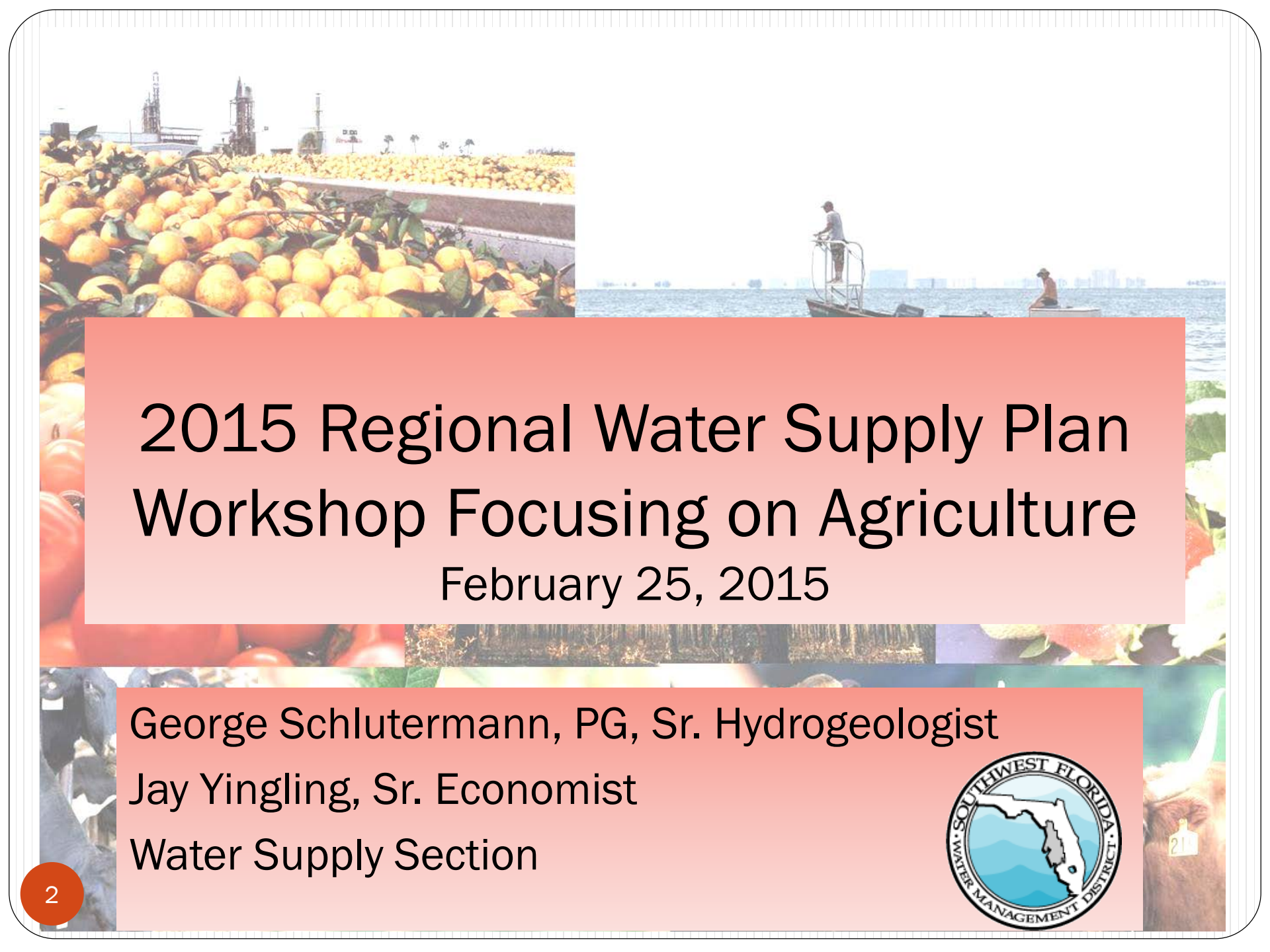




2015 Regional Water Supply Plan Workshop Focusing on Agriculture

To hear the presentation, please call toll-free at 1-888-670-3525, and enter the participant code 6234157493#

Workshop will start at 2 p.m., please stand by...



