A blue background featuring a series of water droplets falling from the top, creating ripples on a surface below. The text 'WATER CONSERVATION' is prominently displayed in the upper center.

# WATER CONSERVATION

*Palm Beach County  
Water Resources Task Force meeting*  
**April 17, 2014**

**Robert Wanvestraut**  
Senior Water Conservation Analyst  
South Florida Water Management District

# Florida's Water Resources



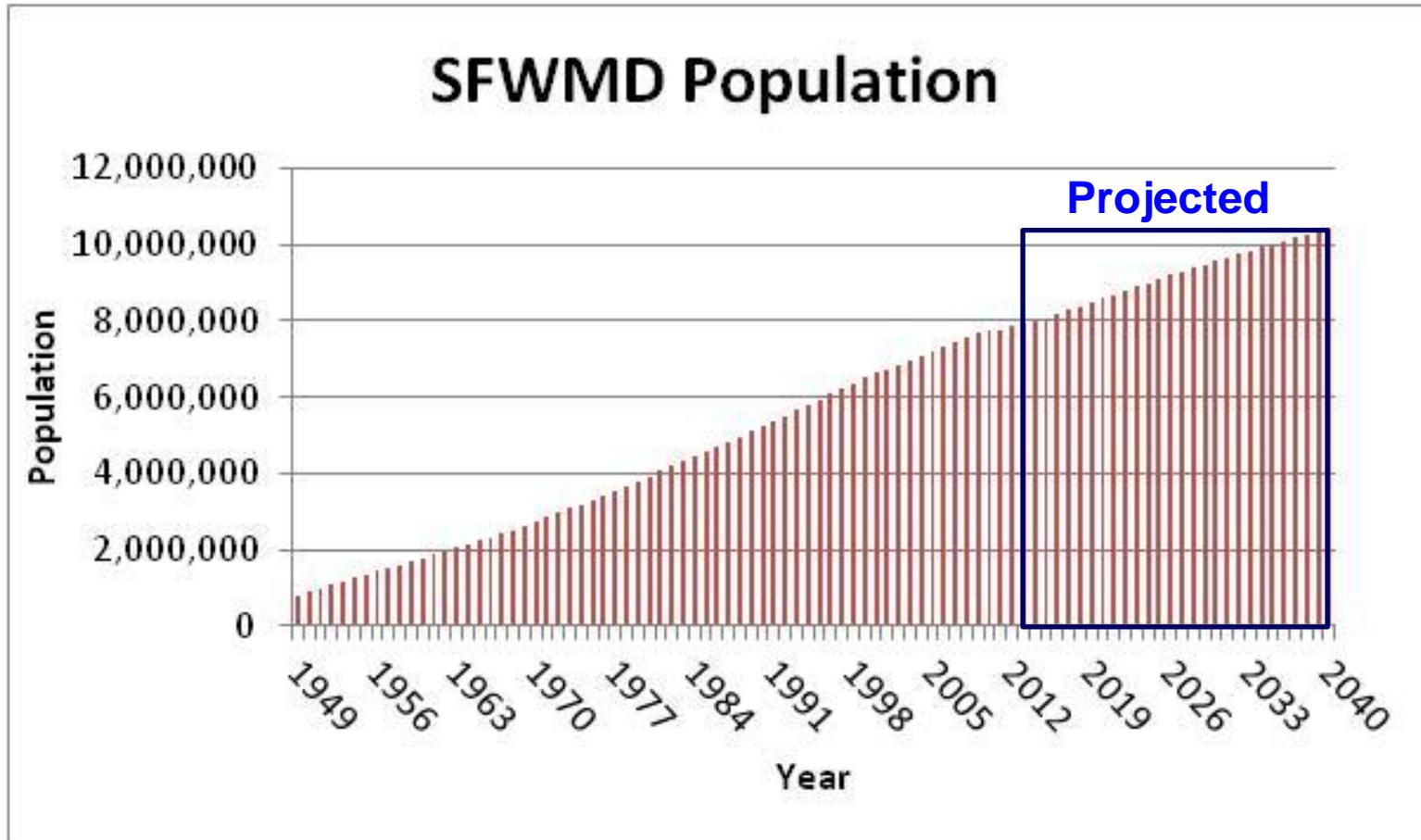
- 7,700 lakes
- 50,000 miles of rivers and streams
- 700 springs (largest concentration in the world)
- **About 54 inches of rain annually**

