and reuse capacities and flows for all facilities with permitted capacities of 0.1 mgd or greater, the ratio of the reuse capacity to wastewater treatment plant capacity, and the ratio of the reuse flow to total WWTF flow.

The state-wide average reuse flow per capita, including population served by onsite sewage treatment and disposal systems (e.g., septic tanks), was 38.19 gallons per day of reuse per person. Table 6 shows the per capita reuse capacities and reuse flows for each county in Florida. The per capita usage is based on 2011 population estimates from the State of Florida's Demographic Estimating Conference, July 2011 and the Florida Demographic Database, January 2012 (Florida Legislature, 2012). Figure 2 shows the map of Florida's counties color-coded by range of reuse flow per capita.

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<sup>3</sup> The total flow from all facilities reported in Appendix L does not equal totaling all reported reuse flows in Appendix D with all reported disposal flows in Appendices I and K. Reasons for this include:

- (1) Use of supplemental water supplies to augment public access reclaimed water application;
- (2) Use of reclaimed water in wetland creation, restoration, or enhancement activities that then later gets discharged or reused again;
- (3) Use of aquifer storage and recovery wells;
- (4) Use of reclaimed water at the treatment plant that is then reused again offsite or discharged; and
- (5) Other minor discrepancies due to internal rounding or differences in metering at the treatment plants.



**Table 1. Summary of Reuse Facilities/Systems<sup>(a)</sup> and Reuse Customers  
Information by District**

DEP District <sup>(b)</sup>	No. of Treatment Facilities Providing Reuse <sup>(c)</sup>	No. of Reuse Systems <sup>(c)</sup>	No. of Residences Irrigated	No. of Golf Courses Irrigated	No. of Parks Irrigated	No. of Schools Irrigated	No. of Cooling Towers <sup>(d)</sup>
Central (Orlando)	119	105	94,837	123	340	116	33
Northeast (Jacksonville)	71	65	13,038	36	13	7	1
Northwest (Pensacola)	63	58	2,976	24	12	6	3
Southeast (West Palm Beach)	48	46	26,933	82	48	22	5
South (Ft. Myers)	61	57	70,563	100	67	30	8
Southwest (Tampa)	125	103	102,721	181	518	165	40
<b>2011 Totals</b>	<b>487</b>	<b>434</b>	<b>311,068</b>	<b>546</b>	<b>998</b>	<b>346</b>	<b>90</b>
<b>Water Management District<sup>(b)</sup></b>							
Northwest Florida	63	58	2,976	24	12	6	3
South Florida	113	105	124,642	200	260	79	35
St. Johns River	147	130	79,334	121	204	95	12
Suwannee River	24	24	-	1	1	-	-
Southwest Florida	140	117	104,116	200	521	166	40
<b>2011 Totals</b>	<b>487</b>	<b>434</b>	<b>311,068</b>	<b>546</b>	<b>998</b>	<b>346</b>	<b>90</b>
<b>2010 Totals</b>	482	429	281,781	525	877	324	82
<b>% Change</b>	+1.0%	+1.2%	+10.4%	+4.0%	+13.8%	+6.8%	+9.8%

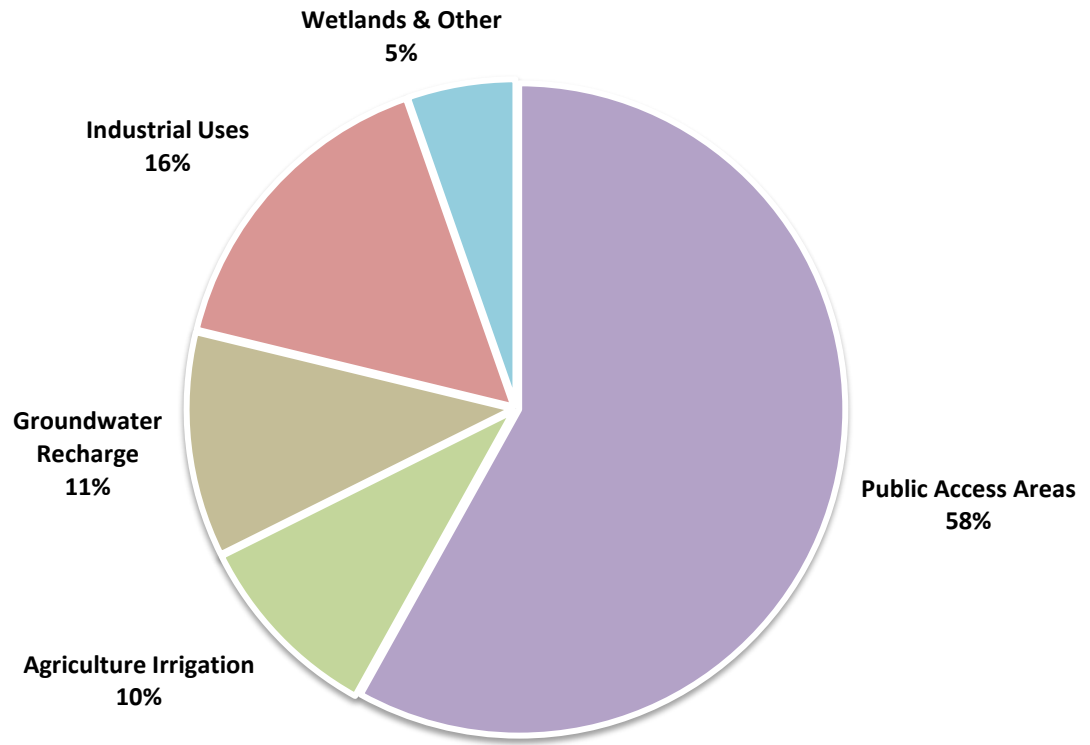
- Notes:
- (a) See definitions in Appendix M for an explanation of the terms ‘reuse facility’ and ‘reuse system’ as used in this report.
  - (b) A few reuse systems are physically located across jurisdictional boundaries (i.e., across more than one water management district, FDEP district, or county). Due to the design of the database, all of the reuse systems’ reuse flows are attributed to the jurisdiction in which the majority of the reuse system is located. For example, Ocala #1, Ocala #2, and Villages WWTF are listed as being located within the St. Johns River Water Management District; however, some of their reuse customers are also located within the Southwest Florida Water Management District.
  - (c) The number of treatment facilities providing reuse (Appendix B) is greater than the number of reuse systems (Appendix A) because in several cases multiple treatment facilities serve one reuse system. Furthermore, a treatment facility may send reclaimed water to more than one reuse system while these facilities will be listed more than once in Appendix B, they are only counted once in the total number of facilities providing reuse.
  - (d) The number of cooling towers includes once-through cooling towers at power plants as well as other commercial use cooling towers.

