

Lower St. Johns Mainstem BMAP FDACS Office of Ag Water Policy Update

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Office of Agricultural Water Policy (OAWP)

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Presentation Overview

- ✓ Overview of BMAP Development
- ✓ Land use changes
- ✓ Nutrient reduction calculations
- ✓ Ag BMPs enrollment update



LSJR Mainstem BMAP Development Overview

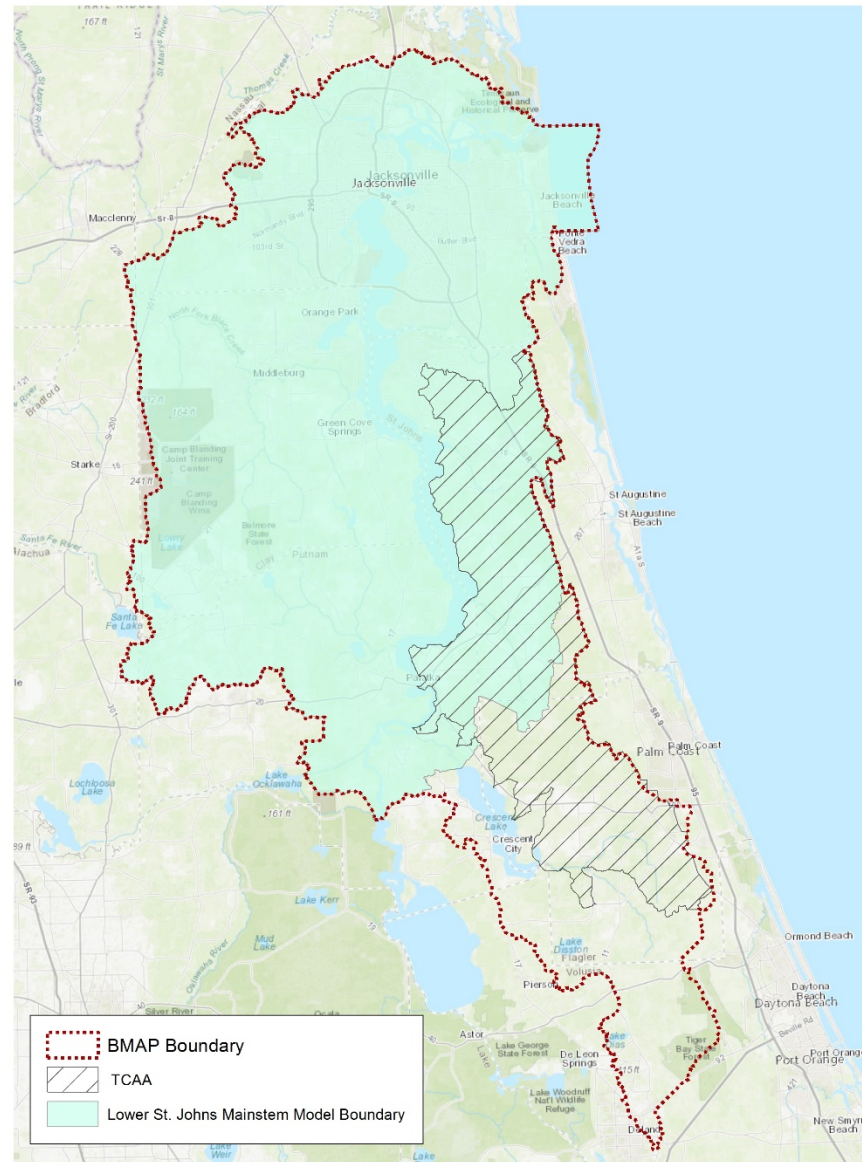


BMAP Development

- ✓ Nonpoint source loads estimated using a Pollution Load Screening Model (PLSM) developed by St. Johns River WMD
- ✓ Original model used a combination of 1995, 2000 land use data from SJRWMD
 - ✓ TCAA-specific row crop data (2000)
 - ✓ BMAP references 2004 SJRWMD land use as well
- ✓ Crescent Lake portion included in BMAP boundary, but was not modeled



