SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Northern Everglades and Estuaries Protection Program Update

Northern Everglades Interagency Team Meeting- 10/02/08
Temperince Morgan – Northern Everglades Program Manager

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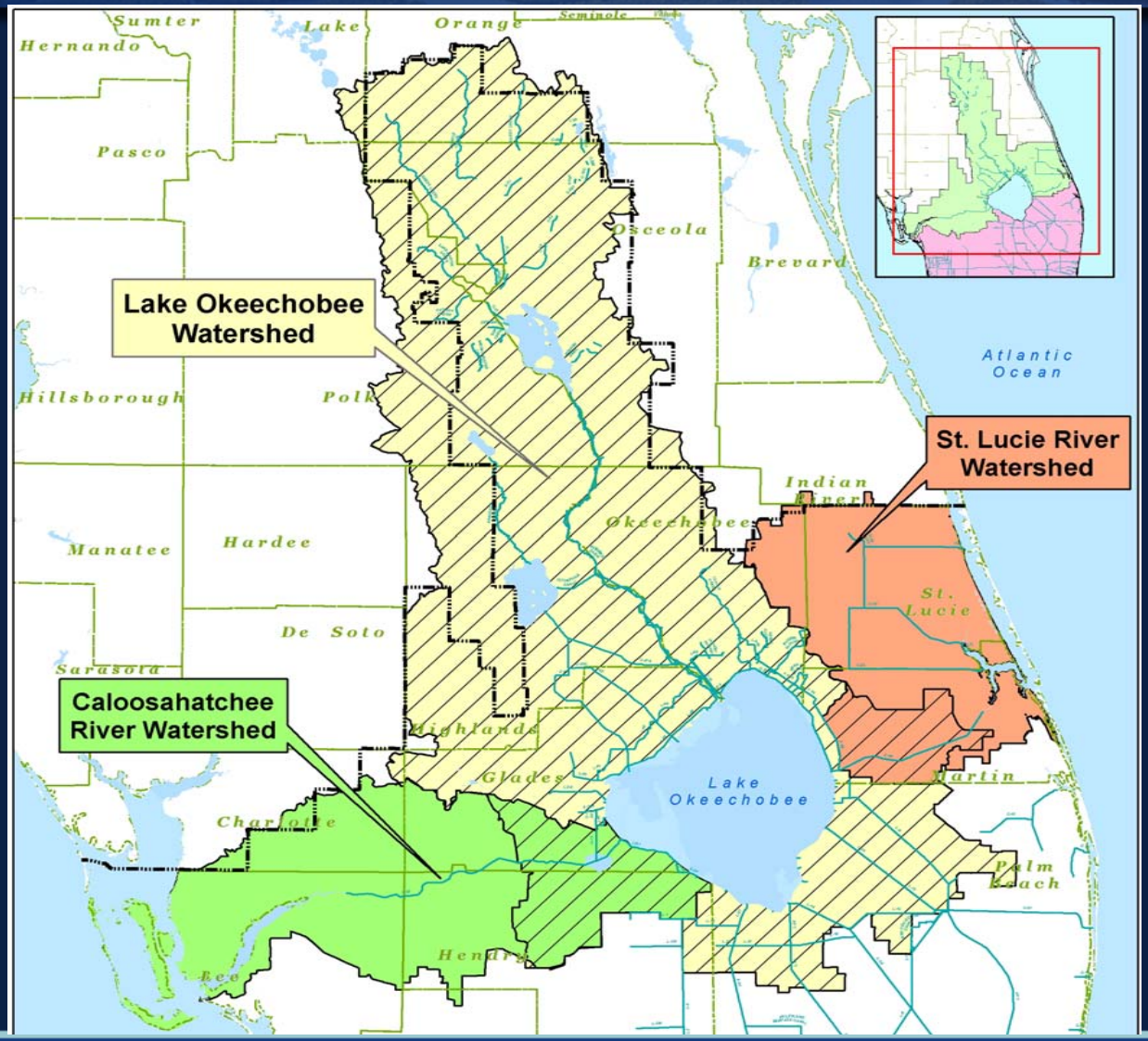
The Northern Everglades



Northern Everglades and Estuaries 2007 Legislation

- Recognizes that Lake Okeechobee, Caloosahatchee, and St. Lucie Watersheds are critical water resources of the state
- Builds upon existing restoration plans
- Technical plan to identify water quality treatment projects and water storage requirements for the Lake Okeechobee watershed by February 1, 2008
- Caloosahatchee and St. Lucie River Watershed Protection Plans to identify water quality and storage projects by January 1, 2009
- Developed by SFWMD, in cooperation with
  - Coordinating Agencies (FDEP and FDACS)
  - Lee, Martin, and other affected counties and municipalities

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Lake Okeechobee Watershed Construction Project Phase II Technical Plan

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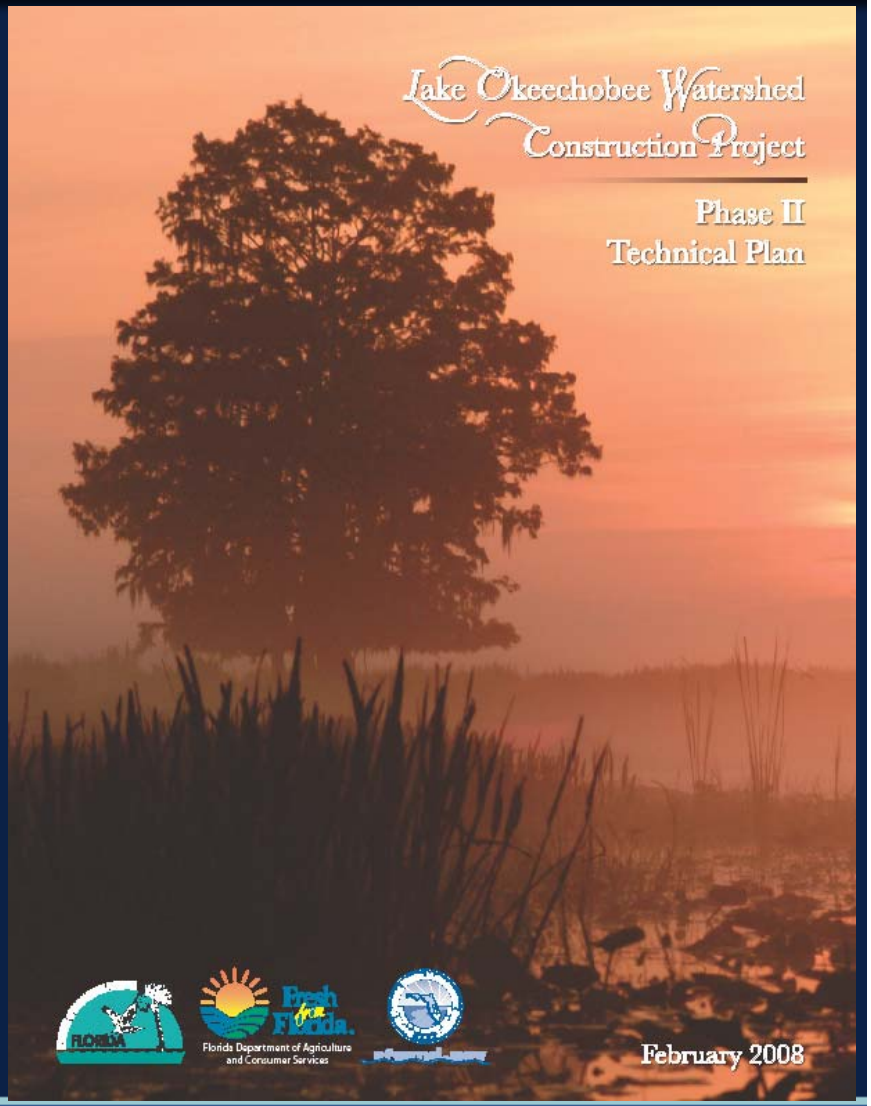
Lake Okeechobee Phase II Technical Plan

- Delivered to Legislature on February 1, 2008
- No action was taken during session- therefore plan is deemed approved and may be implemented
- Process Development and Engineering process is moving forward



Chemical Treatment Pilot Study

- Designed to investigate available information on chemical treatment technologies that have been tested to reduce total phosphorus loads in stormwater runoff
- A series of study questions have been developed by an interagency technical team and will be addressed
- The pilot study is designed in two phases-
  - Phase I is currently underway by the District, in collaboration with team of experts and includes:
    - Literature review- by April 2009
    - Laboratory water quality testing- by February 2010

Fisheating Creek Feasibility Study

- Fisheating Creek- selected due to challenges associated with this portion of the Lake Okeechobee watershed
- Objectives:
  - Further define the best mix of surface storage and water quality improvement features that are most suitable in a given sub-watershed;
  - Identify locations for siting these features;
  - Develop preliminary engineering design and cost estimates for the identified features.

Fisheating Creek Feasibility Study (con't)

- Completed in 3 phases:
  - Investigation of available information and work plan development
  - Alternative formulation, evaluation and selection
  - Compilation of results and write-up of the report
- Expected to be completed by end of 2009
- Working team will be convened after the first phase is completed- by March 2009

Lake Side Ranch STA

- Project is designed in two phases:
  - STA- North and canal improvements
  - STA-South and S-191A pump station
- Pre-final design for STA North and the Canal Improvements was completed in Aug 2008
- Contract award is scheduled for January 2009 with a groundbreaking in late January/early February

- Construction of STA South and S-191A pump station contingent on additional funding

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Caloosahatchee and St. Lucie River Watershed Protection Plans

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Presentation Outline

- Schedule
- Pollutant Control Program and Construction Project- Formulation
- Caloosahatchee RWPP
- St. Lucie RWPP
- Research and Water Quality Monitoring Plan Summary
- Phasing and Costs

River Watershed Protection Plans- Schedule

Release Draft Plan	**Oct 1**
Public Comment period/public mtgs/outreach	**Oct 1- Oct 31**
Lake O WRAC	**Oct 29**
Lake O WRAC/WRAC	**Dec 3**
Ten County Coalition	**Dec 5**
Final Plan to GB	**Dec 11**
Final Plan to Legislature	**Jan 1**

River Watershed Protection Plans-Elements

- **Watershed Pollutant Control Program**
- **Watershed Construction Project**
- **Watershed Research and Water Quality Monitoring Program**

Pollutant Control Program and Construction Project- Formulation

Pollutant Control Program

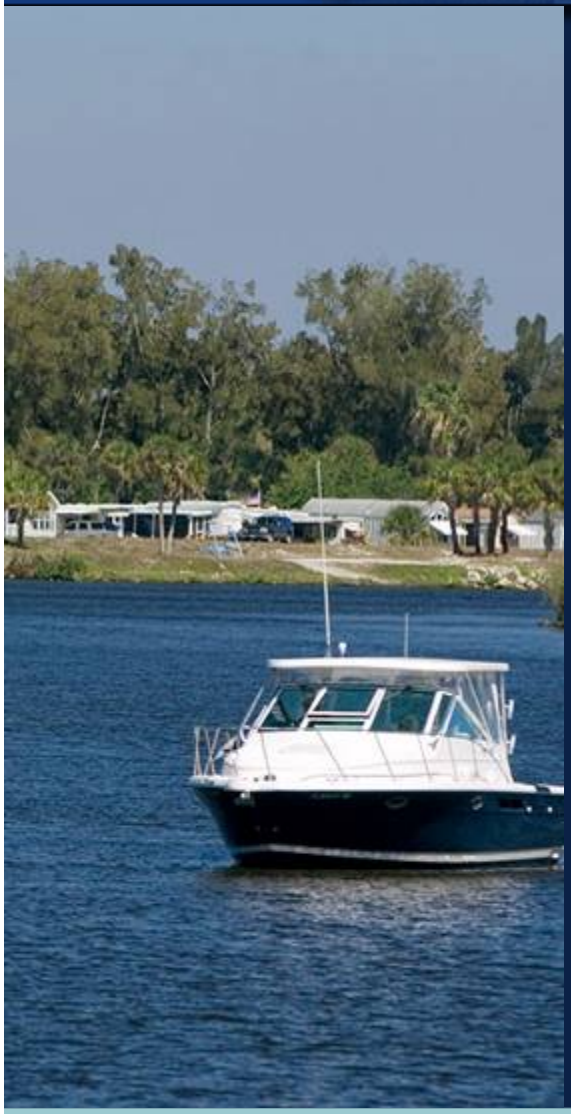
- Implementation of Agricultural and Urban Best Management Practices
- Revisions to Regulatory Programs
  - Environmental Resources Permitting (ERP) Program
    - Statewide Stormwater Rule
    - Northern Everglades Basin Rule
  - 40E-61 Regulatory Source Control Program in Estuaries

