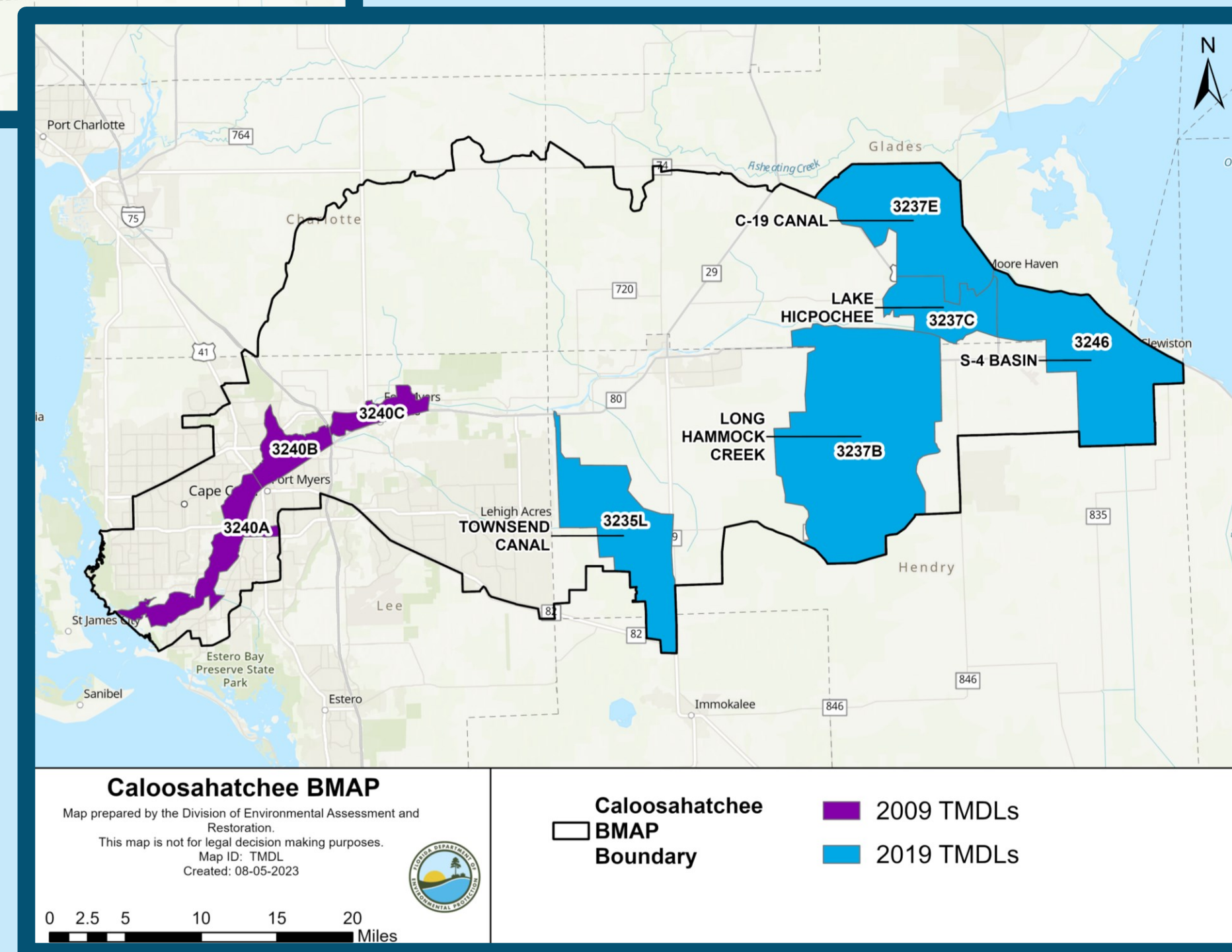


CALOOSA HATCHEE RIVER AND ESTUARY BASIN MANAGEMENT ACTION PLAN (BMAP) WATER QUALITY ANALYSES

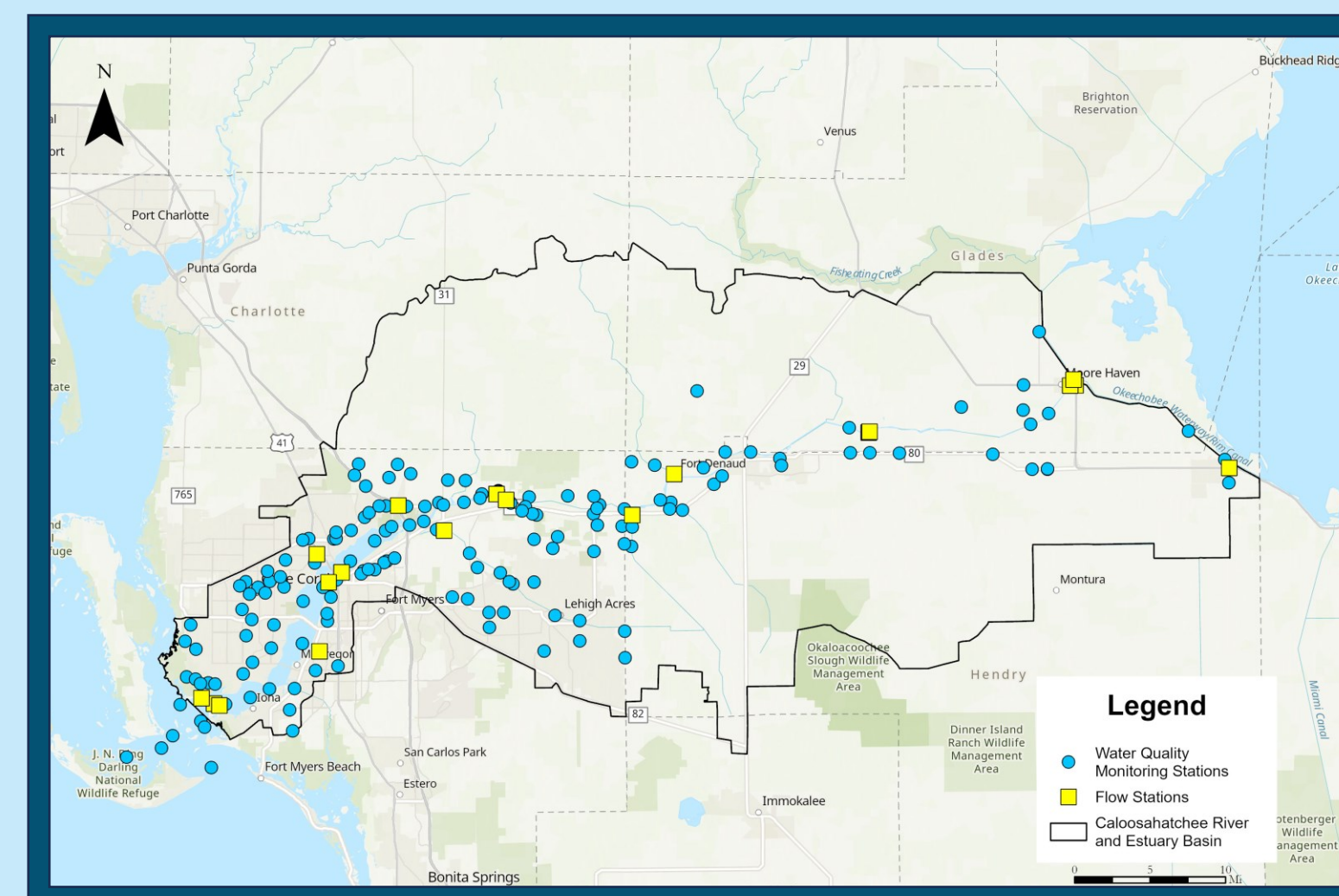
BMAP Background

- Covers six total maximum daily loads (TMDLs).
- Estuary TMDL is for total nitrogen (TN).
- Tributaries have TN and total phosphorus (TP) TMDLs.

Original BMAP adopted in 2012 covered only the tidal subwatershed.



