



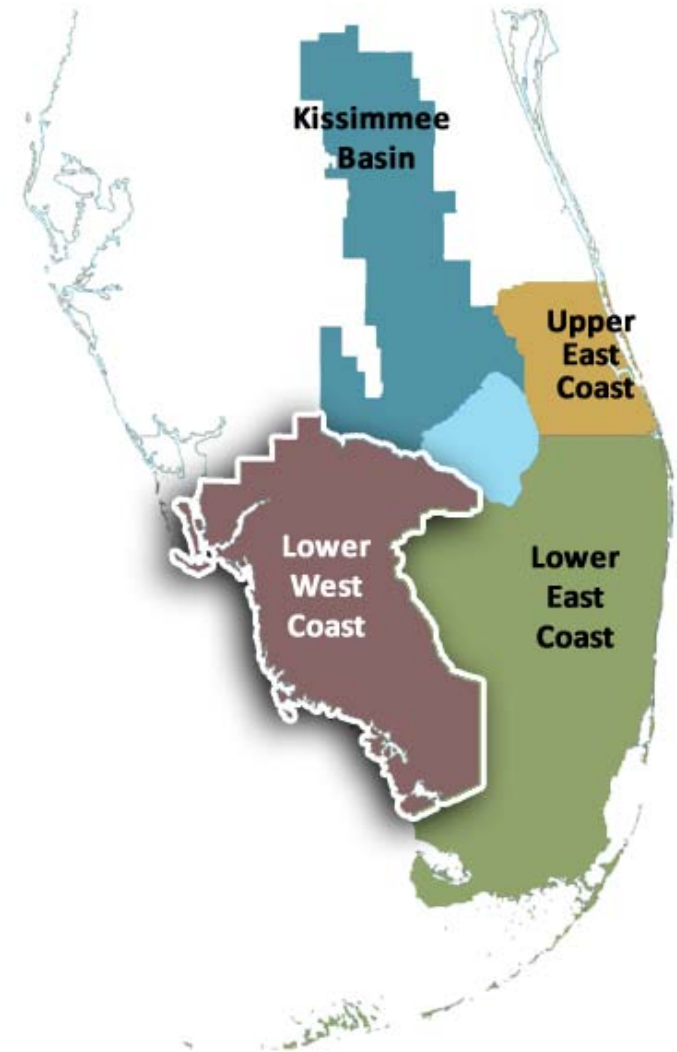
Overview of 2012 Lower West Coast Water Supply Plan Update

Dean Powell, Bureau Chief
Mark Elsner, PE, Section Administrator
Linda Hoppes, AICP, Lead Planner
Water Supply Bureau

LWC Plan Update – WRAC Issues Workshop # 5
Naples & Ft. Myers, FL
August 28, 2012

Water Supply Plan Requirements

- 20 year Planning Period
- 1-in-10 Level of Certainty
- Water Resource Development
- Water Supply Development
 - Linkage to Local Governments
- Minimum Flows and Levels (MFLs)
 - Recovery and Prevention Strategies



Lower West Coast (LWC) Planning Area

- **Includes:**
 - All of Lee County, most of Collier County, and portions of Glades, Hendry, Charlotte and mainland Monroe counties
 - Major drainage basins
 - *Caloosahatchee, Estero, and Collier*
- **Population:**
 - 2010 992,486
 - 2030 1,502,701 (projected)
 - *51% Population Increase*
- **Major agricultural industry**
- **Significant environmental features**



Water Supply Issues

- **In many areas, especially coastal areas, increases in withdrawals from fresh water aquifers limited**
 - *Wetlands*
 - *Salt water intrusion*
 - *Aquifer protection*
- **Surface water availability (storage) limited**
 - *Lake Okeechobee Service Area (LORS 2008)*
 - *LOSA Restricted Allocation Rules*
- **Fresh water discharges affecting health of coastal resources**
 - *Salinity fluctuations*
 - *Stormwater discharges from the Caloosahatchee River, sometimes coupled with Lake Okeechobee releases*



Goal & Objectives

2012 LWC Water Supply Plan Update

■ **Goal:**

To ensure adequate supply of water to protect natural systems and to meet all existing and projected reasonable beneficial uses, while sustaining water resources for future generations

■ **Objectives**

■ ***Water Supply***

Identify sufficient sources of water to meet reasonable-beneficial consumptive uses projected through 2030 under a 1-in-10 year drought event, without causing harm to natural systems

■ ***Natural Systems***

Enhance and protect wetland systems and the water resources from harm due to water use, including drawdowns and harmful movement of saline water

■ ***Estuarine & Riverine System***

Protect and enhance estuarine and riverine systems through effective water deliveries and management of water resources

Objectives cont.

2012 LWC Water Supply Plan Update

■ Objectives cont.

