

Water Resource Management Lee County & South Florida

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Lee County Board of County Commissioners
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Presentation Overview

- Lee County Water Quality/Storage Initiatives
- Regional Initiatives
- Current Conditions
- Moving Forward

Lee County Initiatives

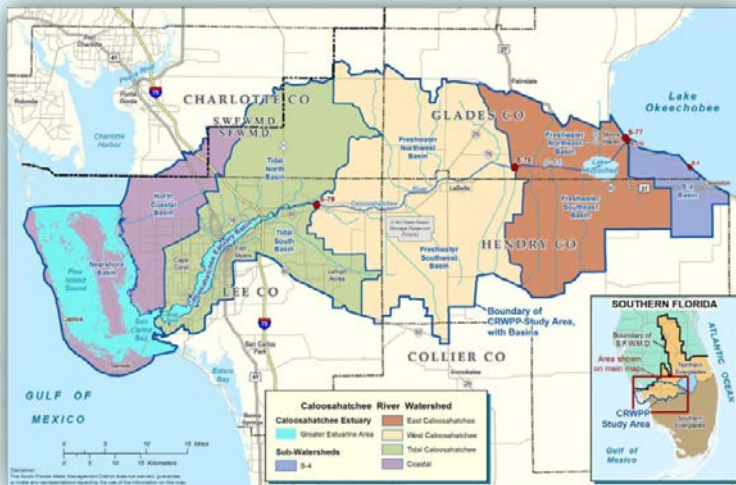
Proactive Role in addressing the quality, quantity , timing and distribution of surface waters in Lee County

- Capital Improvements
- TMDLs projects/programs
- Conservation Land



Caloosahatchee Watershed

- Caloosahatchee River - 70 miles, Moore Haven to Shell Point
- 1,400 square mile watershed
 - Shrinks during droughts
 - Expands with wet conditions
- Estuary of National and State Significance



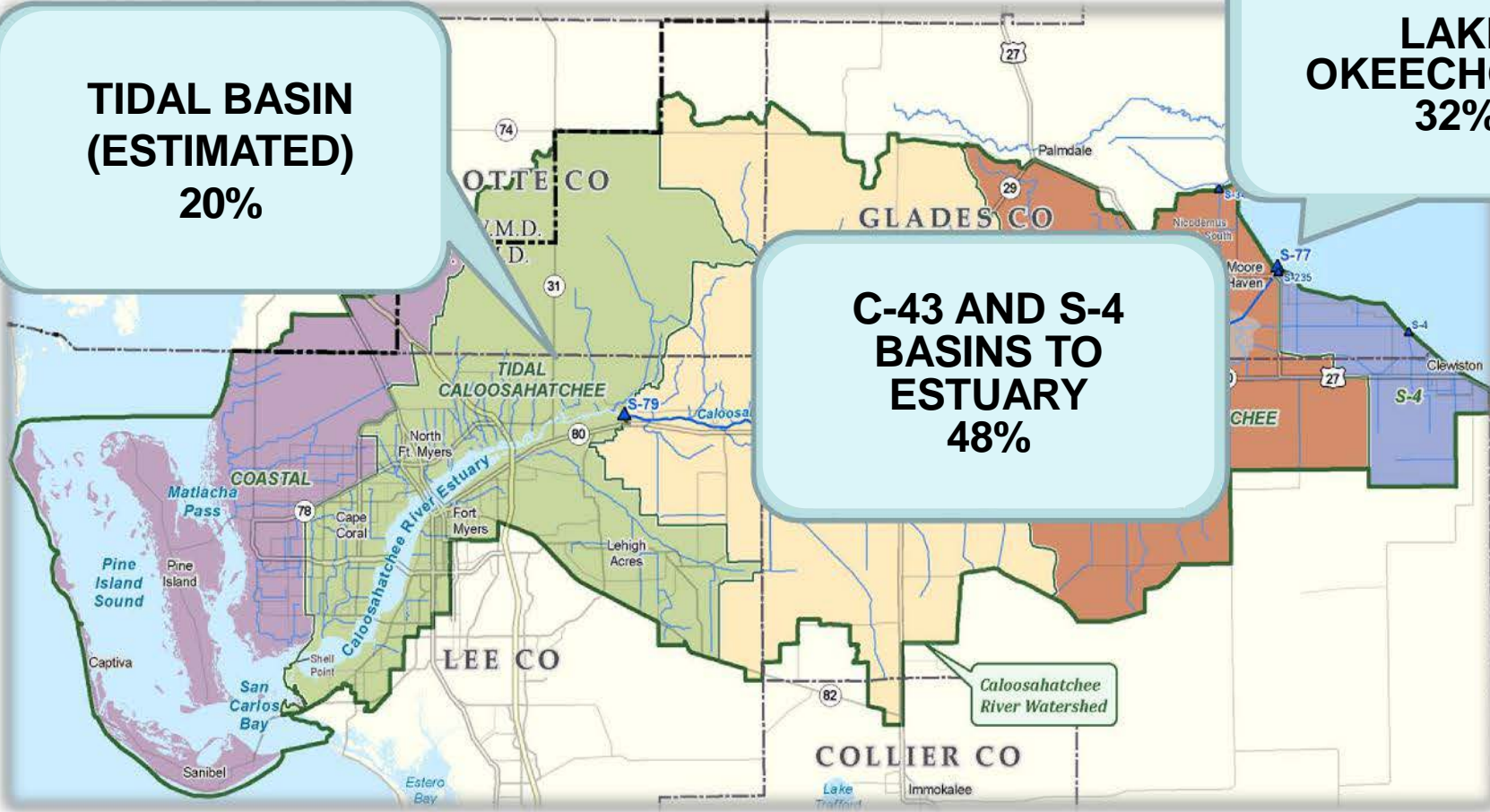
Where the nutrients come from

(based on 2011-15 Nitrogen data)

**TIDAL BASIN
(ESTIMATED)
20%**

**LAKE
OKEECHOBEE
32%**

**C-43 AND S-4
BASINS TO
ESTUARY
48%**



BoCC Commitment to Water Quality/ Storage Improvements

<u>Local Water Quality/ Storage Projects Completed in the Last Five Years</u>	<u>Project Cost</u>
• Briarcliff / Fiddlesticks Water Quality Improvements	\$ 2,125,588
• Lakes Park Water Quality Project Filter Marsh	\$ 3,073,620
• Lakes Park Water Quality Project Structure Mod	\$ 613,821
• North Fort Myers Surface Water Improvements (various small projects)	\$ 32,761
• Palmona Park Water Quality Improvements	\$ 554,535
• Popash Creek Preserve	\$ 1,554,319
• Powell Creek Hydrological Restoration	\$ 2,773,402
• Powell Creek Weir / Valencia	\$ 50,000
• Spanish Creek Restoration (re-hydration and pond phase1)	\$ 613,672
• <u>Ten Mile Canal Filter Marsh - Phase II</u>	<u>\$ 2,128,886</u>
• Total	\$ 13,520,604