BMAP Area



Land Use Changes

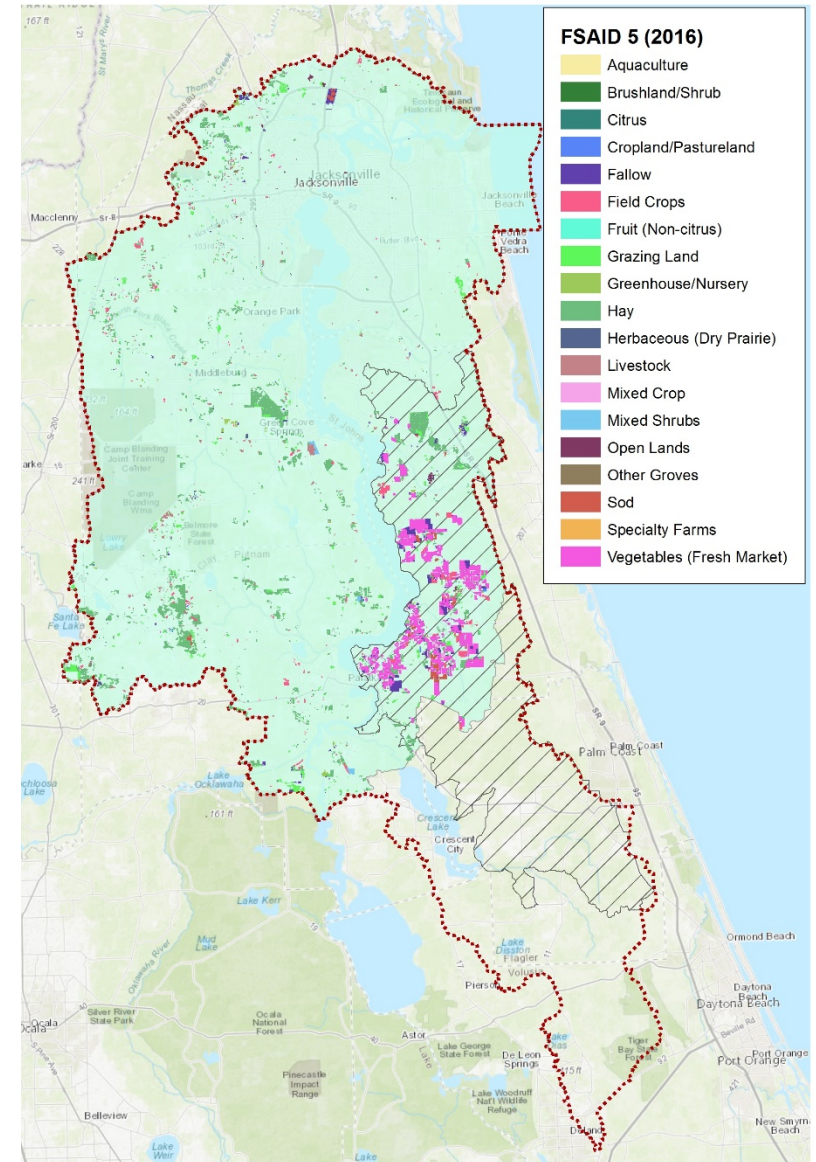
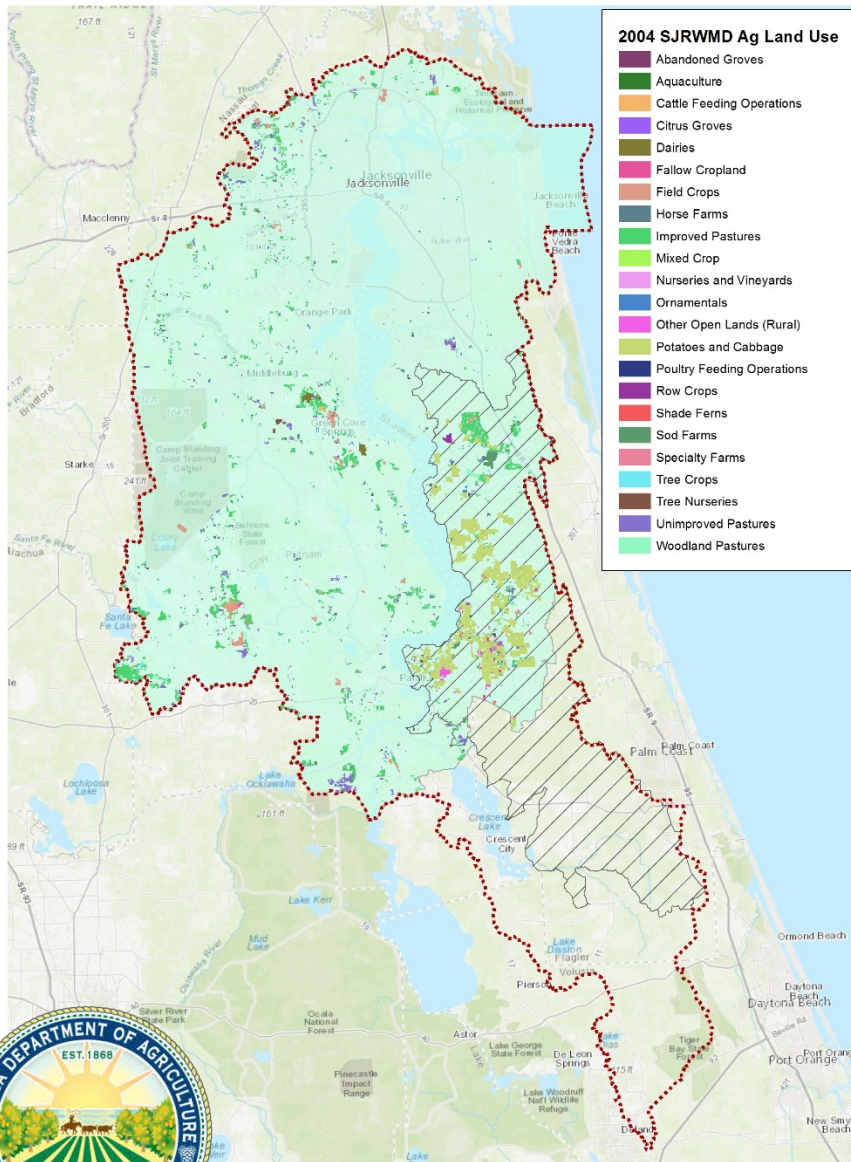