Alternative Formulation and Evaluation

- Formulated alternatives for each watershed using management measures
- Evaluated each alternative for
  - Nitrogen and phosphorus load removal
  - Water quantity performance

Alternative	Objective
1	Common elements (current, on-going and planned projects)
2	Maximizes water storage capacity
3	Maximizes phosphorus and nitrogen load reduction
4	Optimizes storage capacity and phosphorus and nitrogen load reductions- Selected as Preferred Plan

River Watershed Protection Plans- Water Quality and Quantity Evaluation



Water Quality

- Spreadsheet evaluation of phosphorus and nitrogen reduction
- Period of Record 1995-2005
- Phosphorus and nitrogen reduction for each management measure estimated based upon best available information

Water Quantity

- Water Budget analysis using Northern Everglades Regional Simulation Model
- Simulation period 1970-2005

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Water Quality and Quantity Analysis for Caloosahatchee RWPP

Janet Starnes, Principal Project Manager

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Caloosahatchee RWPP

Water Quality - Defining the Magnitude of the Problem

- **Current Load from Caloosahatchee Watershed**
  - **TP: 326 mt/yr**
  - **TN: 2,900 mt/yr**
- **Nutrient TMDLs are under development for Caloosahatchee River by FDEP at this time**
- **Interim goal utilized by this planning process was to maximize nutrient load reduction**

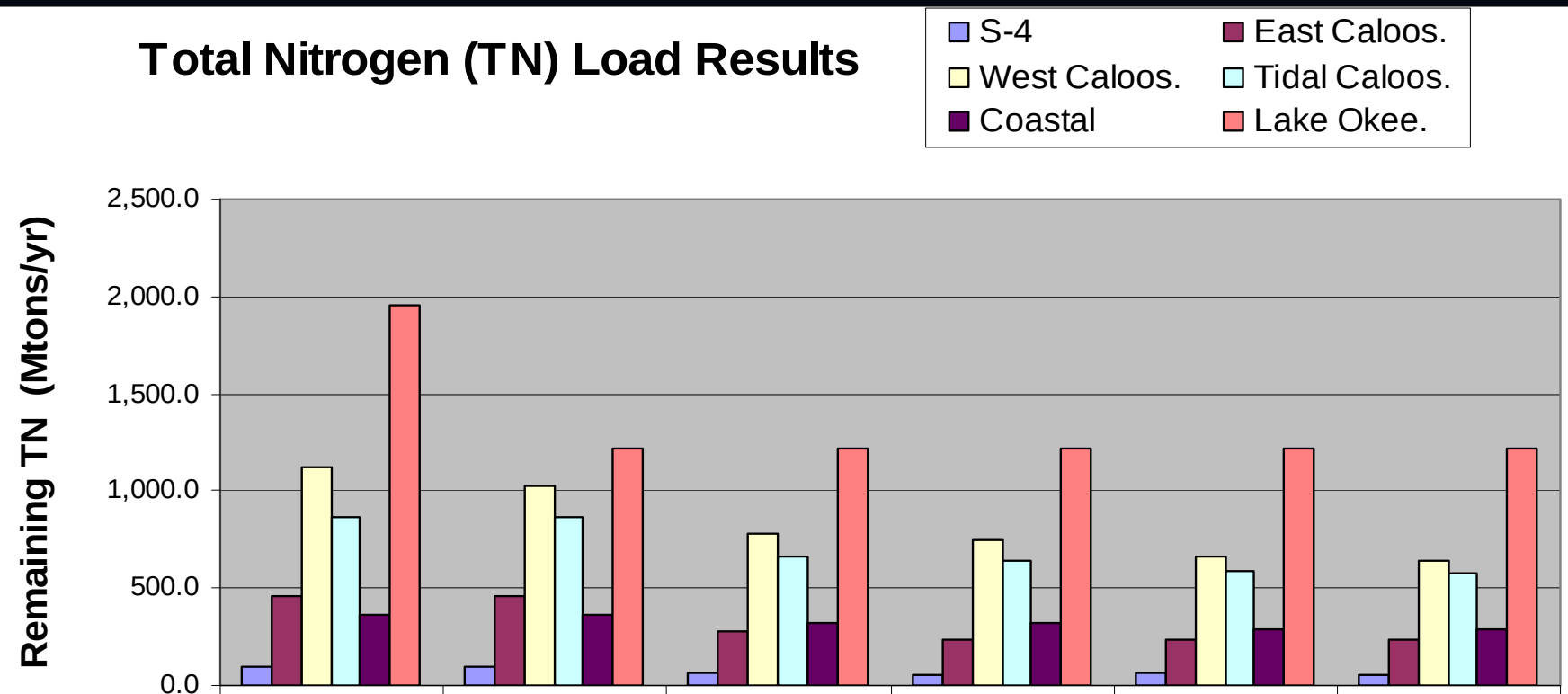
Summary of Alternatives - CRWPP

Total Nitrogen	Current Conditions	RWPP Base Condition	Alt 1	Alt 2	Alt 3	(Preferred Plan) Alt 4
Annual Load (Mton)	2,900	2,806	2,102	1,997	1,849	1,789
Concentration (ppm)	1.46	1.42	1.06	1.01	0.93	0.91
Load Reduction (percent)	NA	NA	25%	29%	34%	36%

Total Phosphorus	Current Condition	RWPP Base Condition	Alt 1	Alt 2	Alt 3	(Preferred Plan) Alt 4
Annual Load (Mton)	326	319	233	221	204	197
Concentration (ppb)	165	161	118	112	103	100
Load Reduction (percent)	NA	NA	27%	31%	36%	38%

Remaining Total Nitrogen Load Summary - CRWPP

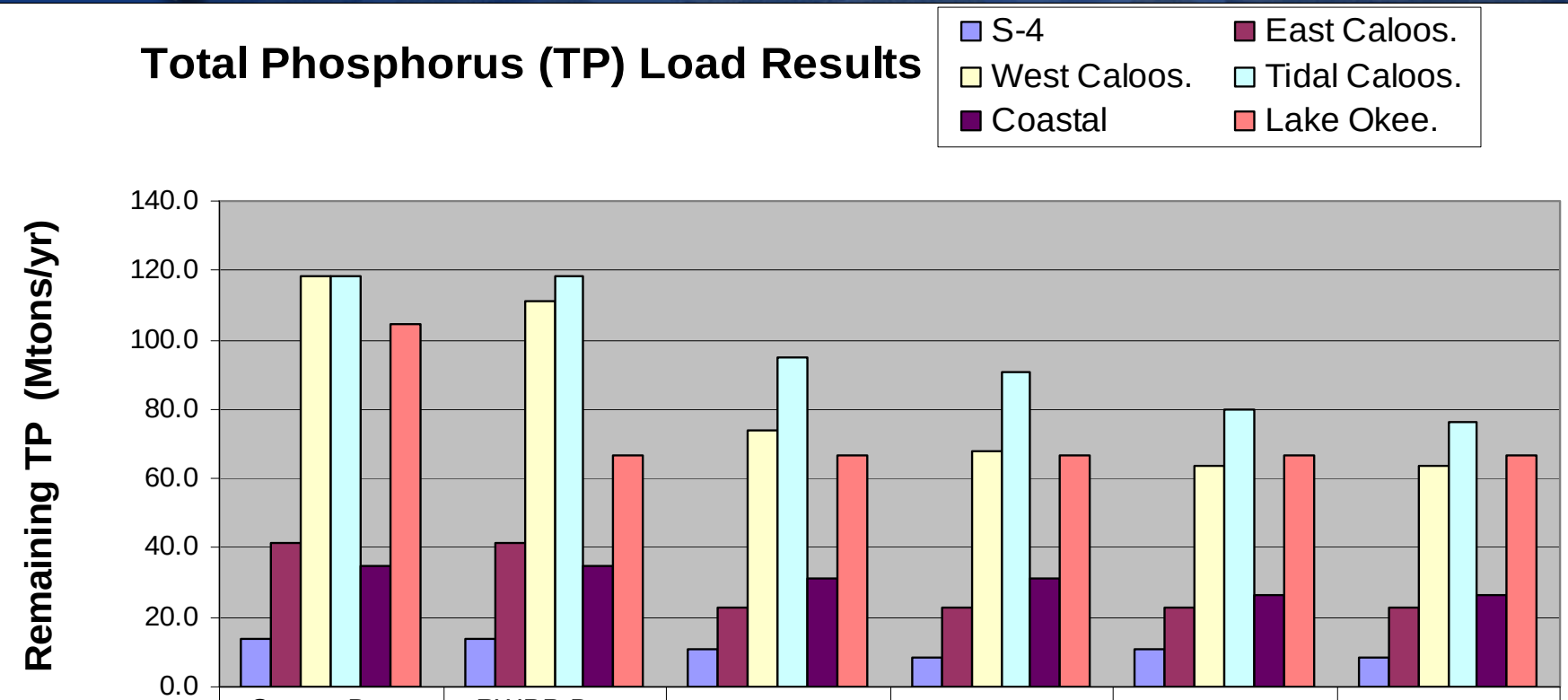
Total Nitrogen (TN) Load Results



	Current Base Conditions	RWPP Base Conditions	Alternative 1	Alternative 2	Alternative 3	Alternative 4
S-4	93.0	93.0	66.6	54.7	66.6	54.7
East Caloos.	460.4	460.4	277.4	229.8	229.8	229.8
West Caloos.	1,121.9	1,028.7	774.9	747.9	666.4	637.6
Tidal Caloos.	863.6	863.6	664.2	645.3	592.0	573.1
Coastal	360.8	360.8	318.8	318.8	293.8	293.8
Lake Okee.	1,950.9	1,215.0	1,215.0	1,215.0	1,215.0	1,215.0

Remaining Total Phosphorus Load Summary - CRWPP

Total Phosphorus (TP) Load Results



	Current Base Conditions	RWPP Base Conditions	Alternative 1	Alternative 2	Alternative 3	Alternative 4
S-4	13.6	13.6	10.6	8.2	10.6	8.2
East Caloos.	41.3	41.3	23.0	23.0	23.0	23.0
West Caloos.	118.3	111.0	73.9	68.1	63.8	63.8
Tidal Caloos.	118.2	118.2	94.7	90.8	80.0	76.1
Coastal	34.8	34.8	31.2	31.2	26.2	26.2
Lake Okee.	104.5	66.6	66.6	66.6	66.6	66.6

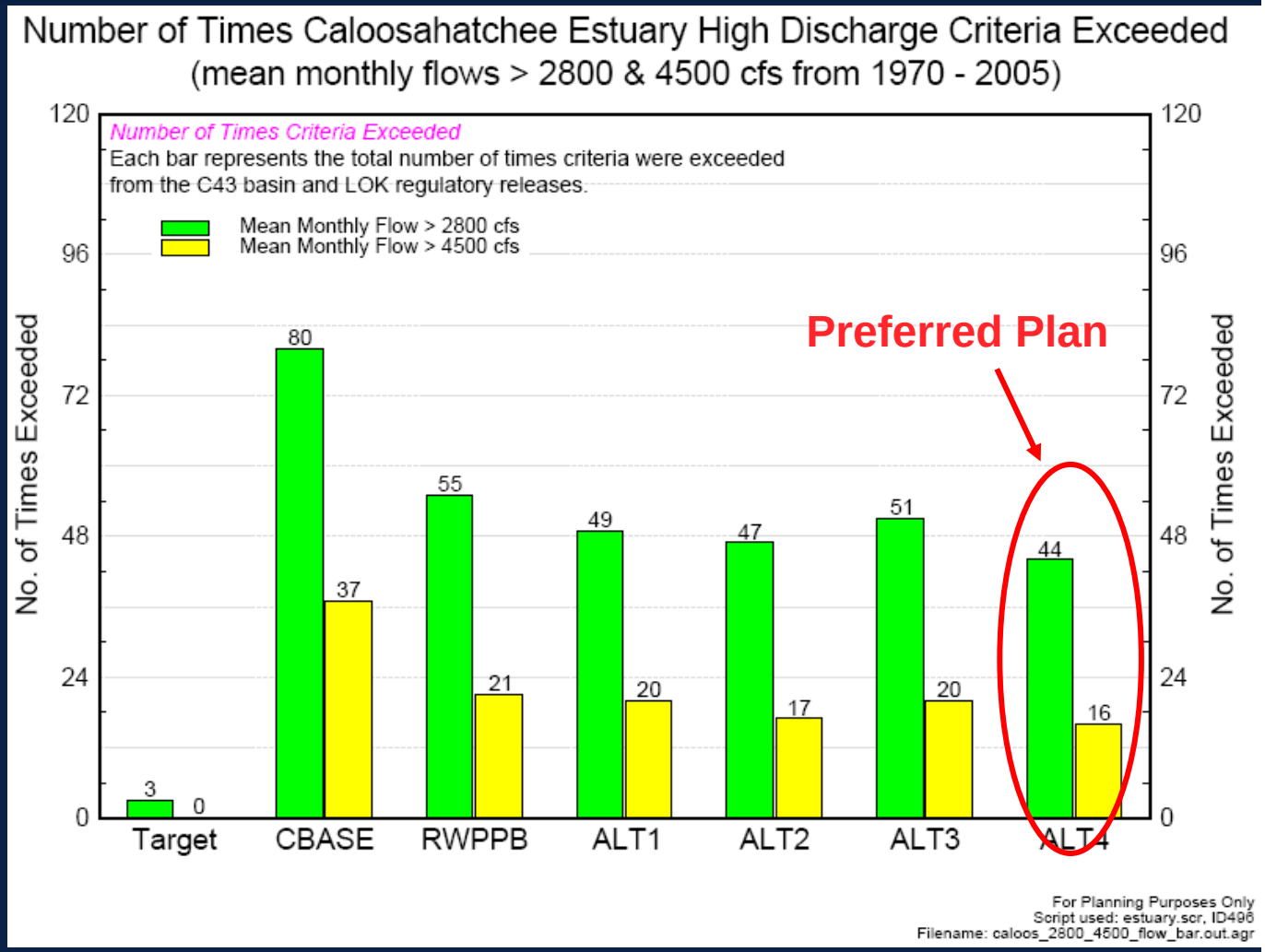
Summary of Alternatives - Projected Storage Capacity (ac-ft/yr)