**Table 2. Summary of Reuse Activities**

<b>Reuse Type</b>	<b>Number of Systems<sup>(a)</sup></b>	<b>Reuse Capacity<sup>(b)</sup> (mgd)</b>	<b>Reuse Flow<sup>(b)</sup> (mgd)</b>	<b>Reported Area<sup>(b,c)</sup> (acres)</b>	<b>Adjusted Area<sup>(b,c)</sup> (acres)</b>
<b><u>Public Access Areas &amp; Landscape Irrigation</u></b>					
Golf Course Irrigation	190	307.9	135.6	66,123	67,676
Residential Irrigation	131	429.0	190.3	137,267	153,939
Other Public Access Areas & Other	140	196.8	93.4	37,108	50,705
<b>Subtotal</b>	<b>241</b>	<b>933.7</b>	<b>419.3</b>	<b>240,498</b>	<b>272,320</b>
<b><u>Agricultural Irrigation</u></b>					
Edible Crops <sup>(d)</sup>	18	34.2	16.8	14,056	14,056
Other Crops	109	138.6	52.3	24,553	26,592
<b>Subtotal</b>	<b>119</b>	<b>172.8</b>	<b>69.1</b>	<b>38,609</b>	<b>40,648</b>
<b><u>Ground Water Recharge &amp; Indirect Potable Reuse</u></b>					
Rapid Infiltration Basins	177	196.9	78.0	12,259	14,909
Absorption Fields	19	9.4	2.4	709	729
Surface Water Augmentation	0	0	0	NA	NA
Injection	0	0	0	NA	NA
<b>Subtotal</b>	<b>185</b>	<b>206.3</b>	<b>80.4</b>	<b>12,968</b>	<b>15,638</b>
<b><u>Industrial</u></b>					
At Treatment Plant	98	88.7	53.7	748	NA
At Other Facilities	39	125.2	60.8	4,783	NA
<b>Subtotal</b>	<b>117</b>	<b>213.8</b>	<b>114.5</b>	<b>5,531</b>	<b>NA</b>
<b><u>Toilet Flushing</u></b>	<b>14</b>	<b>1.1</b>	<b>0.4</b>	<b>NA</b>	<b>NA</b>
<b><u>Fire Protection</u></b>	<b>3</b>	<b>2.0</b>	<b>0</b>	<b>NA</b>	<b>NA</b>
<b><u>Wetlands</u></b>	<b>10</b>	<b>75.8</b>	<b>36.1</b>	<b>5,020</b>	<b>5,020</b>
<b><u>Other Uses</u></b>	<b>15</b>	<b>12.7</b>	<b>2.1</b>	<b>148</b>	<b>NA</b>
<b>2011 Totals</b>	<b>434</b>	<b>1,618.2</b>	<b>722.0</b>	<b>302,774</b>	<b>333,626</b>
<b>2010 Totals</b>	<b>429</b>	<b>1,562.2</b>	<b>658.5</b>	<b>299,015</b>	<b>346,256</b>
<b>% Change</b>	<b>+1.2%</b>	<b>+3.6%</b>	<b>+9.6%</b>	<b>+1.3%</b>	<b>-3.6%</b>

- Notes: (a) The numbers of systems are not additive since a single system may engage in one or more reuse activity.  
 (b) Discrepancies in column totals are due to internal rounding associated with the development of this summary table; totals presented in table are calculated without rounding individual values.  
 (c) Some facilities did not report the acreage where reclaimed water was applied. For a better representation of the actual acreage, the averages of the reported areas were used to adjust the acreage totals to include the non-reported values.  
 (d) About 81% of total area for edible crops is citrus – including oranges, grapefruit, and tangerines.

# Figure 1. Reclaimed Water Utilization by Flow



Note: (1) Agriculture irrigation includes edible crops (e.g., citrus) as well as feed and fodder crops (e.g., sprayfields).

**Table 3. Reuse Flows (mgd) for Reuse Types by FDEP District and Water Management District**

	Public Access Areas	Agricultural Irrigation	Ground Water Recharge	Industrial	Other <sup>(b)</sup>	Totals
<b>DEP Districts</b>						
Central (Orlando)	133.18	16.73	40.90	20.39	27.54	238.74
Northeast (Jacksonville)	24.39	8.59	4.17	8.23	0.24	45.62
Northwest (Pensacola)	14.01	24.80	9.05	10.53	6.27	64.65
Southeast (West Palm Beach)	54.88	0.88	5.22	33.60	4.19	98.78
South (Ft. Myers)	76.93	2.31	3.87	2.06	0.23	85.40
Southwest (Tampa)	115.95	15.83	17.19	39.69	0.20	188.85
<b>2011 Totals</b>	<b>419.35</b>	<b>69.13</b>	<b>80.39</b>	<b>114.50</b>	<b>38.67</b>	<b>722.04</b>
<b>Water Management Districts</b>						
Northwest Florida	14.01	24.80	9.05	10.53	6.27	64.65
South Florida	177.11	11.69	35.50	39.16	5.64	269.10
St. Johns River	106.55	8.38	15.84	24.38	26.30	181.45
Suwannee River	0.17	8.31	0.76	0.14	0.24	9.62
Southwest Florida	121.50	15.96	19.25	40.30	0.22	197.23
<b>2011 Totals</b>	<b>419.35</b>	<b>69.13</b>	<b>80.39</b>	<b>114.50</b>	<b>38.67</b>	<b>722.04</b>
<b>2010 Totals</b>	360.80	73.23	94.92	86.65	42.94	658.54
<b>% Change</b>	+16.2%	-5.6%	-15.3%	+32.1%	-9.9%	+9.6%

- Notes: (a) Any discrepancies in totals are due to rounding associated with developing this summary table; totals presented in table are calculated without rounding individual values.  
 (b) Includes wetlands, fire protection, toilet flushing and all "other uses."

**Table 4. Capacity and Flow Ratios by FDEP District and Water Management District**

DEP Districts	Reuse Capacity (mgd)	Total WWTF Capacity <sup>(b)</sup> (mgd)	Capacity Ratio <sup>(c)</sup>	Reuse Flow (mgd)	Total WWTF Flow <sup>(b)</sup> (mgd)	Flow Ratio <sup>(d)</sup>		
Central (Orlando)	506.9	444.27	1.14	238.7	249.63	0.96		
Northeast (Jacksonville)	118.2	240.15	0.49	45.6	127.69	0.36		
Northwest (Pensacola)	178.1	196.33	0.91	64.7	91.24	0.71		
Southeast (West Palm Beach)	185.3	894.48	0.21	98.8	606.00	0.16		
South (Ft. Myers)	144.6	186.42	0.78	85.4	90.53	0.94		
Southwest (Tampa)	485.2	573.33	0.85	188.9	319.69	0.59		
<b>2011 Totals</b>	<b>1618.2</b>	<b>2535.0</b>	<b>0.64<sup>(g)</sup></b>	<b>722.0</b>	<b>1484.8</b>	<b>0.49<sup>(g)</sup></b>		

Water Management Districts	Reuse Capacity (mgd)	Total WWTF Capacity <sup>(b)</sup> (mgd)	Capacity Ratio <sup>(c)</sup>	Reuse Flow (mgd)	Total WWTF Flow <sup>(b)</sup> (mgd)	Flow Ratio <sup>(d)</sup>	Reuse Flow that Replaces Potable-Quality Water <sup>(e)</sup> (mgd)	Flow Ratio for Reuse that Replaces Potable-Quality Water <sup>(f)</sup>
Northwest Florida	178.1	196.33	0.91	64.7	91.24	0.71	23.2	0.25
South Florida	498.8	1190.74	0.42	269.1	773.11	0.35	200.3	0.26
St. Johns River	411.1	532.06	0.77	181.5	276.44	0.66	117.3	0.42
Suwannee River	18.6	17.73	1.05	9.6	10.73	0.90	0.4	0.04
Southwest Florida	511.7	598.13	0.86	197.2	333.27	0.59	156.1	0.47
<b>2011 Totals</b>	<b>1618.2</b>	<b>2535.0</b>	<b>0.64<sup>(g)</sup></b>	<b>722.0</b>	<b>1484.8</b>	<b>0.49<sup>(g)</sup></b>	<b>497.3</b>	<b>0.33<sup>(g)</sup></b>

- Note: (a) Discrepancies in totaling the columns are due to internal rounding associated with the development of this table; totals presented in table are calculated without rounding individual values.
- (b) Totals include the wastewater treatment plant (WWTF) capacity and flow of facilities over 0.1 million gallons per day (mgd) that do not provide reuse.
- (c) Capacity Ratio = Reuse Capacity/Total WWTF Capacity.  
Capacities ratios greater than 1.0 (i.e., greater than 100%) indicate the utility(s) may employ several reuse options, making the reuse capacity greater than the WWTF capacity.
- (d) Flow Ratio = Reuse Flow/Total WWTF Flow.
- (e) Reuse Flow That Replaces Potable-Quality Water includes flows for public access irrigation, irrigation of edible crops, toilet flushing, fire protection, and industrial uses. Not included in this flow calculation are agriculture irrigation of other crops, absorption fields, rapid infiltration basins, wetlands, and industrial reuse at the treatment plant.
- (f) Flow Ratio for Reuse that Replaces Potable-Quality Water = Reuse Flow that Replaces Potable-Quality Water/Total WWTF Flow.
- (g) State average.