Land Use Changes

- ✓ BMAP adopted in 2008 – land use already outdated
- ✓ Florida Statewide Agricultural Irrigation Demand geodatabase (FSAID) project started in 2014
- ✓ Annual Updates have been provided by OAWP utilizing 2004 SJRWMD land use data



Land Use Change Comparison



Land Use Changes: By the Numbers

TABLE 25: SJRWMD 2004 AGRICULTURAL LAND USE ACRES IN THE LOWER ST. JOHNS RIVER BASIN (EXCLUDING AQUACULTURE AND SILVICULTURE)

Commodity	2004 Acreage	Commodity	2004 Acreage
Cattle Feeding Operations*	475	Horse Farms ²	3,145
Citrus Groves ¹	375	Nurseries/Vineyards ¹	56
Crops – Field ¹	6,132	Ornamentals ¹	964
Crops – Mixed ¹	11	Other Open Lands – Rural	854
Crops – Row ¹	833	Pastures – Improved ²	43,269
Crops – Potatoes/Cabbage ¹	35,570	Pastures – Unimproved ²	7,711
Crops – Tree ¹	298	Pastures – Woodland ²	4,477
Crops – Tree/Abandoned	30	Poultry Feeding*	196
Dairies*	1,070	Specialty Farms ²	26
Fallow Cropland ¹	1,446	Sod ²	4,678
Ferns – Hammock ¹	362	Tree Nursery ²	1,207
Ferns – Shade ¹	336	Total Acres	113,521

*Activity regulated by FDEP (covering 1,741 acres)

¹BMP manual has been adopted by FDACS/OAWP (covering 46,383 acres).

²BMP manual will be adopted by FDACS/OAWP (covering 64,513 acres).