BoCC Commitment to Water Quality/ Storage Improvements

<u>Local Water Projects Currently Underway</u>	<u>Total Spent to Date</u>	<u>Est Balance To Complete</u>
• Fichter's Creek Restoration	\$ 403,722	\$ 1,400,000
• FPL Powerline Easement Project (Study Only)	-	\$ 300,000
• Halfway Creek Filter Marsh (Three Oaks)	\$ 417,102	\$ 60,000
• Hendry Creek West Branch Water Quality Improvements	-	\$ 2,500,000
• Nalle Grade Storm Water Park	\$ 245,933	\$ 2,750,000
• Prairie Pines Restoration	\$ 207,835	\$ 400,000
• Spanish Creek Restoration Project (pond phase 2)	-	\$ 300,000
• <u>Yellow Fever Creek / Gator Slough Improvements</u>	<u>\$ 208,614</u>	<u>\$ 500,000</u>
• Total	\$1,483,206	\$ 8,210,000

BoCC Commitment to Water Quality/ Storage Improvements

Future Local Water Improvement Projects	Estimated Cost
• Deep Lagoon Preserve	\$ 3,000,000
• Lakes Park Littoral Zones	\$ 400,000
• <u>Sunniland / Nine Mile Run</u>	<u>\$ 600,000</u>
• Total	\$ 4,000,000

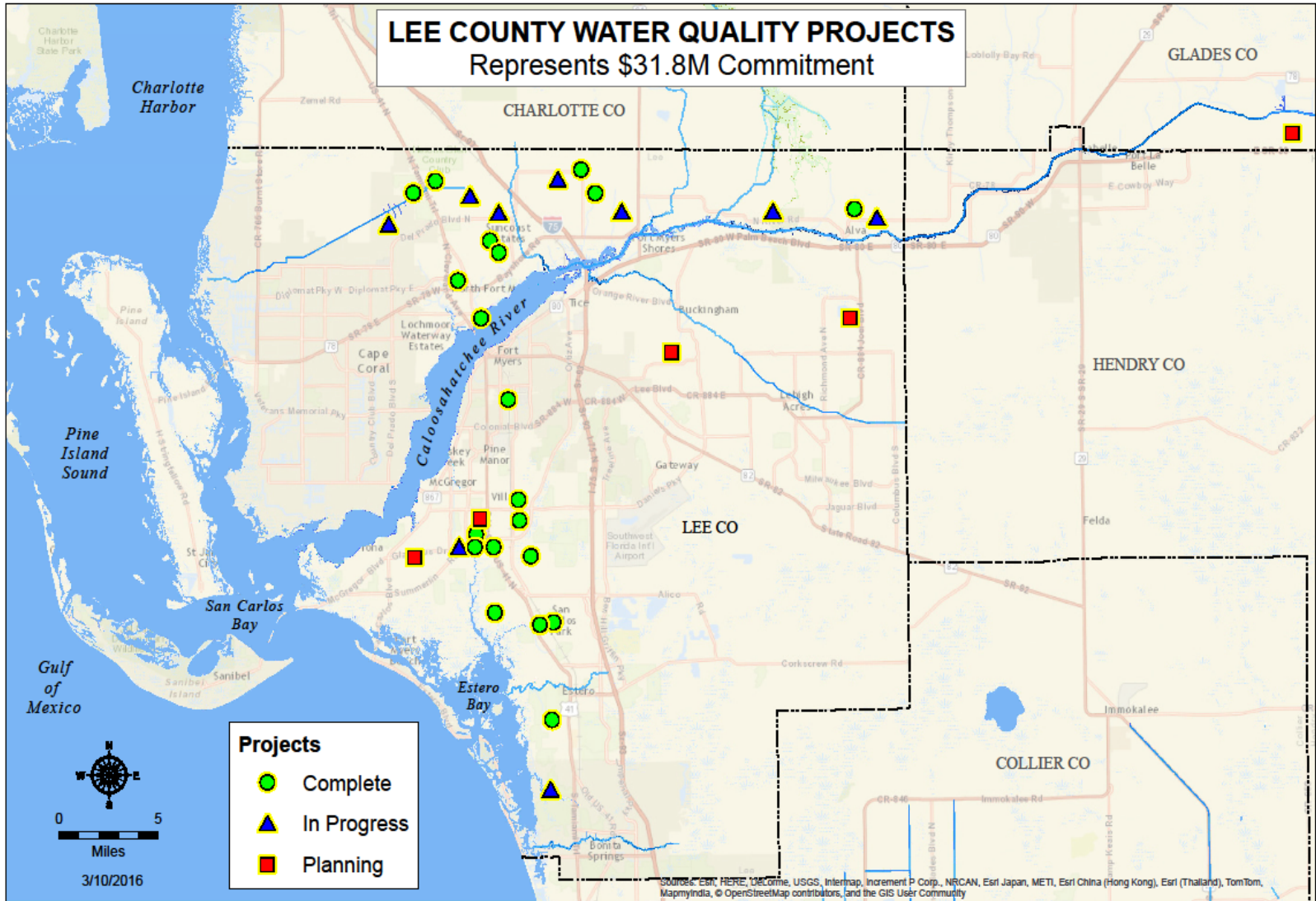
Future Regional Water Improvement Projects	Spent to date	Total Cost
• Caloosahatchee Crosslinks/GS-10 Project (w/ LAMSID)	\$40,000	\$ TBD
• Boma (Caloosahatchee C-43 Water Quality Facility) (w/ SFWMD) (1700 acre land purchase in 2007)	\$10,000,000	\$ TBD

Lee County prior projects (> 5 yrs)

Prior Water Project	Cost
• Ten Mile Canal Filter Marsh Phase 1	\$2,020,000
• Ten Mile Canal Hanson Improvements	\$313,988
• Island Park Filter Marsh	\$1,600,000
• East Mulloch Drainage District – floating vegetation islands	\$55,050
• East Mulloch Drainage District – weir replacement and littoral planting	\$595,820
• Gator Slough Flow-way (Phase I&II Improvements)	\$1,672,136
• Gator Slough Channel Improvements	\$3,250,916
• Powell Creek Algal Turf Scrubber pilot	\$427,000
• <u>Halfway Creek Filter Marsh (FPL site)</u>	<u>\$211,512</u>
• Total	\$10,146,422