**Table 5. County Capacity and Flow Ratios**

County	Total WWTF Capacity (mgd) <sup>(a)</sup>	Total WWTF Flow (mgd) <sup>(a)</sup>	Reuse Capacity (mgd)	Reuse Flow (mgd)	Capacity Ratio <sup>(b)</sup>	Flow Ratio <sup>(c)</sup>
Alachua	27.24	17.91	11.62	4.99	0.43	0.28
Baker	1.59	0.87	0.38	0.21	0.24	0.25
Bay	33.58	13.74	5.40	3.60	0.16	0.26
Bradford	3.43	1.78	2.70	1.66	0.79	0.93
Brevard	64.27	36.04	50.24	26.16	0.78	0.73
Broward	296.02	196.24	19.03	12.32	0.06	0.06
Calhoun	1.50	0.54	0	0	0	0
Charlotte	16.80	9.46	15.66	4.04	0.93	0.43
Citrus	7.13	3.19	7.88	3.19	1.10	1.00
Clay	19.36	9.12	15.16	5.73	0.78	0.63
Collier	59.16	24.90	38.98	26.52	0.66	1.06
Columbia	3.53	2.61	3.48	2.61	0.99	1.00
De Soto	3.34	1.38	2.94	1.20	0.88	0.87
Dixie	0.40	0.18	0.40	0.18	1.00	1.00
Duval	136.80	67.68	28.22	12.93	0.21	0.19
Escambia	53.55	28.04	45.68	16.91	0.85	0.60
Flagler	12.41	7.61	22.59	7.24	1.82	0.95
Franklin	2.50	0.71	1.28	0.46	0.51	0.65
Gadsden	4.27	1.66	1.48	0.45	0.35	0.27
Gilchrist	0.45	0.22	0.45	0.22	1.00	1.00
Glades	0.24	0.17	0	0	1	1
Gulf	5.07	0.66	3.58	0.26	0.71	0.39
Hamilton	1.53	1.07	0.20	0.14	0.13	0.13
Hardee	2.29	1.22	2.29	1.22	1.00	1.00
Hendry	3.11	2.12	3.11	2.12	1.00	1.00
Hernando	8.65	4.49	15.98	4.49	1.85	1.00
Highlands	4.65	1.82	4.47	1.81	0.96	0.99
Hillsborough	164.54	97.99	63.83	40.59	0.39	0.41
Holmes	1.40	0.52	0	0	0	0
Indian River	12.73	6.46	10.03	6.27	0.79	0.97
Jackson	6.58	1.98	5.31	1.54	0.81	0.78
Jefferson	1.25	0.51	1.30	0.41	1.04	0.79
Lafayette	0.36	0.27	0.36	0.27	1.00	1.00
Lake	29.01	12.25	42.91	12.01	1.48	0.98
Lee	87.55	45.82	79.47	50.21	0.91	1.10
Leon	27.87	16.52	38.43	16.58	1.38	1.00
Levy	1.11	0.52	1.10	0.52	0.99	1.00
Liberty	0.53	0.29	0.53	0.29	1.00	1.00
Madison	1.52	0.72	1.52	0.72	1.00	1.00
Manatee	50.40	26.75	30.05	15.65	0.60	0.59
Marion	22.09	9.79	26.37	8.81	1.19	0.90

County	Total WWTF Capacity (mgd) <sup>(a)</sup>	Total WWTF Flow (mgd) <sup>(a)</sup>	Reuse Capacity (mgd)	Reuse Flow (mgd)	Capacity Ratio <sup>(b)</sup>	Flow Ratio <sup>(c)</sup>
Martin	15.31	7.29	12.98	4.98	0.85	0.68
Miami-Dade	374.31	272.81	22.49	14.36	0.06	0.05
Monroe	14.32	6.04	1.97	0.34	0.14	0.06
Nassau	6.62	3.19	2.48	1.55	0.37	0.48
Okaloosa	31.25	14.86	36.68	14.88	1.17	1.00
Okeechobee	1.80	0.84	1.63	0.80	0.91	0.95
Orange	128.72	92.11	181.15	97.66	1.41	1.06
Osceola	37.99	24.40	51.35	24.23	1.35	0.99
Palm Beach	179.27	115.00	117.86	61.95	0.66	0.54
Pasco	52.05	26.77	41.05	27.12	0.79	1.01
Pinellas	170.65	98.54	211.65	56.17	1.24	0.57
Polk	58.86	29.84	42.96	17.39	0.73	0.58
Putnam	4.30	1.61	3.70	0.46	0.86	0.28
Santa Rosa	11.04	5.48	10.76	3.73	0.97	0.68
Sarasota	41.47	22.71	47.05	15.03	1.13	0.66
Seminole	82.55	39.42	94.40	40.32	1.14	1.02
St. Johns	15.34	9.78	17.22	3.64	1.12	0.37
St. Lucie	28.38	14.02	11.94	4.57	0.42	0.33
Sumter	12.00	6.01	15.99	6.01	1.33	1.00
Suwannee	1.58	0.96	3.93	0.96	2.49	1.00
Taylor	1.65	1.01	1.65	1.01	1.00	1.00
Union	0.70	0.46	0.70	0.46	1.00	1.00
Volusia	68.86	29.96	53.97	24.07	0.78	0.80
Wakulla	1.26	0.94	1.26	0.94	1.00	1.00
Walton	13.08	4.09	26.02	4.37	1.99	1.07
Washington	1.87	0.86	0.68	0.40	0.36	0.47
<b>Totals<sup>(d)</sup>/Avs:</b>	<b>2,534.98</b>	<b>1,484.79</b>	<b>1,618.23</b>	<b>722.04</b>	<b>0.64<sup>(e)</sup></b>	<b>0.49<sup>(e)</sup></b>

Notes: (a) Totals include the wastewater treatment plant (WWTF) capacity and flow of facilities over 0.1 million gallons per day (mgd) that do not provide reuse.

(b) Capacity Ratio = Reuse Capacity/Total WWTF Capacity.  
Capacities ratios greater than 1.0 (i.e., greater than 100%) indicate the utility(s) may employ several reuse options, making the reuse capacity greater than the WWTF capacity.

(c) Flow Ratio = Reuse Flow/Total WWTF Flow.  
Flow ratios greater than 1.0 (i.e., greater than 100%) indicate that reuse may include supplemental water supplies, reclaimed water recovered from aquifer storage recover wells, or reclaimed water that is reused at the treatment plant and then reused again offsite.

(d) Discrepancies in totaling the columns are due to internal rounding associated with the development of this table; totals presented in table are calculated without rounding individual values.

(e) State Average.