2004 SJRWMD Agricultural Land Use Acres in the Lower St. Johns Mainstem Basin (Excluding Aquaculture and Silviculture) - PLSM Boundary

Commodity	2004 Acreage	Commodity	2004 Acreage
Cattle Feeding Operations	474	Potatoes and Cabbage	35,040
Citrus Groves	65	Poultry Feeding Operations	210
Dairies	1,071	Row Crops	797
Fallow Cropland	1,264	Shade Ferns	16
Field Crops	5,833	Sod Farms	4,592
Horse Farms	3,169	Specialty Farms	26
Improved Pastures	35,081	Tree Crops	356
Mixed Crop	11	Tree Nurseries	623
Nurseries and Vineyards	54	Unimproved Pastures	7,884
Ornamentals	726	Woodland Pastures	3,862
Other Open Lands (Rural)	855	Total	102,010

FSAID 5 (2016) Agricultural Land Use Acres in the Lower St. Johns River Basin (Excluding Silviculture and Aquaculture)

Commodity	Acres
Brushland/Shrub	28
Citrus	11
Cropland/Pastureland	170
Fallow*	5,803
Field Crops	5,683
Fruit (Non-citrus)	32
Grazing Land	8,283
Greenhouse/Nursery	1,117
Hay	34,653
Herbaceous (Dry Prairie)	382
Livestock**	3,914
Mixed Crop	183
Mixed Shrubs	645
Open Lands	685
Other Groves	267
Sod	2,041
Specialty Farms	11
Vegetables (Fresh Market)	23,291
Total	87,202

*Lands not in active production during dataset period of record (2016). These lands have the ability to return to production in the future

**Includes Horse Farms, Dairies, and Animal Feeding Operations

Agricultural Best Management Practices (BMPs) Enrollment Update



What are Best Management Practices (BMPs)?

- ✓ Practical measures that reduce amount of fertilizers, pesticides, and animal waste that enter water resources.
- ✓ BMP manuals developed in collaboration with agricultural industry, agencies, and others.
- ✓ Must be **economically and technically feasible** for producer to implement.

