Welcome and Opening Remarks – Tom Colios, SFWMD
2022 Plan Update Process and Summary of 2017 Plan – Tom Colios, SFWMD
Progress Since 2017 and 2022 Goal and Objectives – Bob Verrastro, SFWMD
Agriculture Industry Trends in Southwest Florida – Gene McAvoy, UF/IFAS
Demand Estimates and Projections – Coleen Jordan, SFWMD
Next Steps – Bob Verrastro, SFWMD
Adjourn

Questions and public comment will occur after each presentation.
2022 Plan Update Process
Summary of 2017 Plan

Tom Colios
Section Leader, Water Supply Planning

2022 LWC Stakeholder Kickoff Meeting
March 15, 2022
To identify sufficient water supply sources and future projects to meet existing and future reasonable-beneficial uses during 1-in-10-year drought conditions through **2045** while sustaining water resources and related natural systems.
Water Supply Plan Requirements

- 20-year planning period
- Demand estimates and projections
- Resource analyses
- Issue identification
- Evaluation of water source options
- Water resource development
  - Responsibility of water management district
- Water supply development
  - Responsibility of water users
- Environmental protective and restoration strategies
  - Minimum flows and minimum water levels (MFLs)
**Lower West Coast Planning Area**

- **Includes:**
  - Lee County and portions of Collier, Glades, Hendry, Monroe, and Charlotte counties

- **Population:**
  - 2020: 1,188,599
  - 2045: 1,617,071* 

- **Major agricultural industry**

- **Significant environmental features**

*University of Florida (UF) Bureau of Economic and Business Research estimate.*
Regional Water Supply Plan

What It Does
- Provides a road map to meet future water needs while protecting water resources and natural systems
- Conducts a planning-level approach
- Projects future water demands
- Identifies and evaluates water source options

What It Does NOT Do
- Does not authorize consumptive use permits
- Does not establish MFLs
- Does not adopt rules
- Does not require water users to implement specific projects
- Does not address surface water quality issues (e.g., algal blooms)
Active participation to ensure plan reflects the needs of the planning area

- Agricultural interests
- Public water suppliers
- Environmental community
- County commissions/city councils
- County/city planning staff
- Regional planning council
- Governing Board member involvement
- Southwest Florida Water Management District

Opportunities for public participation

- Stakeholder meetings
- Governing Board meetings
- Big Cypress Basin Board meetings
- One-on-one meetings
- Draft document review and comment
Water Supply Plan Update Timeline

- **Meetings with Local Governments**
  - March 15: Stakeholder Mtg 1
  - April 28: Big Cypress Board Mtg 1
  - May: Stakeholder Mtg 2

- **Meetings with Other Stakeholders**
  - Late August: Draft Plan for Public Review & Comment
  - Sept: Stakeholder Mtg 3
  - Sept 8: Governing Board Mtg 1, Draft Plan

- **Public Input**
  - Oct 3: Public Comment Period Ends
  - Oct 27: Big Cypress Board Mtg 2

**Stakeholder Meetings**
- Urban & Agricultural Demand Projections
- Environmental Protections
- Water Resource Analyses
- Water Source Options & Conservation
- Water Resource & Water Supply Projects

- **Governing Board Approval**
  - Nov 10, 2022

We Are Here.
The future water demands of the region can continue to be met through the 2040 planning horizon with appropriate management, conservation, and implementation of projects in this 2017 LWC Plan Update.

Dependent on completion of the following:

- Identified Comprehensive Everglades Restoration Plan (CERP) components and other projects to meet environmental needs
- Water supply development projects by 2 utilities
2017 Water Supply Issues

- Limited opportunity to increase surficial and intermediate aquifer use
- Surface water availability (storage) is limited
  - Lake Okeechobee Regulation Schedule (LORS 2008)
  - Lake Okeechobee Service Area (LOSA) Restricted Allocation Rule
- Freshwater discharges are affecting the health of coastal resources
- Freshwater sources alone are inadequate to meet water needs
- Long-term sustainability of brackish groundwater sources
2017 Future Direction