LEE COUNTY WATER QUALITY PROJECTS

Represents \$31.8M Commitment



Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Ten Mile Canal Filter Marsh



Gator Slough



Lakes Park Flow-way



Water Quality Source Control

Lee County Fertilizer Ordinance



CONSERVATION LANDS

C2020 \$316m, 25,000 acres

State/Federal and other conservation lands /preserves: 69,536 acres

Private: 3605 acres

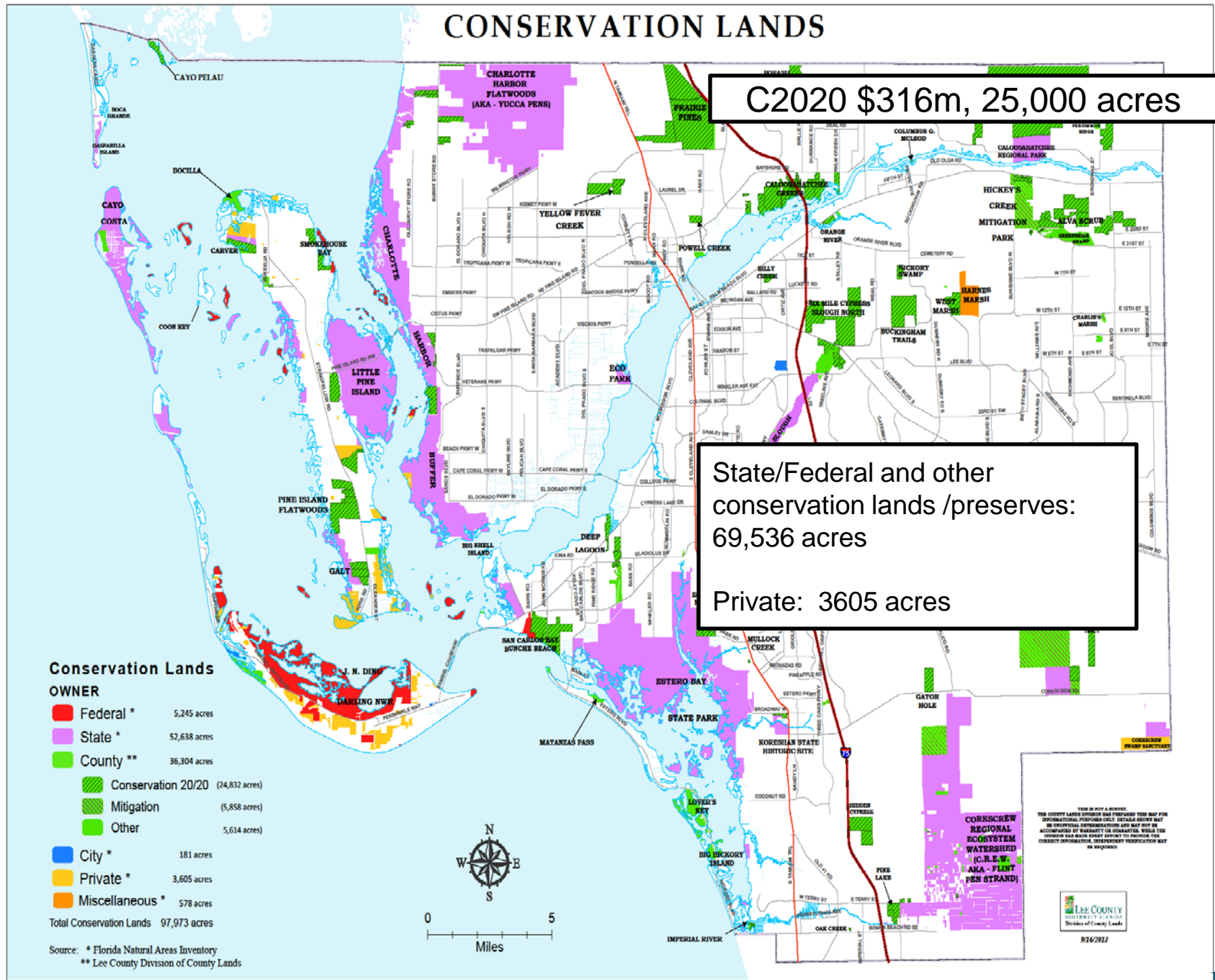
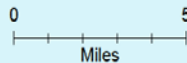
Conservation Lands

OWNER

■ Federal *	5,245 acres
■ State *	52,638 acres
■ County **	36,304 acres
■ Conservation 20/20	(24,832 acres)
■ Mitigation	(5,858 acres)
■ Other	5,614 acres
■ City *	181 acres
■ Private *	3,605 acres
■ Miscellaneous *	578 acres

Total Conservation Lands 97,973 acres

Source: * Florida Natural Areas Inventory
 ** Lee County Division of County Lands



THIS IS NOT A SURVEY. THE COUNTY LAND DIVISION HAS PROVIDED THIS MAP FOR INFORMATIONAL PURPOSES ONLY. SETBACKS SHOULD BE ACCOMPANIED BY WARRANTY OR GUARANTEE. THESE USES SHOULD BE MADE STRICTLY TO PROVIDE THE CORRECT INFORMATION. INDEPENDENT VERIFICATION MAY BE NECESSARY.



9/16/2013

20/20 Lands

- County staff investigated opportunities to store water
- Most parcels were wet due to local rainfall
- **Additional storage would entail extensive physical alterations with associated costs and permitting of infrastructure**
 - **Additional 1 foot of storage on all 20/20 lands within Caloosahatchee watershed would add 14,000 acre-feet of water – or 22 hours of Lake Okeechobee releases**
- Threat to existing ecosystems and adjacent property owners