	Alt 1	Alt 2	Alt 3	Alt 4
CRWPP (includes C-43 Reservoir ~178,000 ac-ft)	~221,000	~342,500	~ 221,000	~400,000

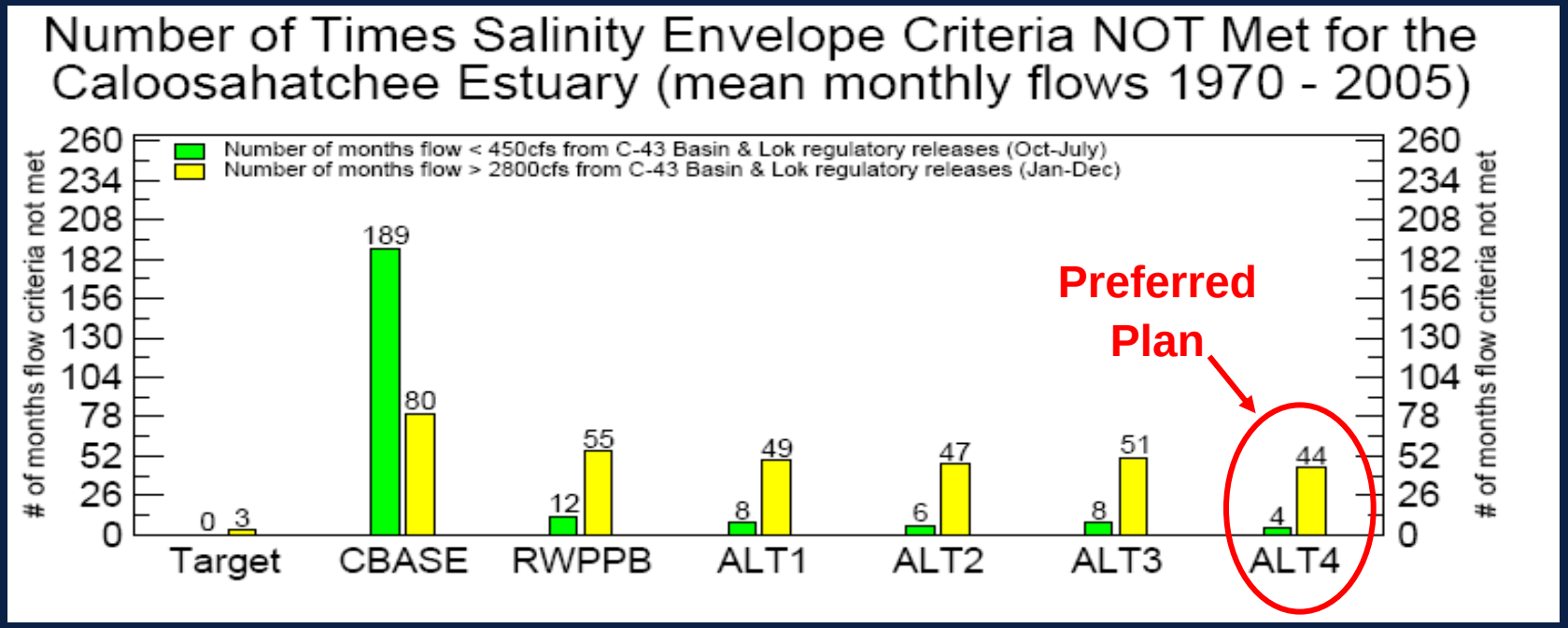
- This table reflects total watershed storage provided by each of the Alternatives
- This watershed storage is in addition to the storage that was identified in the Lake Okeechobee Phase II Technical Plan (~900,000 ac-ft/yr)

Caloosahatchee Performance – High Discharge Criteria

- **Results show improvement toward established targets**
- **Additional 50,000 ac-ft storage in Alt 4**



Caloosahatchee Performance- Salinity Envelope



- Results show improvement toward established targets
- High flow- (compared to CBASE)
  - RWPPB greatly reduces lake only high flow events (from 21 months to 8 events);
  - Alt 4 greatly reduces watershed only exceedances (from 48 months to 20 months);
  - Remaining high flow events are caused by a combination of lake and watershed flows (16 events remaining)
- Low flow- Alt 4 reduces low flow exceedances from 189 to 4 months as compared to CBASE

Caloosahatchee Performance

- **Breakdown of Flows to Estuary By Source (Number of months out of 432 total months of simulation for 1970-2005 period of record)**

	CBASE	RWPPB	ALT1	ALT2	ALT3	ALT4
Basin > 2800 cfs	48	33	26	22	26	20
LOK > 2800 cfs	21	5	7	7	7	8
Basin + LOK > 2800 cfs	11	17	16	18	18	16
Total > 2800 cfs	**80**	**55**	**49**	**47**	**51**	**44**

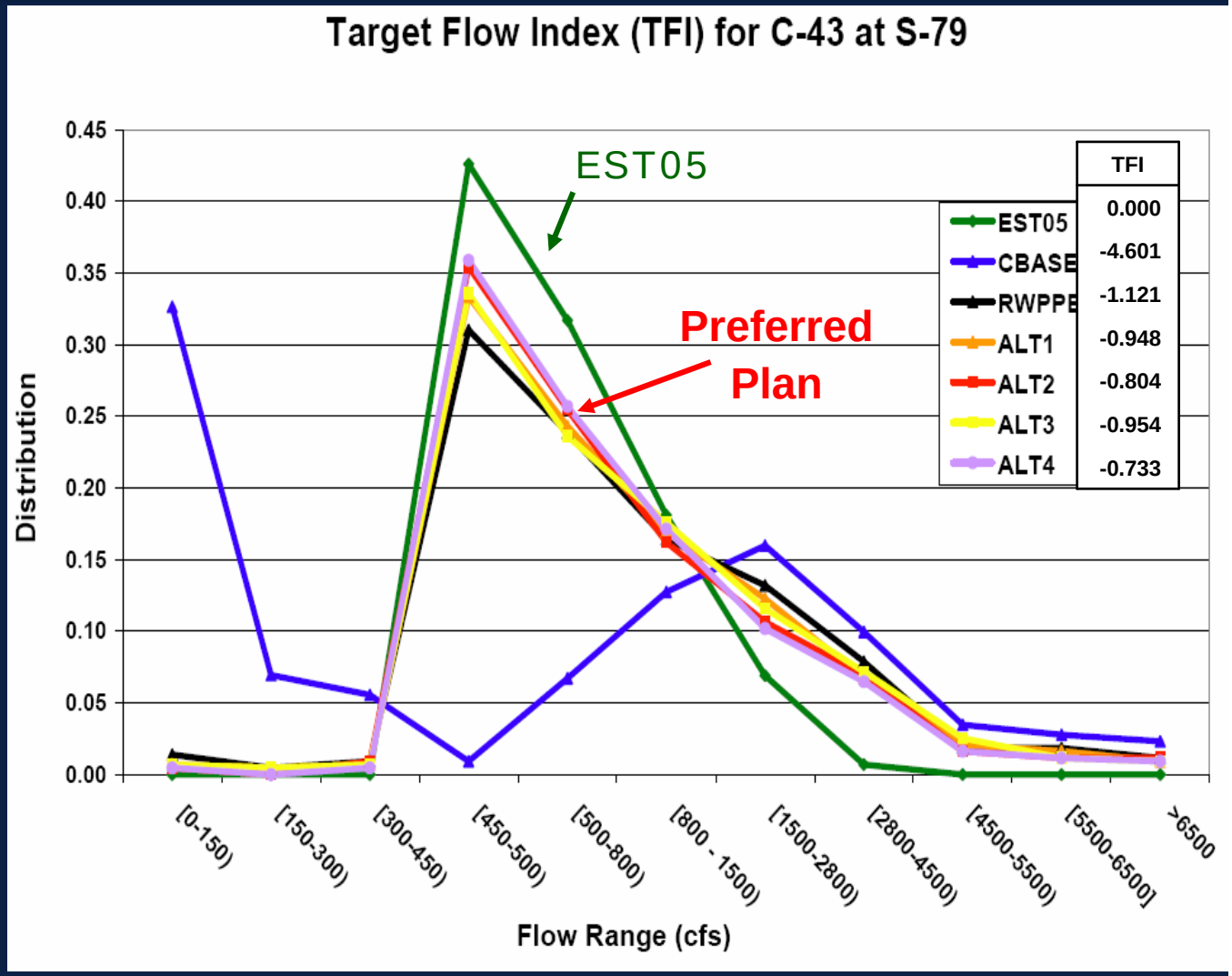
	CBASE	RWPPB	ALT1	ALT2	ALT3	ALT4
Basin > 4500 cfs	10	7	6	5	5	4
LOK > 4500 cfs	5	1	2	1	2	1
Basin + LOK > 4500 cfs	22	13	12	11	13	11
Total > 4500 cfs	**37**	**21**	**20**	**17**	**20**	**16**

Caloosahatchee Performance- Target Flow Index

- **Target Flow Index= preferred flow distribution shown by green line**

Alt	Improvement*
1	79 %
2	82 %
3	79 %
4	84%

*** Improvement compared to CBase**



Caloosahatchee Preferred Plan- Water Quantity Results

High Flows

- Reduces high flow events caused by watershed alone by more than half (from 48 to 20 events)

Low Flows

- Reduces low flow events from 189 events to 4 events

Ecological Assessment

- Target Flow Distribution- 84% improvement over current conditions
- Reduction in months with detrimental flows from 62% to 11%

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Water Quality and Quantity Analysis for St. Lucie RWPP

