History and Current Status of Reclaimed Water Use in Florida¹

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Introduction

As water is utilized for domestic purposes, a large amount of that water is carried via municipal sewer systems to a wastewater treatment facility. After being treated and disinfected, wastewater is called reclaimed water. Reclaimed water is used for several beneficial purposes, including irrigation of turfgrasses and landscape plants. The use of reclaimed water can result in reduced use of surface and ground water and preservation of water supplies. Florida's projected population growth of about 6.5 million people from 2007 to 2030 (Figure 1), is likely to further stress limited water supplies and create more competition and conflict among major water users in the state. By 2025, demand for fresh water is projected to increase to 8.5 billion gallons per day (Marella 2008). The objective of this publication is to inform Extension specialists and citizens about the history and current status of reclaimed water use in Florida. More information on

water use in Florida can be found at <http://edis.ifas.ufl.edu/pdffiles/FE/FE79700.pdf>.

Figure 1. Actual and Projected Population Growth in Florida.

History of Reclaimed Water Use in Florida

Florida's reclaimed water use program began in the mid 1960s with the use of reclaimed water for agricultural purposes in Tallahassee. This was followed by the development of a landmark

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reclaimed water system for landscape irrigation in St. Petersburg in the late 1970s. The elimination of wastewater discharge to Shingle Creek and Lake Tohopekalaga motivated Orlando and Orange County to develop the Water Conserv II project in the mid 1980s. Faced with increased water quality concerns and seeing the benefits of reclaimed water use, several other utilities, like Altamonte Springs and the Loxahatchee River Environmental Control District, initiated projects to use reclaimed water in the 1980s. Table 1 lists the major events in the development of reclaimed water use program in Florida.

domestic wastewater per day (MGD) (FDEP 2009); 43 percent of this wastewater (663 MGD) was reclaimed water, which is used for beneficial purposes on 285,352 acres. In comparison, 206 MGD of reclaimed water was beneficially used in 1986. The major beneficial uses in 2007 were for public access areas and landscape irrigation (59 percent), with the remainder being used for industry (14 percent), agricultural irrigation (12 percent), groundwater recharge (11 percent), and wetlands and other (4 percent) (Figure 2). In the public access areas and irrigated landscape, most of the reclaimed water was

Table 1. Major events in the history of reclaimed water use in Florida (modified from FDEP 2003).

Year	City/Region	Event
1966	Tallahassee	Spray irrigation: crops
1973	Fiesta Village	Irrigation: golf courses
1976	Vero Beach	Industrial: power plant cooling tower
1977	St. Petersburg	Dual water distribution begins: landscape irrigation
1977	Gainesville	Ground water recharge: wastewater injected into Floridian aquifer
1978	Loxahatchee River Environmental Control District	Reuse program begins
1980	Tallahassee	Opens Southeast farm
1986	Orlando–Orange county	Water Conserv II starts: Irrigation of citrus groves and ground water recharge thru rapid infiltration basins
1987	Orlando	Wetlands begins: 1640 acres in public park and nature preserve
1991	Altamonte Springs	Project APRICOT begins: landscape irrigation
1992	Cape Coral	World's largest residential irrigation program
1998	West Palm Beach	Permit issued for indirect potable water reuse
2001	Hillsborough County NW	Testing of a reclaimed water ASR well

Current Status of Reclaimed Water Use in Florida

In Florida, 63 of 67 counties reclaim wastewater (or make reclaimed water) from wastewater treatment plants. The four counties that do not reclaim wastewater each have a population under 20,000. The largest reclaimed water use areas are central Florida (Orlando–Lakeland area), the Tampa Bay area, southwestern Florida, and a few counties on the Atlantic coast (Palm Beach, Volusia, Brevard).

According to a 2007 Florida reclaimed water use inventory by the Florida Department of Environmental Protection (FDEP), 475 domestic wastewater facilities treated 1,534 million gallons of

used to irrigate 246,841 residential landscapes, followed by 477 golf courses, and 794 parks, and 272 schools. The quantity of reclaimed water used and acreage are listed in Table 2.

Figure 2. Current Reclaimed Water Use in Florida
(Adapted from FDEP 2009).

The amount of reclaimed water use in Florida varies considerably from one county to another. For example, Orange and Osceola counties use ~100 percent of treated wastewater while other counties use lower amounts (Pinellas: 63 percent; Hillsborough: 40 percent; Miami-Dade: 6 percent). Readers are referred to FDEP's Water Reuse Inventory for information about reclaimed water use in other Florida counties (FDEP 2009).

Table 2. Summary of reclaimed water use activities in Florida (FDEP 2009).

Reuse Type		Reclaimed water used (million gallons per day)	Area (acres)
Landscape irrigation and public access areas	1. Golf course irrigation	136	60,134
	2. Residential irrigation	181	143,396
	3. Parks, schools, etc	74	34,710
Agricultural Irrigation	1. Edible crops	16	9,619
	2. Other crops	64	22,788
Ground water recharge	1. Rapid infiltration basins	73	6,715
	2. Absorption fields	4	694
Industrial	1. Treatment plants	49	448
	2. Other facilities	43	2,475
Wetlands		20	4,263
Toilet flushing, fire protection		1.4	NA
Other uses		2.8	109
Total		663	285,352

The Importance of Reclaimed Water Use

Reclaimed water use is a growing practice and Florida currently leads the nation in using reclaimed water generated by domestic wastewater treatment facilities (663 million gallons per day in 2007). By the year 2010, the official goal is to reclaim one billion gallons of wastewater per day. Using reclaimed water has many advantages, including (i) reduced demand for surface and ground waters, (ii) reduction or elimination of wastewater discharges which can pollute surface water, (iii) recharge of ground water, and (iv) reduction in investment for developing new water supplies. Using reclaimed water offers an environmentally sound means of both wastewater and water resource management in Florida. Reclaimed water use not only reduces environmental impacts due to discharge of wastewater to surface waters, but also helps conserve potable water supplies by providing an alternative affordable water to meet irrigation, commercial, and industrial needs. In addition, many water use land application activities (golf course, agricultural, and residential irrigation; groundwater recharge, etc.) ultimately return water to ground water, especially in north and central Florida.

More information about reclaimed water use and guidelines in Florida can be found on FDEP's Web site:

<http://www.dep.state.fl.us/water/reuse/flprog.htm>.

The guidelines for reclaimed water use in the USA are available from U.S. Environmental Protection Agency (U.S. EPA 2004).

<http://www.dep.state.fl.us/water/reuse/docs/inventory/ReuseInventory07.pdf> (accessed 09/28/09).

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