■ ***Conservation and Alternative Source Development***

Encourage water conservation measures to improve the efficiency of water use, and support and promote the development of alternative sources

■ ***Linkage with Local Governments***

Provide linkage between the LWC Plan Update and local government water supply elements

■ ***Compatibility and Linkage with other entities***

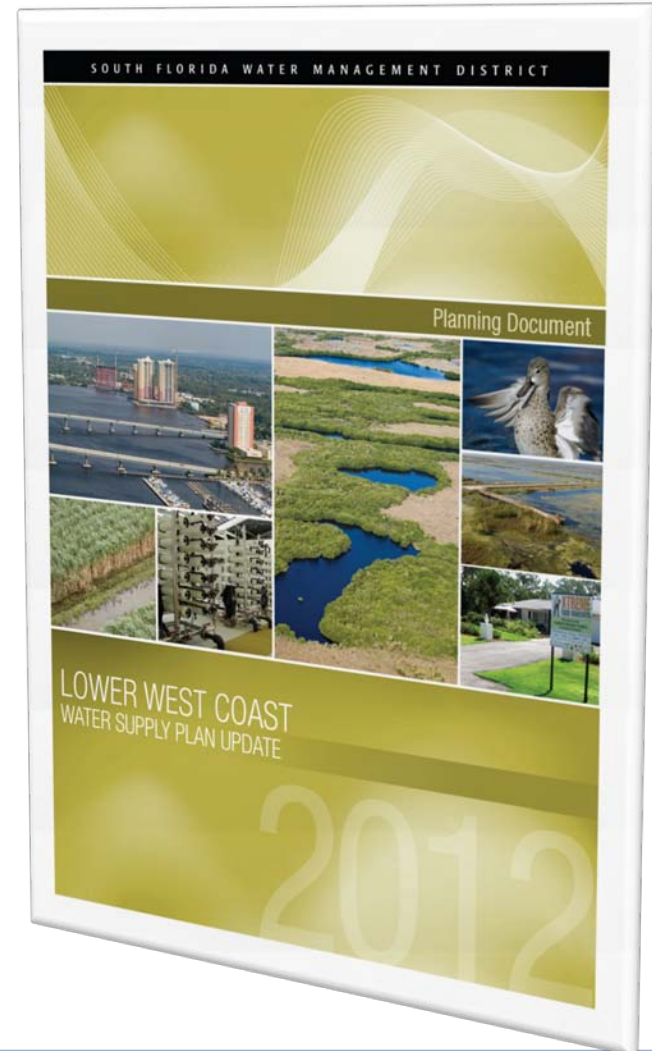
Achieve compatibility with other related planning activities within the region and with adjacent water management districts

■ ***Floridan Aquifer system***

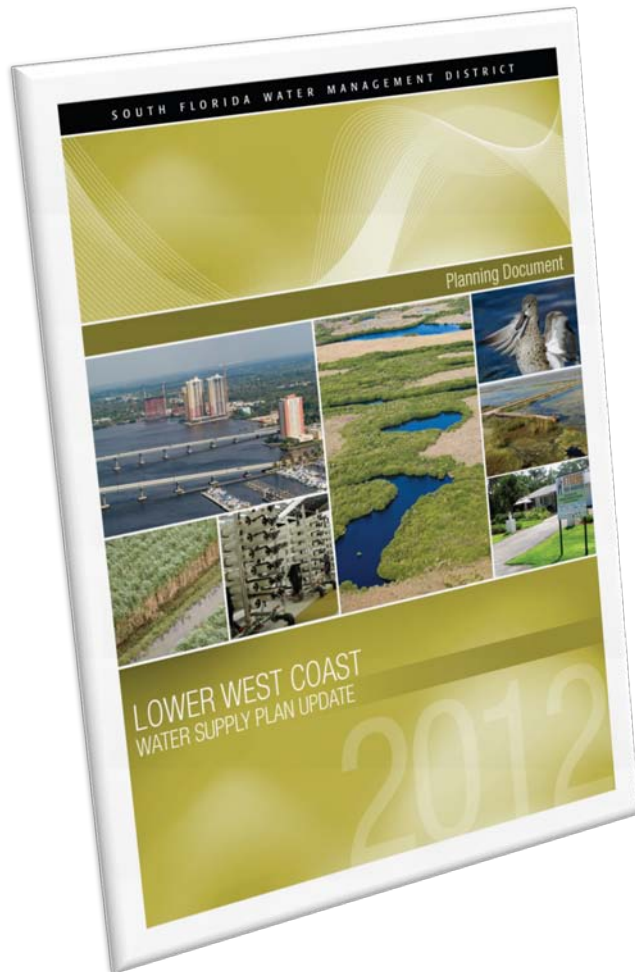
Continue to encourage development of the Floridan aquifer system as an alternative to water sources that depend on local rainfall for recharge. Work with utilities and other water users for monitoring to describe the relationships of water use, water levels, and water quality

LWC Water Supply Plan Update Planning Document Outline

- **Chapter 1: Introduction**
 - Purpose, plan goal and objectives
 - Overview of planning area and update process
 - Water supply planning for next 20 years
- **Chapter 2: Demand Estimates and Projections**
 - Demands by water use category
 - Population and water use trends
 - Demand projections in perspective
- **Chapter 3: Issues & Evaluation**
 - Plan issues, resource protection overview, previous analysis and resource sustainability