**Table 6. Per Capita Reuse Information**

County	Population (2011) <sup>(a)</sup>	Reuse Capacity (gpd/person) <sup>(b)</sup>	Reuse Flow (gpd/person) <sup>(c)</sup>	Rank (flow) <sup>(d)</sup>	Rank (population) <sup>(e)</sup>
Alachua	247,337	46.96	20.16	47	23
Baker	26,927	14.15	7.91	61	52
Bay	169,278	31.91	21.24	45	28
Bradford	28,662	94.03	58.06	13	50
Brevard	545,184	92.15	47.98	18	10
Broward	1,753,162	10.85	7.03	62	2
Calhoun	14,685	0	0	66-67	62
Charlotte	160,463	97.61	25.18	41	29
Citrus	140,956	55.87	22.66	43	32
Clay	191,143	79.31	29.96	35	25
Collier	323,785	120.39	81.89	4	17
Columbia	67,528	51.59	38.58	26	40
De Soto	34,708	84.61	34.63	28	48
Dixie	16,385	24.41	10.74	58	58
Duval	864,601	32.64	14.96	54	7
Escambia	299,261	152.63	56.49	14	18
Flagler	96,241	234.71	75.18	8	36
Franklin	11,527	111.04	39.91	24	65
Gadsden	48,200	30.72	9.38	60	43
Gilchrist	16,983	26.50	13.13	56	57
Glades	12,812	25	13	55	64
Gulf	15,789	226.74	16.40	51	59
Hamilton	14,744	13.56	9.50	59	61
Hardee	27,653	82.88	44.05	22	51
Hendry	38,908	79.91	54.38	15	47
Hernando	173,078	92.31	25.94	40	27
Highlands	98,712	45.30	18.31	50	34
Hillsborough	1,238,951	51.52	32.76	31	4
Holmes	19,901	0	0	67-67	55
Indian River	138,694	72.35	45.18	20	33
Jackson	49,964	106.32	30.78	33	42
Jefferson	14,666	88.71	27.68	38	63
Lafayette	8,752	41.48	30.96	32	66
Lake	298,265	143.88	40.28	23	19
Lee	625,310	127.10	80.30	6	8
Leon	276,278	139.09	60.01	11	21
Levy	40,767	26.86	12.63	57	45
Liberty	8,370	63.32	34.53	29	67
Madison	19,298	78.76	37.21	27	56
Manatee	325,905	92.19	48.02	17	16



County	Population (2011) <sup>(a)</sup>	Reuse Capacity (gpd/person) <sup>(b)</sup>	Reuse Flow (gpd/person) <sup>(c)</sup>	Rank (flow) <sup>(d)</sup>	Rank (population) <sup>(e)</sup>
Marion	331,745	79.49	26.57	39	15
Martin	146,689	88.49	33.96	30	31
Miami-Dade	2,516,515	8.94	5.70	64	1
Monroe	72,670	27.12	4.74	65	39
Nassau	73,684	33.63	20.98	46	38
Okaloosa	181,679	201.91	81.88	5	26
Okeechobee	39,870	40.93	20.04	48	46
Orange	1,157,342	156.52	84.39	3	5
Osceola	273,867	187.49	88.46	2	22
Palm Beach	1,325,758	88.90	46.73	19	3
Pasco	466,533	87.99	58.12	12	12
Pinellas	918,496	230.43	61.16	10	6
Polk	604,792	71.04	28.76	37	9
Putnam	74,052	50.02	6.14	63	37
Santa Rosa	154,901	69.43	24.11	42	30
Sarasota	381,319	123.38	39.43	25	14
Seminole	424,587	222.34	94.95	1	13
St. Johns	192,852	89.31	18.87	49	24
St. Lucie	279,696	42.69	16.33	52	20
Sumter	96,615	165.51	62.25	9	35
Suwannee	43,215	90.92	22.21	44	44
Taylor	22,500	73.33	44.98	21	54
Union	15,473	45.24	29.41	36	60
Volusia	495,400	108.94	48.58	16	11
Wakulla	30,877	40.65	30.44	34	49
Walton	55,450	469.23	78.73	7	41
Washington	24,638	27.40	16.24	53	53
<b>Florida</b>	<b>18,905,048</b>	<b>85.60<sup>(f)</sup></b>	<b>38.19<sup>(f)</sup></b>		

Notes: (a) 2011 population estimates from the Florida Demographic Estimating Conference, July 2011, and the Florida Demographic Database, January 2012.

(b) Reuse Capacity = Reuse Capacity (gpd)/Population.

(c) Reuse Flow = Reuse Flow (gpd)/Population.

(d) Counties ranked from highest rate of reuse flow per capita to lowest rate of reuse flow per capita (e.g., county with highest rate of reuse flow per capita is ranked No. 1; counties with no reuse flow per capita tie for last place).

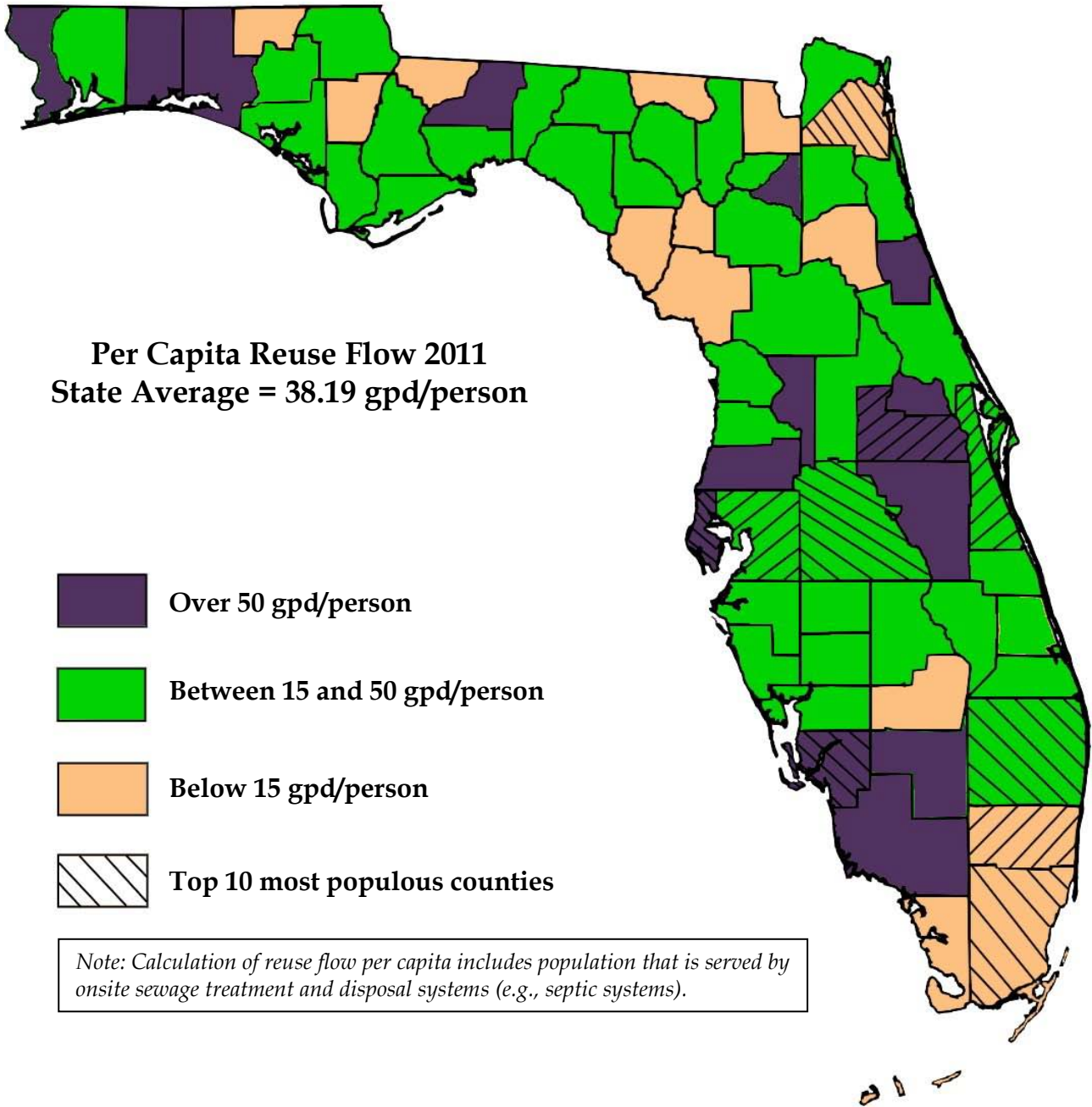
(e) Counties ranked according to population capita (e.g., county with highest population is ranked No. 1).

