UF IFAS Extension UNIVERSITY of FLORIDA

FE1012

Collaborative Planning for the Future of Water Resources in Central Florida: Central Florida Water Initiative[1]

James Fletcher and Tatiana Borisova[2]

Introduction

Rules and regulations that govern our use of natural resources, specifically water, are changing. Over the past 80 years, Florida's population increased four times, from approximately 5 million to more than 20 million people. With this population increase, water needs have also increased. Forward-looking communities think about the future of their towns, counties, or the state as they work on redefining regulations to meet future water needs without harming the environment (i.e., our springs, lakes, rivers, and estuaries).

In this document, we discuss the Central Florida Water Initiative, which deals with advancing water-use and water-resource-protection strategies for central Florida (Orlando and its vicinity). In this region, it is projected that the traditional source of water, that is, the underground water reserve called the aquifer (groundwater) will be unable to meet the region's future water needs. One of the priority strategies is water conservation. Other documents in this series will discuss specific aspects of this effort in detail.

UF/IFAS

Florida's Water Resources: Nourishing Many Needs

In many respects, fresh water defines the state of Florida. Florida is known for its springs, rivers, lakes, and wetlands (such as the Everglades), all of which are important for the future of the environment in the state. Water in the environment provides wildlife with habitats and people with employment and water recreational activities.

In addition to meeting environmental needs, water is important for public water supply and agricultural irrigation. With Florida adding 368 thousand people in 2016,

1. This is EDIS document FE1012, a publication of the Food and Resource Economics Department, UF/IFAS Extension. Published May 2017. Visit the EDIS website at http://edis.ifas.uf.edu.

2. James Fletcher, regional specialized Extension agent, Mid-Florida Research and Education Center, UF/IFAS Extension, Apopka, FL; and Tatiana Borisova, associate professor and Extension specialist, Food and Resource Economics Department, UF/IFAS Extension, Gainesville, FL.

surpassing the number of new residents in all states but Texas (US Census Bureau 2016), maintaining an abundant public water supply for society is crucial. Also crucial is agricultural irrigation to produce food for an increasing population. Florida is recognized as the national leader in production value for oranges, fresh market tomatoes, watermelons, and sugarcane (FDACS 2015).

For additional information on how water resources provide benefits to society (i.e., ecosystem services/environmental services) and why these services are important for the state's economy, see the collection of resources at http://edis.ifas.ufl.edu/topic_ecosystem_services.

Why Improving Groundwater Management Is Important

Public supply and agricultural irrigation account for more than 80% of the groundwater withdrawals in Florida (Marella 2015). When we take more water from groundwater than is being returned (i.e., recharged), groundwater reserves become diminished. If we do not carefully manage pumping water from groundwater wells, we will be unable to rely on this cheap source of clean fresh water in the future. Moreover, groundwater reductions impact springs, streams, and lakes nourished by this source of water.

Regional Water Supply Planning for Central Florida: Central Florida Water Initiative

To ensure sustainability of Florida's water resources, five regional agencies in Florida, the Water Management Districts (WMDs), develop water-supply plans for their regions of the state. For more information about water supply planning in Florida, see http://edis.ifas.ufl.edu/FE799.

In 2006, the three WMDs located in central Florida (St. Johns River, South Florida, and Southwest Florida) realized that their water resources, especially groundwater, crossed the WMD borders and that their combined regional groundwater could no longer meet the growing water needs. They formed the Central Florida Coordination Area, which includes Seminole, Orange, Osceola, Polk, and southern Lake Counties (Figure 1), to cooperatively plan for their future water supply. Regulations were adopted to limit groundwater withdrawals and to set rules for the region's water resources and use.