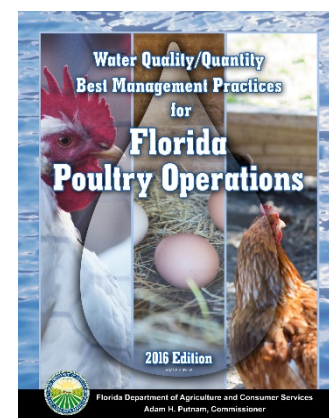
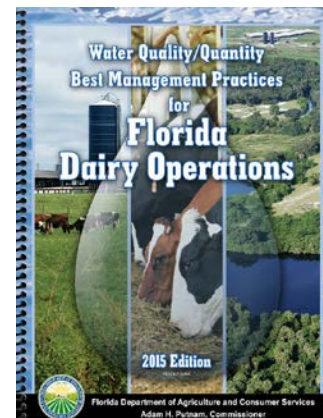
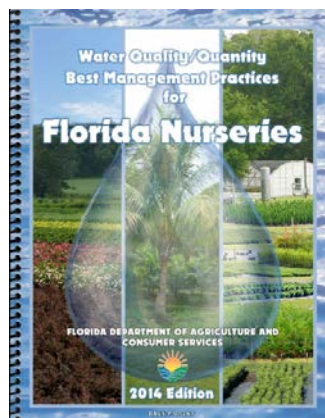
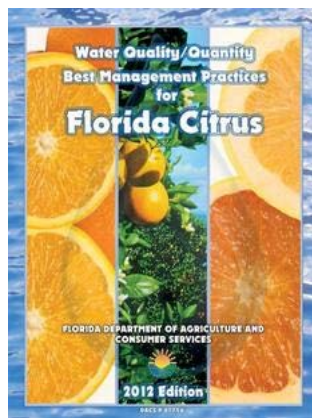
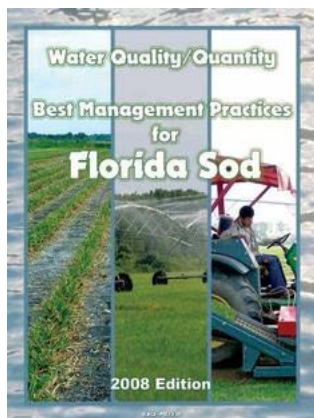
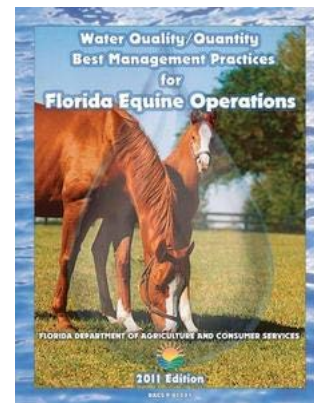
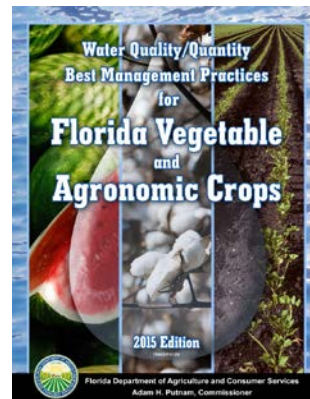
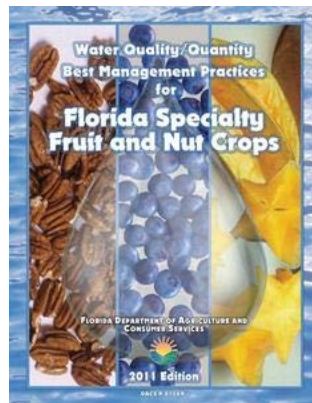
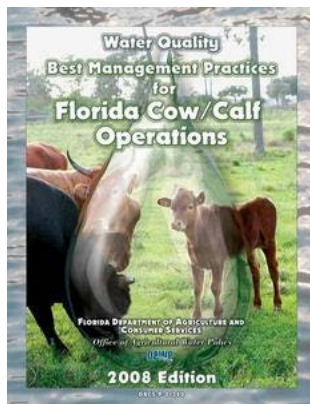


OAWP BMP Programs

Manual	Adoption	Rule Reference	Next Review
Cow/Calf	2009	5M-11	2016
Sod	2008	5M-9	2016
Specialty Fruit and Nut	2011	5M-13	2017
Equine	2012	5M-14	2017
Citrus	2013	5M-16	2018
Nursery	2014	5M-6	2018
Vegetable and Agronomic Crops	2015	5M-8	2020
Dairy	2016	5M-17	2021
Poultry	2016	5M-19	2021



OAWP BMP Manuals



BMP Enrollment Nutrient Reductions

- ✓ Calculated by SJRWMD using
 - ✓ BMP enrollment data compiled by OAWP
 - ✓ TCAA water management partnership cost share projects
- ✓ Reductions based on crop type (row crops only)
 - ✓ Otherwise, reductions estimated based on research by Del Bottcher



BMP Enrollment Estimated Nutrient Reductions

Lower St. Johns Mainstem Nutrient Reductions – July 2018 NOI Data Freshwater Section

Commodity Type	NOI Acres	TN BMP reduction (kg/yr)	TP BMP reduction (kg/yr)
Row Crop	27,680	75,047	4,535
Sod	2,655	13,104	247
Cow/Calf	28,607	23,616	868
Citrus	160	307	11
Equine	83	531	17
Nursery	564	1,436	131
Fruit/Nut	783	1,504	54
Total	60,534	115,544	5,863

TMDL Required Reduction:

- 116,364 kg/yr TN
- 12,481 kg/yr TP



BMP Enrollment Estimated Nutrient Reductions

Lower St. Johns Mainstem Nutrient Reductions – July 2018 NOI Data Marine Section

Commodity Type	NOI Acres	TN BMP reduction (kg/yr)	TP BMP reduction (kg/yr)
Row Crop	705	418	486
Sod	-	-	-
Cow/Calf	11,185	11,363	437
Citrus	-	-	-
Equine	456	2,910	92
Nursery	25	64	6
Fruit/Nut	13	24	1
Total	12,384	14,779	1,022