# Florida's Water Resources

- 70% of rainfall happens in summer
- Florida is basically flat
- High runoff and high rates of evapotranspiration
- With subtropical climate 'Extremes' of wet & dry



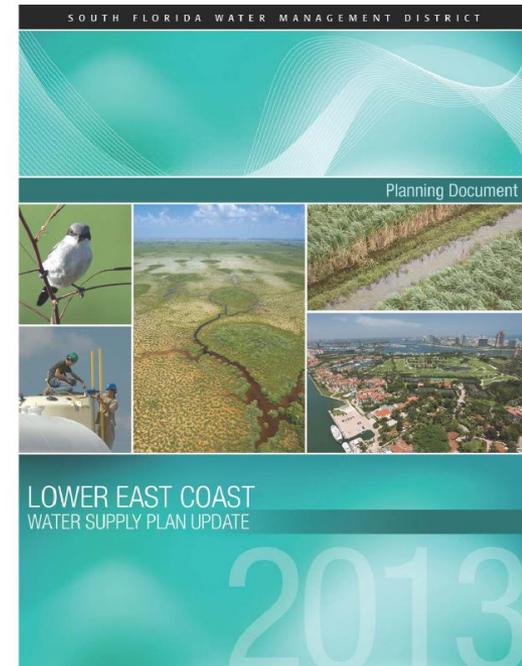
# South Florida Projected Population Growth



# 2013 LEC Water Supply Plan Updated

*“The future water needs of the LEC Planning Area can be met with appropriate management, **conservation**, and implementation of projects identified in this plan.”*

*“A few (LEC) utilities will likely face a potential **deficit** on an average daily or peak demand basis within the next 20 years”*



# LEC Water Supply Planning



Some PBC utilities have been identified as being vulnerable to saltwater intrusion...

- Salinity Control Structure
- Utilities At Risk
- Utilities Of Concern

# 2013 LEC Water Supply Plan Updated

## Bottom Line:

- There will be enough water to meet future needs
- Some of it will cost more to develop
- Some localities are 'more ready' to meet future demands
- Conservation is one of several approaches needed to meet future demands



# The Economical Alternative is Conservation

Existing resources should be optimized before more costly alternatives are developed

# Use in All Sectors Should Be Investigated for Efficiency Improvements

- Public Water Supply
- Agricultural Self-Supply
- Recreational/Landscape Self-Supply
- Domestic Self-Supply
- Industrial/Commercial/Institutional Self-Supply
- Power Generation Self-Supply

# The Economical Alternative is Conservation

## *Water Conservation*

- Less expensive than developing new sources

Method	Hardware	Cost to Save or Create 1,000 Gallons
Water Conservation	High-efficiency fixtures/appliances/Incentive programs	\$0.40 to \$3.00
New Facility Construction	Nanofiltration	\$3.42 to \$9.46
	Reverse osmosis (RO)	\$4.41 to \$11.33
Expansion of Existing Facility	Nanofiltration	\$3.13 to \$9.07
	Reverse osmosis (RO)	\$3.69 to \$10.38

CDM. 2007a. *Water Supply Cost Estimation Study*. Prepared by Camp Dresser & McKee, Inc., Naples, FL, for South Florida Water Management District, West Palm Beach, FL.

CDM. 2007b. *Water Supply Cost Estimation Study – Phase II Addendum*. Prepared by Camp Dresser & McKee, Inc., Naples, FL, for South Florida Water Management District, West Palm Beach, FL.