- Continue surficial aquifer system (SAS) and Floridan aquifer system (FAS) assessment and monitoring programs
- Construct CERP and related projects
- Promote local storage projects
- Promote water reuse and conservation measures
- Coordinate with other agencies, local governments, and utilities on water supply elements
- Identify the potential impact of sea level rise on utilities and other users
Progress Since 2017
2022 Plan Update Goal and Objectives

Bob Verrastro, P.G.
LWC Water Supply Plan Manager
2022 LWC Stakeholder Kickoff Meeting
March 15, 2022
Herbert Hoover Dike Repair and LOSOM

- Dike repairs anticipated to be completed by 2022
- Lake Okeechobee System Operating Manual (LOSOM)
  - To improve dam safety, in-lake ecology, and water quality; reduce damage to estuaries; and improve water supply performance
  - Undergoing public and agency review
  - Final Record of Decision anticipated by January 2023
Water Resource Projects – East Caloosahatchee Basin

Lake Hicpochee – Hydrologic Enhancement

Boma – Water Quality Treatment and Storage
The C-43 Reservoir is designed to store up to 170,000 acre-feet of water.

Ecosystem benefits encompasses almost 80,000 acres of riverine and coastal waters.
Picayune Strand Restoration Project

- Picayune Strand Restoration Project will restore 55,000 acres of public lands.
- Most project components have been built.
- Completion of the Southwestern Protection Feature is expected in 2024.
- The Miller Canal will not be plugged until the Southwestern Protection Feature is completed.
Minimum flows and minimum water levels (MFLs) revised from 300 to 457 cubic feet per second (cfs) at S-79

Contingent upon completion of the C-43 Reservoir

2019 Amendment to Appendix C of the 2017 LWC Plan Update
Lake O Aquifer Storage and Recovery Program

- Component of the Lake Okeechobee Watershed Restoration Plan
- 55 aquifer storage and recovery (ASR) wells
- Accelerated construction program
- Supported by ASR Science Plan
Supplements the regional water supply plans
Legal authority and linkage to local plans
Comprehensive conservation support
Water use permitting process/coordination
Water resource (natural systems) protections
Ecosystem restoration and District-wide resource development projects
Water sources options and treatment processes/costs
Available at www.sfwmd.gov/lwcplan
2020 SFWMD-Wide Total Water Use:
2.8 billion gallons per day (bgd)

2020 LWC Total Water Use:
694 million gallons per day (mgd)
/about 25% of SFWMD total/

* Note: Power Generation = 0%
Regional Hydrogeological Studies

Groundwater Chemistry of the Lower Floridan Aquifer – Upper Permeable Zone in Central and South Florida

Technical Publication WS-57

December 2020

Geochemistry of the Upper Floridan Aquifer and Avon Park Permeable Zone Within the South Florida Water Management District

Technical Publication WS-47

August 2018

Elizabeth Geddes, P.G.
Stacey Counts
Brian Collins

Resource Evaluation Section, Water Supply Bureau

South Florida Water Management District | 3301 Gun Club Road | West Palm Beach, FL 33406
Groundwater Monitoring

- Weekly assessment
- Focused on LWC shallow and intermediate aquifers
- Intensive growth in domestic self-supply wells
- Localized areas where the maximum developable limit (MDL) is being encroached/minimum flow and minimum water level (MFL) is being threatened
Lower West Coast Groundwater Models

2020 Surficial and Intermediate Aquifer Model (LWCSIM)

2020 West Coast Floridan Model (WCFM)
2019 Saltwater Interface Mapping

Lower Tamiami

Sandstone

Mid-Hawthorn
Water Supply and Conservation Project Support

- Alternative Water Supply Funding (7 projects – 9.78 mgd)
  - Ave Maria reclaimed water storage pond and distribution expansion
  - Naples reclaimed water transmission expansion
  - Lee County reclaimed water transmission expansion (Fiesta Village)
  - Cape Coral irrigation canal pump station
  - Cape Coral reclaimed water distribution expansions (2 projects)
  - Cape Coral – Fort Myers reclaimed water interconnection

- Conservation Project Funding (3 projects – 0.08 mgd savings)
  - Bayrock Grove Advanced Irrigation Controller
  - Bishopwood Neighborhood Association SMART irrigation system
  - Bonita Springs high-efficiency toilet rebate program
Big Cypress Basin Initiatives

