

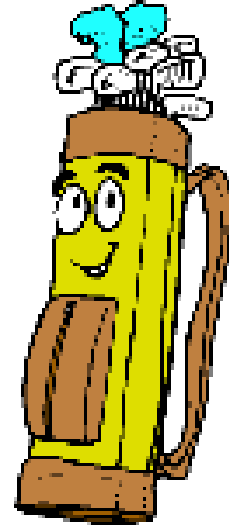
Use of Reclaimed Water on Golf Courses

Water Reuse in Florida

Water reuse has rapidly become an integral part of wastewater management and water resource management in Florida. In 2001, reuse capacity in Florida totaled 1,151 million gallons per day (mgd) and 584 mgd of reclaimed water was actually used for a range of beneficial purposes.

Water Reuse at Golf Courses

Golf courses are important users of reclaimed water in Florida. DEP's 2001 Reuse Inventory reported that 419 golf courses were irrigated with 110 mgd of reclaimed water. This represents an average of 0.26 mgd/course. These 419 golf courses accounted for about 19 percent of all reclaimed water usage in the state.



In 2001, 185 reuse systems included one or more golf courses within their list of reclaimed water customers. Reuse systems featuring golf course irrigation represented about 43 percent of all reuse systems in Florida.

It is interesting to note that the reported capacity for golf course irrigation using reclaimed water was 232 mgd (an average of 0.55 mgd/course). In 2001, the amount of reclaimed water used to irrigate these 419 golf courses was only about 47 percent of the reported capacity for these golf course irrigation systems.

Several of Florida's major reuse systems focus on golf course irrigation. For example the Loxahatchee reuse system includes 12 golf courses, 2 Collier County reuse systems each provide reclaimed water to 10 or more golf courses, and the Naples reuse system includes 9 golf courses.

The Water Conserv II reuse system provides reclaimed water to the Orange County National Golf Center. This large, innovative golf complex was designed to be an integral part of the reuse system. In addition to irrigation of the various courses and facilities at the complex, numerous rapid infiltration basins (RIBs) for ground water recharge have been discretely located on the property.

Use of reclaimed water to irrigate golf courses is popular elsewhere in the United States. Arizona, California, Hawaii, Nevada, South Carolina, and Texas all have rather extensive experience with water reuse at golf courses. The states of Alabama, Colorado, Georgia, Illinois, Missouri, Maryland, Michigan, Montana, New Jersey, New Mexico, Ohio,

Oklahoma, Oregon, Pennsylvania, South Dakota, Tennessee, and Wisconsin feature at least one golf course that uses reclaimed water.

Golf Courses in Florida

DEP's 1998 Recreation Inventory identified 1,448 golf courses in Florida:

Type of Course	Number
18 Hole	804
9 Hole	158
Executive	486
Total	1,448

The 419 golf courses that currently use reclaimed water for irrigation represent about 29 percent of all golf courses in Florida.

Water Use at Golf Courses in Florida

The USGS reported that 281 mgd of freshwater was used for recreational purposes in 1995 in Florida (70% ground water, 30% surface water). Irrigation of all golf courses in Florida accounted for about 187 mgd of this freshwater use (about 67% of total recreational water use). This 187 mgd of freshwater use is in addition to the 110 mgd of reclaimed water used to irrigate 419 of Florida's golf courses.

Data contained in the USGS report suggest that an average golf course contains about 137 acres of land, of which 65 percent is irrigated.

Additional Information

2001 Reuse Inventory. Florida DEP.

Wastewater Reuse for Golf Course Irrigation. United States Golf Association. Lewis Publishers. 1994.

Water Withdrawals, Use, Discharge, and Trends in Florida, 1995. USGS. Water Resources Investigations Report 99-4002. 1999.

Water Quality, Pesticide Occurrence, and Effects of Irrigation with Reclaimed Water at Golf Courses in Florida. USGS. Water Resources Investigation Report 95-4250. 1996.