(f) State average.

(e) Discrepancies in calculating per capita statistics are due to internal rounding associated with the development of these tables; values presented in this table are calculated without rounding individual values.

*gpd = gallons per day (equivalent to mgd\*1,000,000)*

## Figure 2. Map of Per Capita Reuse Flow by County



## Supplemental Water Supplies

Some reuse systems use other sources of water to augment the reclaimed water supply. In 2011, a total of 52 reuse systems in Florida used 14.74 mgd of surface water, 15.67 mgd of ground water, 0.73 mgd of stormwater, and 0.87 mgd of drinking water to supplement reclaimed water supplies for a total of 32.01 mgd of supplemental water used in 2011. In addition, 2.04 mgd of demineralization concentrate was blended with reclaimed water while 0.19 mgd of reclaimed water was recovered from aquifer storage and recovery (ASR) wells and sent to a reuse system. Appendix C details the 52 reuse systems in the state which use supplemental water supplies and summarizes the flows by water management district.

## Reuse Rates

Utilities recoup costs associated with the reuse system through rate recovery. Reuse costs can be allocated among wastewater customers, water users, and reclaimed water users. Table 7a provides a summary of charges made for the use of reclaimed water in Florida for reuse systems that reported charging fees.

**Table 7a. Summary of Reuse Rates for Reuse Systems<sup>(a)</sup>**

### Residential Customers - 130 systems

	<i>Average</i>	<i>Median</i>	<i>Range</i>	<i>No. of Systems</i>
Flat Rate Only (\$/month/connection)	\$10.54	\$9.74	\$4.92- \$18.45	26
Gallonge Charge Only (\$/1000 gallons)	\$1.04	\$0.81	\$0.19 - \$5.42	46
Combination Flat and per Gallon Charge				41
Flat Rate <sup>(b)</sup> (\$/month/connection)	\$8.47	\$7.00	\$2.62 - \$24.90	
Gallonge Charge (\$/1000 gallons)	\$0.89	\$0.78	\$0.22 - \$2.75	

### Non-Residential Customers - 218 systems

	<i>Average</i>	<i>Median</i>	<i>Range</i>	<i>No. of Systems</i>
Flat Rate Only (\$/month/connection)	\$561.79	\$373	\$5.80 - \$1,500	14
Gallonge Charge Only (\$/1000 gallons)	\$0.67	\$0.37	\$0.05 - \$18.30	91
Combination Flat and per Gallon Charge				40
Flat Rate <sup>(b)</sup> (\$/month/connection)	\$1,089.03	\$31.64	\$3.87 - \$12,595 <sup>(c)</sup>	
Gallonge Charge (\$/1000 gallons)	\$0.91	\$0.70	\$0.10 - \$3.67	

Notes: (a) Many reuse systems charge a tiered-rate based on total volume used and/or their rates are based on the size of the connection; however, only one charge value per customer type was chosen for this data analysis.

(b) \$12,595/month reported by Dunes CDD.

A total of 71 utilities reported not charging their residential and/or non-residential reclaimed water customers any fee (base, flat, or gallonage) specific to use of reclaimed water<sup>4</sup>. These utilities may recoup the costs associated with the reuse

<sup>4</sup> Some of these utilities may not only own and operate the reuse system but also the establishment(s) to which public access reclaimed water is being applied, such as a golf course. Therefore, they do not charge themselves for the use of the reclaimed water.

system through other means. Table 7b provides a summary of reuse systems, utilities, and customer types.

**Table 7b. Summary of Reuse Systems and Utilities with Public Access Reuse Customers (Residential and Non-Residential)**

	No. of Reuse Systems	No. of Utilities <sup>(a)</sup>	No. of Utilities Reporting No Charges <sup>(b)</sup>
Total	233	174	71
Serving both residential and non-residential customers	117	97	9
Serving only residential customers	14	8	3
Serving only non-residential customers	102	69	43
Total serving residential customers	130	105	17
Total serving non-residential customers	218	166	63

Notes: (a) A utility can be a public (e.g., JEA, Lee County, City of Sanibel, etc.) or private (e.g., Toho Water Authority) entity operating one or more reuse systems within that entity's jurisdiction or area. See Appendix M for definitions of these terms as used in this report.

(b) Number of unique utilities that reported not charging their reuse customers for the use of their reclaimed water.

Appendix H shows the 233 reuse systems who reported having public access reuse customers and their charges for use of reclaimed water.

### Efficient and Effective Water Reuse

In 2003, Water Reuse for Florida: Strategies for Effective Use of Reclaimed Water, also known as, "*The Strategies Report*," was published. The report identifies strategies for increasing the efficient and effective use of reclaimed water. Two concepts introduced in the report, "potable quality water offset" and "recharge fraction," will play increasingly important roles in shaping efficient and effective water reuse in Florida.

"Potable quality water offset" means the amount of potable quality water (Class F-I, G-I, or G-II ground water or water meeting drinking water standards) saved through the use of reclaimed water expressed as a percentage of the total reclaimed water used. "Recharge fraction" means the portion of reclaimed water used in a reuse system that recharges an underlying potable quality ground water (Class F-I, G-I, or G-II ground water) that is used for potable supply, or augments a Class I surface water, expressed as a percentage of the total reclaimed water used.

The 722 mgd of reclaimed water used in 2011 is estimated to have offset (i.e., avoided) the use of 390 mgd (over 142 billion gallons) of potable quality water while serving to add 224 mgd (over 81 billion gallons) back to available water supplies.

Table 8a summarizes the amount of potable quality water offset and recharge flow achieved within each FDEP district and water management district. Table 8b

details the amount of reclaimed water used to offset and recharge potable quality water by county.

**Table 8a. Summary of Offset and Recharge Flows**

<b>FDEP District</b>	<b>Total Flow (mgd)</b>	<b>Offset Flow<sup>(a)</sup> (mgd)</b>	<b>Recharge Flow<sup>(a)</sup> (mgd)</b>
Central (Orlando)	211.22	105.30	83.16
Northeast (Jacksonville)	45.62	27.61	13.72
Northwest (Pensacola)	58.42	33.96	20.36
Southeast (West Palm Beach)	94.61	68.14	18.17
South (Ft. Myers)	85.23	45.10	28.66
Southwest (Tampa)	188.66	110.12	59.73
<b>2011 Totals</b>	<b>683.75</b>	<b>390.23</b>	<b>223.79</b>
<b>Water Management District</b>	<b>Total Flow (mgd)</b>	<b>Offset Flow<sup>(a)</sup> (mgd)</b>	<b>Recharge Flow<sup>(a)</sup> (mgd)</b>
Northwest Florida	58.42	33.96	20.36
South Florida	263.54	148.79	86.44
St. Johns River	155.16	87.50	50.59
Suwannee River	9.62	5.47	3.63
Southwest Florida	197.01	114.50	62.77
<b>2011 Totals</b>	<b>683.75</b>	<b>390.23</b>	<b>223.79</b>

- Note: (a) The offset and recharge flows were calculated using values from Table 5 of the *Strategies Report*. See Table 8b for details.
- (b) Discrepancies in totaling the columns are due to internal rounding associated with the development of this table; totals presented in table are calculated without rounding individual values.