Because of these successful collaborative efforts, the Central Florida Water Initiative (CFWI) was formed in 2011 to

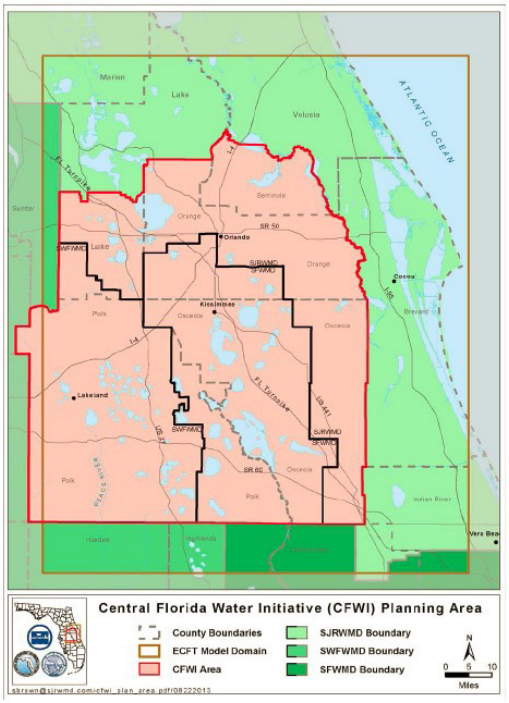

Figure 1. Central Florida Water Initiative Supply Initiative Planning Area
Credits: CFWI (2015a)

enable the three WMDs, with significant stakeholder input, to develop a single Regional Water Supply Plan (RWSP) for central Florida. The goal of the CFWI's RWSP is to ensure that the region has sufficient water to meet various needs. Priorities for the CFWI are to (1) identify sustainable quantities of groundwater available for public and agricultural water supplies without causing significant harm to water resources and associated natural systems, (2) develop strategies to meet water needs in excess of the sustainable yield of groundwater, (3) establish consistent rules and regulations among the three WMDs, and (4) implement the RWSP (CFWI 2015a).

In 2015, this RWSP was adopted by the governing boards of the three central Florida WMDs. In January 2016, the Florida Legislature passed a comprehensive water-policy bill that, in part, codified CFWI into state law.

The CFWI Partnership

Developing the RWSP was a collaborative process involving various stakeholder groups representing state agencies, water utilities, agricultural producers, and environmental groups. The organizational structure of the CFWI is shown in Figure 2.

CFWI's steering committee coordinates regional water-supply planning activities and includes the Florida Department of Environmental Protection (FDEP), the three

central Florida WMDs serving the five-county area, the Florida Department of Agriculture and Consumer Services (FDACS), and the regional utilities.

The CFWI management oversight committee oversees teams working on specific issues, ensures coordination among teams, and identifies policy issues that need to be evaluated by the steering committee.

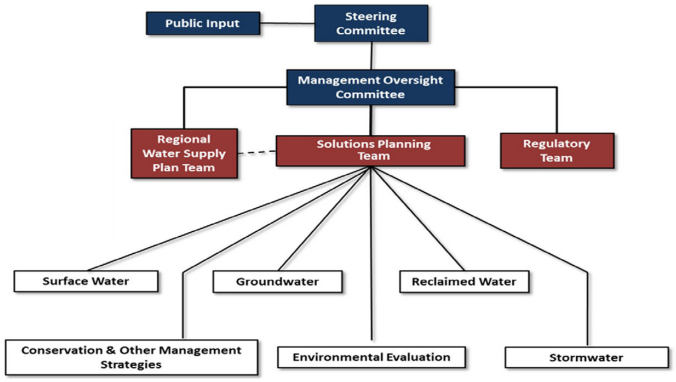

Figure 2. Central Florida Water Initiative: Organizational Structure
Credits: CFWI (2015b)

The CFWI solutions planning team identifies projects to meet future water needs and protect water resources. Six sub-teams focus on evaluating water resources (surface water, groundwater, reclaimed water, and storm water), developing conservation and management strategies, and assessing recovery strategies and environmental impacts. The solutions planning team coordinates efforts with the regulatory team and the regional water supply team to meet water-saving goals. Solution strategies are summarized in *2035 Water Resources Protection and Water Supply Strategies* (a supplement to the 2015 CFWI RWSP).

Water Conservation: An Important Goal in CFWI

According to the 2015 RWSP, water needs in central Florida were estimated to reach 1100 million gallons per day (mgd) by 2035. Groundwater would, however, be able to provide only 850 mgd because withdrawals in excess of 850 mgd would remove more water from the aquifer than would be replaced by recharge. To partly address this 250 mgd deficit, water conservation was identified as a top priority in the 2015 RWSP.