TMDL Required Reduction: 8,630 kg/yr TN



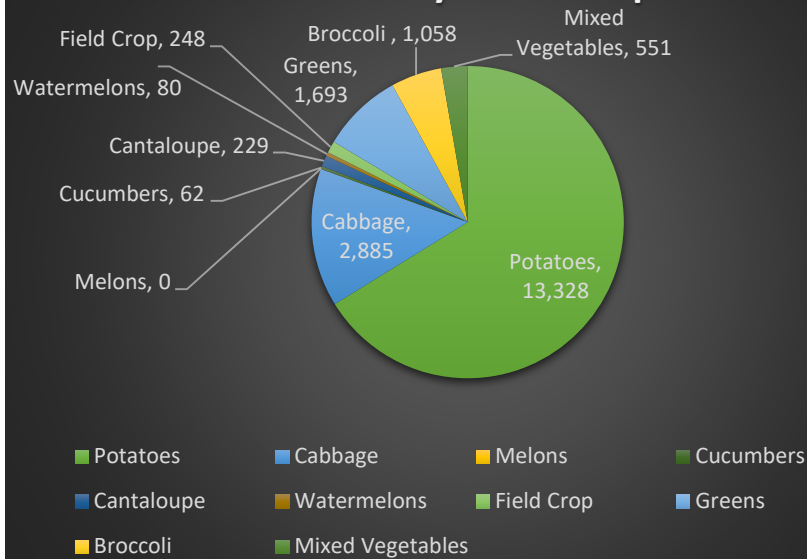
Estimated Nutrient Reductions – 2016 vs 2018

- ✓ Differences can be explained by variation in row crop commodities
 - ✓ Ex: 90,634 kg/yr TN reduction in 2016 and 115,544 kg/yr TN reduction in 2018
 - ✓ Modeled reduction estimates are based on crop type for row crop data (TCAA)

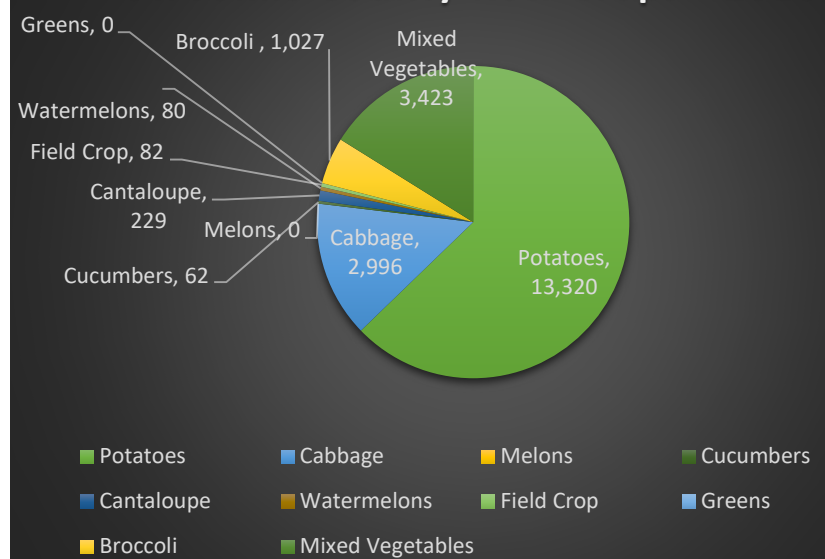


Estimated Nutrient Reductions – 2016 vs 2018

St. Johns County Row Crops - 2016



St. Johns County Row Crops - 2018



TCAA Cost Share Projects

Estimated Nutrient Reductions

TCAA Cost Share Summary Table 2012 - 2018			
Estimated Annual Nutrient Reduction per Project Type			
Project Type	Acres	TN Reduction kg/yr	TP Reduction kg/yr
Banding	7,935	13,463	5,129
Irrigation Drain Tile	3,304	14,135	2,976
Center Pivot	769	1,002	274
Lateral Overhead	897	2,231	607
Enhanced Seepage	268	3,377	500
Drip Irrigation	142	495	134
Total	13,315	34,703	9,619