Mike Voich, PE, Lead Project Manager

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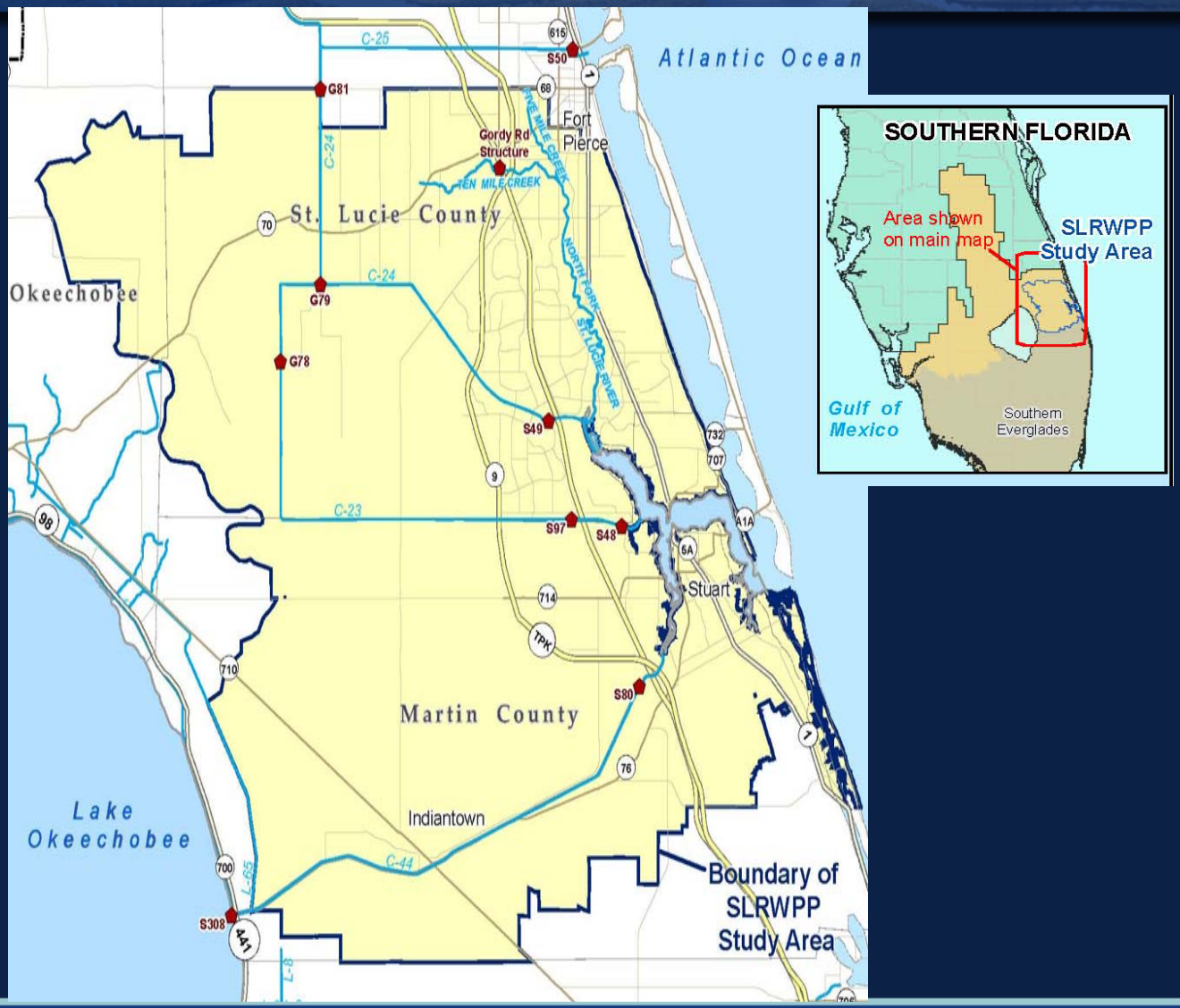
St. Lucie RWPP Results



Water Quality- Defining the Magnitude of the Problem

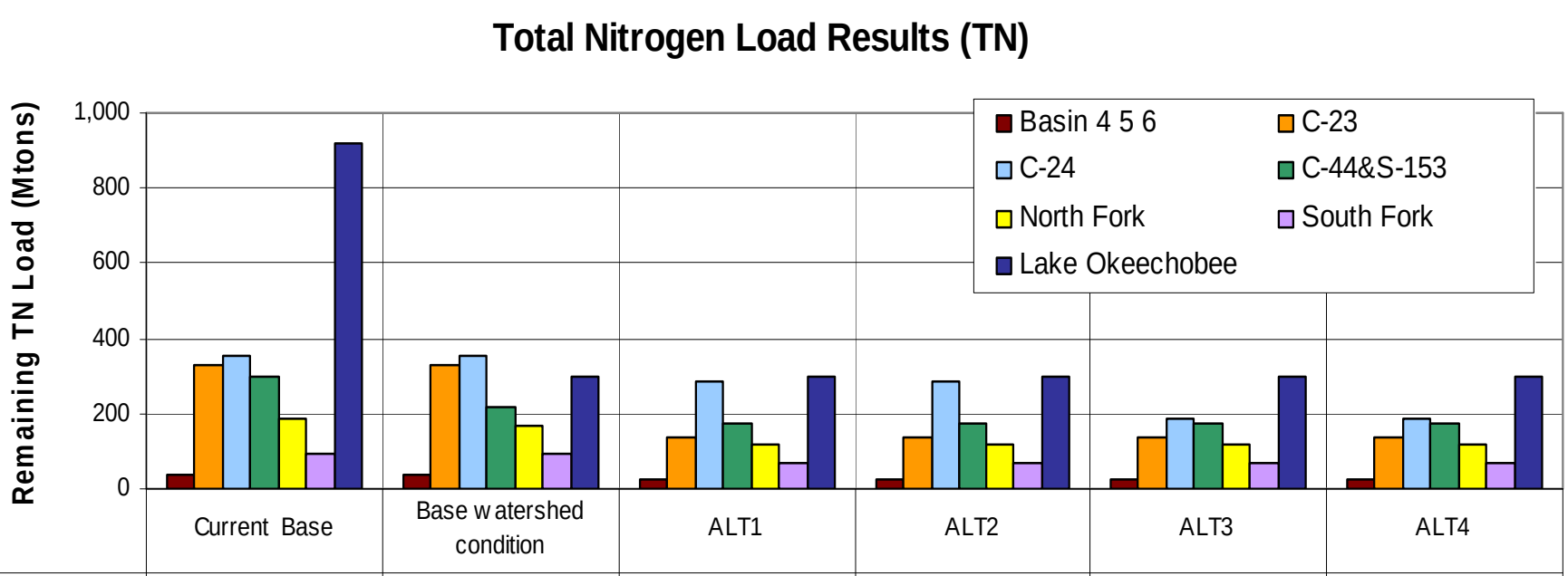
- **Current Load from St. Lucie Watershed**
  - **TP: 276 mt/yr**
  - **TN: 1,296 mt/yr**
- **Nutrient TMDLs are under development for St. Lucie River by FDEP at this time**
- **Interim goal utilized by this planning process was to maximize nutrient load reduction**

Summary of Alternatives-SLRWPP

Total Nitrogen	Current Conditions	RWPP Base Condition	Alt 1	Alt 2	Alt 3	(Preferred Plan) Alt 4
Annual Load (Mton)	2,218	1,491	1,109	1,109	1,009	1,009
Concentration (ppm)	1.61	1.39	1.03	1.03	0.94	0.94
Load Reduction (percent)	NA	NA	26%	26%	32%	32%

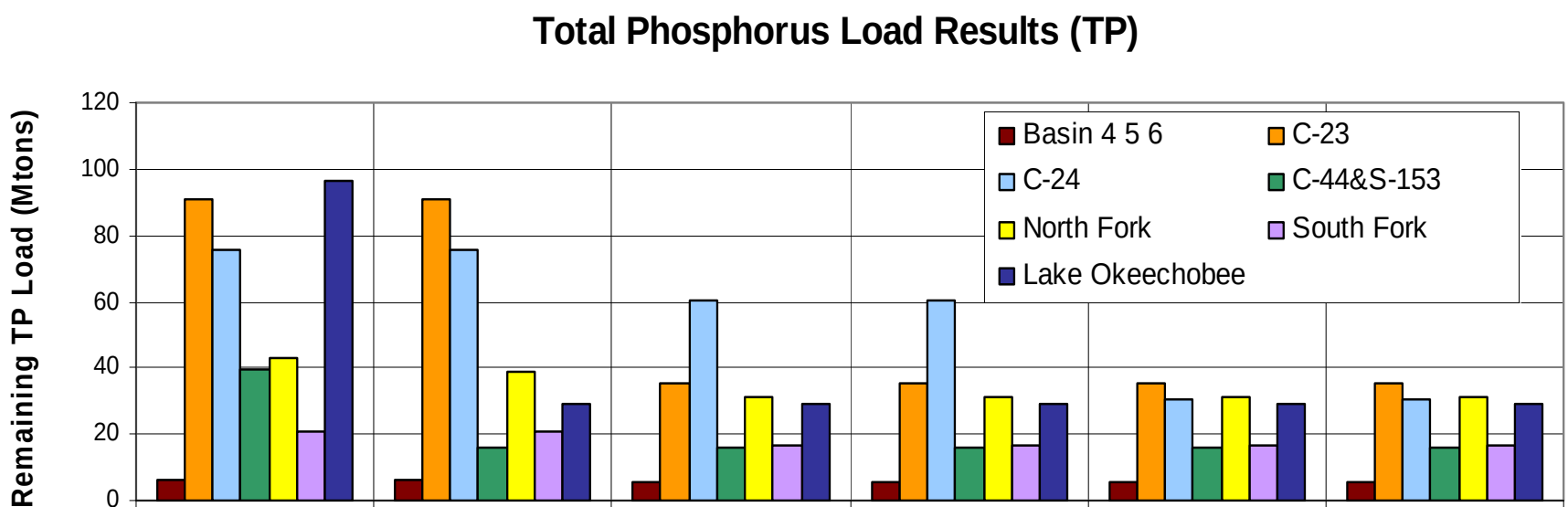
Total Phosphorus	Current Condition	RWPP Base Condition	Alt 1	Alt 2	Alt 3	(Preferred Plan) Alt 4
Annual Load (Mton)	373	277	194	194	164	164
Concentration (ppb)	271	256	181	181	153	153
Load Reduction (percent)	NA	NA	30%	30%	41%	41%

Remaining Total Nitrogen Load Summary- SLRWPP



	Current Base	Base watershed condition	ALT1	ALT2	ALT3	ALT4
Basin 4 5 6	34.43	34.43	26.99	26.99	26.76	26.76
C-23	329.78	329.78	135.70	135.70	135.70	135.70
C-24	355.00	355.00	285.81	285.81	185.81	185.81
C-44&S-153	300.49	215.48	174.10	174.10	174.10	174.10
North Fork	185.31	166.81	117.13	117.13	117.13	117.13
South Fork	91.13	91.13	71.00	71.00	71.00	71.00
Lake Okeechobee	922.00	298.09	298.09	298.09	298.09	298.09

Remaining Total Phosphorus Load Summary- SLRWPP



	Current Base	River WaterShed Base	ALT1	ALT2	ALT3	ALT4
Basin 4 5 6	6.38	6.38	5.46	5.46	5.37	5.37
C-23	90.57	90.57	35.52	35.52	35.52	35.52
C-24	75.73	75.73	60.62	60.62	30.62	30.62
C-44&S-153	39.69	15.81	15.81	15.81	15.81	15.81
North Fork	43.26	38.81	31.16	31.16	31.16	31.16
South Fork	20.90	20.90	16.57	16.57	16.57	16.57
Lake Okeechobee	96.25	28.86	28.86	28.86	28.86	28.86

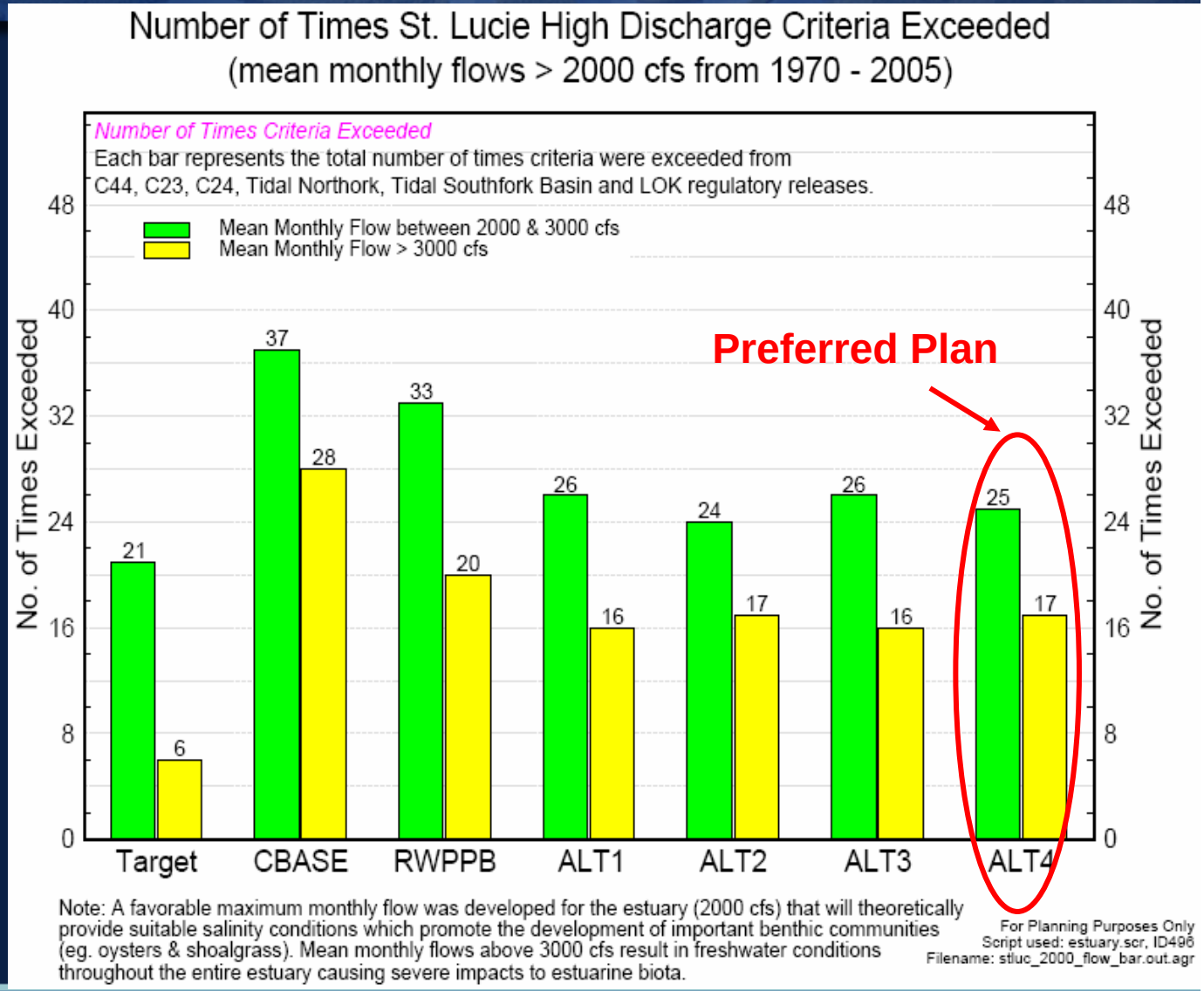
Summary of Alternatives- Projected Storage Capacity (ac-ft/yr)