- **Cost-Share Funding Projects**
  - Naples Utility Projects
    - Goodlette Frank Road Septic to Sewer Conversion
    - Reclaimed Water Expansion Phases 4 and 5
    - ASR Well #4

- **System/Facility Improvements**
  - Golden Gate 4 structure replacement – holding more water during dry season
  - Remote operational systems installation
  - Curry Canal control structure
  - Modified dry season operation in Corkscrew Canal Basin

- **BCB Regional Storage Feasibility Study**
  - Potential for improved flood protection for Golden Gate Basin
Water Source Options and Alternatives

Aquifer Storage & Recovery*

Reclaimed Water*

Fresh Groundwater

Reservoirs*

Saline Groundwater*

Surface Water

Conservation*

Seawater*

* Alternative water source
Reclaimed Water Usage

Reuse History in the LWC Planning Region

Year

Reclaimed Water Reused (MGD)
SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Questions and Public Comment

- If you are participating via Zoom:
  - Use the Raise Hand feature

- If you are participating via phone:
  - *9 raises hand
  - *6 mutes/unmutes your line

- When you are called on, please state your full name and affiliation prior to providing comments and/or questions
Overview of Agriculture in Southwest Florida

Gene McAvoy
Associate Director
SW Florida Research and Extension Center
Citrus
Vegetables
Sugarcane
Cattle
Ornamentals
Agricultural Acreage

Sugarcane, 88,900
Citrus, 116,587
Vegetables, 73,800
Ornamentals, 7,564
Pasture, 1,044,500

Total Ag in SWFla: 1.331,351 M acres (31% of SW FL acres)

Southwest Florida: Charlotte, Collier, Glades, Hendry, and Lee Counties.
Farm-Gate Sales (2017 $M)

- Sugarcane, $130
- Vegetables, $511
- Citrus, $275
- Ornamentals, $111
- Cattle, $55

Farm-Gate value: $1.81 Billion/yr

Southwest Florida: Charlotte, Collier, Glades, Hendry, and Lee Counties.
Sugarcane

- Florida's most valuable field crop, worth more than the combined value of Florida-grown corn, soybean, tobacco, and peanut crops
- Florida produces 50% of US sugar cane and 25% percent of the total sugar
- 450,000 acres valued at $800M
Vegetable Production in South Florida

- Florida is America’s winter garden
- Florida produces over 60 different vegetables – arugula - zucchini
- South Florida produces 70% of all vegetables consumed in the eastern US from Nov – April
- Over 10 billion dollar economic impact
Vegetable Production

- Recently, vegetables have passed citrus as the number one commodity in the state accounting for over 21% of all agricultural sales.
### What’s Growing in SW Florida

<table>
<thead>
<tr>
<th>Product</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sept</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bell Pepper</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blueberries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broccoli</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cucumber</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eggplant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grapefruit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oranges</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peaches</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potatoes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Snap Beans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Squash</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strawberries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweet Corn</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tangerines</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tomatoes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watermelon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Green Industry

• Florida is one of the top ornamental horticulture producers in the United States, ranked second only to CA
• Sod, nursery, trees, shrubs, landscaping services
• Total industry sales were estimated at over $12.33 B generating nearly 250,000 jobs
• New construction spurring demand
High Values-High Cost-High Risk

Annual costs of production (inc harvest):

- Oranges for juice: $3,000/ac
- Fresh market tomatoes: $12,000/ac
- Fresh market bell peppers: $16,000/ac
- Sugarcane: $1,000/ac

(Iowa field corn: $650/ac)
Economic Impact

• Economic Impact =
  – $1.0 Billion, farm-gate sales (stable)
  – $1.6 Billion, total economic impact

• Additional economic impact from Processing Plants (citrus juice and sugarcane)

• >90% of total farm products (raw or processed) exported – “new dollars”
Agricultural production is a business. Significant financial resources are required to grow crops. Land will remain in agriculture so long as growers receive a long-run return on investments.