# Water Utility Demand Management

Utility demand management entails the implementation of water efficiency measures, practices or incentives to reduce or change customer demands

**If designed properly, all this can be achieved  
without negatively impacting revenue**

# Demand Management Benefits

## *Demand Management*

- Can reduce Operations & Maintenance expenses
- The carbon footprint is far smaller than alternatives
- And, from a regional perspective:
  - can reduce, defer or eliminate the need to develop alternative water supplies

# Demand Management Planning

## BENEFITS

### Conserved water = economic benefits

- Conserving 1 mgd can save \$3 -18M capital cost deferment
- 1 year deferral of \$100M capital project saves \$5M in interest
- Avoided energy and chemical operating costs

(Even if you have the capacity you can cut costs operating costs and **reduce carbon footprint**)

...but for it to be reliable on a continual basis, it must be well-planned

# Goal-Based Demand Management Plan

A good plan is preceded by detailed analysis.

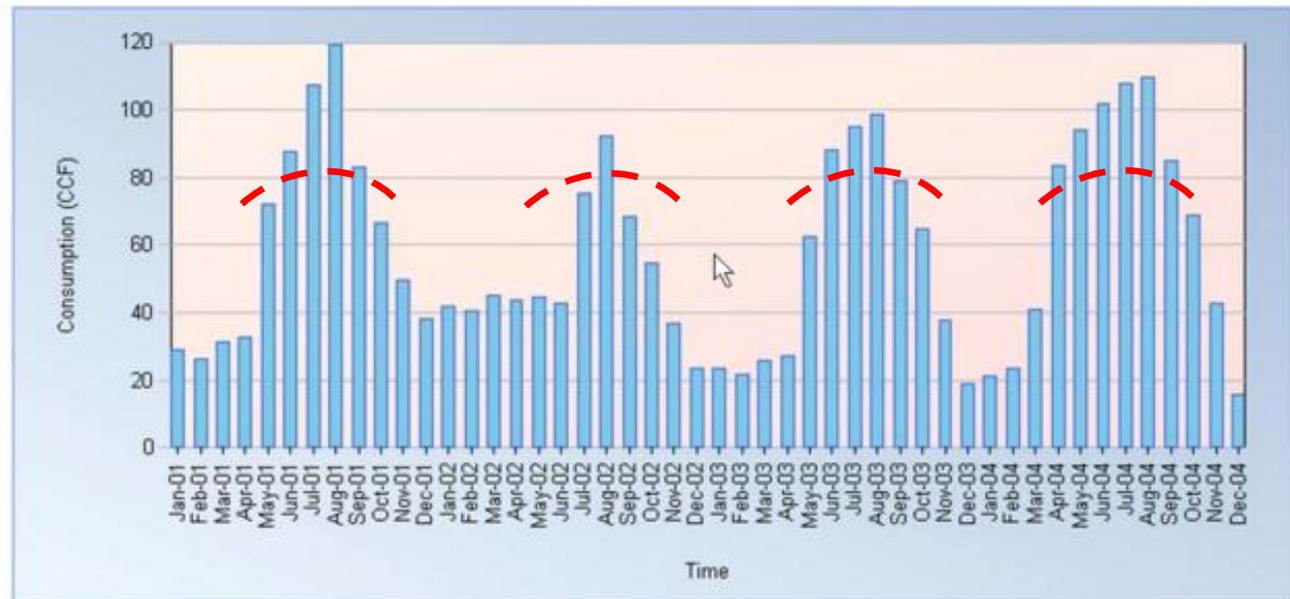
When a Demand Management plan has an identified numeric goal (volume, per capita etc.) this is referred to as a **Goal-Based Plan**

- Average annual volume (5 million gallons per day)
- Per capita use rate (12 gallons/day)
- Seasonal peak reduction (3 million gallons per day)