	Alt 1	Alt 2	Alt 3	Alt 4
SLRWPP (Includes IRL-S (C-44 Reservoir and C-23/24 Reservoir/STA) and Ten Mile Creek Critical Project	~200,000	~200,000	~200,000	~200,000

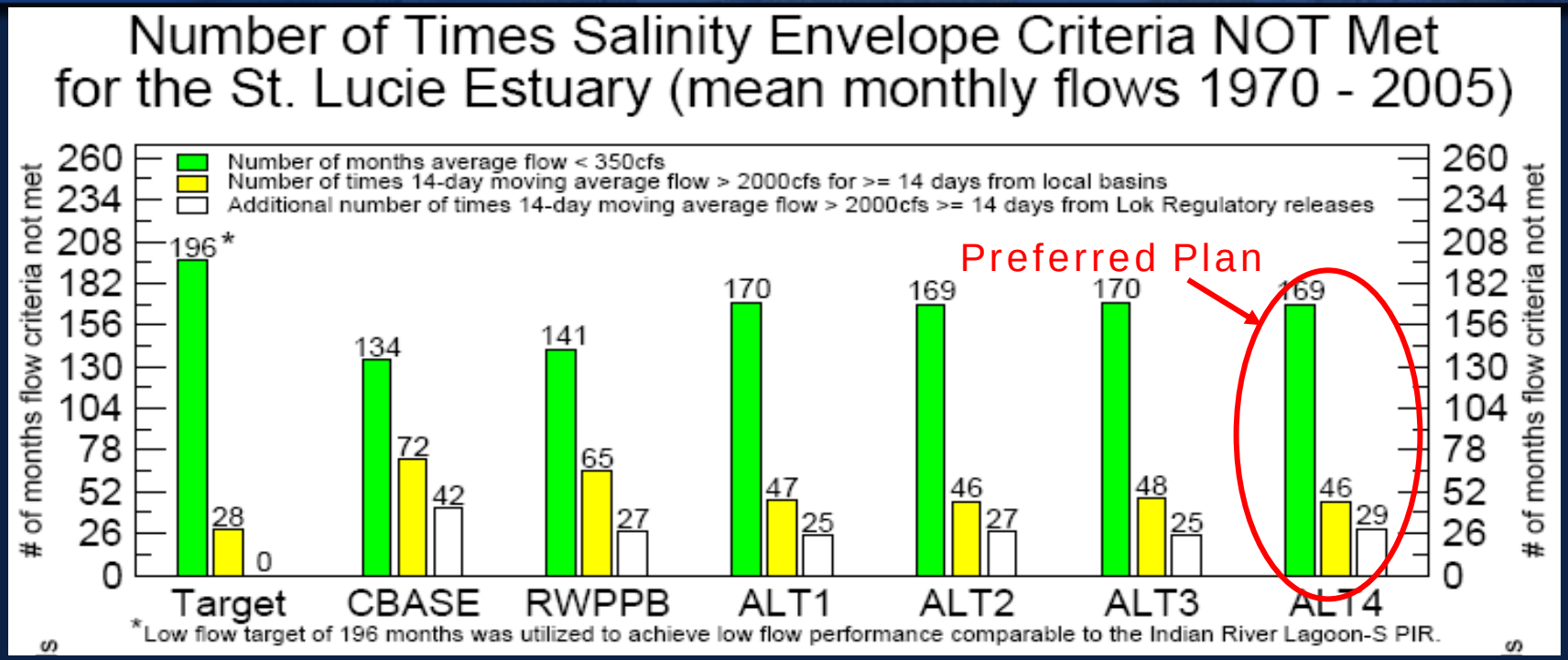
- This table reflects total watershed storage provided by each of the Alternatives
- This watershed storage is in addition to the storage that was identified in the Lake Okeechobee Phase II Technical Plan (~900,000 ac-ft/yr)

St. Lucie Performance- High Discharge Criteria

- Alternatives show improvement towards established targets
- Alt 4 performs similar as Alt 3



St. Lucie Estuary Performance – Salinity Envelope



- **No additional watershed storage Management Measures for St Lucie beyond Alt 1; minor changes resulting from storage in CRWPP**
- **High flow- Operational target for watershed surface flows is 17 months between 2000-3000 cfs and all alternatives reduce existing 23 months to target of 17; over 3000 cfs target is 5 events, Alt 4 reduces to 8**

St. Lucie River Performance (con't)

- **Breakdown of Flows to Estuary By Source (Number of months out of 432 total months of simulation for 1970-2005 period of record)**

	CBASE	RWPPB	ALT1	ALT2	ALT3	ALT4	Operational Target (OPTI-6)
Basins bet. 2000 & 3000 cfs	25	23	17	17	17	17	**17**
LOK bet. 2000 & 3000 cfs	1	2	0	0	0	0	**N/A**
Basins + LOK bet. 2000 & 3000 cfs	11	8	9	7	9	8	**N/A**
Total bet. 2000 & 3000 cfs	**37**	**33**	**26**	**24**	**26**	**25**	**17**

	CBASE	RWPPB	ALT1	ALT2	ALT3	ALT4	Operational Target (OPTI-6)
Basins > 3000 cfs	13	12	7	8	7	8	**5**
LOK > 3000 cfs	1	0	0	0	0	0	**N/A**
Basins + LOK > 3000 cfs	14	8	9	9	9	9	**N/A**
Total > 3000 cfs	**28**	**20**	**16**	**17**	**16**	**17**	**5**

	CBASE	RWPPB	ALT1	ALT2	ALT3	ALT4	Operational Target (OPTI-6)
Tot. Flow <350 cfs	**134**	**141**	**170**	**169**	**170**	**169**	**196**

St. Lucie Preferred Plan- Water Quantity Results

High Flows

- Between 2000 and 3000 cfs- exceed target by 4 events
- Greater than 3000 cfs- exceed target by 11 events

Low Flows

- Improved performance- low flow is not a significant issue for the St Lucie Estuary

Ecological Assessment

- 45% improvement in number of years with oyster mortality
- Reduction in months with detrimental high flows from 15% to 9.7%

Preferred Plan Summary

St. Lucie	Caloosahatchee
• IRL-S • BMPS/Regulatory Programs • Additional regional phosphorus treatment in C-23/24 basin • Local quality/quantity projects (e.g., stormwater retrofits; septic conversions; Alternative Water Storage Facilities)	• C-43 West Reservoir • Additional storage in eastern basins • BMPs/Regulatory Programs • Regional water quality projects- emphasis on nitrogen • Local quality/quantity projects (e.g., stormwater retrofits; septic conversions- Lehigh, Cape Coral; Alternative Water Storage Facilities) • Additional monitoring in watershed
Summary	**Summary**
• ~200,000 ac-ft/yr storage (IRL and Ten Mile Creek) • Primarily phosphorus treatment	• ~400,000 ac-ft/yr storage (including C-43 West Reservoir) • Primarily nitrogen treatment

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Research & Water Quality Monitoring Plan Summary for St. Lucie and Caloosahatchee River Watersheds

Miao-Li Chang, Ph. D., Director, Coastal Ecosystems Division

sfwmd.gov

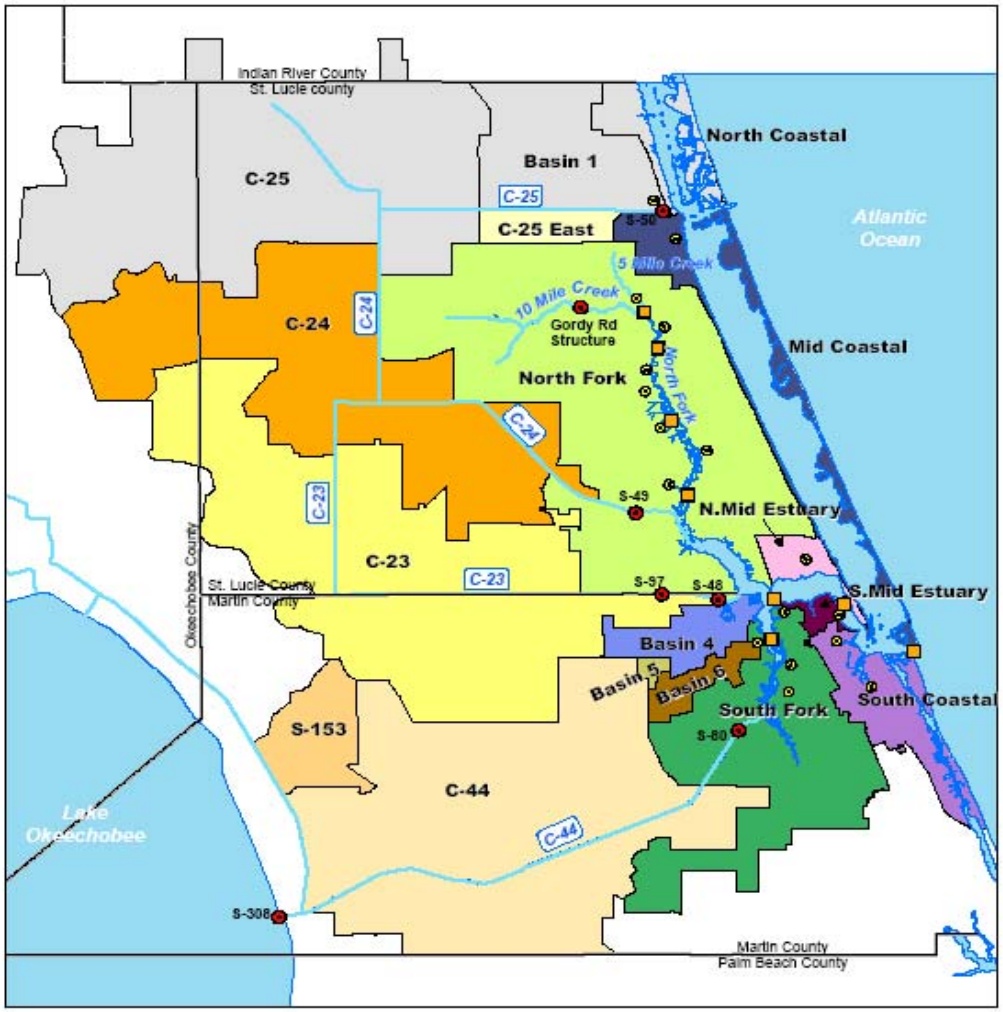
Research and Water Quality Monitoring Program

- Developed by SFWMD, coordinating agencies and local governments
- This program shall-
  - Build on SFWMD's existing research program
  - Implement, comply with, or assess the plans, programs, and other responsibilities
  - Assess water volumes and timing from Lake Okeechobee, and Rivers Watersheds and their relative contribution to the timing and volume of water delivered to the estuary