Summary of Economic Contributions of Agriculture, Natural Resources, and Food Industries in SW FL

<table>
<thead>
<tr>
<th>County</th>
<th>Employment</th>
<th>Industry Output</th>
<th>Value Added</th>
<th>Labor Income</th>
<th>Other Property</th>
<th>Taxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glades</td>
<td>1,695</td>
<td>2,235</td>
<td>217</td>
<td>317</td>
<td>164</td>
<td>98</td>
</tr>
<tr>
<td>Hendry</td>
<td>9,548</td>
<td>12,357</td>
<td>931</td>
<td>1,458</td>
<td>761</td>
<td>620</td>
</tr>
<tr>
<td>Charlotte</td>
<td>11,331</td>
<td>15,214</td>
<td>841</td>
<td>1,486</td>
<td>943</td>
<td>576</td>
</tr>
<tr>
<td>Collier</td>
<td>40,276</td>
<td>54,352</td>
<td>3,273</td>
<td>5,841</td>
<td>3,294</td>
<td>2,205</td>
</tr>
<tr>
<td>Lee</td>
<td>59,230</td>
<td>81,038</td>
<td>4,964</td>
<td>8,796</td>
<td>4,745</td>
<td>3,019</td>
</tr>
</tbody>
</table>

The Future

• South FL sunshine + “relatively” warm winter temps
  – northern U.S. markets

• Rising national demand for fresh vegetables and increasing interest in “ethnic” foods

• Rapid urbanization on east and west coasts pushing agriculture into interior SW Florida

• Expansion of sugarcane and traditional “muck” crops like corn/beans onto sand lands
The Future

- Global competition and trade policies
- Access to labor - farm worker health and wellfare
- Water quality and management issues
- "Green" payments (?)
  - Water farming
  - Carbon credits
- Development pressures
- Production costs skyrocketing
- Higher fuel could benefit Florida
New Crops

- Artichokes
- Blueberries
- Hemp
- Hops
- Pomegranates
- Pongamia
- Tea
- Vanilla
- Will interest bio-fuels come back
• Exciting new technologies are emerging – do more with less
• Precision GPS guided equipment
• Cloud based technology
• Creating new jobs/replacing hand labor?
• Growers can’t compete on the basis of cheap land or labor – they must compete on the basis of technology
Reasons for Automation

Three D’s:
- Dirty
- Dull
- Dangerous
Cloud Based Technology

• U.S. Sugar has the largest, contiguous, privately owned Wi-Fi network in the country, providing wireless network coverage for its operations in a 270-square-mile area.

• Coordinates the timing of harvesting operations with railroad transportation and its mill operations and more.

• Data analysis – increased efficiency
Smart Sprayers

90% reduction in chemical usage

Sensors detect size of trees turning off and on nozzles to apply precise amount of products precisely where needed
Drip and Microjet Irrigation

Precision irrigation spoon feed crops with 30% of the water – controlled remotely via smartphone
Improved Genetics

- Improved yields, resistance to pests and diseases
- Cold, heat, drought tolerance
- Classic plant breeding
- Genetic engineering
- CRISPR-Cas9 – gene editing
Intangible Benefits

• Florida agriculture provides a number of intangible benefits including environmental services that must not be discounted.

• Wildlife and native plant system populations thrive on Florida’s farms, ranches, and forests.
Agro/Eco-Tourism

• Growing demand for Agro/ecotourism opportunities - “Agritainment”
• Bringing Florida's two economic engines (tourism and agriculture) together to increase the value of farms and to expand the array of recreation experiences offered in Florida
• Many people are generations removed from the farm and are hungry for such experiences
• Birding to mudding
Aquifer Recharge

• Unlike parts of N Florida which utilize the Floridan aquifer, much of the state depends on superficial aquifers.

• All the water we have to drink is what falls on the ground during the summer rainy season.