# Goal-Based Demand Management Plan

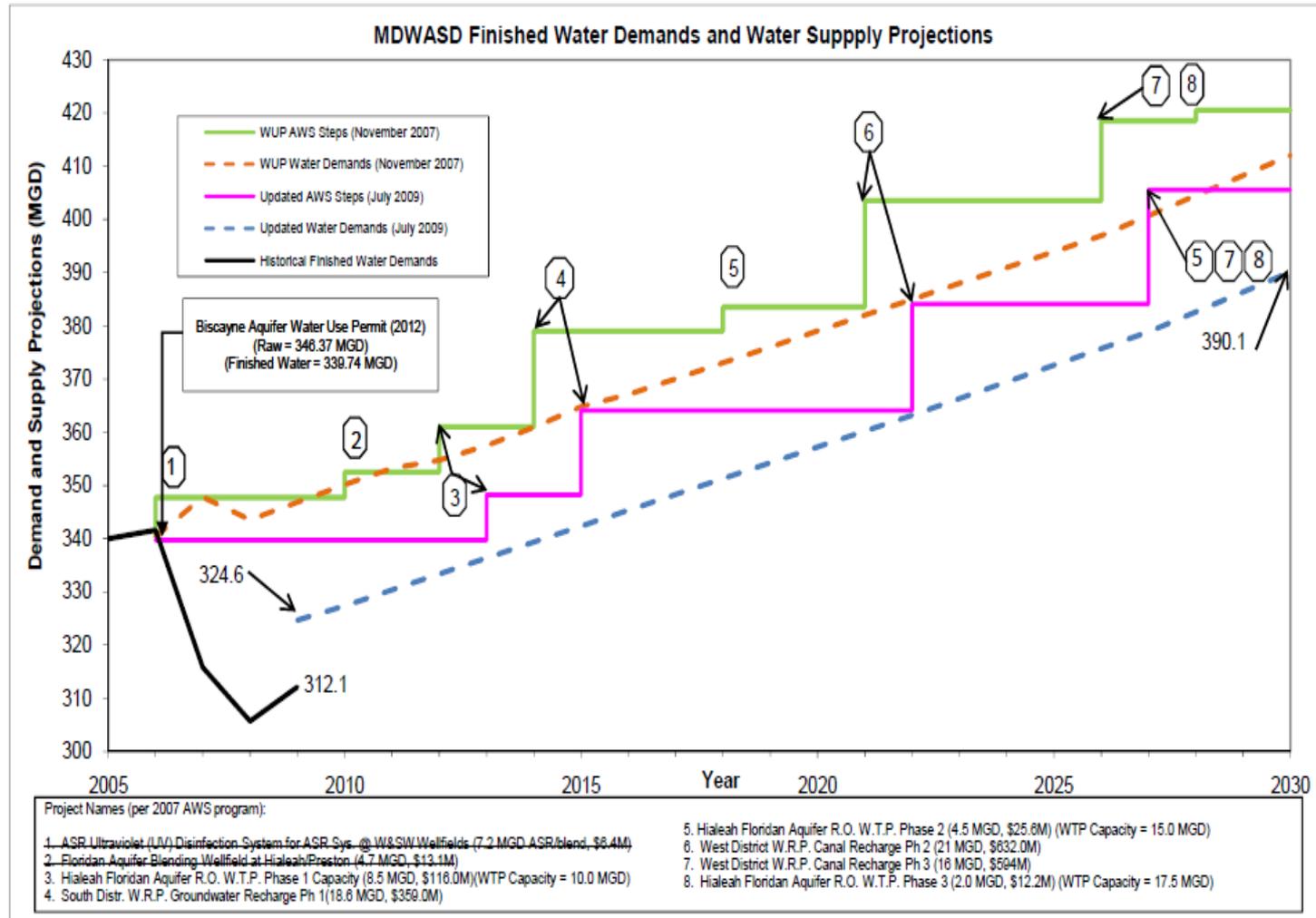
The Goal Drives the Program...

- Broad-based reduction?
- Targeted sector reduction?
- Will just seasonal peak reduction keep us where we want to be?