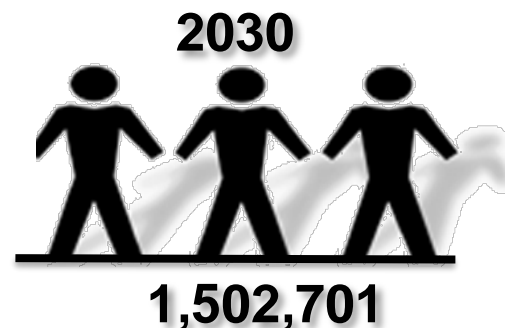
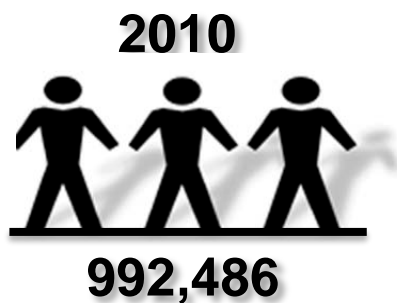
LWC Water Supply Plan Update Planning Document Outline cont.



- **Chapter 4: Evaluation of Water Source Options**
 - Surface water, groundwater, reclaimed water, storage, conservation, & seawater
- **Chapter 5: Water Resource Development Projects**
 - Water resource projects such as monitoring, MFLs, water reservations, modeling & SWFFS
- **Chapter 6: Water Supply Development Projects**
 - PWS projects to meet the next 20-year needs
 - Utility summaries
- **Chapter 7: Future Direction**
 - Water sources, coordination & climate change

LWC Population

County Area	2010 Population	2030 Projected Population	Percentage Increase
Lee	606,949	957,100	58%
Collier	341,565	471,999	38%
Hendry <i>(Portion in LWC Planning Area)</i>	37,493	51,023	36%
Glades <i>(Portion in LWC Planning Area)</i>	6,413	8,413	31%
Charlotte <i>(Portion in LWC Planning Area)</i>	66	14,166	21,464%
LWC Total	992,486	1,502,701	51%



Water Use Categories

1. **Public Water Supply**
2. **Domestic Self-Supply**
3. **Agriculture Self-Supply**
4. **Recreation/Landscape Self-Supply**
5. **Power Generation Self-Supply**
6. **Commercial & Industrial Self-Supply**