2015 Regional Water Supply Plan Workshop Focusing on Agriculture

February 25, 2015

George Schlutermann, PG, Sr. Hydrogeologist
Jay Yingling, Sr. Economist
Water Supply Section



Workshop Overview

- Online and live workshop
- Recorded for webpage
- Agricultural demands presentation
- Questions/comments from live audience
- Questions/comments from online chat
- Questions/comments from phone
- Comment cards

Purpose

- Chapter 373.036, F.S.:
 - Develop a Regional Water Supply Plan (RWSP) for water resources within the District
 - Based on at least a 20-year planning period
 - Updated at least once every 5 years (last one 2010)
 - To include a comprehensive assessment of water demands and potential sources to meet these demands
- Draft assessments of water demands for the agricultural sector for review and comment

Tentative Schedule

Activities	Time Frame
Preparation of draft 2015 RWSP	Jan. 2014 – Feb. 2015
Internal/external review of water demand projections	Sept. 2014 – Mar. 2015
Request Governing Board to approve draft RWSP	April/May 2015
Open public comment and hold public workshops	May – July 2015
Address Public Comments	July – August 2015
Request Governing Board to approve final RWSP	Oct. 2015

Agricultural Sector Methodology, Draft Acreage and Demand Projections

Irrigation vs. Non-irrigation Use

- Irrigation

- Citrus, melons, etc.
- Classified into broad categories: Blueberries, citrus, cucumbers, field crops, melons, nurseries, other farm uses, other fruit trees, other vegetables/row crops, pasture, potatoes, sod, strawberries, and tomatoes

- Non-irrigation

- Dairy farming, fish farms, livestock, etc.

Draft **Non-irrigated** Agriculture Demand Projections

- Historic use between 2007 and 2011
 - Districtwide, withdrawals declined from 9.38 to 9.23 millions of gallons per day (mgd)
- Average use projected to be constant through the planning period (2015-2035)
 - 10.03 mgd Districtwide

County Level Non-Irrigation Projections

County	Mgd	County	Mgd
Charlotte	0.003	Levy	0.017
Citrus	0.013	Manatee	0.565
DeSoto	0.717	Marion	0.029
Hardee	0.584	Pasco	0.116
Hernando	0.216	Pinellas	0.000
Highlands	0.078	Polk	2.000
Hillsborough	3.157	Sarasota	0.189
Lake	0.001	Sumter	2.341

Irrigated Agricultural Demand

- Irrigated agricultural demand has two components:
 - Acreage
 - Citrus acres
 - Non-citrus acres
 - Water use per acre

Note that Lake and Polk County acreage and demands are from Central Florida Water Initiative (CFWI) RWSP Final Draft, April 2014

Citrus Acreage Estimates & Projections

- **Historic acreage data**
 - Data from Florida Agricultural Statistical Services (FASS)
 - Normally prefer long term data but for most individual counties, long term trends are for steep decline – not realistic
 - Some southern counties show steep short term increases
- **Projected acreage**
 - 5 year growth rates calculated based on Districtwide and county-level for 2008-2013 acres
 - For each county, averaged the county-wide and Districtwide 2008-2013 growth rates to better reflect more regional trends
 - Districtwide trend is almost no change

New Acreage Projection Method for Non-Citrus Crops – Why?

- FASS no longer publishes historic crop acreage by county so trend analysis from FASS data no longer possible for non-citrus crops
- Method had to be developed to estimate historic and base year acreage
- Developed historic acreage data from reported pumpage (large permits), estimated pumpage (small permits), crop types permitted and historic average permitted quantities

Estimating **Historic** Non-Citrus Agricultural Acreage

- Acreage for year = annual pumpage/permitted water use per acre
 - For example:
 - A farmer has been permitted 1,000 gallons per day (gpd) per acre for a specific crop
 - For 2011, this permittee pumped 100,000 gpd
 - Estimated acreage planted in 2011 = $100,000 / 1,000 = 100$ acres
- Local soil and climate data built into permitted gpd/acre
- After comparisons with Census of Agriculture data, acreage was adjusted based on practical considerations (e.g., establishment quantities, etc.)