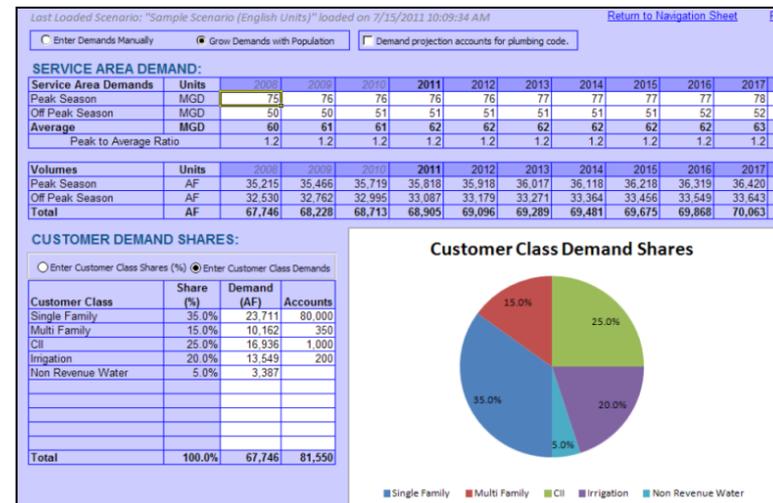
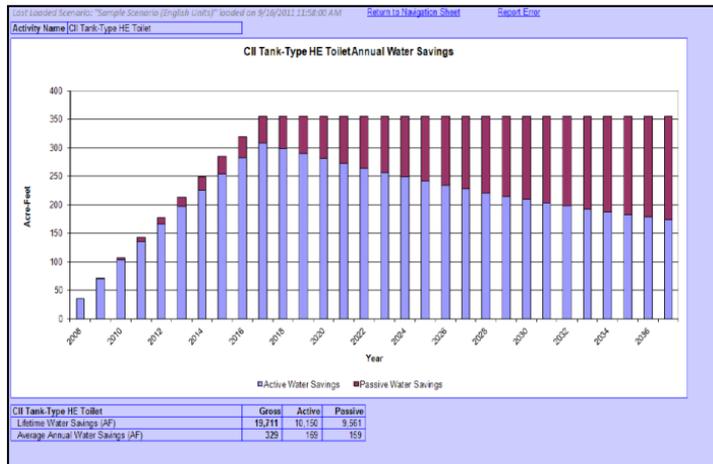
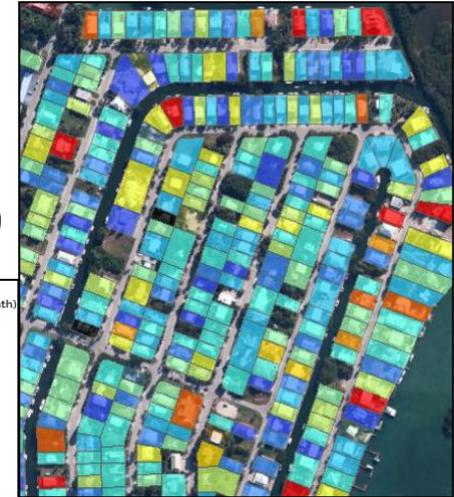
# Demand Management Planning

## BENEFITS



# Demand Management Planning & Monitoring Tools

- Many tools now exist to help analyze
  - User data (by sector)
  - Identify high users (individuals or by sector)
  - Estimate passive & active savings
  - Cost beneficial options
  - Impacts on revenue
- Some tools are **free**