**Table 8b. County Offset and Recharge Flows Due to Water Reuse**

	Golf Course Irrigation (mgd)			Residential Irrigation (mgd)			Other Public Access Areas (mgd)			Ground Water Recharge & Indirect Potable Reuse(mgd)		Agricultural Irrigation (mgd)			Industrial Uses, Toilet Flushing & Fire Protection(mgd)		Totals (mgd)		
County	GCI Reuse Flow	GCI Offset Flow	GCI RF <sup>(b)</sup>	RI Reuse Flow	RI Offset Flow	RI RF <sup>(b)</sup>	OPAA Reuse Flow	OPAA Offset Flow	OPAA RF <sup>(b)</sup>	GWR&IPR Reuse Flow	GWR&IPR RF <sup>(b)</sup>	AI Reuse Flow	AI Offset Flow	AI RF <sup>(b)</sup>	IND, TF, FP Reuse Flow	IND, TF, FP Offset Flow	Total Flow	Total Offset Flow	Total RF <sup>(b)</sup>
Alachua	1.166	0.874	0.117	1.832	0.733	0.824	0.567	0.340	0.170	0.117	0.106	0.875	0.525	0.306	0.428	0.428	4.985	2.900	1.523
Baker	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.135	0.122	0.078	0.047	0.027	0.000	0.000	0.213	0.047	0.149
Bay	0.750	0.563	0.075	2.063	0.825	0.928	0.741	0.445	0.222	0.000	0.000	0.000	0.000	0.000	0.042	0.042	3.596	1.874	1.226
Bradford	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.526	0.916	0.534	0.138	0.138	1.664	1.054	0.534
Brevard	6.276	4.707	0.628	11.000	4.400	4.950	4.290	2.574	1.287	0.774	0.697	0.303	0.182	0.106	1.777	1.777	24.420	13.640	7.667
Broward	3.161	2.371	0.316	1.490	0.596	0.671	0.444	0.266	0.133	0.570	0.513	0.000	0.000	0.000	6.655	6.655	12.320	9.888	1.633
Calhoun	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Charlotte	2.708	2.031	0.271	0.428	0.171	0.193	0.085	0.051	0.025	0.177	0.159	0.000	0.000	0.000	0.625	0.625	4.023	2.878	0.648
Citrus	0.041	0.030	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1.395	1.256	1.759	1.055	0.616	0.000	0.000	3.195	1.086	1.875
Clay	0.867	0.650	0.087	4.723	1.889	2.125	0.000	0.000	0.000	0.136	0.122	0.000	0.000	0.000	0.000	0.000	5.726	2.539	2.334
Collier	9.026	6.770	0.903	12.627	5.051	5.682	4.036	2.422	1.211	0.146	0.131	0.680	0.408	0.238	0.000	0.000	26.515	14.650	8.165
Columbia	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.436	1.462	0.853	0.169	0.169	2.605	1.631	0.853
De Soto	0.140	0.105	0.014	0.020	0.008	0.009	0.080	0.048	0.024	0.078	0.070	0.884	0.530	0.309	0.000	0.000	1.202	0.691	0.427
Dixie	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.176	0.106	0.062	0.000	0.000	0.176	0.106	0.062
Duval	0.959	0.719	0.096	1.820	0.728	0.819	3.030	1.818	0.909	0.228	0.205	0.000	0.000	0.000	6.896	6.896	12.933	10.161	2.029
Escambia	0.000	0.000	0.000	0.000	0.000	0.000	0.973	0.584	0.292	0.000	0.000	0.000	0.000	0.000	10.135	10.135	11.108	10.719	0.292
Flagler	2.652	1.989	0.265	2.041	0.816	0.918	0.475	0.285	0.143	2.067	1.860	0.000	0.000	0.000	0.000	0.000	7.235	3.090	3.186
Franklin	0.073	0.055	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.342	0.205	0.120	0.045	0.045	0.460	0.305	0.127
Gadsden	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.287	0.259	0.067	0.040	0.023	0.098	0.098	0.452	0.138	0.282
Gilchrist	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.223	0.134	0.078	0.000	0.000	0.223	0.134	0.078
Glades	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.085	0.051	0.030	0.000	0.000	0.085	0.051	0.030
Gulf	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.259	0.155	0.091	0.000	0.000	0.259	0.155	0.091
Hamilton	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.140	0.084	0.049	0.000	0.000	0.140	0.084	0.049
Hardee	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.385	0.231	0.135	0.833	0.833	1.218	1.064	0.135
Hendry	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.678	0.610	1.438	0.863	0.503	0.000	0.000	2.116	0.863	1.114
Hernando	1.203	0.902	0.120	0.000	0.000	0.000	0.000	0.000	0.000	2.520	2.268	0.000	0.000	0.000	0.766	0.766	4.489	1.668	2.388
Highlands	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.761	1.585	0.024	0.014	0.008	0.022	0.022	1.807	0.036	1.593
Hillsborough	2.748	2.061	0.275	13.542	5.417	6.094	3.279	1.967	0.984	0.451	0.406	0.235	0.141	0.082	20.334	20.334	40.589	29.920	7.841