Monitoring Program – St. Lucie and Caloosahatchee River and Estuary

St. Lucie – Existing Water Quality/ Flow Monitoring Program

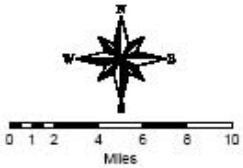
- District
  - Watershed (at structures)
    - Flow and WQ: WQM program (7 stations)
  - Tributary
    - Flow and WQ: SLT program (District/St. Lucie Issues Team, 19 stations)
  - Estuary
    - Water Quality: SE program (13 stations)
    - Salinity: SA program (8 stations)
- St. Lucie County: 14 Estuary Bacteria stations
- FDEP: 16 stations (new)
- UF/IFAS: 22 stations from 2002-2005



St. Lucie Estuary Primary Basins and Water Quality Monitoring Sites

* C-25, Basin 1, and North Coastal Drainage Basins Flow directy into the Indian River Lagoon

- SFWMD WQM Sites
- St. Lucie Urban Tributary Monitoring (SLT)
- St. Lucie Estuary Water Quality Monitoring (SE)



Long-Term Monitoring Stations: St. Lucie River

Watershed Flow and WQ: WQM of the District (7 stations)

Estuary Water Quality: SE of the District (13 stations)

Tributary Flow and WQ: SLT of the District (19 stations)

Estuary Salinity: SA of the District (8 stations)

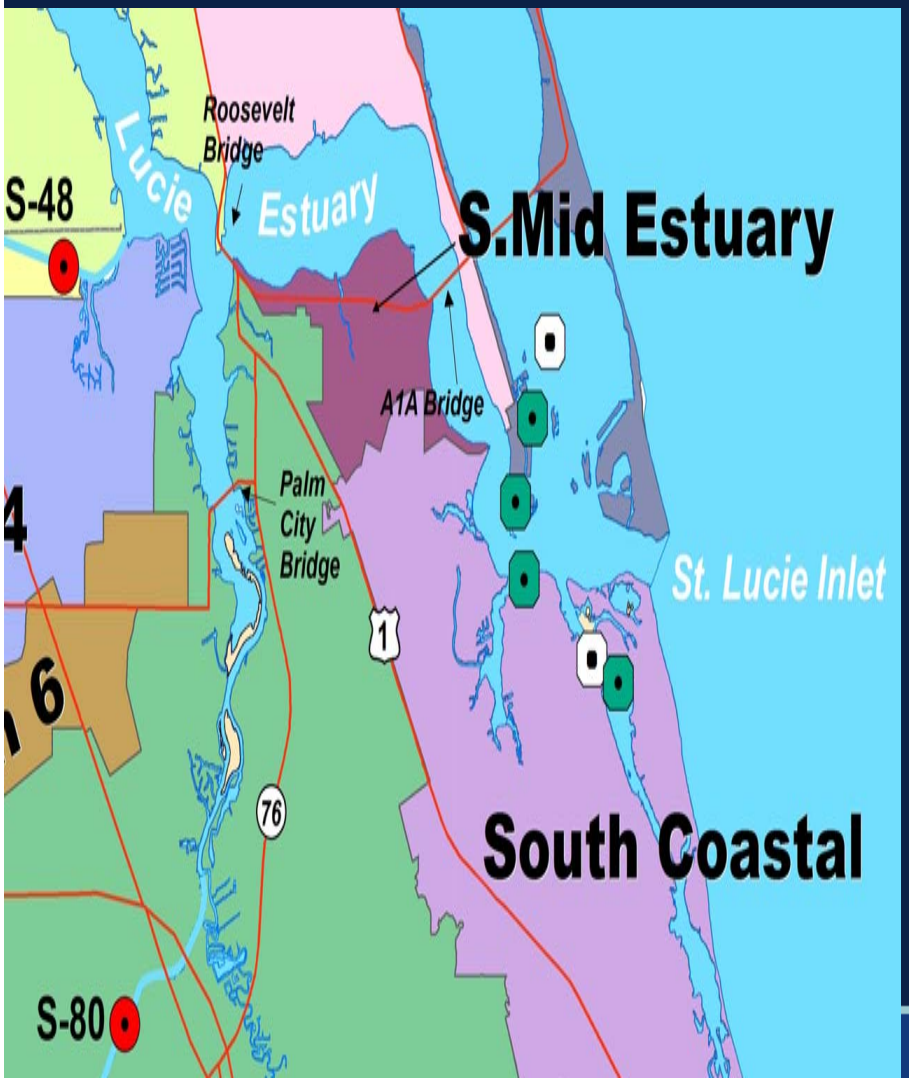
St. Lucie
Existing Aquatic Habitat Monitoring Inventory

- **Seagrass monitoring**
  - **SLE/IRL program – Freshwater impact on SAV**
  - **SAV Transect program – Establish Long-term Baseline information**
  - **SAV Aerial Survey -- Establish Long-term Baseline information**
- **Oyster Distribution – Establish Baseline Condition**
- **Benthic Surveys – Establish Baseline Condition**

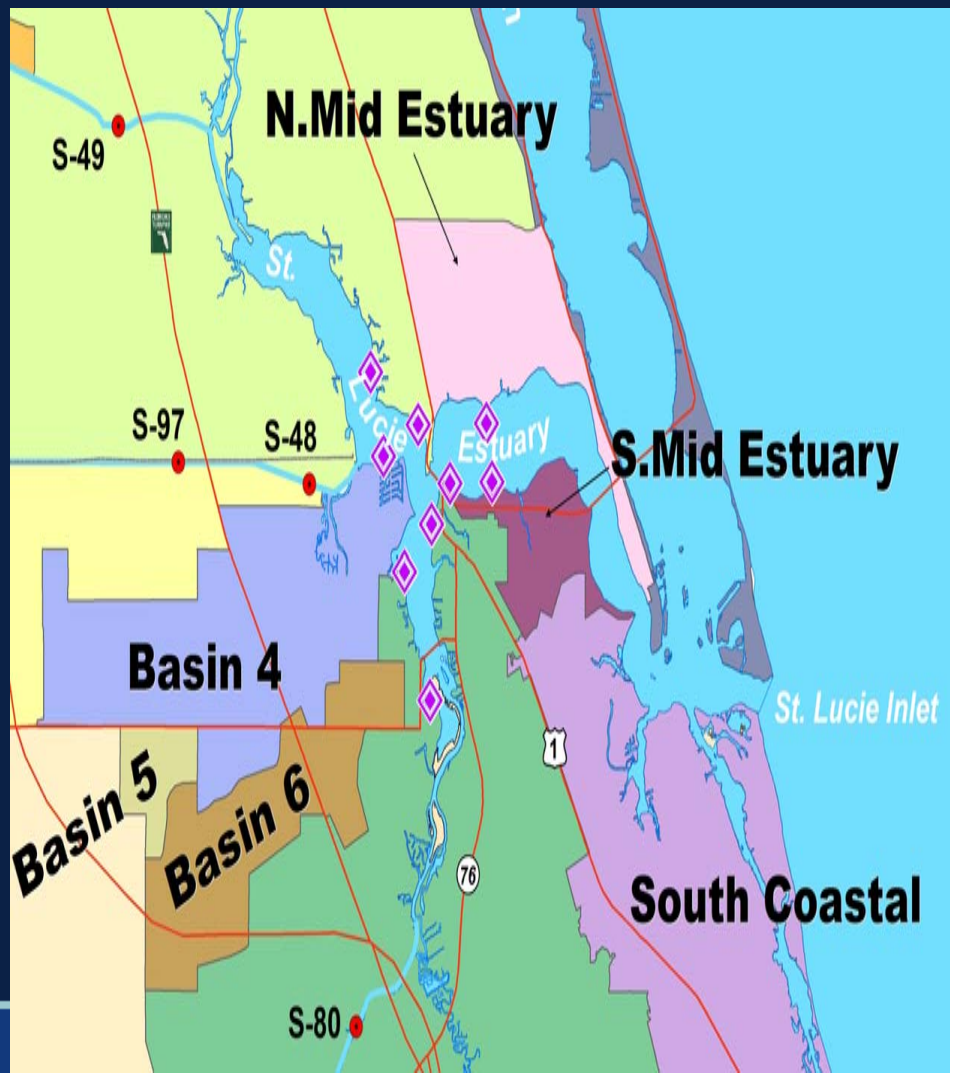
SOUTH FLORIDA WATER MANAGEMENT DISTRICT

St. Lucie
Existing Aquatic Habitat Monitoring Inventory

- Seagrass Stations



- Oyster Stations



St. Lucie Monitoring Program Assessment Summary

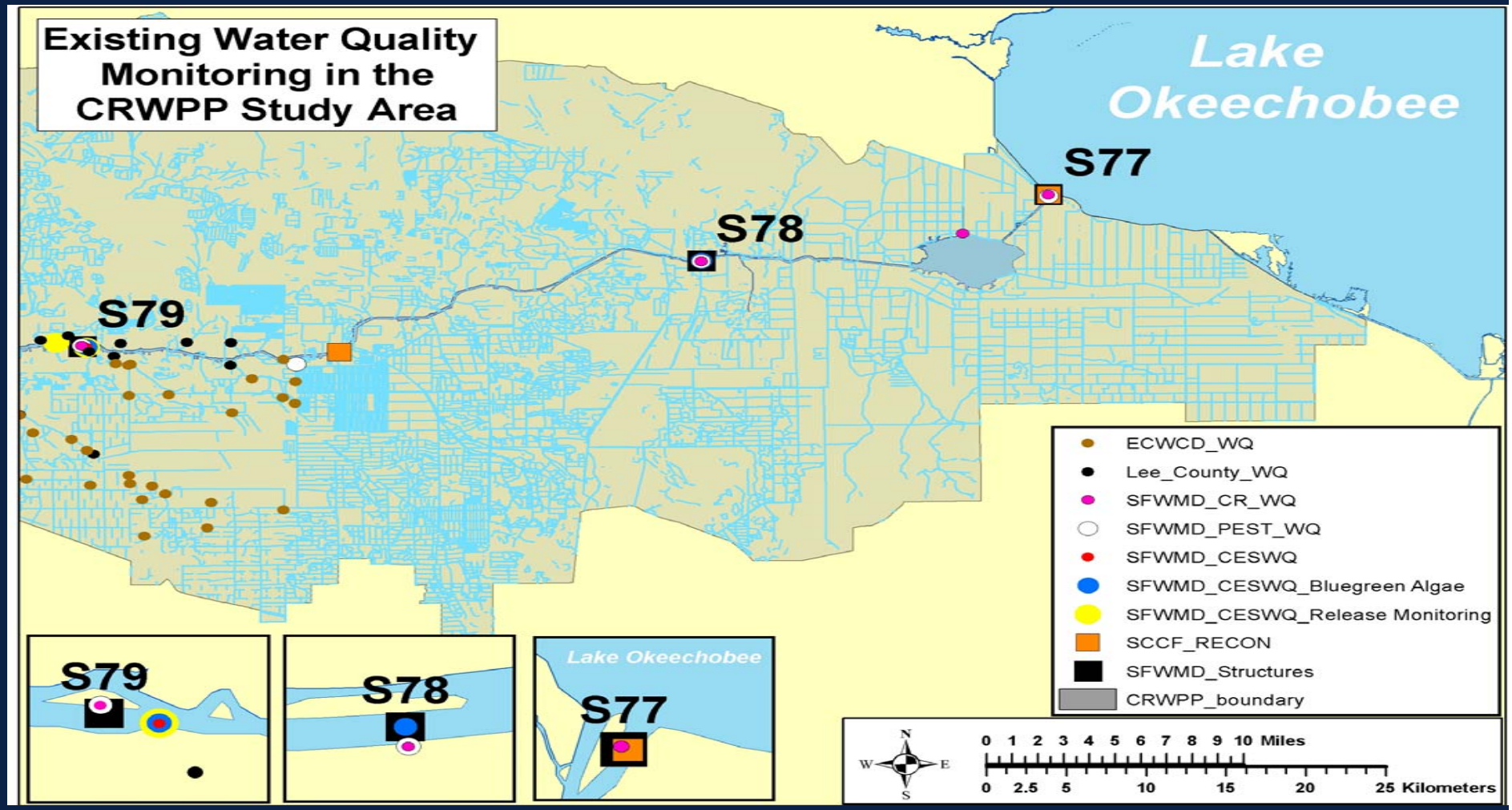
Water Quality and Flow Monitoring	**Existing monitoring is adequate to meet the objectives. Recommend continuation**
	Recommendations included to optimize the watershed network
	Additional water quality parameters are also recommended: Dissolved forms of organic nitrogen, BOD5 and TOC
Salinity Monitoring	**Existing monitoring is adequate to meet the objectives. Recommend continuation**
Aquatic Habitat Monitoring (Oysters and SAV)	**Existing programs are sufficient to detect trends and assess status of seagrass and oysters. Recommend continuation**