Estimated Annual Nutrient Reduction per Project Type			
2018-2019			
Project Type	Acres	TN Reduction kg/yr	TP Reduction kg/yr
Irrigation Drain Tile	130	353	96
Banding	0	0	0
Center Pivot	0	0	0
Drip Irrigation	40	126	34
Enhanced Seepage	30	116	13
Lateral Overhead	140	129	35
Total	340	723	178



BMP Enrollment: By the Numbers

BMP Enrollment in Lower St. Johns Mainstem BMAP, Sept 2016

Commodity	Acres
Cow/Calf	35,548
Equine	275
Fruit/Nut	58
Nursery	295
Row/Field Crop	27,535
Sod	2,420
Total	66,131

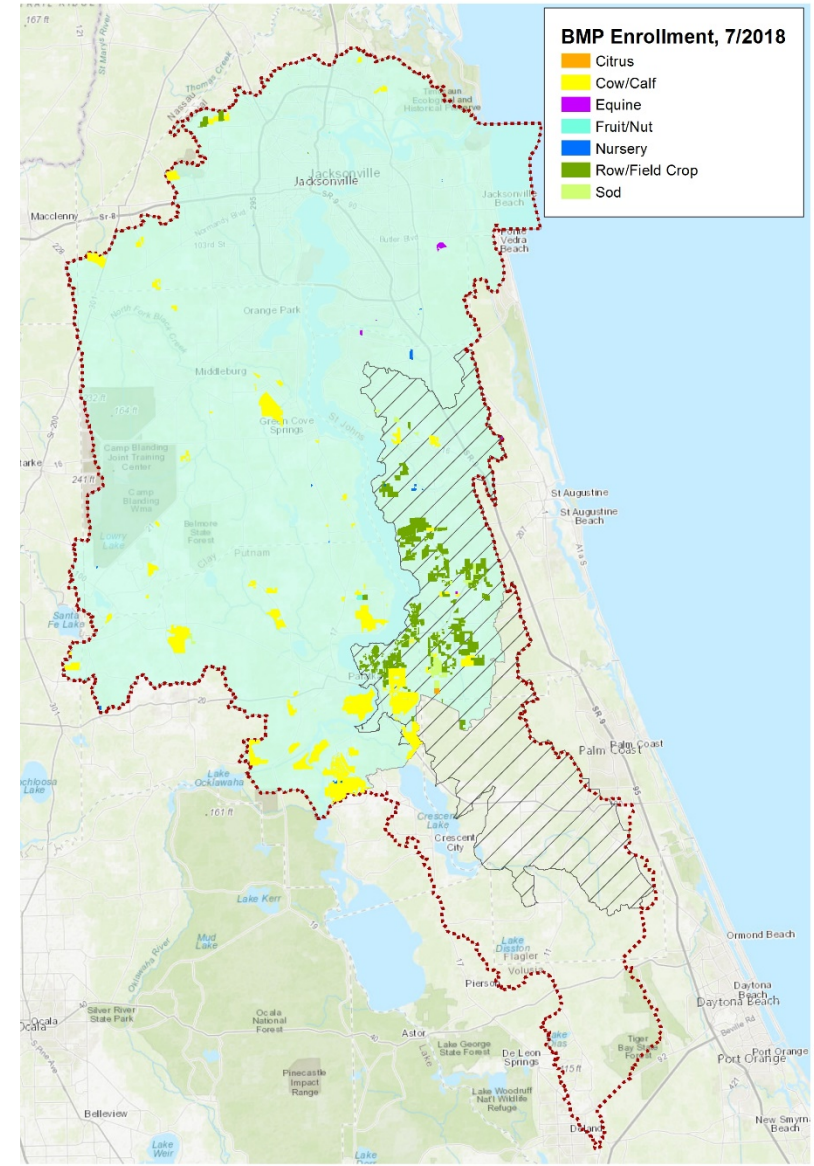
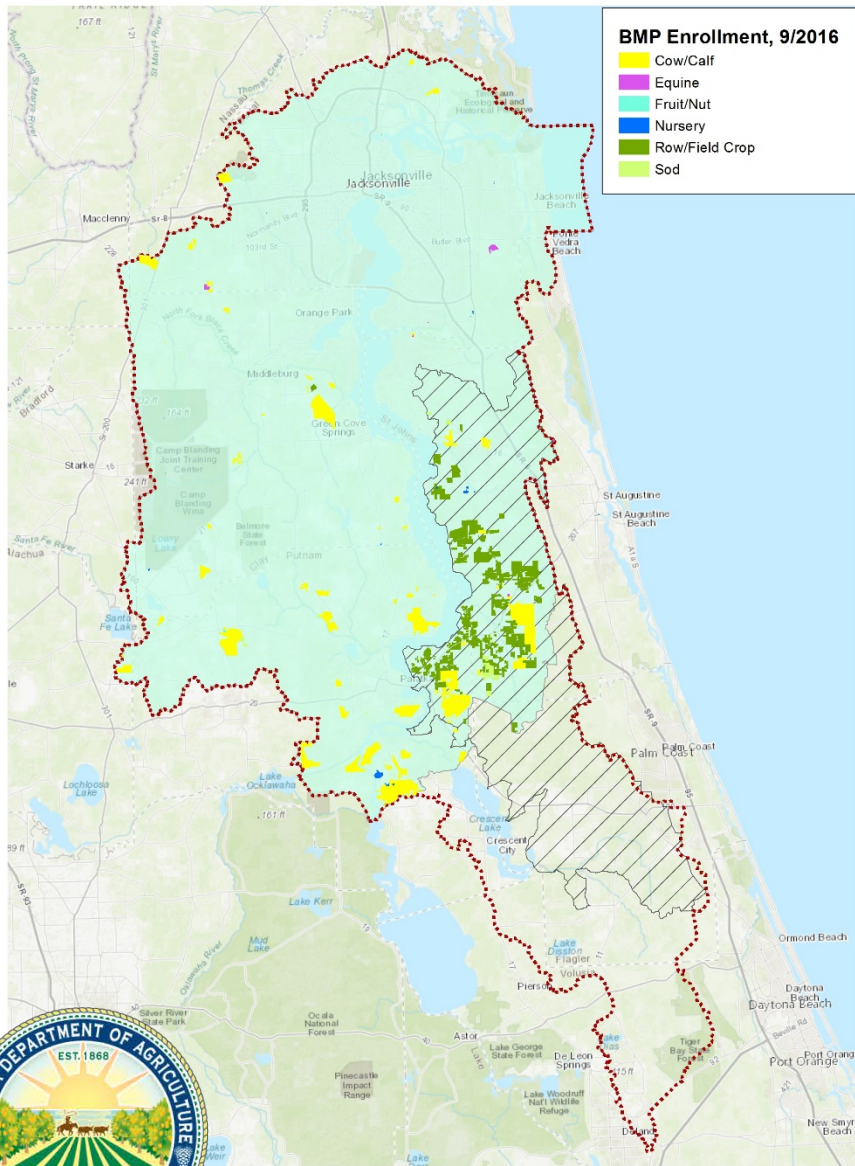
BMP Enrollment in the Lower St. Johns Mainstem BMAP, July 2018

Commodity	Acres
Citrus	160
Cow/Calf	37,565
Equine	524
Nursery	759
Row/Field Crop	26,252
Sod	2,655
Specialty Fruit/Nut	796
Total	68,712

- Increase of 2,581 Acres
- Acreage decreased since 2016 Annual Update due to refinement of methodology



2016 vs 2018 BMP Enrollment



Summary

- ✓ Ag land use modeled for original BMAP is outdated when compared to FSAID V
- ✓ Crescent Lake basin is not included in any calculations or estimates
- ✓ Based on nutrient reduction estimates from SJRWMD agriculture is meeting its TMDL allocation for marine and freshwater portions
- ✓ FDACS is still working in basin to assist producers implementing and verifying BMPs
 - ✓ TCAA Partnership
- ✓ SJRWMD will work with USGS and FDACS to track and verify land use changes



Thank you!

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