C2020 Storage - February 12, 2016

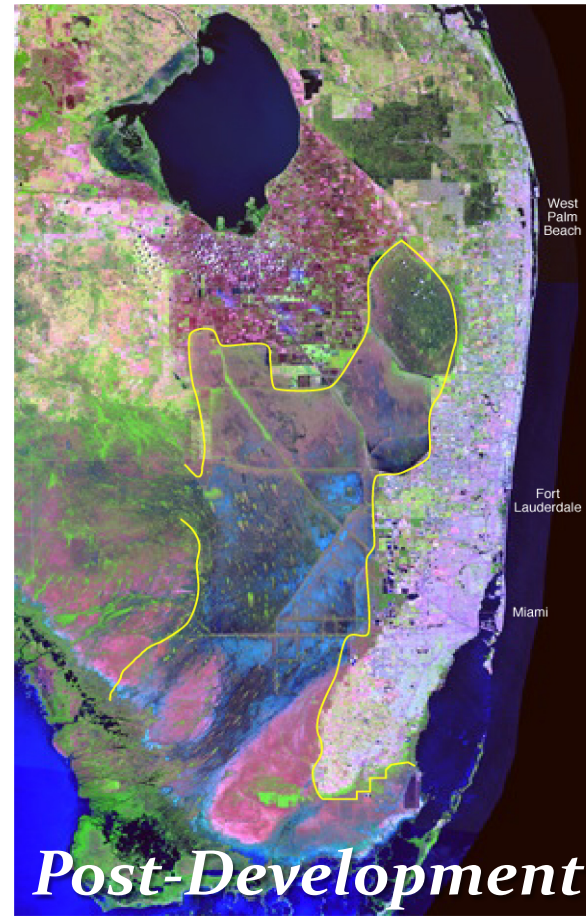
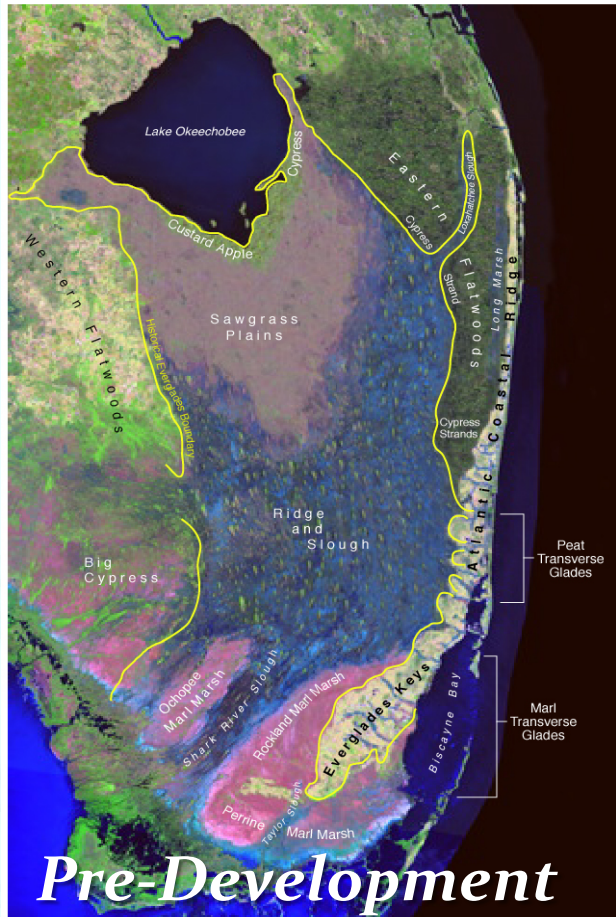


Popash Creek Preserve



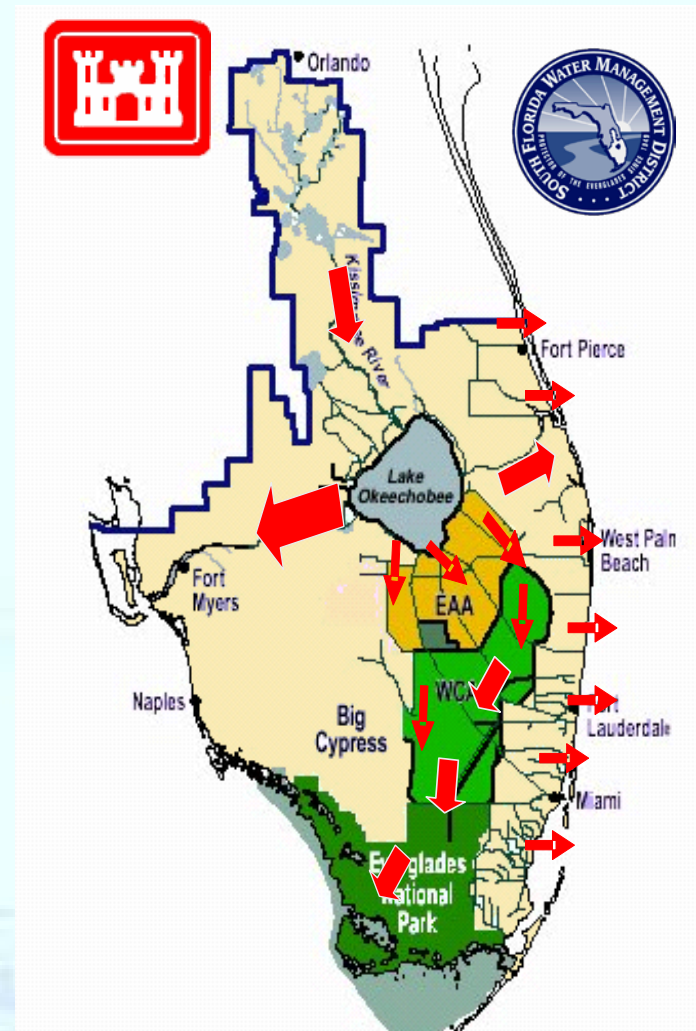
Daniels Preserve

Regional Issues



Central & South Florida (C&SF) Project

- Designed for multiple purposes
 - Flood Control
 - Water Supply
 - Navigation
 - Prevention of Saltwater Intrusion
 - Protection of Fish & Wildlife
- Constructed by the U.S. Army Corps of Engineers between 1949 and 1970