General Non-Citrus Trend Analysis

- For each crop group in each county produced trends based on long and short term data starting with linear trend analysis
- Prefer trends from long term data (generally 2001-2011)
- Trends from short term data (generally 2006-2011) considered when clear and sustained
- If both trends in same direction, generally choose the trend with more gentle slope (increasing or decreasing)
- If trend is toward zero or negative acreage in planning period, used exponential trend to moderate reduction in acreage
- Where long and short term trends opposite, typically used long term trend and limited increase to highest value in historic data range – usually nursery and sod



Average Water Demand Projections

- Average demand = projected year acreage times average permitted irrigation rate for crop
- For example:
 - 2035 projected acreage for potatoes in county X = 1,000 acres
 - Average permitted irrigation rate for potatoes in county X = 100 gpd per acre
 - The 2035 water demand for potatoes in county X = 100,000 gpd (1,000 acres times 100 gpd per acre)

Draft Districtwide Projected Irrigated Acreage

	Base Year	Projected Irrigated Acreage						
County	2010	2015	2020	2025	2030	2035	Difference (2010 to 2035)	% Difference (2010 to 2035)
Charlotte	10,899	11,718	12,695	13,704	14,743	15,810	4,911	45%
Citrus	1,098	995	956	953	974	1,010	-89	-8%
DeSoto	71,101	73,850	76,914	80,237	81,715	83,174	12,073	17%
Hardee	54,014	54,605	55,210	55,886	56,675	57,540	3,526	7%
Hernando	1,897	1,829	1,816	1,815	1,822	1,836	-62	-3%
Highlands	31,799	31,657	31,525	31,423	31,338	31,262	-536	-2%
Hillsborough	27,988	26,079	24,544	23,650	22,914	22,403	-5,585	-20%
Lake	1,447	1,354	1,260	1,166	1,073	987	-460	-32%
Levy	4,583	4,923	4,978	5,087	5,216	5,354	771	17%
Manatee	48,352	48,106	48,030	48,090	48,233	48,434	82	0%
Marion	3,289	3,178	3,337	3,540	3,777	4,038	749	23%
Pasco	10,407	9,842	9,418	9,048	8,730	8,457	-1,950	-19%
Pinellas	38	29	20	15	11	9	-28	-75%
Polk	84,196	83,841	83,841	83,841	83,841	83,841	-355	0%
Sarasota	2,881	2,835	2,625	2,483	2,376	2,291	-590	-20%
Sumter	3,731	3,591	3,198	2,956	2,816	2,749	-982	-26%
Total	357,720	358,433	360,366	363,894	366,254	369,194	11,474	3%

Draft Projected Acres by Crop

Major Crop Category	Districtwide Irrigated Acreage						Change (2010 to 2035)	% Change (2010 to 2035)
	2010	2015	2020	2025	2030	2035		
Blueberries	862	1,262	1,580	1,899	2,218	2,537	1,675	194%
Citrus	260,464	260,774	261,513	262,631	262,065	261,658	1,194	0%
Cucumbers	3,797	4,035	4,369	4,734	5,128	5,551	1,754	46%
Field Crops	6,001	5,785	6,008	6,355	6,765	7,210	1,209	20%
Melons	10,865	11,406	12,195	13,091	14,051	15,051	4,186	39%
Nurseries	5,180	4,994	4,903	5,151	5,321	5,529	350	7%
Other Farm Uses	974	1,176	1,172	1,175	1,183	1,193	220	23%
Other Fruit trees	61	908	908	908	908	908	847	1386%
Other Veg. /Row Crops	13,400	14,832	15,802	16,817	17,917	19,066	5,666	42%
Pasture	8,054	6,500	5,414	4,676	4,158	3,781	-4,273	-53%
Potatoes	1,869	2,414	2,202	1,991	1,780	1,569	-300	-16%
Sod	10,317	10,529	10,419	10,488	10,659	10,890	573	6%
Strawberries	9,008	9,329	10,289	11,255	12,225	13,198	4,189	47%
Tomatoes	26,870	24,490	23,591	22,723	21,878	21,051	-5,818	-22%
Total	357,720	358,433	360,366	363,894	366,254	369,194	11,474	3%