Caloosahatchee Existing Water Quality/Flow Monitoring Program – East of S79

East of S79

- Watershed (at Structures) - 4 fixed District CR stations
- Tributary - 6 fixed Lee County tributary stations (close to S79 within Lee County boundary)
- District PEST station – 3 fixed stations (selected water quality parameters only)
- East County Control District – 25 fixed stations (selected water quality parameters only)
- SCCF/RECON – 2 in-situ sites (Actively online)

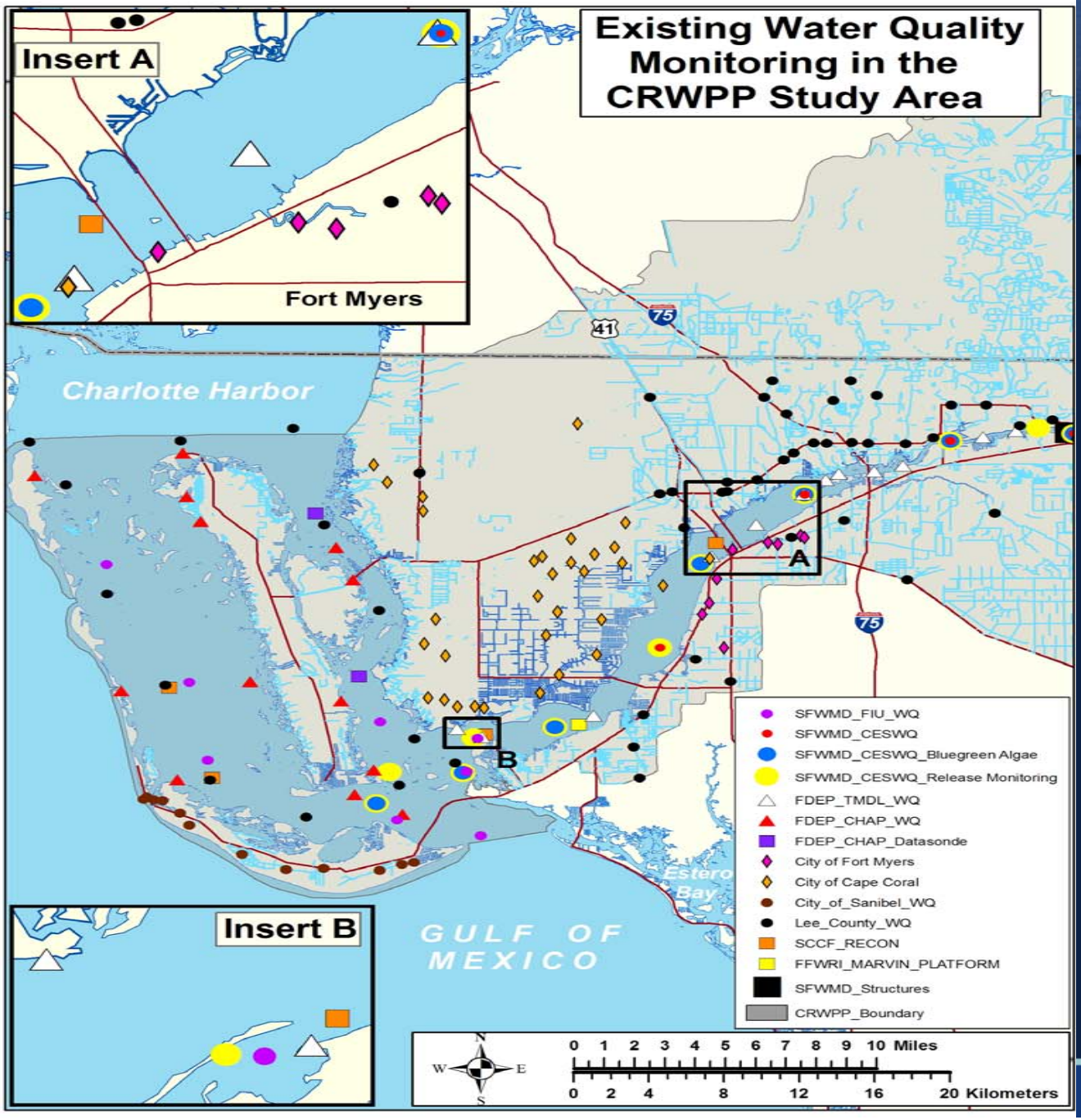
Caloosahatchee Existing Water Quality Monitoring Program – East of S79



Caloosahatchee Existing Water Quality/Flow Monitoring Program - Estuary

West of S79 - Estuary

- **District**
  - **CESWQ stations -8 fixed stations from 1999 – 2003. Reduce to 4 stations at present time.**
  - **FIU stations – 8 fixed stations from 1999 to present.**
- **CHNEP stations – 5 random sites in different regions**
- **Lee County – 14 fixed stations in Pine Island Sound & Matlacha Pass and 49 freshwater and tidal stations**
- **City of Ft. Myers – 9 tidal stations**
- **City of Cape Carol – 31 Freshwater and Saltwater Canals stations within City and 2 Caloosahatchee river stations**
- **FDEP/TMDL – 12 fixed stations (new)**
- **City of Sanibel – 12 fixed stations in Sanibel Island and Blind Pass**
- **FDEP-Charlotte Harbor Aquatic Preserve Data Sonde Program – 2 fixed sites in Matlacha Pass**
- **SCCF/RECON – 5 in-situ sites (Actively online)**



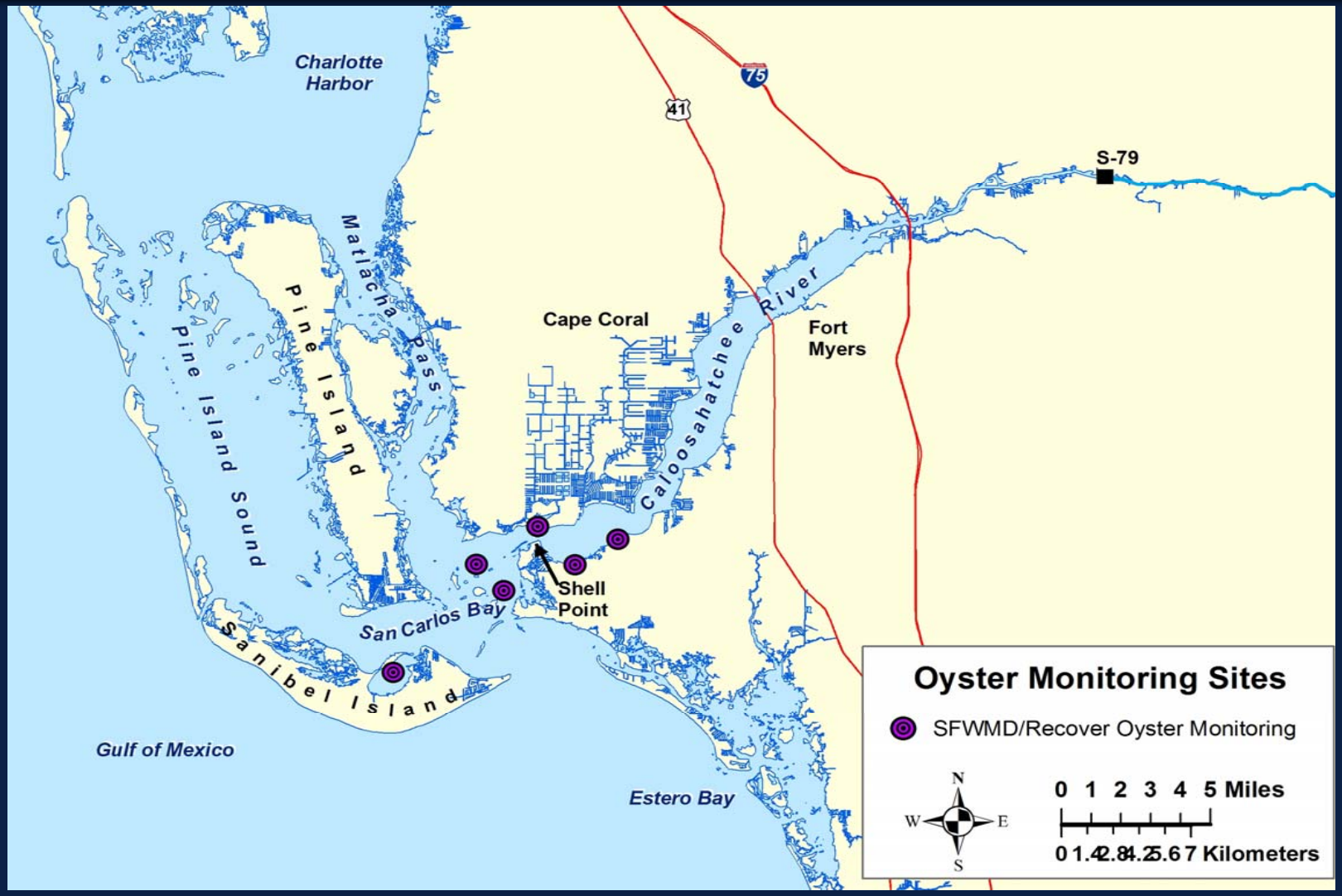
Caloosahatchee Existing Water Quality Monitoring Program - Estuary

Caloosahatchee Existing Aquatic Habitat Monitoring Inventory

- **Seagrass monitoring**
  - **Sanibel Captiva Conservation Foundation (SCCF) Marine Lab**
  - **FDEP-**
    - **South District**
    - **Charlotte harbor Aquatic Preserve (CHAP)**
    - **ESTERO Bay Aquatic Preserve (EBAP)**
  - **South Florida Water Management District (SFWMD) – Hydroacoustic and aerial photo monitoring program**

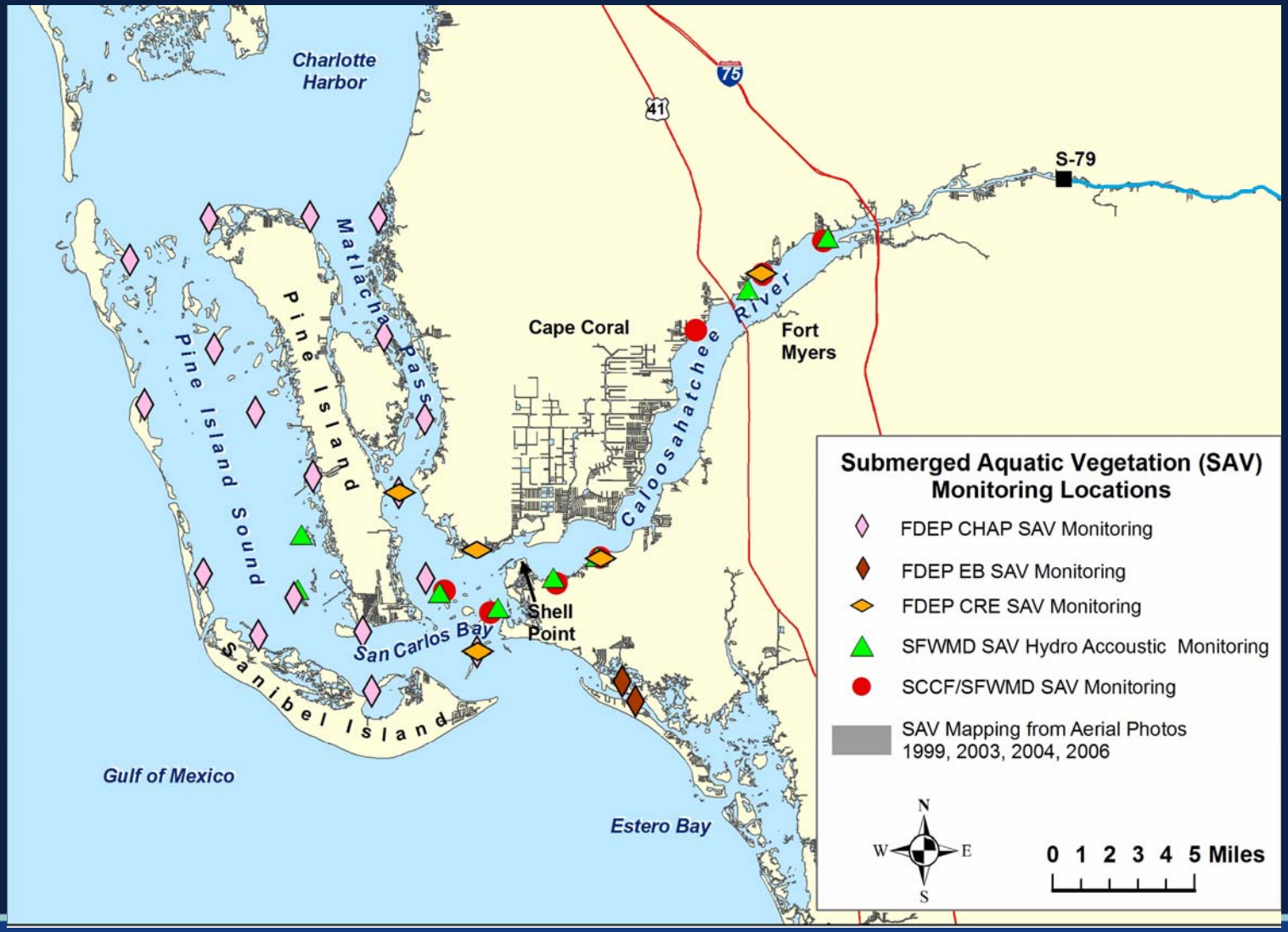
- **Oyster Distribution – District RECOVER Monthly Monitoring Program**