To identify practices most likely to conserve water (referred to as best management practices, or BMPs), more than 200 BMPs by all categories of water users were reviewed for potential water conservation benefits. Of the total BMPs, 80 BMPs for public supply and other self-supply, and 47 BMPs for agriculture were further evaluated to estimate potential water savings. This analysis showed that implementing 26 BMPs from all water-use categories could conserve an estimated 37 mgd by 2035. Because agriculture already implements water-conservation and water-use-efficiency BMPs, their water conservation goal was set at 4.3 mgd. Examples of implemented public water-supply BMPs include toilet replacement, showerhead retrofits, and irrigation audits, and examples of implemented agricultural BMPs include installation of soil sensors, utilization of weather stations, and conversion of subsurface to drip or overhead irrigation. Projected water-conservation goals by each water-use category are listed in Table 1.

Water Supply Planning in Central Florida: Looking into the Future

The CFWI is developing its next iteration of a regional water supply plan, called CFWI 2020, to meet central Florida's growing water needs through 2035. Priorities, as identified in the 2015 RWSP, include water conservation, alternative water supplies, and water-resource optimization.

Water conservation, a top priority for central Florida, will be achieved through advanced technologies, enhanced BMPs, and changes in how people use water. Outreach and education is critical to the development of a water-conservation-minded culture to continue the advancement of conservation programs and water savings. This can be accomplished through targeted education, public information, and social media. Currently, water education programs in the state are provided by the WMDs, utilities, local governments, FDACS, and the University of Florida Institute of Food and Agricultural Sciences (UF/IFAS). These programs include school education (for all levels), media campaigns, informative billing, Florida Friendly Landscaping ™ demonstration gardens, workshops and exhibits, irrigation audits, and retrofit and rebate programs.

To learn more about CFWI, consider other publications in this series:

- Developing Conservation Goals for CFWI
- Effects of the 2016 Water Bill on CFWI
- Developing Agricultural BMP Cost Share Matrix for CFWI 2020

References

Central Florida Water Initiative (CFWI). 2015a. *Regional Water Supply Plan 2015: A Comprehensive Plan for Orange, Osceola, Polk, Seminole, and Southern Lake Counties*. Planning Document, Volume I. Retrieved from http://cfwiwater.com/pdfs/plans/CFWI_RWSP_VolI_Final_2015-12-16.pdf

Central Florida Water Initiative (CFWI). 2015b. *Regional Water Supply Plan: 2035 Water Resources Protection and Water Supply Strategies*. Retrieved from http://cfwiwater.com/pdfs/plans/WRP_VolII_Final_2015-12-16.pdf

Florida Department of Agriculture and Consumer Services (FDACS). 2015. *Florida Agriculture Overview and Statistics*. Retrieved from http://www.freshfromflorida.com/Divisions-Offices/Marketing-and-Development/Education/For-Researchers/Florida-Agriculture-Overview-and-Statistics

Marella, R.L. 2015, *Water Withdrawals in Florida, 2012: U.S. Geological Survey Open-File Report 2015–1156*. Reston, VA: US Geological Survey. http://dx.doi.org/10.3133/ofr20151156

US Census Bureau. 2016. *Annual Estimates of the Resident Population for the United States, Regions, States, and Puerto Rico: April 1, 2010 to July 1, 2016*. (NST-EST2016-01).

US Census Bureau. January 18, 2017. Retrieved from https://www.census.gov/data/tables/2016/demo/popest/state-total.html

Table 1. Water-conservation goals for various water-use categories in the CFWI planning area

Water-Use Category	Projected Solutions Strategies 2035 Conservation (mgd)
Public Supply (PS)	27.91
Agriculture (AG)	4.30
Landscape/Recreational/Aesthetic (LRA)	2.02
Domestic Self-Supply (DSS)	1.19
Commercial/Industrial/Institutional (CII)	1.15
Power Generation (PG)	0.27
Total	36.84