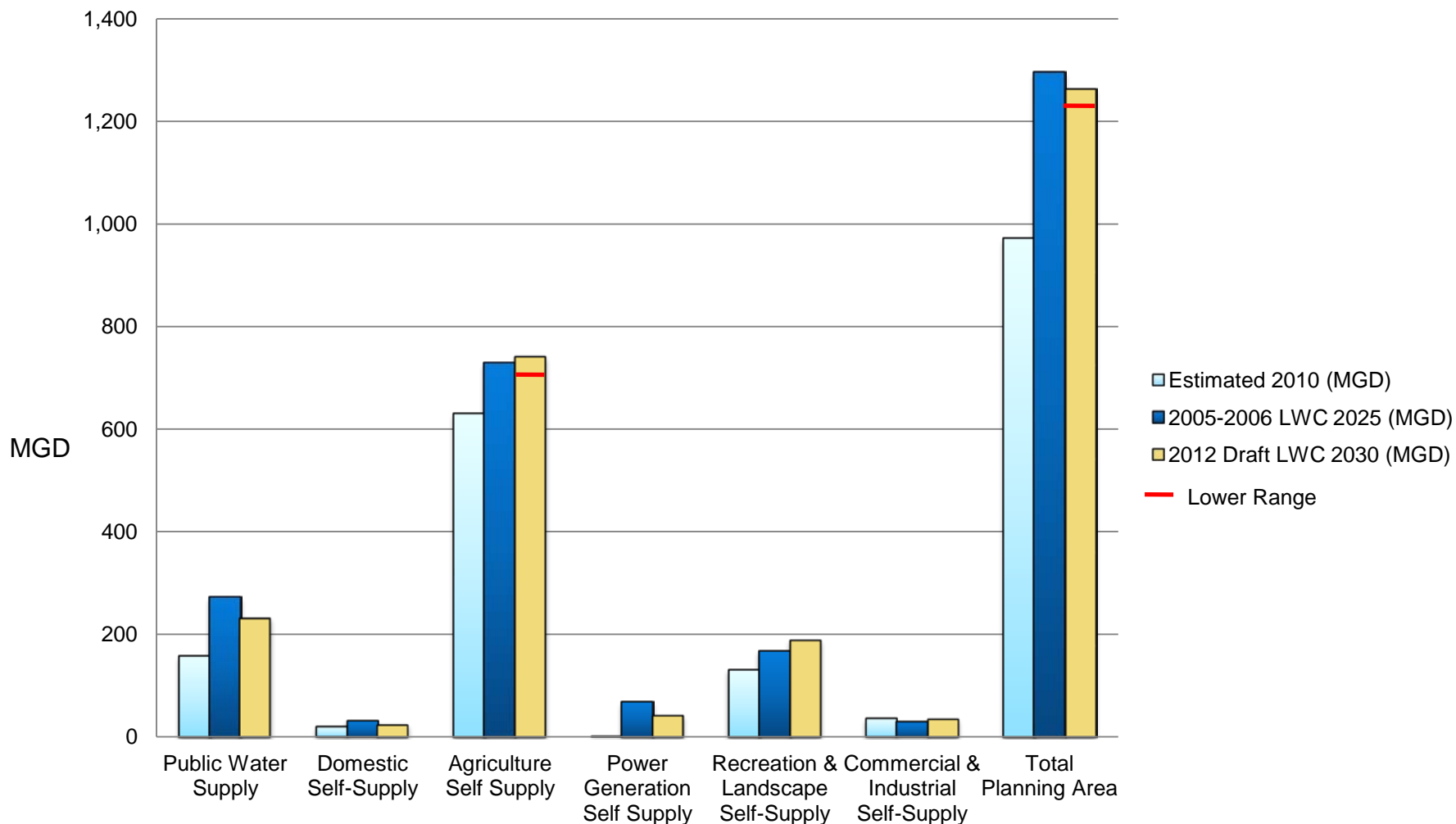


Water Supply Gross Demand Projections

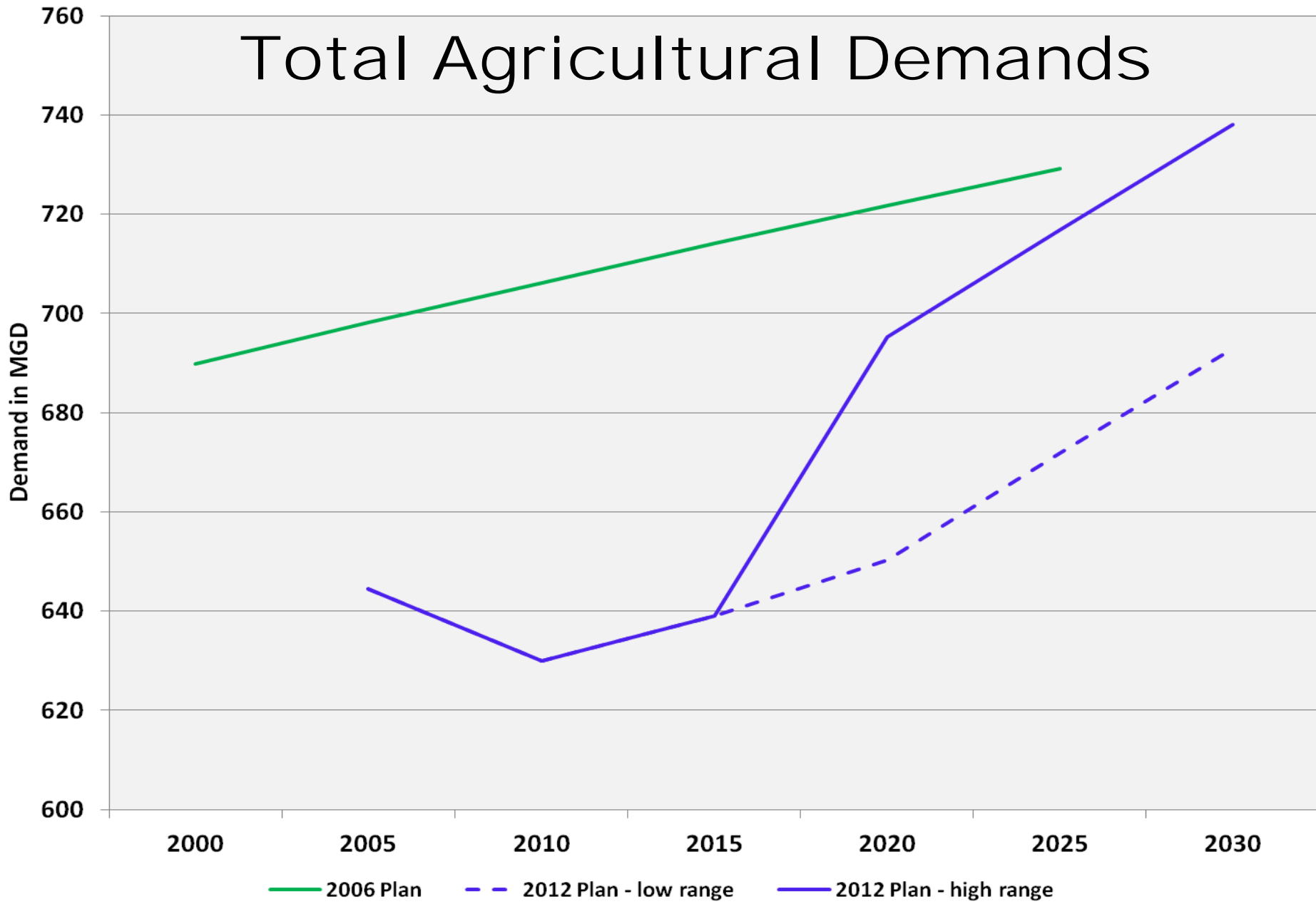
Category	Estimated 2010 (MGD)	2006 LWC 2025 (projected MGD)	2012 Draft LWC 2030 (projected MGD)
Public Water Supply	156	272	232
Domestic Self-Supply	19	31	24
Agriculture Self-Supply	630	729	696-741
Recreation/Landscape Self-Supply	130	167 ^a	189
Power Generation Self-Supply	1	67	42
Commercial & Industrial Self-Supply	35	29	35
Total Planning Area	971	1,295	1,218-1,263