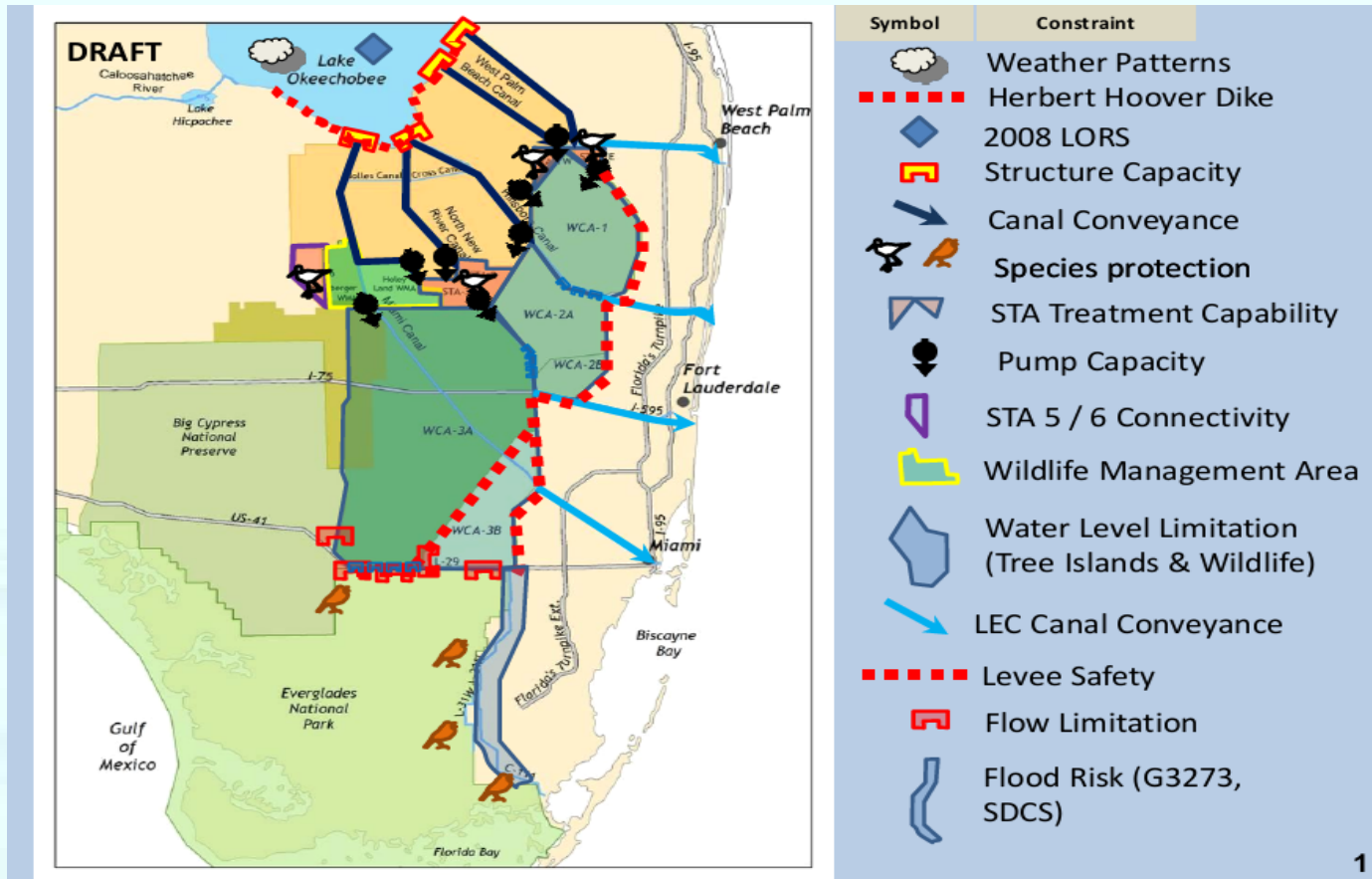


Water Management System

- 2,100 miles of canals
- 2,000 miles of levees
- 1,225 water control structures/culverts
- 71 stormwater pumping stations
- Regional telemetry system
- 57,000 acres of regional wetland Stormwater Treatment Areas
- Lake Okeechobee
 - 450,000 acre water storage
- Water Conservation Areas
 - 959,000 acre water storage



Challenges to Moving Water South



1

Comprehensive Everglades Restoration Plan

- 50/50 state-federal partnership
- Restore and improve quality, quantity, timing and flow of water
- Provide sustainable water supply to meet environmental, agricultural and urban needs