County	GCI Reuse Flow	GCI Offset Flow	GCI RF <sup>(b)</sup>	RI Reuse Flow	RI Offset Flow	RI RF <sup>(b)</sup>	OPAA Reuse Flow	OPAA Offset Flow	OPAA RF <sup>(b)</sup>	GWR&IPR Reuse Flow	GWR&IPR RF <sup>(b)</sup>	AI Reuse Flow	AI Offset Flow	AI RF <sup>(b)</sup>	IND, TF, FP Reuse Flow	IND, TF, FP Offset Flow	Total Flow	Total Offset Flow	Total RF <sup>(b)</sup>
Holmes	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Indian River	3.636	2.727	0.364	1.973	0.789	0.888	0.275	0.165	0.083	0.139	0.125	0.000	0.000	0.000	0.243	0.243	6.266	3.924	1.459
Jackson	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.498	0.899	0.524	0.040	0.040	1.538	0.939	0.524
Jefferson	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.336	0.202	0.118	0.070	0.070	0.406	0.272	0.118
Lafayette	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.175	0.158	0.096	0.058	0.034	0.000	0.000	0.271	0.058	0.191
Lake	3.030	2.273	0.303	2.505	1.002	1.127	0.756	0.454	0.227	3.821	3.439	1.856	1.114	0.650	0.046	0.046	12.014	4.888	5.746
Lee	12.379	9.284	1.238	28.061	11.224	12.627	7.287	4.372	2.186	0.907	0.816	0.081	0.049	0.028	1.427	1.427	50.142	26.356	16.896
Leon	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.150	0.075	0.296	0.266	16.033	9.620	5.612	0.000	0.000	16.579	9.770	5.953
Levy	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.004	0.002	0.306	0.275	0.202	0.121	0.071	0.000	0.000	0.515	0.125	0.348
Liberty	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.289	0.260	0.000	0.000	0.000	0.000	0.000	0.289	0.000	0.260
Madison	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.718	0.431	0.251	0.000	0.000	0.718	0.431	0.251
Manatee	1.937	1.453	0.194	4.098	1.639	1.844	2.263	1.358	0.679	0.000	0.000	6.830	4.098	2.391	0.495	0.495	15.623	9.043	5.107
Marion	1.307	0.980	0.131	0.003	0.001	0.001	2.394	1.436	0.718	1.539	1.385	3.571	2.143	1.250	0.000	0.000	8.814	4.560	3.485
Martin	3.383	2.537	0.338	0.761	0.304	0.342	0.275	0.165	0.083	0.242	0.218	0.120	0.072	0.042	0.164	0.164	4.945	3.243	1.023
Miami-Dade	0.000	0.000	0.000	0.000	0.000	0.000	0.110	0.066	0.033	4.210	3.789	0.000	0.000	0.000	10.036	10.036	14.356	10.102	3.822
Monroe	0.284	0.213	0.028	0.012	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.048	0.048	0.344	0.266	0.034
Nassau	0.987	0.740	0.099	0.000	0.000	0.000	0.000	0.000	0.000	0.298	0.268	0.000	0.000	0.000	0.261	0.261	1.546	1.001	0.367
Okaloosa	1.602	1.202	0.160	1.528	0.611	0.688	0.679	0.407	0.204	6.674	6.007	3.837	2.302	1.343	0.124	0.124	14.444	4.646	8.401
Okeechobee	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.687	0.412	0.240	0.000	0.000	0.687	0.412	0.240
Orange	10.460	7.845	1.046	9.925	3.970	4.466	24.486	14.692	7.346	22.396	20.156	8.172	4.903	2.860	11.275	11.275	86.714	42.685	35.875
Osceola	4.454	3.340	0.445	5.351	2.140	2.408	3.508	2.105	1.052	8.816	7.934	0.503	0.302	0.176	1.357	1.357	23.988	9.244	12.016
Palm Beach	19.995	14.996	2.000	12.166	4.866	5.475	9.144	5.486	2.743	0.081	0.073	0.076	0.045	0.026	16.467	16.467	57.929	41.861	10.317
Pasco	2.747	2.060	0.275	11.041	4.416	4.968	2.968	1.781	0.890	8.071	7.263	1.120	0.672	0.392	1.170	1.170	27.116	10.099	13.789
Pinellas	6.741	5.056	0.674	30.661	12.265	13.798	9.925	5.955	2.977	0.000	0.000	0.011	0.007	0.004	8.834	8.834	56.172	32.116	17.453
Polk	1.333	1.000	0.133	1.430	0.572	0.644	0.490	0.294	0.147	4.436	3.992	2.277	1.366	0.797	7.259	7.259	17.225	10.491	5.713
Putnam	0.190	0.143	0.019	0.000	0.000	0.000	0.170	0.102	0.051	0.095	0.086	0.000	0.000	0.000	0.000	0.000	0.455	0.245	0.156
Santa Rosa	2.274	1.706	0.227	0.820	0.328	0.369	0.280	0.168	0.084	0.331	0.298	0.010	0.006	0.004	0.019	0.019	3.734	2.227	0.982
Sarasota	7.864	5.898	0.786	4.166	1.666	1.875	1.637	0.982	0.491	0.051	0.046	1.315	0.789	0.460	0.001	0.001	15.034	9.337	3.658
Seminole	1.566	1.175	0.157	10.054	4.022	4.524	5.470	3.282	1.641	2.014	1.813	2.750	1.650	0.963	4.131	4.131	25.986	14.259	9.097
St. Johns	2.797	2.098	0.280	0.000	0.000	0.000	0.000	0.000	0.000	0.337	0.303	0.000	0.000	0.000	0.506	0.506	3.640	2.604	0.583
St. Lucie	2.121	1.591	0.212	1.806	0.722	0.813	0.028	0.017	0.008	0.312	0.281	0.000	0.000	0.000	0.300	0.300	4.567	2.630	1.314
Sumter	4.223	3.167	0.422	0.000	0.000	0.000	1.268	0.761	0.380	0.131	0.118	0.392	0.235	0.137	0.000	0.000	6.014	4.163	1.058
Suwannee	0.000	0.000	0.000	0.000	0.000	0.000	0.107	0.064	0.032	0.066	0.059	0.787	0.472	0.275	0.000	0.000	0.960	0.536	0.367

County	GCI Reuse Flow	GCI Offset Flow	GCI RF <sup>(b)</sup>	RI Reuse Flow	RI Offset Flow	RI RF <sup>(b)</sup>	OPAA Reuse Flow	OPAA Offset Flow	OPAA RF <sup>(b)</sup>	GWR&IPR Reuse Flow	GWR&IPR RF <sup>(b)</sup>	AI Reuse Flow	AI Offset Flow	AI RF <sup>(b)</sup>	IND, TF, FP Reuse Flow	IND, TF, FP Offset Flow	Total Flow	Total Offset Flow	Total RF <sup>(b)</sup>
Taylor	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.214	0.193	0.798	0.479	0.279	0.000	0.000	1.012	0.479	0.472
Union	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.455	0.273	0.159	0.000	0.000	0.455	0.273	0.159
Volusia	6.540	4.905	0.654	12.372	4.949	5.567	1.658	0.995	0.497	1.458	1.312	0.193	0.116	0.068	1.576	1.576	23.797	12.540	8.099
Wakulla	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.032	0.029	0.869	0.521	0.304	0.039	0.039	0.940	0.560	0.333
Walton	1.946	1.459	0.195	0.027	0.011	0.012	0.000	0.000	0.000	0.832	0.749	1.531	0.919	0.536	0.030	0.030	4.366	2.419	1.491
Washington	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.304	0.274	0.096	0.058	0.034	0.000	0.000	0.400	0.058	0.307
<b>Total</b>	<b>135.56</b>	<b>101.67</b>	<b>13.56</b>	<b>190.35</b>	<b>76.14</b>	<b>85.66</b>	<b>93.43</b>	<b>56.06</b>	<b>28.03</b>	<b>80.39</b>	<b>72.35</b>	<b>69.13</b>	<b>41.48</b>	<b>24.20</b>	<b>114.88</b>	<b>114.88</b>	<b>683.75</b>	<b>390.23</b>	<b>223.79</b>

- Notes: (a) These totals do not include flows to reuse activities that do not represent an offset to potable quality water or aquifer recharge, such as wetlands, decorative fountains, and storage purposes.
- (b) RF = recharge flow - the portion of reuse flow that is recharged to water supplies.
- (c) The offset and recharge flows were calculated by multiplying the total flow for a reuse activity by the percentages of potable quality offset and recharge fraction for that reuse activity as prescribed in Table 5 of the *Strategies Report* seen below:

Reuse Activity	Potable Quality Water Offset (%)	Recharge Fraction (%)	Justification Using Table 5 of <i>Strategies Report</i>
Golf Course Irrigation	75	10	Efficient landscape irrigation
Residential Irrigation	40	45	Rounded averages of efficient and inefficient residential irrigation
Other Public Access Areas	60	30	Rounded averages of efficient and inefficient landscape irrigation
Ground Water Recharge & Indirect Potable Reuse	0	90	High Desirability - rapid infiltration basins
Agricultural Irrigation	60	35	Rounded averages of efficient and inefficient agricultural irrigation
Industrial Uses, Toilet Flushing, and Fire Protection	100	0	High Desirability - cooling towers, toilet flushing and fire protection



## Water Resource Caution Areas

Water resource caution areas (WRCAs) are areas that have critical water supply problems or are projected to have critical water supply problems within the next 20 years. Originally, water reuse was required only within these water resource caution areas, unless such reuse is not economically, environmentally, or technically feasible as determined by a reuse feasibility study. Currently, Chapter 62-40, F.A.C., requires use of reclaimed water statewide. Domestic wastewater facilities located within, discharging within or serving a population within designated water resource caution areas are required to prepare reuse feasibility studies before receiving a domestic wastewater permit. Table 9 summarizes information about reuse systems located within WRCAs and those located outside of WRCAs.

**Table 9. Reuse Activity in Water Resource Caution Areas**

	Inside WRCA	Outside WRCA	Total
Number of Reuse Systems	320	114	434
Number of WWTFs Providing Reuse	364	123	487
Number of WWTFs with no Reuse (Disposal Only)	42	15	57
Total Wastewater Capacity (mgd)	2,252	283	2,535
Total Wastewater Flow (mgd)	1,333	152	1,485
Reuse Capacity (mgd)	1,314	304	1,618
Reuse Flow (mgd)	597	125	722
Public Access Reuse Flow (mgd) <sup>(a)</sup>	377	43	419
Edible Crops Reuse Flow (mgd)	17	0	17

Note: (a) This includes irrigation of residential landscapes, golf courses, schools, parks, and other public access reuse such as toilet flushing and fire protection.