# Agriculture & Nurseries

Mobile Irrigation Labs

On-site evaluations

Improve water use efficiency



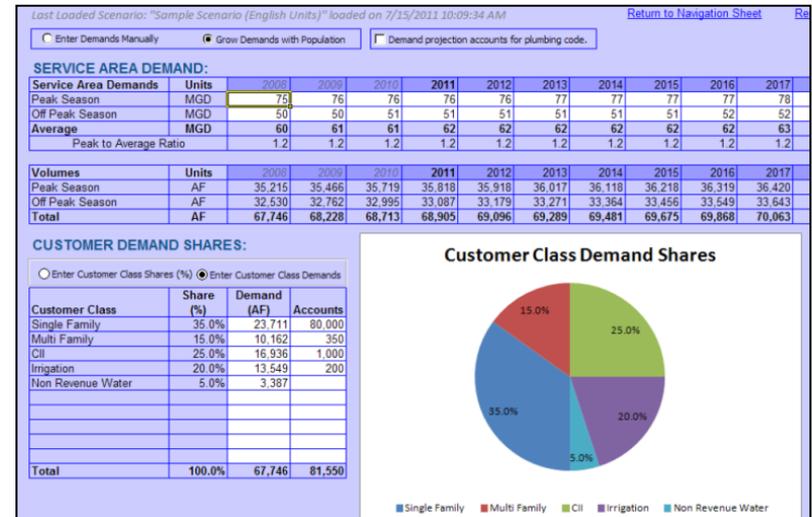
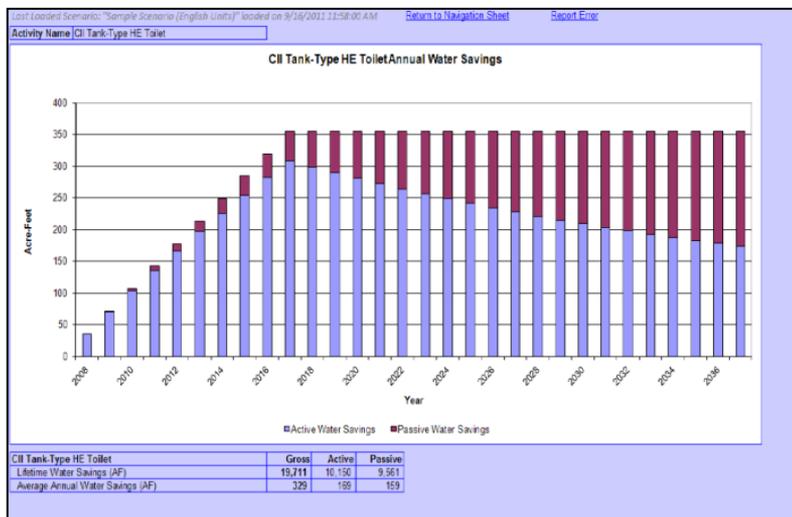
# How the District Can Help

## **Soup to Nuts**

- District Staff can provide technical and cooperative assistance to all user groups and local governments

# How the District Can Help: Big Picture

- Assist developing or reviewing goal-based plans
- Assist in analysis between conservation options
- Assist in interpreting analysis results



# How the District Can Help: Big Picture

- Identifying third-party programs etc.



Florida  
**Green Building  
Coalition, Inc.**  
MEMBER



# How the District Can Help: Big Picture

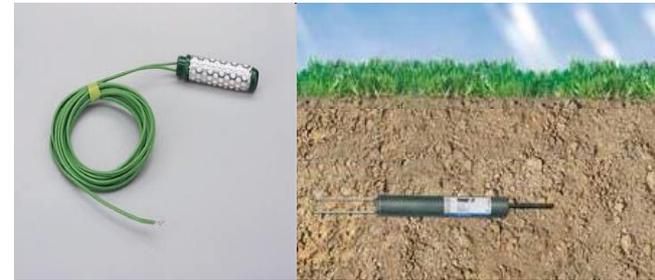
## **Review Local Ordinances**

- Florida-Friendly Landscaping
- Permanent Year-Round Irrigation Rule
- Year-Round Rule Variance
- High-efficiency Indoor Fixtures
- Outdoor Irrigation Standards

# How the District Can Help : In the Weeds

We have a strong handle on what works, what doesn't work, pitfalls and how to avoid them

- Designing conservation programs
- Selecting conservation devices



# How the District Can Help: In the Weeds

## Cooperative Efforts with Local Staff

- Facilitating trainings and workshops
- Facilitating some cooperative programs
- Bringing together conservation & sustainability professionals



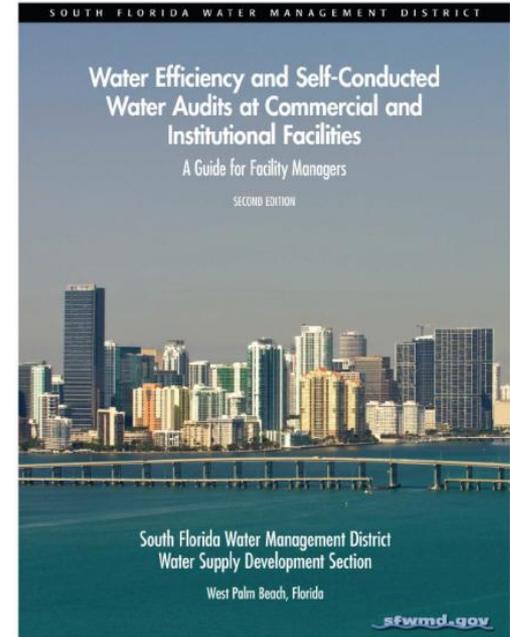
# How the District Can Help: Prepackaged Programs