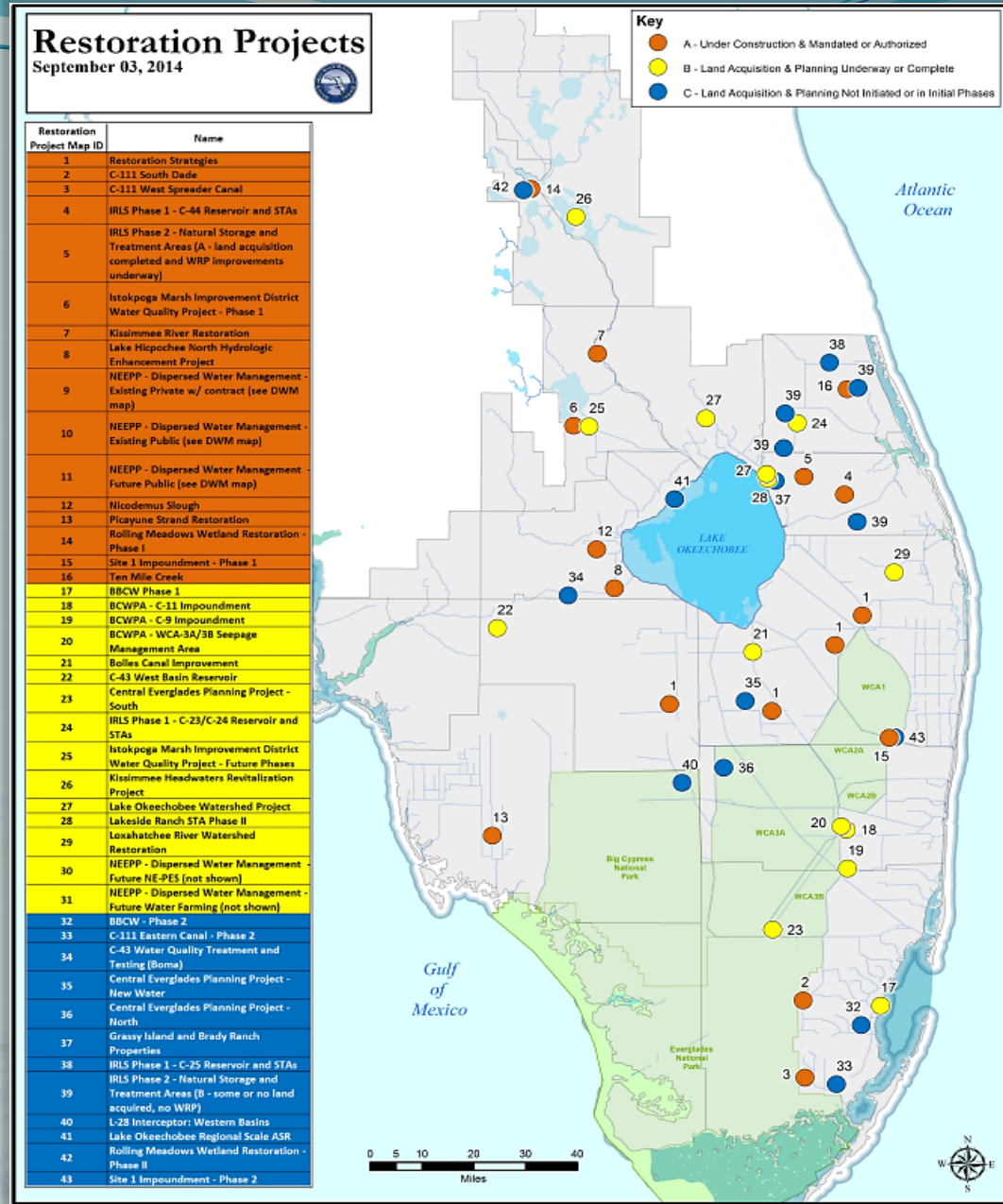


Maximizing Storage: Utilizing Public and Private Lands

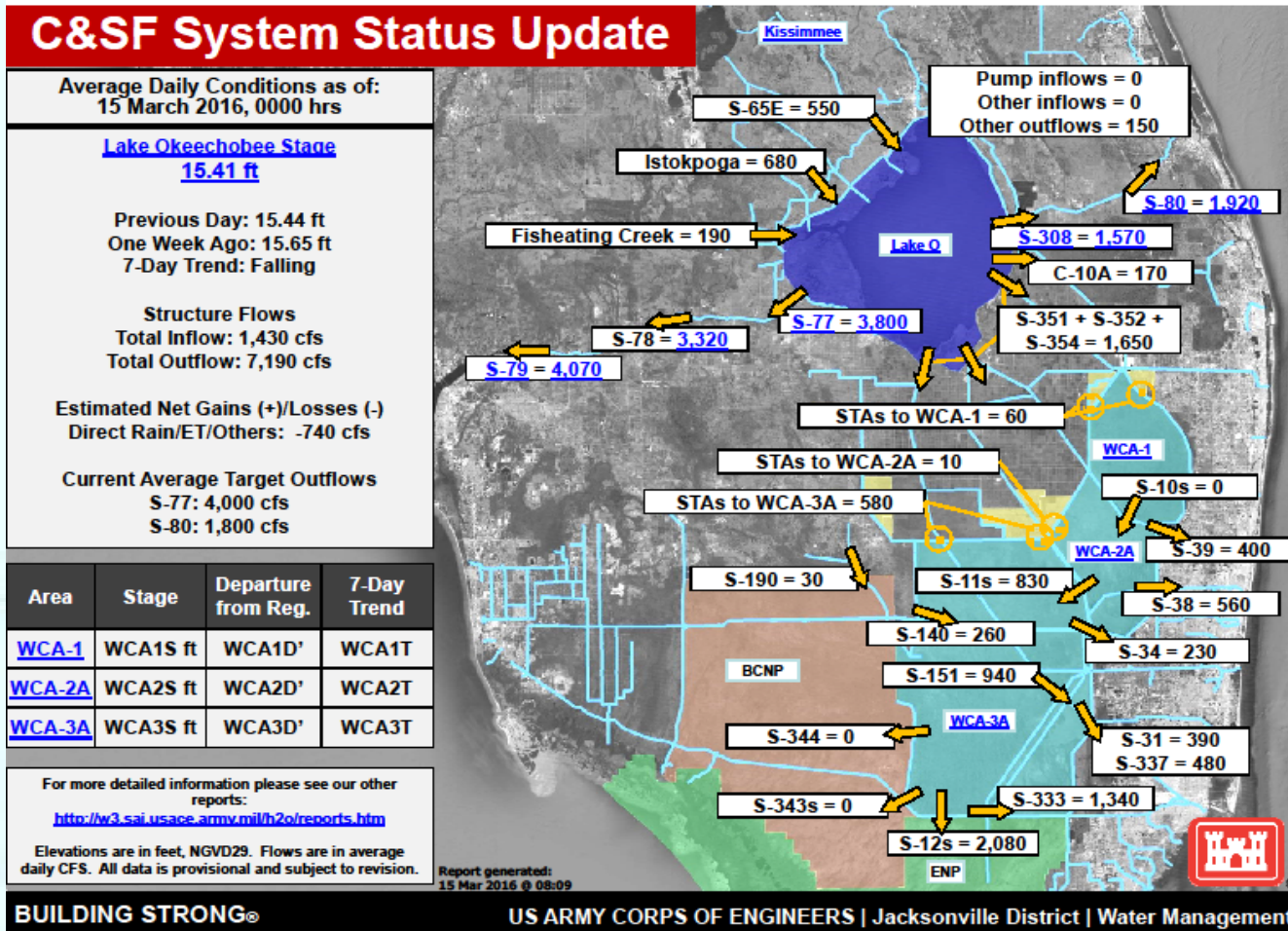


Moving Forward: Build Project & Provide Benefits

- Complete ongoing projects and start seeing benefits
- Send more clean water south
- Look for additional storage opportunities