a - Adjusted

LWC Gross Demand Projections

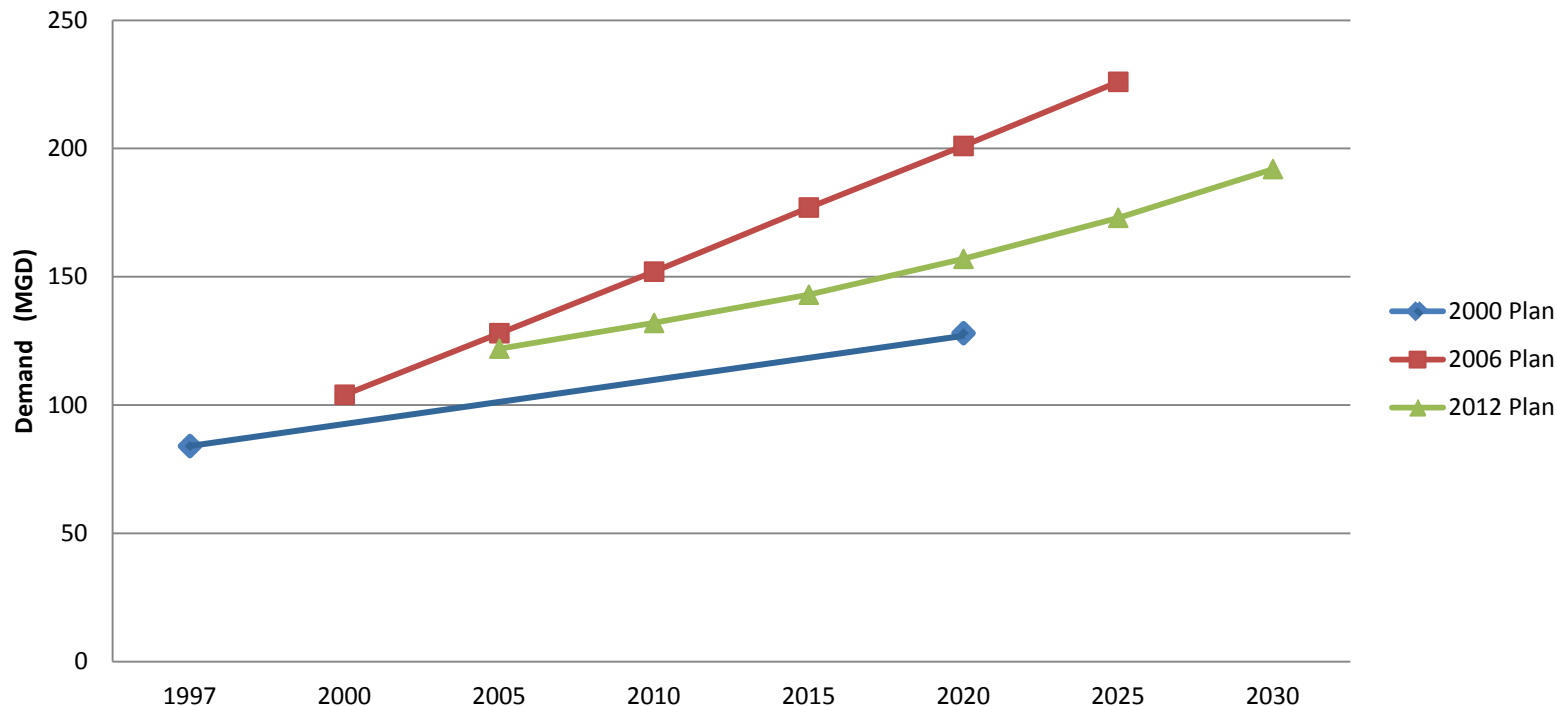


Total Agricultural Demands



Evolution of Public Water Supply Finished Demand Projections

LWC Public Water Supply Finished Water Demand Average Conditions (MGD)



Plan Year	1997	2000	2005	2010	2015	2020	2025	2030
2000 Plan	84					128		
2006 Plan		104	128	152	177	201	226	
2012 Plan			122	132	143	157	173	192

Water Resource Development

Water Resource Development Project

- Regional in nature and generally the responsibility of a water management district
- Meets the formulation and implementation of regional water resources management strategies

Hydrogeology

- Groundwater and wetland monitoring
- Groundwater assessments
- Evapotranspiration assessments
- Drilling and testing

Modeling

- LWC Floridan Aquifer System Model
- LWC Surficial Aquifer System Model



Water Supply Development Projects

Local in nature and generally involve public or private facilities for water collection, production, treatment and transmission