• Ag provides healthy “green spaces” which filter and recharge underground water supplies.
Water Farming

• Use of agricultural lands to capture and hold water on property in an effort to prevent it from traveling to ecologically sensitive areas
• Intercept and hold water to reduce discharges
Agricultural Water Trading

- Traditional groundwater sources are not sufficient to meet the future water demands without unacceptable impacts to the natural system.
- Public supply and irrigation account for 82% of groundwater withdrawals.
- More efficient irrigation coupled with use of reclaimed water could result in more water for public supply.
Going Forward

• The world will have to produce more food in the next 50 years than we have in the last ten thousands years since civilization began

• With fewer resources and less environmental impact
Questions

Gene McAvoy
Associate Director for Stakeholder Relations
University of Florida IFAS Southwest Florida Research and Education Center
Regional Vegetable Extension Agent IV Emeritus
863-673-5939 cell
gmcavoy@ufl.edu
Demand Estimates and Projections

Coleen Jordan
Demographer

2022 LWC Stakeholder Kickoff Meeting
March 15, 2022
Observations Since the 2017 LWC Update

- Irrigated agriculture projected to remain stable through 2045
- Citrus and sugarcane are still the dominant crops
- Robust economic growth
- Expanding utility service areas
- Minor increase in golf course development
Water Use Categories

1. Public Supply (PS)
2. Domestic Self-Supply (DSS)
3. Agriculture (AG)
4. Commercial/Industrial/Institutional (CII)
5. Landscape/Recreational (L/R)
6. Power Generation (PG)
Principles for Urban Demand Estimates and Projections

- Section 373.709, Florida Statutes
- Maintain *BEBR-medium county totals
- Accurately describe relative growth across the LWC
- Identify and use best available data
- Simple, reproducible, and transparent methodology
- Consistent with local government population planning estimates

* The University of Florida’s Bureau of Economic and Business Research (BEBR) produces Florida’s official state and local population estimates and projections.
Population Projections

Estimate 2020 Baseline and Projected Populations
US Census and *BEBR annual reports 2020-2045

Define Current and 2045 Service Area Boundaries
Coordination with Utilities

Distribute BEBR Projections to Service areas
Projections based on county growth rates published by BEBR

Review with Stakeholders
Consideration of adjustments based on local input
LWC Population Projection

Population in Millions

- 2020: 1,188,599
- 2045: 1,617,071

Calculated using BEBR Medium

36% increase
Utility Service Areas in Collier County

2020

2045
**Public Supply (PS)** – Potable water supplied by water treatment plants with a current allocation of 0.10 million gallons per day (mgd) or greater.

**Domestic Self-Supply (DSS)** – Potable water used by households served by small utilities (less than 0.10 mgd) or self-supplied by private well.

<table>
<thead>
<tr>
<th>County</th>
<th>PS 2020</th>
<th>PS 2045</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlotte</td>
<td>2,506</td>
<td>2,875</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>3,131</td>
<td>4,400</td>
<td>41%</td>
</tr>
<tr>
<td></td>
<td>5,637</td>
<td>7,275</td>
<td>29%</td>
</tr>
<tr>
<td>Collier</td>
<td>313,393</td>
<td>414,257</td>
<td>32%</td>
</tr>
<tr>
<td></td>
<td>74,057</td>
<td>104,743</td>
<td>41%</td>
</tr>
<tr>
<td></td>
<td>387,450</td>
<td>519,000</td>
<td>34%</td>
</tr>
<tr>
<td>Glades</td>
<td>4,906</td>
<td>5,942</td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td>4,484</td>
<td>5,029</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td>9,390</td>
<td>10,971</td>
<td>17%</td>
</tr>
<tr>
<td>Hendry</td>
<td>27,551</td>
<td>28,934</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>8,078</td>
<td>12,391</td>
<td>53%</td>
</tr>
<tr>
<td></td>
<td>35,629</td>
<td>41,325</td>
<td>16%</td>
</tr>
<tr>
<td>Lee</td>
<td>645,114</td>
<td>894,720</td>
<td>39%</td>
</tr>
<tr>
<td></td>
<td>105,379</td>
<td>143,780</td>
<td>36%</td>
</tr>
<tr>
<td></td>
<td>750,493</td>
<td>1,038,500</td>
<td>38%</td>
</tr>
<tr>
<td>LWC Total</td>
<td>993,470</td>
<td>1,346,728</td>
<td>36%</td>
</tr>
<tr>
<td></td>
<td>195,129</td>
<td>270,343</td>
<td>39%</td>
</tr>
<tr>
<td></td>
<td>1,188,599</td>
<td>1,617,071</td>
<td>36%</td>
</tr>
</tbody>
</table>
Population Projections by Plan Updates

- Update - 2006
- Update - 2012
- Update - 2017
- Update - 2022
Public Supply and Domestic Self-Supply Demands