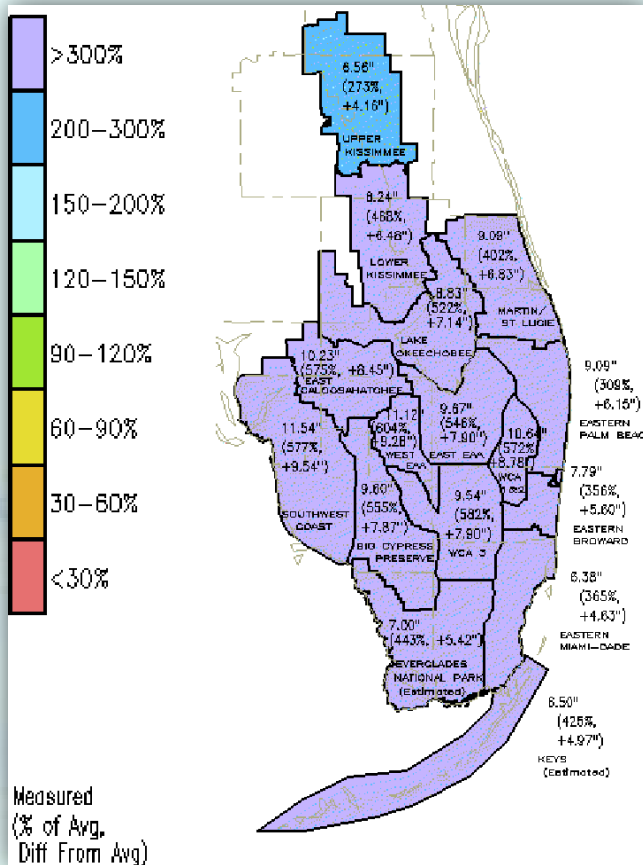
Current Conditions



BUILDING STRONG®

US ARMY CORPS OF ENGINEERS | Jacksonville District | Water Management

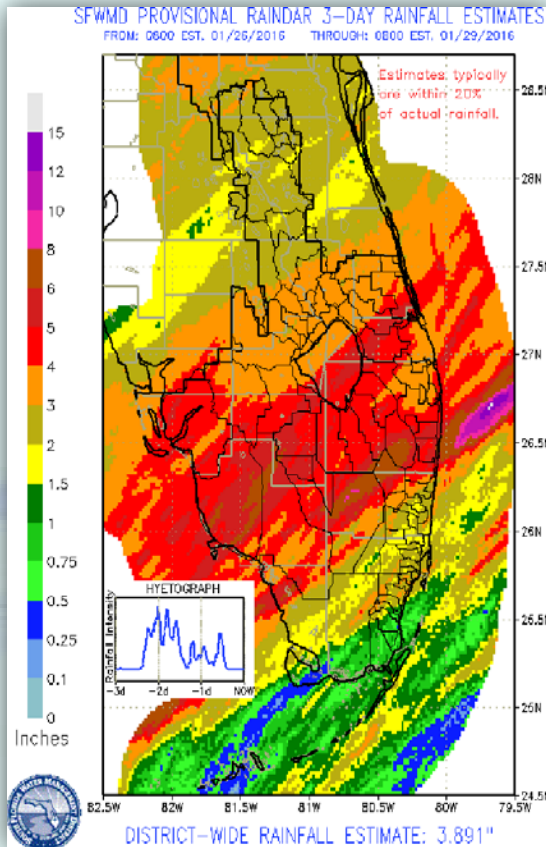
January Rainfall



DISTRICT-WIDE: 9.18"
476% of Avg. or +7.25"

- Wettest January since record keeping began in 1932
- Nearly all basins received more than 300 percent of average
- SW Coast received 11.54"
- Lee County – 11.2" average

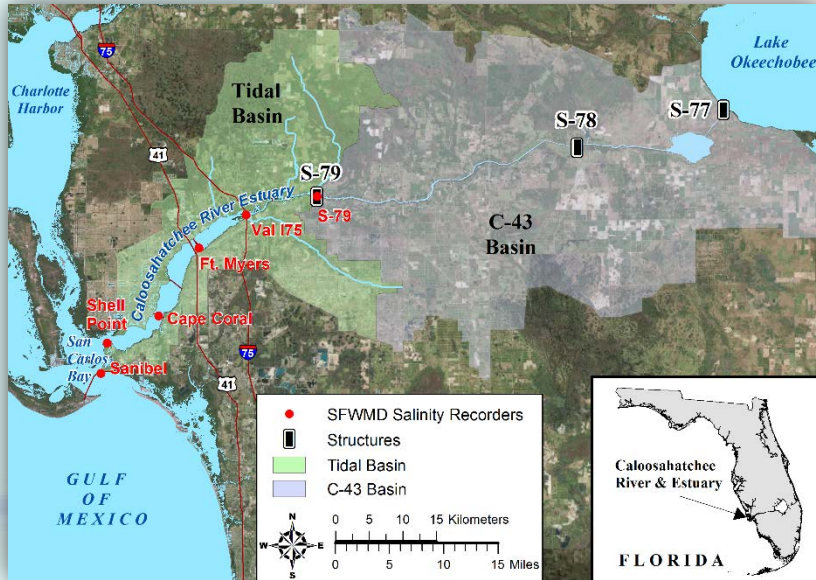
January 26-29, 2016 Rainfall



Most of the recent event was concentrated on the 3 calendar days Jan-26 to Jan-29 with a total of ~ 3.9" in 3 days

- Lake Okeechobee vicinity received 3-6"

Caloosahatchee Estuary



Data are provisional and subject to change

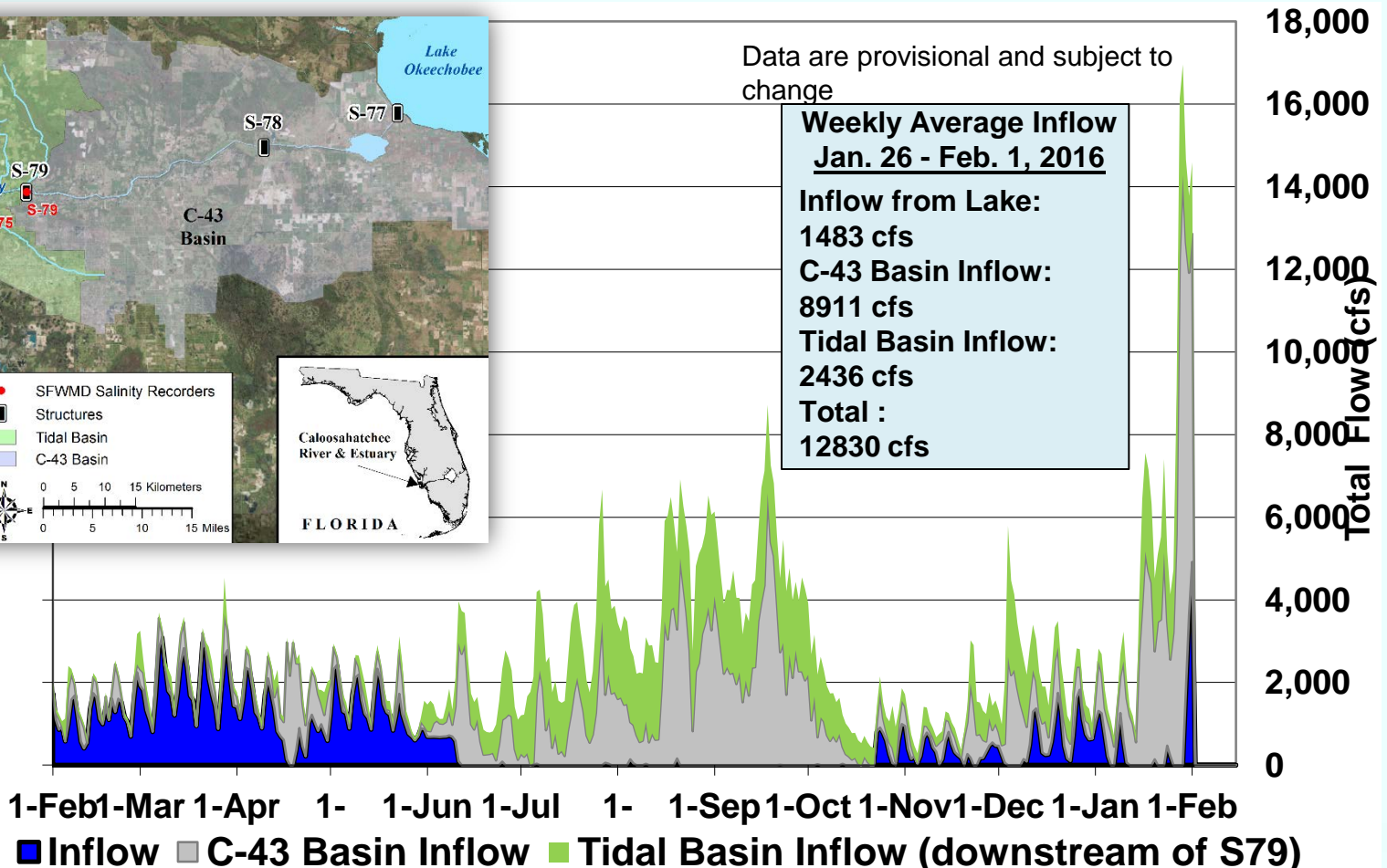
Weekly Average Inflow Jan. 26 - Feb. 1, 2016