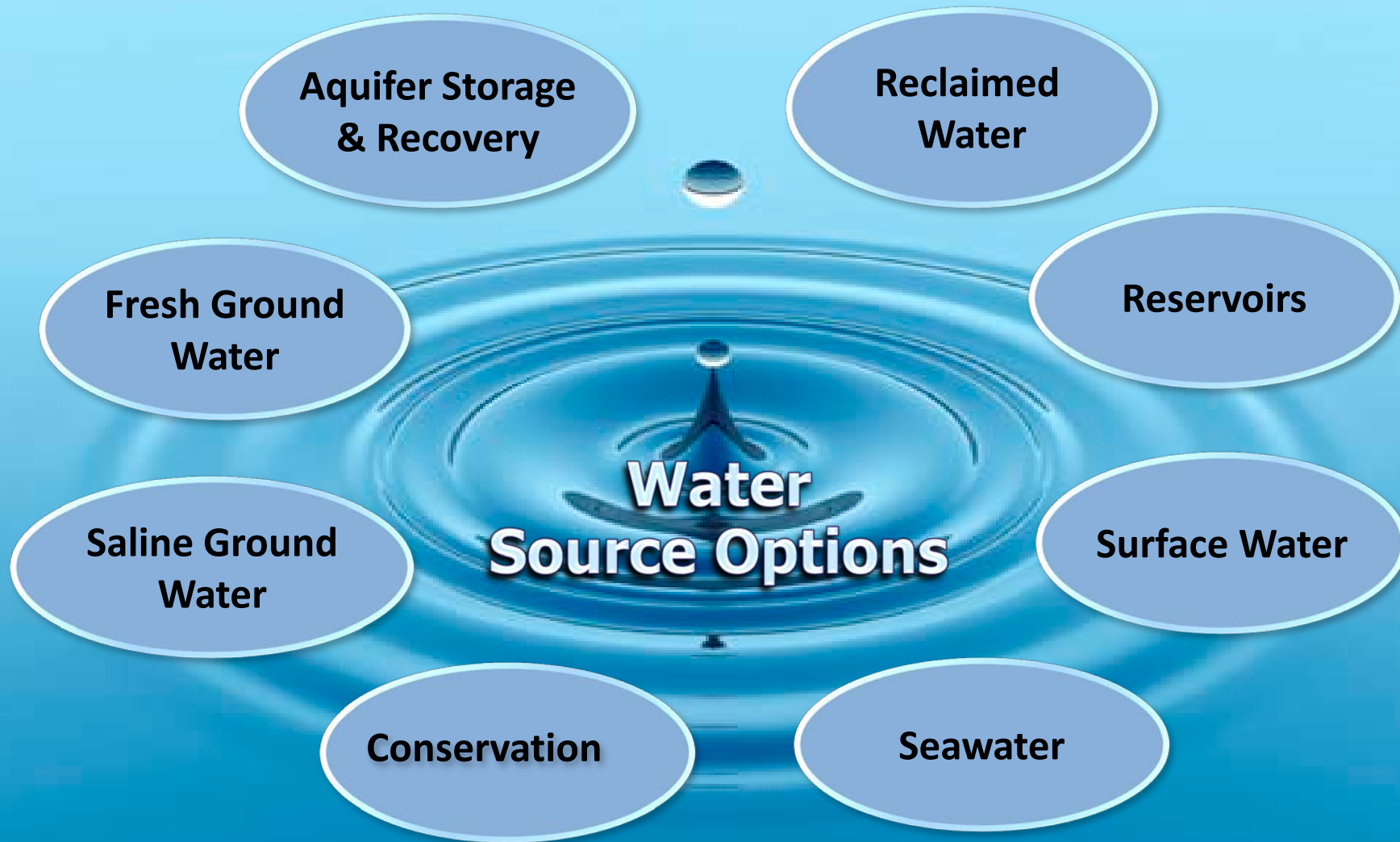


LWC Public Water Supply Planned Projects - FY 2012 - 2030

No. of Multi-Phased Projects	Water Type	MGD
11	Brackish	70
6	Fresh	9
11	Reclaimed	35
5	Surface/Supplemental	19
2	Fresh/Supplemental	6
35	Total	139