- Public Supply
- Domestic Self-Supply

- Demand (mgd)
  - 2020
  - 2045
  - 2040 From 2017 Plan Update
Water Use Categories

1. Public Supply
2. Domestic Self-Supply
3. Agriculture (Largest category in the LWC)
4. Commercial/Industrial/Institutional
5. Landscape/Recreational
6. Power Generation
Crop Categories

- Vegetables (Fresh Market)
- Citrus
- Field Crops
- Sugarcane
- Total Irrigated Acreage in LWC
- Fruits (Non-Citrus)
- Sod
- Potatoes
- Hay
- Greenhouse or Nursery
Data Sources for Agricultural Projections
2013 legislation (Section 570.93, Florida Statutes) requires FDACS to develop statewide agricultural demand projections

- Acreage – historical, current, and 20-year projection, by crop
- Demands for average rainfall and 1-in-10-year drought, by crop
- Metered data factored into estimates of historical and current demands
- Consult with stakeholders

FDACS publishes the annual Florida Statewide Agricultural Irrigation Demand (FSAID) report
Statutory Basis for Projections

- Section 373.709, Florida Statutes: Agricultural demand projections in water management districts’ regional water supply plans should be based on best available data
  - Must consider data of future demands provided by FDACS
  - Any deviation from data must be described
  - FDACS data are presented with adjusted data
Basic Components of Agricultural Demand Projections

**Irrigated Acreages**
- FSAID Irrigated Lands Geodatabase

**Water Demand Models**
- FSAID water use model
- Agricultural Field-Scale Irrigation Requirements Simulation (AFSIRS) model
Agriculture in LWC

FSAID8/FDACCS
Lower West Coast
Irrigated Agricultural Areas
### LWC Agricultural FSAID8 Acreage

#### Bar Chart
- **Citrus**: 118,047 acres in 2020, 124,821 acres in 2045
- **Sugarcane**: 88,640 acres in 2020, 86,706 acres in 2045
- **Fresh Market Vegetables**: 60,252 acres in 2020, 62,961 acres in 2045
- **Hay/Pasture**: 16,223 acres in 2020, 16,806 acres in 2045
- **Sod**: 3,328 acres in 2020, 3,287 acres in 2045
- **Other**: 5,275 acres in 2020, 12,481 acres in 2045

#### Acres Projections

<table>
<thead>
<tr>
<th></th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
<th>2035</th>
<th>2040</th>
<th>2045</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FSAID 8 Updated (2022 LWC Plan)</strong></td>
<td>291,765</td>
<td>291,899</td>
<td>295,709</td>
<td>299,870</td>
<td>303,383</td>
<td>307,062</td>
</tr>
<tr>
<td><strong>FSAID 3 Projections (2017 LWC Plan)</strong></td>
<td>315,555</td>
<td>320,967</td>
<td>325,941</td>
<td>332,789</td>
<td>339,648</td>
<td>-</td>
</tr>
</tbody>
</table>
AFSIRS and FSAID Water Demand Model Comparison

<table>
<thead>
<tr>
<th>AFSIRS</th>
<th>FSAID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Built with data from University of Florida field experiments</td>
<td>Built with available reported water use from all water management districts</td>
</tr>
<tr>
<td>Uses a wide range of location-specific environmental variables</td>
<td>A limited set of environmental variables are used directly in the model</td>
</tr>
<tr>
<td>Does not consider changing irrigation intensities in response to crop profitability</td>
<td>Irrigation intensities vary in response to crop profitability</td>
</tr>
</tbody>
</table>

Agricultural Field-Scale Irrigation Requirements Simulation (AFSIRS)
The District uses bigger demand projections to remain conservative with its planning efforts.