Inflow from Lake:
1483 cfs

C-43 Basin Inflow:
8911 cfs

Tidal Basin Inflow:
2436 cfs

Total :
12830 cfs



Caloosahatchee Estuary Inflows Jan. 1, 2016 – Mar. 8, 2016

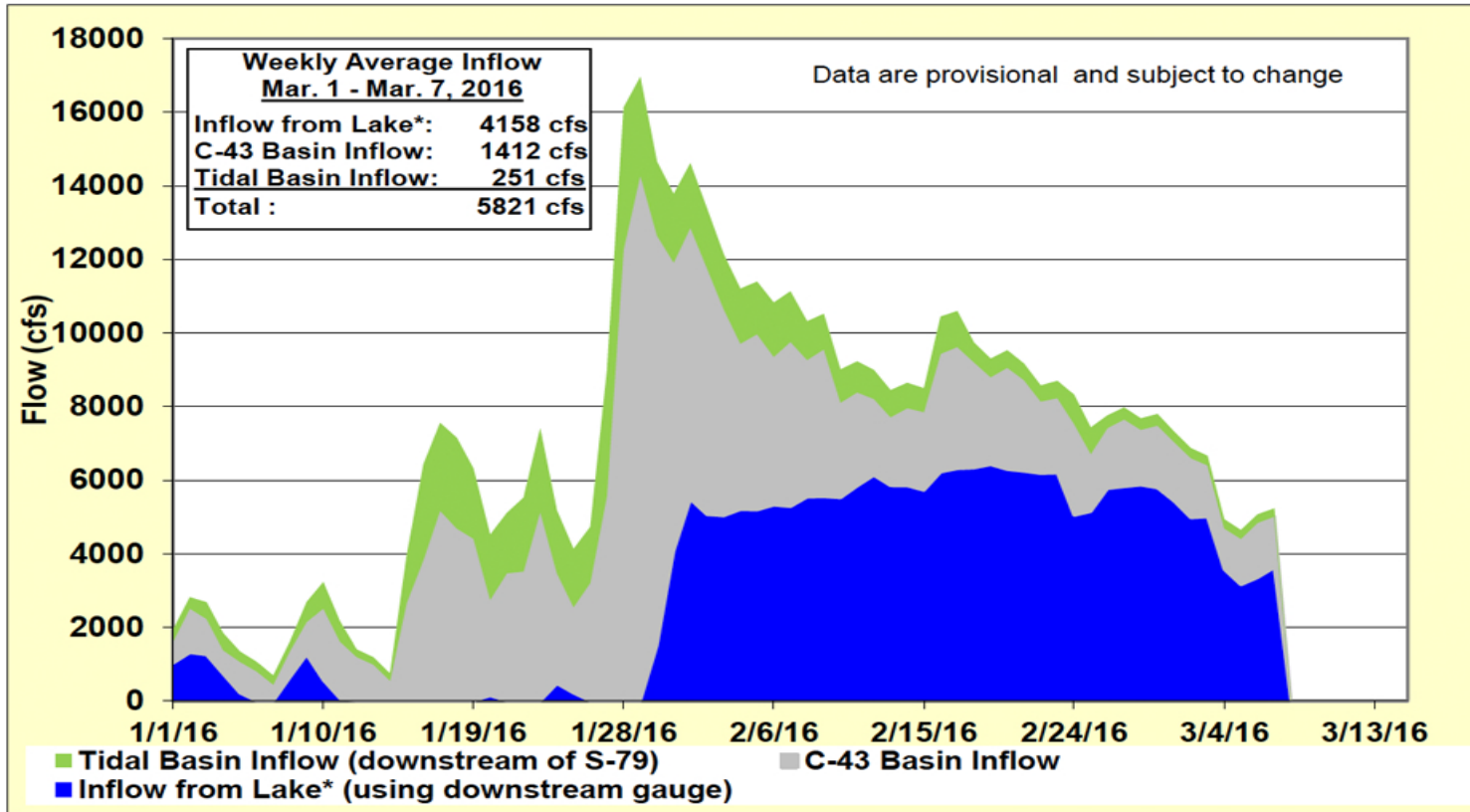


Figure 6. Freshwater inflows from Lake Okeechobee, runoff from the C-43 basin, and tributaries in the tidal basin into the Caloosahatchee River Estuary.

Current Conditions



Lee County - Water Action Plan

Operations / Lake Okeechobee Management

- Pursue Lake O Regulation Schedule modifications post Dam Risk Assessment Study
- Advocate shared adversity

State Funding / Cost Share

- Continue support Legacy Florida for Everglades funding
- Continue support for C-43 Reservoir
- Continue support for Boma Water Quality Project
- Continue pursuit of local water quality project funding

Federal

- Advocate completion of Herbert Hoover Dike Repairs
- Support authorization of Central Everglades Planning Project (CEPP) – WRDA 2016
- Support completion of Comprehensive Everglades Restoration Plan (CERP)

Local

- **Utilize water storage capabilities of C2020 and other public lands where practicable**
- **Continue water quality projects and programs in fulfillment of TMDL obligations**

Lee County Investments in Water Quality/ Storage

How long?

Since the late 80's Lee County has taken pro-active measures to address impairments to our waterways and preserve our natural systems.

How much?

- 25,000 acres purchased (\$316m) from C2020 land acquisition program
- \$25m spent on projects in last 5-10 years
- \$12.2m planned future projects
- \$ 60m estimated project expenditures over next 15 years for balance of TMDL compliance
- **\$96m spent over the last 5 years in capital and operations towards stormwater management activities (per NPDES reporting data)**

Milestones:

- Six Mile Cypress Slough Land Purchases (1980)
- CREW Land Purchases (1989)
- Weir structures added to Six Mile Cypress, Kehl Canal, Whiskey Creek to retain water (late 80's , early 90's)
- C2020 (1996)
- NPDES MS4 permit holder (1997)
- Ten Mile Canal –first filter marsh (2005)
- Northern Everglades Estuary Protection Act (NEEPA)- Boma purchase (2007)
- TMDL/ BMAP stakeholder (2008-9/2012)

Questions?