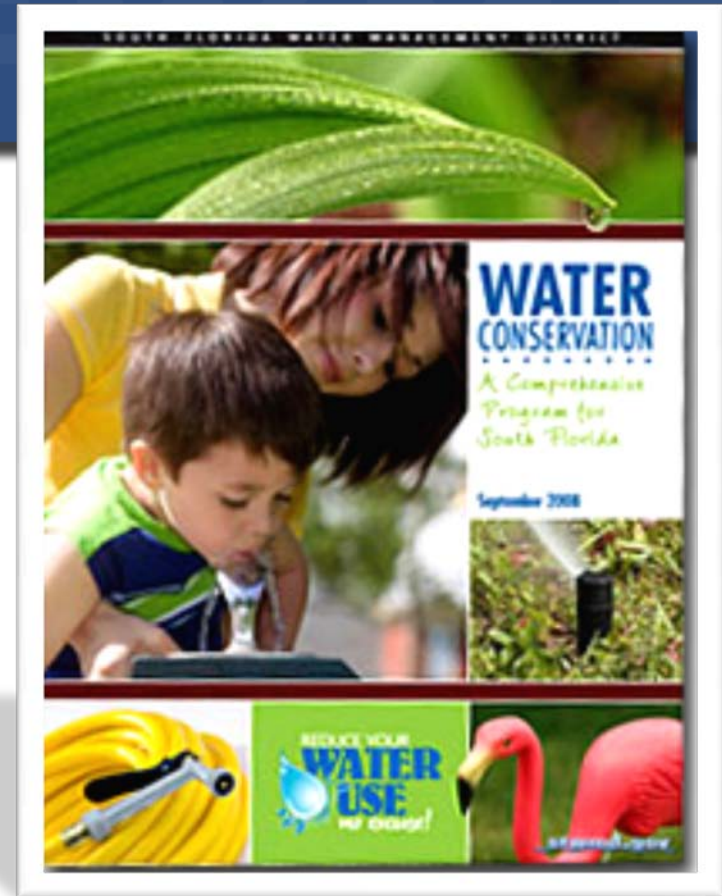
Water Source Options



Conservation

- Year-round rule savings
- All water sources should be used efficiently by all users
- Reduces impact on water resources

The cheapest gallon of water is the gallon we don't use



Plan/Base Year Used	1994 Plan (1990)	2000 Plan (1995)	2006 Plan (2000)	2012 Plan (2005)
LWC Planning Area Per Capita - PWS	194	167	176	151

Public Water Supply

- Continued use of **fresh water aquifers**
- In many areas, especially coastal areas, fresh water aquifer withdrawals maximized
 - ▶ Additional water on a case-by-case basis
- Increased use of **Floridan aquifer**
- Look for opportunities for increased efficiency through water **conservation**
- Increase fresh water availability through **Aquifer Storage & Recovery** where appropriate



Landscape Irrigation

- Continued use of **fresh water aquifers**
- In many areas, especially coastal areas, fresh water aquifers withdrawals maximized
 - ▶ Additional water on a case-by-case basis
- Increased use of **reclaimed water**, especially in areas where fresh water aquifers are maximized
- Look for opportunities for increased efficiency through water **conservation**



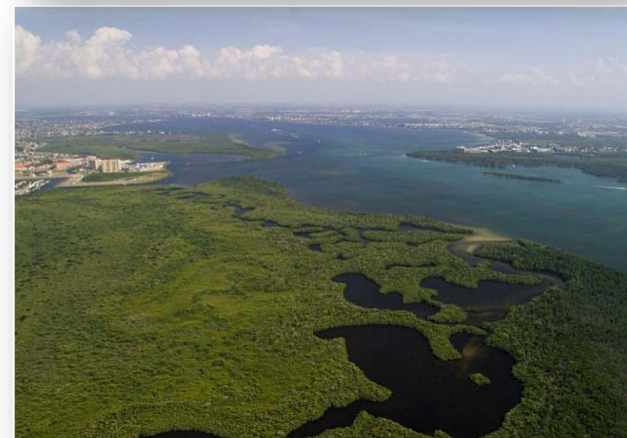
Agricultural Irrigation

- Continued use of **surface water and fresh water aquifers**
 - ▶ Increases in **storage** and repairs to the Lake Okeechobee Herbert Hoover Dike
 - ▶ Look for opportunities for increased efficiency through water **conservation** and Best Management Practices (BMPs) Program
- Stormwater **retention**/tailwater recovery where possible



Natural Resources

- Implementation of **surface water storage projects** will improve water resource management
 - ▶ CERP Caloosahatchee River (C-43) West Basin Reservoir Project
- Established **Minimum Flows and Levels** to protect resources from significant harm
- Regulatory mechanisms protect water resources from harm



Changes Affecting Water Availability

Changes affecting water availability since 2006 LWC Water Supply Plan

- 2008 Lake Okeechobee Regulation Schedule (LORS)
- Adaptive Protocols
- Restricted Allocation Areas (RAAs)



Caloosahatchee MFL Recommended Research Efforts

- Hydrodynamic model for estuary (complete)
- Vallisneria model (complete)
- Collect tidal basin flow data (through 2014)
- Quantify Vallisneria habitat value (2014)
- Study flow effects on oysters, benthic zooplankton, ichthyoplankton & phytoplankton (through 2015)
- Peer review/draft rule (2017)



Caloosahatchee MFL Recovery Strategy

CERP Caloosahatchee River West Basin Storage Reservoir

- Completed:
 - Land acquisition
 - Test cells construction
 - Removal of 7,100 acres citrus
 - Federal Project Implementation Report (PIR)
 - Project design
 - Federal and State Permitting
- Awaiting congressional authorization



Other Planned Improvements

- Caloosahatchee Watershed Protection Plan
- Caloosahatchee Water Quality Treatment and Testing Project
- Dispersed Water Management
- Local projects
 - Mirror Lakes Halfway Pond restoration
 - Spanish Creek/Four Corners
- Lake Hicpochee
- BOMA Site Interim Project