Draft Districtwide Projected **Average** Irrigation Demand (MGD)

	Base Year	Projected Agricultural Water Demand (MGD)						
County	2010	2015	2020	2025	2030	2035	Difference (2010 to 2035)	% Difference (2010 to 2035)
Charlotte	13.4	14.6	16.0	17.4	18.8	20.3	6.9	51%
Citrus	1.8	1.8	1.8	1.8	1.8	1.9	0.1	7%
DeSoto	69.8	73.0	76.7	80.7	83.1	85.4	15.6	22%
Hardee	53.6	54.3	55.0	55.7	56.6	57.5	4.0	7%
Hernando	2.5	2.5	2.4	2.4	2.3	2.3	-0.2	-7%
Highlands	41.8	41.7	41.9	42.1	42.4	42.6	0.8	2%
Hillsborough	57.5	53.6	50.6	49.7	48.7	48.0	-9.5	-16%
Lake	1.7	1.6	1.4	1.3	1.2	1.1	-0.6	-35%
Levy	6.6	7.5	7.8	8.1	8.4	8.8	2.1	32%
Manatee	81.1	79.9	80.0	80.3	80.8	81.4	0.3	0%
Marion	4.6	4.4	4.6	4.9	5.2	5.5	0.9	19%
Pasco	15.1	14.2	13.7	13.3	13.0	12.8	-2.3	-15%
Pinellas	0.1	0.2	0.2	0.2	0.2	0.1	0.0	0%
Polk	85.4	85.0	85.0	85.0	85.0	85.0	-0.3	0%
Sarasota	4.2	4.3	4.0	3.8	3.7	3.6	-0.6	-14%
Sumter	6.8	6.6	6.3	6.1	6.1	6.3	-0.5	-7%
Total	446.1	445.1	447.3	452.8	457.3	462.8	16.7	4%

Draft Districtwide Projected Drought Irrigation Demand (MGD)

	Base Year	Projected irrigation Water Demand						
County	2010	2015	2020	2025	2030	2035	Difference (2010 to 2035)	% Difference (2010 to 2035)
Charlotte	16.4	17.8	19.3	20.9	22.6	24.3	7.8	48%
Citrus	2.0	2.0	2.0	2.0	2.1	2.2	0.2	9%
DeSoto	95.4	99.4	104.1	109.1	111.6	114.1	18.7	20%
Hardee	73.8	75.0	76.1	77.3	78.6	80.0	6.2	8%
Hernando	3.0	3.0	2.9	2.9	2.8	2.9	-0.2	-5%
Highlands	55.5	55.3	55.4	55.6	55.8	56.0	0.5	1%
Hillsborough	63.1	58.3	54.6	53.2	51.6	50.6	-12.4	-20%
Lake	NA	NA	NA	NA	NA	1.6	NA	NA
Levy	7.5	8.5	8.7	9.1	9.4	9.8	2.3	31%
Manatee	86.2	85.1	85.1	85.5	86.0	86.7	0.5	1%
Marion	5.2	4.9	5.2	5.5	5.8	6.3	1.1	21%
Pasco	18.4	17.4	16.7	16.2	15.7	15.4	-3.0	-16%
Pinellas	0.1	0.2	0.2	0.2	0.2	0.1	0.0	-1%
Polk	NA	NA	NA	NA	NA	117.9	NA	NA
Sarasota	4.8	4.9	4.6	4.4	4.2	4.1	-0.7	-14%
Sumter	7.4	7.1	6.8	6.6	6.6	6.7	-0.7	-9%
Total	NA	NA	NA	NA	NA	578.5	NA	NA

2010 Versus Draft 2015 RWSP District Average Water Demand for Irrigated Acreage (MGD)

RWSP	2010	2015	2020	2025	2030	Difference 2010 to 2030	% Difference
2010	405.0	402.9	403.2	404.0	405.6	0.6	0.1%
2015 (draft)	446.1	445.1	447.3	452.8	457.3	11.2	2.5%
% Change	10.1%	10.4%	10.9%	12.0%	12.7%		