AFSIRS model is similar to the model used to establish water use permit allocations in the region.
LWC Agricultural Demands

<table>
<thead>
<tr>
<th>Million Gallons per Day</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
<th>2035</th>
<th>2040</th>
<th>2045</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFSIRS (2022 LWC Plan)</td>
<td>590.54</td>
<td>586.05</td>
<td>590.15</td>
<td>598.86</td>
<td>608.48</td>
<td>619.92</td>
</tr>
<tr>
<td>AFSIRS (2017 LWC Plan)</td>
<td>634.93</td>
<td>644.66</td>
<td>653.01</td>
<td>665.92</td>
<td>678.83</td>
<td></td>
</tr>
</tbody>
</table>
## Draft LWC Agriculture Demands Summary

<table>
<thead>
<tr>
<th>Agriculture Subcategory</th>
<th>2020</th>
<th>2045</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crops</td>
<td>590.54</td>
<td>619.92</td>
</tr>
<tr>
<td>Livestock</td>
<td>1.48</td>
<td>1.13</td>
</tr>
<tr>
<td>Aquaculture</td>
<td>0.44</td>
<td>0.44</td>
</tr>
<tr>
<td><strong>LWC Planning Area Total</strong></td>
<td><strong>592.46</strong></td>
<td><strong>621.49</strong></td>
</tr>
</tbody>
</table>

Demands in million gallons per day.

**Total = 5% Increase**
Water Use Categories

1. Public Supply
2. Domestic Self-Supply
3. Agriculture
4. Commercial/Industrial/Institutional
5. Landscape/Recreational
6. Power Generation
Commercial/Industrial/Institutional Demands

Methodology

- Baseline estimates based on permitted allocation
- Water returned directly to withdrawal source not considered demand
- Mining operations projected to grow with region’s population

<table>
<thead>
<tr>
<th>County</th>
<th>Demand (mgd)</th>
<th>2020</th>
<th>2045</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlotte</td>
<td></td>
<td>0.07</td>
<td>0.09</td>
</tr>
<tr>
<td>Collier</td>
<td></td>
<td>7.52</td>
<td>10.14</td>
</tr>
<tr>
<td>Glades</td>
<td></td>
<td>13.76</td>
<td>16.26</td>
</tr>
<tr>
<td>Hendry</td>
<td></td>
<td>4.59</td>
<td>5.38</td>
</tr>
<tr>
<td>Lee</td>
<td></td>
<td>11.79</td>
<td>16.36</td>
</tr>
<tr>
<td><strong>LWC Planning Area Total</strong></td>
<td></td>
<td>37.73</td>
<td>48.23</td>
</tr>
</tbody>
</table>

Demands in million gallons per day. **Total = 28% Increase**
Water Use Categories

1. Public Supply
2. Domestic Self-Supply
3. Agriculture
4. Commercial/Industrial/Institutional
5. Landscape/Recreational
6. Power Generation
Landscape/Recreational

Methodology
• 2019 acreage based primarily on District land use data
• Water demands based on reported volumes
• Landscape category projected to grow with population
• Only planned and approved golf construction

<table>
<thead>
<tr>
<th>County</th>
<th>2020</th>
<th>2045</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlotte</td>
<td>1.87</td>
<td>2.48</td>
</tr>
<tr>
<td>Collier</td>
<td>56.47</td>
<td>59.25</td>
</tr>
<tr>
<td>Glades</td>
<td>0.18</td>
<td>0.20</td>
</tr>
<tr>
<td>Hendry</td>
<td>0.64</td>
<td>0.74</td>
</tr>
<tr>
<td>Lee</td>
<td>78.89</td>
<td>102.55</td>
</tr>
<tr>
<td>LWC Planning Area Total</td>
<td>138.05</td>
<td>165.22</td>
</tr>
</tbody>
</table>

Demands in million gallons per day. **Total = 20% Increase**
1. Public Supply
2. Domestic Self-Supply
3. Agriculture
4. Commercial/Industrial/Institutional
5. Landscape/Recreational
6. Power Generation
### Power Generation Demands

<table>
<thead>
<tr>
<th>County</th>
<th>Demand (mgd)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2020</td>
<td>2045</td>
<td></td>
</tr>
<tr>
<td>*Lee</td>
<td>0.53</td>
<td>0.53</td>
<td></td>
</tr>
<tr>
<td>LWC Planning Area Total</td>
<td><strong>0.53</strong></td>
<td><strong>0.53</strong></td>
<td></td>
</tr>
</tbody>
</table>

Demands in million gallons per day.

* These demands were based on the (FP&L) Fort Myers Power Plant’s average daily use in 2020.
Lower West Coast Draft Water Demands (mgd) Summary

Demands in million gallons per day.