## Cross-Connection Control

Cross-connections between reclaimed water lines and potable water lines are strictly prohibited in Florida. In 1999, reporting requirements for cross-connection control activities were added to the Annual Reuse Report Form. Appendix J summarizes cross-connection control activities reported by reuse systems for the October 1, 2010 to September 30, 2011 reporting period.

Of the 249 reuse systems that reported cross-connection control activities, 16 reuse systems reported identifying and eliminating 1 or more cross-connections. 8,068 new connections to public access reuse systems were reported to occur in 2011. Over 99 percent of those new connections were inspected to ensure that no cross-connections had been created.

The 2004 Guidelines for Water Reuse published by the U.S. Environmental Protection Agency (EPA) provides guidelines for establishing cross-connection

prevention and control programs. Utilities should consult the EPA Guidelines for implementation and enforcement of cross-connection control programs.

## PREVIOUS INVENTORIES AND TRENDS

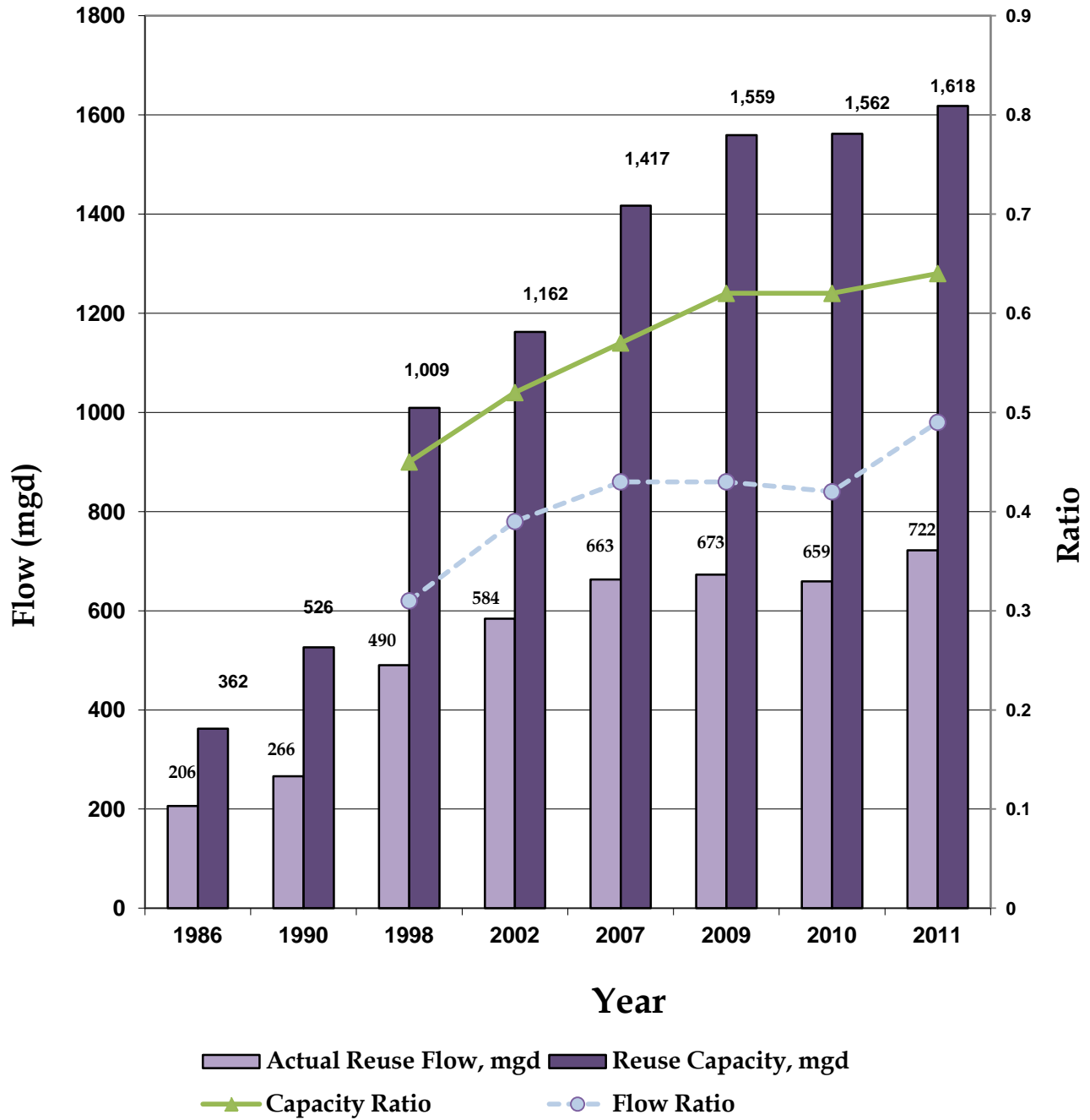
The FDEP (and its predecessor agency) published previous reuse inventories for 1986, 1990, 1992, and 1996 through 2010. Table 10 shows a summary of the total number of domestic wastewater treatment facilities providing water for reuse, the reuse capacities and capacity ratios of the reuse facilities, and the average reuse flow rates and flow ratios recorded for previous inventories and the 2011 inventory. Figure 3 presents the growth of Florida's reuse capacity and flow. The capacity and flow ratios are also presented in Figure 3.

**Table 10. Summary of FDEP Reuse Inventories (1986 to Present)**

Report Year	No. of Facilities Providing Reuse	Reuse Capacity (mgd)	Capacity Ratio <sup>(a)</sup>	Reuse Flow (mgd)	Flow Ratio <sup>(a)</sup>
1986	118	362	-	206	-
1990	212	526	-	266	-
1992	308	601	-	290	-
1996	444	820	-	395	-
1997	451	878	-	441	-
1998	451	1,009	0.45	490	0.31
1999	459	1,043	0.47	523	0.36
2000	457	1,116	0.51	575	0.39
2001	461	1,151	0.52	584	0.39
2002	467	1,162	0.52	584	0.39
2003	469	1,206	0.54	603	0.38
2004	468	1,273	0.56	637	0.41
2005	465	1,325	0.58	660	0.41
2006	468	1,368	0.58	663	0.41
2007	475	1,417	0.57	663	0.43
2008	481	1,536	0.62	667	0.42
2009	484	1,559	0.62	673	0.43
2010	482	1,562	0.62	659	0.42
2011	487	1,618	0.64	722	0.49

Note: (a) The capacity and flow ratios are unavailable for 1986 through 1997.

### Figure 3. Florida's Reuse Growth



## FUTURE UPDATES

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In order to monitor the effectiveness of the State's reuse program, the FDEP will update this inventory each year.

Suggested corrections, additions, or deletions may be brought to the attention of Mrs. Shanin Speas-Frost, P.E., Florida Department of Environmental Protection, Mail Station 3540, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Mrs. Speas-Frost can be reached by phone at (850) 245-8610, by fax at (850) 245-8621, or by e-mail at [shanin.speasfrost@dep.state.fl.us](mailto:shanin.speasfrost@dep.state.fl.us).

## REUSE WEBPAGE

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For more information on water reuse in Florida, please see FDEP's website devoted to reuse at:

[www.dep.state.fl.us/water/reuse/](http://www.dep.state.fl.us/water/reuse/)

The 2011 Reuse Inventory, including downloadable spreadsheets for each of the appendices, can be found at the above website by following the *Florida's Reuse Inventory* link.

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# APPENDICES

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