Caloosahatchee
Existing Oyster Monitoring Stations



Caloosahatchee Aquatic Habitat

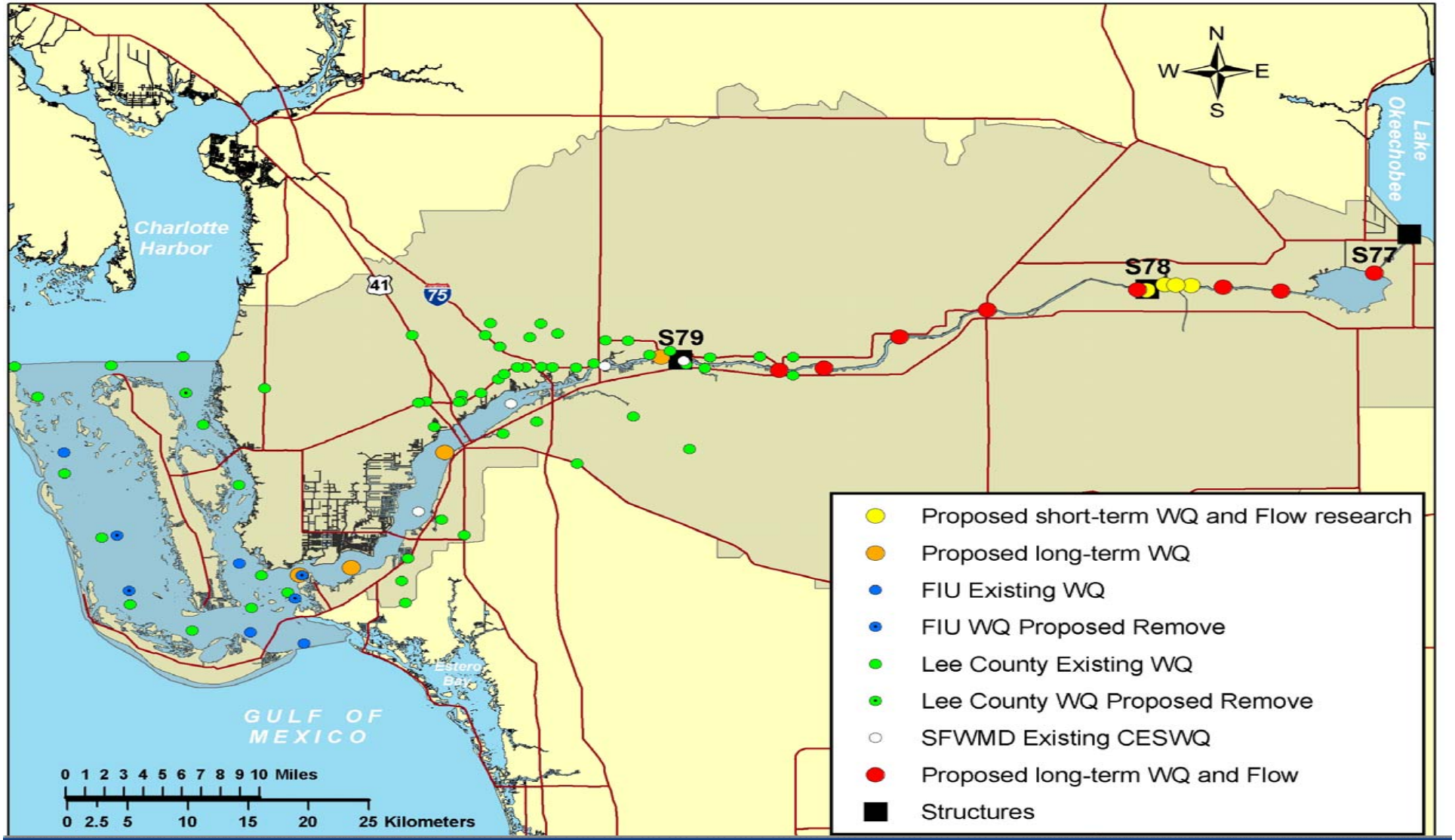
Existing SAV Monitoring Programs



Caloosahatchee Monitoring Program Assessment Summary

Water Quality and Flow Monitoring	**East of S-79-** Lack of water quality and flow monitoring: **Add eight long-term sites in the main stem of CR and four short-term sites in canal tributaries flowing into CR**
	West of S-79: Most of the estuarine portion of the study area is sufficient to assess status and trends. However spatial gaps exist: **Propose to reinstate four historic CESWQ sites and to optimize the system by removing five SFWMD/FIU existing sites and one Lee County site**
	Additional water quality parameters are also recommended: **Dissolved forms of organic nitrogen and BOD5**
Salinity Monitoring	**Existing monitoring is adequate** to meet the objectives. **Recommend continuation**
Aquatic Habitat Monitoring (Oysters and SAV)	**Existing programs are sufficient** to detect trends and assess status of seagrass and oysters. **Recommend continuation**

Caloosahatchee Water Quality Working Team Summary - Long Term Water Quality and Flow Stations



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Research Program – St. Lucie and Caloosahatchee River and Estuary

sfwmd.gov

Research Projects

Research Topics

- **Nutrient Budget**
- **Dissolved Oxygen Dynamics**
- **Low Salinity Zone- Nursery Function**
- **Light Attenuation in San Carlos Bay***
- **Integrated Modeling Framework**

*** For Caloosahatchee only**

Research

#1 Estuarine Nutrient Budget

- **Nutrient budget determines nutrient reduction approaches and evaluate and optimize project effectiveness.**
- **Terms in the nutrient budget will be determined by a variety of methods: Input, Cycling, Output.**

Research
#2 Dissolved Oxygen Dynamics

- **DO – Health Indicator**
- **Understand impacts from the pollutant loads to estuarine ecosystems.**
- **The role of internal and external factors in determining the concentration of dissolved oxygen will be examined and studied.**

Research
#3 Low Salinity Zone

- **Provide primary ecological nursery function for early life stages of economically important fish and shell fish.**
- **Provide information needed for flow and salinity envelope refinements.**
- **The effects of freshwater discharge on production of fish larvae in the low salinity zone will be examined and studied.**

Research - Caloosahatchee

#4 Light Attenuation in San Carlos Bay

- **Caloosahatchee Value Ecosystem Component – Seagrass**
- **To identify the controlling factors (Colored dissolved organic matter -CDOM, Chlorophyll/nutrient, TSS/Turbidity) and determine their relative contributions to light attenuations.**

Research
#5 Integrated Modeling Framework

- Provide needed technical support for implementation and adaptive management
- Integrated Modeling Framework
- Examine existing modeling inventory and identify data or modeling needs
  - Watershed hydrology (surface and groundwater) and water quality models
  - Estuary hydrodynamic (salinity) and water quality models
  - Estuary Ecological (Seagrass, oyster, etc.) models.
- 3 years plan and long term goal identified

Phasing and Costs

Plan Implementation Strategy

- **Multiple Phases**
  - **Phase I- projects initiated 2009-2012**
  - **Phase II- projects initiated 2013-2018**
  - **Long Term Implementation Phase- projects initiated beyond 2018**

Caloosahatchee RWPP-Phase I

		Initiated	Completed
Construction Project	Powell Creek Algal Turf Scrubber		✓
	Alternative Water Storage Facilities- Barron Water Control District		✓
	Caloosahatchee Area Lakes Restoration (Lake Hicpochee)	✓	
	C-43 Water Quality Treatment Demonstration Project (BOMA)	✓	
	Spanish Creek/Four Corners Environmental Restoration Phase I	✓	
	C-43 West Reservoir	✓	
	Local-Stormwater Projects (e.g., treatment wetlands, conveyance and structural improvements, and stormwater recovery projects)	✓	✓
	Florida Ranchlands and Environmental Services Projects	✓	
	Farm and Ranchland Protection Program	✓	

St. Lucie RWPP- Phase I

		Initiated	Completed
Construction Project	Alternative Water Storage Facilities- Indiantown Citrus Growers Association Phase I and II		✓
	Florida Ranchlands and Environmental Services Projects (Alderman-Deloney complete)	✓	✓
	CERP-IRL South: C-44 Reservoir/STA	✓	
	CERP-IRL South: Allapattah Complex- Natural Storage and Water Quality Area	✓	
	Alternative Water Storage Facilities-Indiantown Citrus Growers Association- Phase III, Dupuis, Waste Management St Lucie Site, Caulkins	✓	
	Hybrid Wetland Treatment Technology Pilot Project	✓	
	Local-Stormwater Projects (e.g., retention/detention ponds, treatment wetlands, conveyance and structural improvements)	✓	✓
	Local-Wastewater Projects (e.g., sludge disposal management, sewage treatment and disposal systems)		✓
	Local- Habitat Restoration (e.g., muck removal, oyster balls)	✓	✓
	Florida Ranchlands and Environmental Services Projects	✓	
	Farm and Ranchland Protection Program	✓	

Cost Categories

- **Non-CERP Cost**
  - **Costs to be paid from State, SFWMD, and/or local sources**
- **CERP Cost**
  - **State CERP costs are eligible for 50 percent cost share with the federal government; may also include local cost share**
- **Local Cost**
  - **Costs that will be covered entirely by local government or may be cost shared with local government and State or SFWMD sources**
  - **$5M per River Watershed per year was used for Phase I estimates (covers local projects and Alternative Water Storage Facilities)**

Caloosahatchee RWPP-Phase I Costs

		CERP	Non-CERP	Local
Construction Project		$524-781M	$117-175M	$15M[a]
Pollutant Control Program	Agricultural		$3.3-4.0M[b]	
	Urban		$663-809M[c]	
Research and Water Quality Monitoring			$5.2M[d]	

[a] $15M reflects state's contribution

[b] Assumes 50% state contribution for capital costs only; all BMPs implemented by 2015

[c] Includes total capital costs

- No cost share assumptions included, but most costs will be borne by local and state programs and only a fraction of these costs will likely be borne by RWPPs
- No phasing assumptions included

[d] Reflects additional monitoring not ongoing monitoring

St. Lucie RWPP- Phase I Costs

		CERP	Non-CERP	Local
Construction Project		$504-694M		$15M[a]
Pollutant Control Program	Agricultural		$1.64-2.0M[b]	
	Urban		$393-479M[c]	
Research and Water Quality Monitoring			$2.7M[d]	

[a] $15M reflects state's contribution

[b] Assumes 50% state contribution for capital costs only; all BMPs implemented by 2015

[c] Includes total capital costs

- No cost share assumptions included, but most costs will be borne by local and state programs and only a fraction of these costs will likely be borne by RWPPs
- No phasing assumptions included

[d] Reflects additional monitoring not ongoing monitoring

Plan Refinement

- Process Development and Engineering
  - Model Refinement
  - Technology Refinement
  - Innovative Nutrient Control Technology
  - Sub-watershed Conceptual Planning
- Annual Progress Reports
- Plan Updates- required every 3 years

Accessing Drafts Plans and Providing Comments

- **Caloosahatchee and St. Lucie River Watershed Protection Draft Plans are available online between Oct 1 and Oct 31 at https://my.sfwmd.gov/northerneverglades**
- **Public comments can be submitted via**
  - **Website (web board)**
  - **US Mail to-**
    - **For CRWPP: Janet Starnes, c/o SFWMD, Lower West Coast Regional Service Center, 2301 McGregor Boulevard, Fort Myers, FL 33901**
    - **For SLRWPP: Mike Voich, c/o SFWMD, MS 7640 3301 Gun Club Road, West Palm Beach, FL 33406**
- **If possible, please submit comments with Chapter and Line Number reference**

https://my.sfwmd.gov/northerneverglades

Questions?