<table>
<thead>
<tr>
<th>Water Use Category</th>
<th>2020</th>
<th>2045</th>
<th>2040 From 2017 Plan Update</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Supply</td>
<td>155.95</td>
<td>210.35</td>
<td>199.88</td>
</tr>
<tr>
<td>Domestic Self-Supply</td>
<td>25.25</td>
<td>35.00</td>
<td>33.18</td>
</tr>
<tr>
<td>Agriculture</td>
<td>592.46</td>
<td>619.92</td>
<td>678.83</td>
</tr>
<tr>
<td>Commercial/Industrial/Institutional</td>
<td>37.73</td>
<td>48.23</td>
<td>29.07</td>
</tr>
<tr>
<td>Landscape/Recreational</td>
<td>138.05</td>
<td>165.22</td>
<td>254.32</td>
</tr>
<tr>
<td>Power Generation</td>
<td>0.53</td>
<td>0.53</td>
<td>15.4</td>
</tr>
<tr>
<td><strong>LWC Planning Area Total</strong></td>
<td><strong>949.97</strong></td>
<td><strong>1,079.25</strong></td>
<td><strong>1,210.68</strong></td>
</tr>
</tbody>
</table>

2022 LWC Demand Total = 14% Increase
Questions and Public Comment

➢ If you are participating via Zoom:
  • Use the Raise Hand feature

➢ If you are participating via phone:
  • *9 raises hand
  • *6 mutes/unmutes your line

➢ When you are called on, please state your full name and affiliation prior to providing comments and/or questions
2022 Plan Update Next Steps

Bob Verrastro, P.G.
LWC Water Supply Plan Manager

2022 LWC Stakeholder Kickoff Meeting
March 15, 2022
Objectives of the 2022 LWCWSP Update

1. Water supply during 1-in-10-year drought conditions through 2045
2. Protect and enhance natural systems
3. Encourage water conservation measures
4. Promote compatibility with local government planning
5. Coordinate and integrate with other water resource initiatives
Executive Summary
Chapter 1: Introduction
Chapter 2: Demand Estimates and Projections
Chapter 3: Water Conservation
Chapter 4: Resource Protection
Chapter 5: Water Source Options
Chapter 6: Water Resource Issues and Analyses
Chapter 7: Water Resource Development Projects
Chapter 8: Water Supply Development Projects
Chapter 9: Future Direction
Next Steps

- Continue coordination with utilities, agricultural operations, state agencies, and other stakeholders
- Distribute some individual chapters for stakeholder review
- Stay up-to-date with progress of local and regional projects
- Next stakeholder meeting: **May 2022**
  - Update on Comprehensive Everglades Restoration Plan
  - Water resource protection tools
  - Regional groundwater models
  - Saltwater intrusion monitoring
  - SFWMD resiliency initiative
2022 LWC Plan Update Schedule

* Stakeholder meetings planned to be virtual

**Stakeholder Meeting 1***
Big Cypress Basin Board Meeting
March 15

**Stakeholder Meeting 2***
Post Draft Plan for public review & comment
April 28

**Stakeholder Meeting 3***
Stakeholder Meeting 2*
May

**Post Draft Plan for public review & comment**
Late August

**Governing Board Meeting**
Early September

**Public comment period ends**
September 8

**Big Cypress Basin Board Meeting**
October 3

**Governing Board Meeting**
October 27

**Big Cypress Basin Board Meeting**
November 10 (Naples)
Need Water Supply Plan Information?

- Plan information can be found at [www.sfwmd.gov/lwcplan](http://www.sfwmd.gov/lwcplan)
- Workshop announcements sent via email
- **Bob Verrastro, Plan Manager**
  - bverras@sfwmd.gov
- **Tom Colios, Section Leader**
  - tcolios@sfwmd.gov
- **Mark Elsner, Bureau Chief**
  - melsner@sfwmd.gov
Questions and Public Comment

If you are participating via **Zoom**:
- Use the Raise Hand feature

If you are participating via **phone**:
- *9 raises hand
- *6 mutes/unmutes your line

When you are called on, please state your full name and affiliation prior to providing comments and/or questions