Summary

- **Non-irrigation** agricultural demands
 - Historically, non-irrigation demand has fluctuated moderately
 - Demand is projected to remain constant
- **Irrigated** agricultural acreage and demands
 - Citrus acreage and growth rates developed from FASS data
 - Non-citrus acreage estimated using pumpage and permitted gals./acre
 - Water demand projected using permitted gals./acre and projected acres using historic acreage trend analysis
 - Adjustments made, as necessary, based on comparisons with Agricultural Census and other considerations
 - Irrigation demand projected to increase Districtwide

Thank you! Now to our moderator and then questions.



Public Comments & Questions

- Questions/comments from live audience
- Questions/comments from online chat
- Questions/comments from phone
- Comment cards from live audience
- Email feedback to
George.Schlutermann@WaterMatters.org





Regional Water Supply Plan

RWSP Home | [Northern Region](#) | [Tampa Bay Region](#) | [Heartland Region](#) | [Southern Region](#)

The District's Regional Water Supply Plan assesses the projected water demands and potential sources of water to meet demands over a 20-year period. The Plan is updated every five years, in accordance with Section 373.709, Florida Statutes.

Why We Do It

The 2015 Regional Water Supply Plan (RWSP) is an assessment of projected water demands and potential sources of water to meet these demands in the Southwest Florida Water Management District (District) for the period from 2015 through 2035. The RWSP consists of an executive summary and four geographically-based volumes that correspond to the District's four designated water supply planning regions (**Northern**, **Tampa Bay**, **Heartland** and **Southern**).

A Framework for the Future

The RWSP provides a framework for future water management decisions in the District and demonstrates how water demands can be met through a combination of alternative water sources, fresh groundwater and water conservation measures.

The District's first RWSP was published in 2001 and is updated every five years. The District updates the RWSP with significant public comment to ensure all stakeholders with the opportunity for input.

For the 2015 RWSP, the District will hold public workshops, with live webcasting, to provide status updates, answer questions and solicit public comment. The District has also developed this webpage to provide public drafts of the documents, advertise public workshops, and solicit comments from all interested stakeholders including the public. This process will help shape the final draft of the RWSP.



2015 Regional Water Supply Plans

- 2015 Draft RWSP Agriculture Demand Projections
- 2015 Draft RWSP Public Water Supply Demand Projections
- 2015 Draft RWSP Landscape/Recreational Demand Projections
- 2015 Draft RWSP Industrial/Commercial and Mining/Dewatering Demand Projections

Previous Regional Water Supply Plans

- 2010 Regional Water Supply Plan
- 2006 Regional Water Supply Plan
- 2006 Public Comments and District Responses
- 2001 Regional Water Supply Plan

Contact Info

For additional information, questions and to submit comments, please **contact George Schlutermann, P.G.**, senior hydrogeologist, at 1-800-423-1476 (FL only), ext. 4212.



WaterMatters.org/RWSP



Backup Slides

Charlotte County Draft Acres

Major Crop Category	Irrigated Acreage					
	2010	2015	2020	2025	2030	2035
Blueberries	0	0	0	0	0	0
Citrus	7,459	7,841	8,243	8,664	9,108	9,574
Cucumbers	137	88	61	42	29	20
Field Crops	68	92	107	122	136	151
Melons	789	1,113	1,243	1,372	1,501	1,630
Nurseries	169	122	127	132	136	141
Other Farm Uses	0	0	0	0	0	0
Other Fruit trees	0	51	51	51	51	51
Other Veg. /Row Crops	49	25	16	10	6	4
Pasture	786	389	458	527	596	665
Potatoes	115	154	141	128	116	103
Sod	199	263	312	361	410	458
Strawberries	0	0	0	0	0	0
Tomatoes	1,128	1,579	1,937	2,295	2,653	3,011
Total	10,899	11,718	12,695	13,704	14,743	15,810