## 💧 Water Audit Guidebook

(Resource for Conservation Professionals and a Guidebook for commercial users **FREE**)



- 💧 Florida Water Star  
(Water Efficiency Certification Program)
- 💧 Owners & builders of new & existing residential and commercial developments can apply



# How the District Can Help: Prepackaged Programs

## Water Savings Incentive Program (WaterSIP)

- 💧 District provides funding assistance for local conservation programs
- 💧 Must be water saving hardware or technology-based



# How the District Can Help: Prepackaged Programs



**Water CHAMP** is a water conservation program created specifically for the lodging industry

**Partners**

**Port of the Islands Community**



# How the District Can Help: In the Weeds

## Website Tools & Assistance

The screenshot shows the website interface for the South Florida Water Management District. At the top, there is a navigation bar with links for Home, About Us, Managing & Protecting Water, Protecting & Restoring Ecosystems, News, and Library & Multimedia. Below this is a secondary navigation bar with dropdown menus for Residents & Visitors, Businesses, Scientists & Engineers, Educators & Students, Topics, and Regions, along with a search bar. The main content area is titled 'Water Conservation' and features a large image of a green leaf with a water droplet. To the right of this image is a 'In the News' section with a list of recent news items and a 'NEWS ARCHIVE' link. Below the main image is a 'Water Conservation' section with a 'RELATED LINKS' sidebar listing various categories like Residents, Businesses, Agriculture, Utilities, Government, Teachers, News Media, What We're Doing, Water Restrictions, and Year-Round Landscape Irrigation - Conservation Measures. The main content area includes a 'REDUCE YOUR WATER USE no excuse!' graphic, a photo of a woman and child, and three smaller images with captions: 'Current Restrictions', 'Florida-Friendly Landscaping', and 'More Water-Saving Tips'. To the right of these images is a 'Reviving the River of Grass' section with a photo of a white egret and a 'LEARN MORE' link. Below this is an 'Upcoming Events' section with a list of events and a 'CALENDAR' link. At the bottom of the page is a 'Related Highlights' section.

[www.sfwmd.gov/conserv](http://www.sfwmd.gov/conserv)

A repository for educational tools/resources

# In Summary:

- 💧 Florida's water resources are abundant, but demand is catching up with resource limitations
- 💧 Existing resources should be optimized before more costly alternatives are developed
- 💧 Public water supply demand management can:
  - 💧 Reduce, defer or eliminate the need to develop alternative water supplies
  - 💧 Reduce operating and maintenance costs
  - 💧 Reduce carbon footprint of service area

## In Summary:

- Many tools and services exist to help utilities conduct analysis and develop demand management plans
- The District can provide assistance in demand management planning and other related technical assistance
- Agricultural water users have very site-specific water use scenarios and would benefit from cost-sharing on efficiency improvements
- District has several pre-packaged programs available to utilities and local governments: Water SIP, Water STAR and Water CHAMP

# In Summary:

## 💧 Consider the following:

- 💧 Massive public education campaign (all sectors)
- 💧 Encouraging utilities to develop goal-based demand management plans
- 💧 Modifying or adopt building ordinances that emphasize water use efficiency (indoors and out)
- 💧 Implement/support Water CHAMP and Florida Water Star
- 💧 Enforce irrigation restrictions
- 💧 Support mobile irrigation labs for ag and nurseries
- 💧 Partner with ag and nursery growers in making up-front investments in efficiency improvements

# Questions?

*The cheapest gallon of water is the gallon we don't waste through inefficient use.*



**Robert Wanvestraut**  
Senior Water Conservation Analyst  
[rwanvest@sfwmd.gov](mailto:rwanvest@sfwmd.gov)  
**561-682-2054**