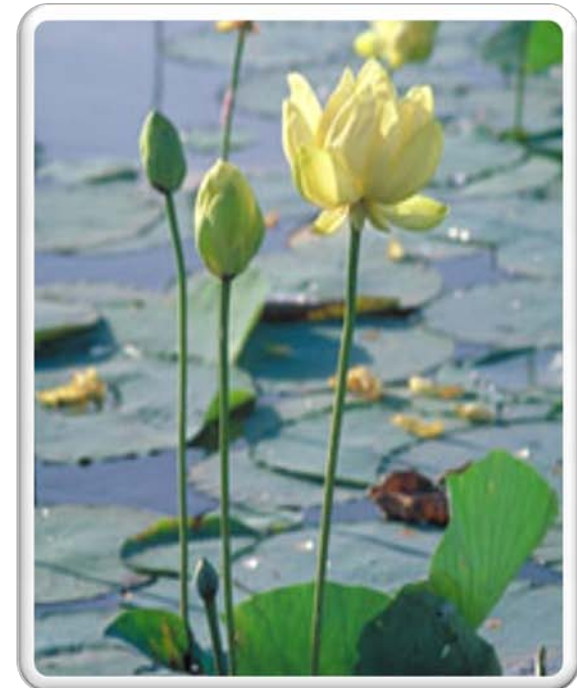


Future Direction

- Improve understanding of fresh groundwater sources
- Continue aquifer monitoring program
- Construct CERP Caloosahatchee River (C-43) West Basin Storage Reservoir
 - Project -specific Water Reservation rule should be completed and adopted
- Promote local storage projects
- Encourage and promote water reuse and conservation measures
- Identify the impact of sea level rise on utility wellfields at risk of saltwater intrusion

Future Direction cont.

- Coordinate with local governments and utilities on water supply related elements
- Complete Lower West Coast Floridan Aquifer System Model
- Continue to promote a water conservation ethic



Requirement: Link Land Use with Water Supply Planning



After the District updates the Water Supply Plan:

- All local governments must amend their comprehensive plan to incorporate a water supply facilities work plan for at least a 10 year period within 18 months of water supply plan update
- Utilities identify the projects to be developed
- Annual Progress Reports
 - Utilities

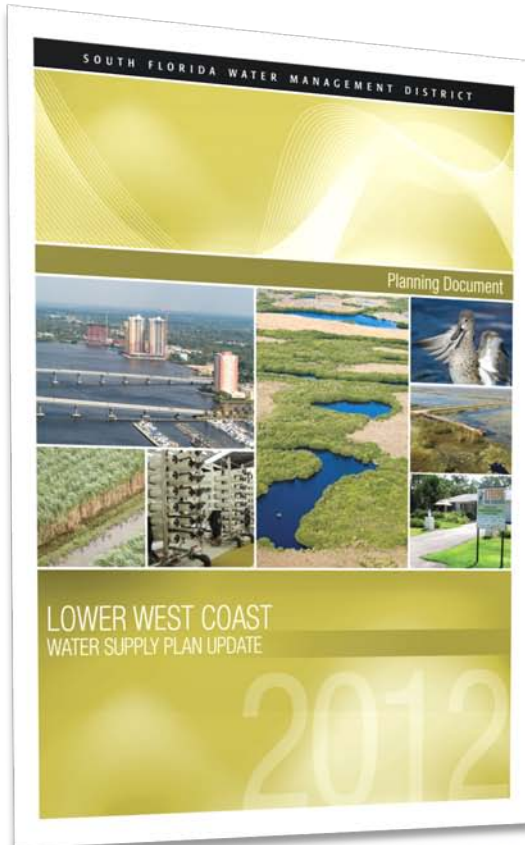
2012 Lower West Coast Water Supply Plan Update

Plan Conclusion

The future water demands of the region can continue to be met through the 2030 planning horizon with appropriate management and continued diversification of water supply sources

Completion:

- C-43 Reservoir
- Utility Projects
- Repairs to Herbert Hoover Dike
- Site-specific refinement of groundwater availability



LWC Water Supply Plan Information

The screenshot shows the website for the Lower West Coast Water Supply Plan. The main heading is "Lower West Coast Water Supply Plan". Below it, there is a "RELATED LINKS" section with the following items:

- About Water Supply Planning
- Lower West Coast Water Supply Plans
- Alternative Water Supply
- Intergovernmental Policy and Planning: Linking Land and Water
- Where does our drinking water come from? (PDF)
- Water Conservation
- Water Resources Advisory Commission (WRAC)
- Public Workshops

The main content area includes a map of the Lower West Coast Water Supply Planning Area and a section titled "LOWER WEST COAST (LWC) WATER SUPPLY PLAN DOCUMENTS". This section lists the following documents:

- 2011-2012 Draft Water Supply Plan Support Document
- 2005-2006 LWC Water Supply Plan (Planning Document)
- 2005-2006 LWC Water Supply Plan (Appendices)

A note states: "NOTE: to request a CD containing these documents, click here and provide your name and mailing address."

The "Upcoming Events" section lists the following events:

- Workshop: Water Reservation for the Capecanal River (C4) West Bank Storage Reservoir - Feb. 27 and March 29
- Workshop: Water Reservation for the Bayshore Bay Coastal Wetlands - March 5 and April 6
- Governing Board Meetings 2012 Meeting

- For further information, including Plan workshops, can be found at: www.sfwmd.gov

✓ then type in search box:

“Lower West Coast Water Supply Plan”

- Workshop information can be found at:

- SFWMD Calendar
- WRAC agenda webpage

- Workshop announcements sent by email

Questions