Water Quality Monitoring Network



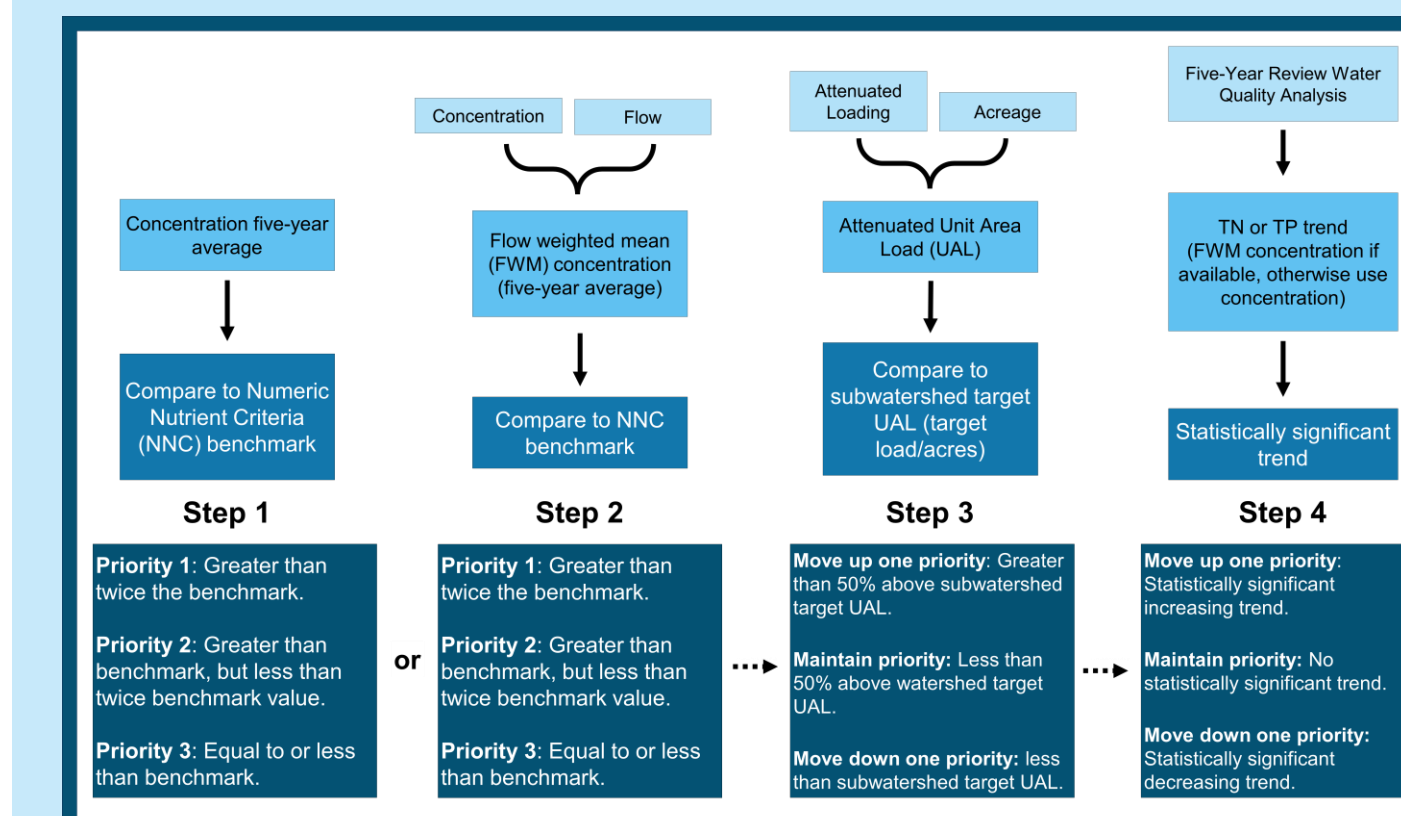
Water Quality Parameters Monitored	
Alkalinity	Nitrate-Nitrite (N)
Ammonia (N)	Total Kjeldahl Nitrogen (TKN)
Biological Oxygen Demand (BOD)	Total Nitrogen (TN)
Organic Carbon	Orthophosphate (P)
Total Carbon	pH
Chlorophyll-a	Total Phosphorus (TP)
Color	Specific Conductance/Salinity
Dissolved Oxygen	Temperature
Dissolved Oxygen (Saturation)	Total Suspended Solids
Flow	Turbidity

Water quality is monitored at 62 stations throughout the watershed.

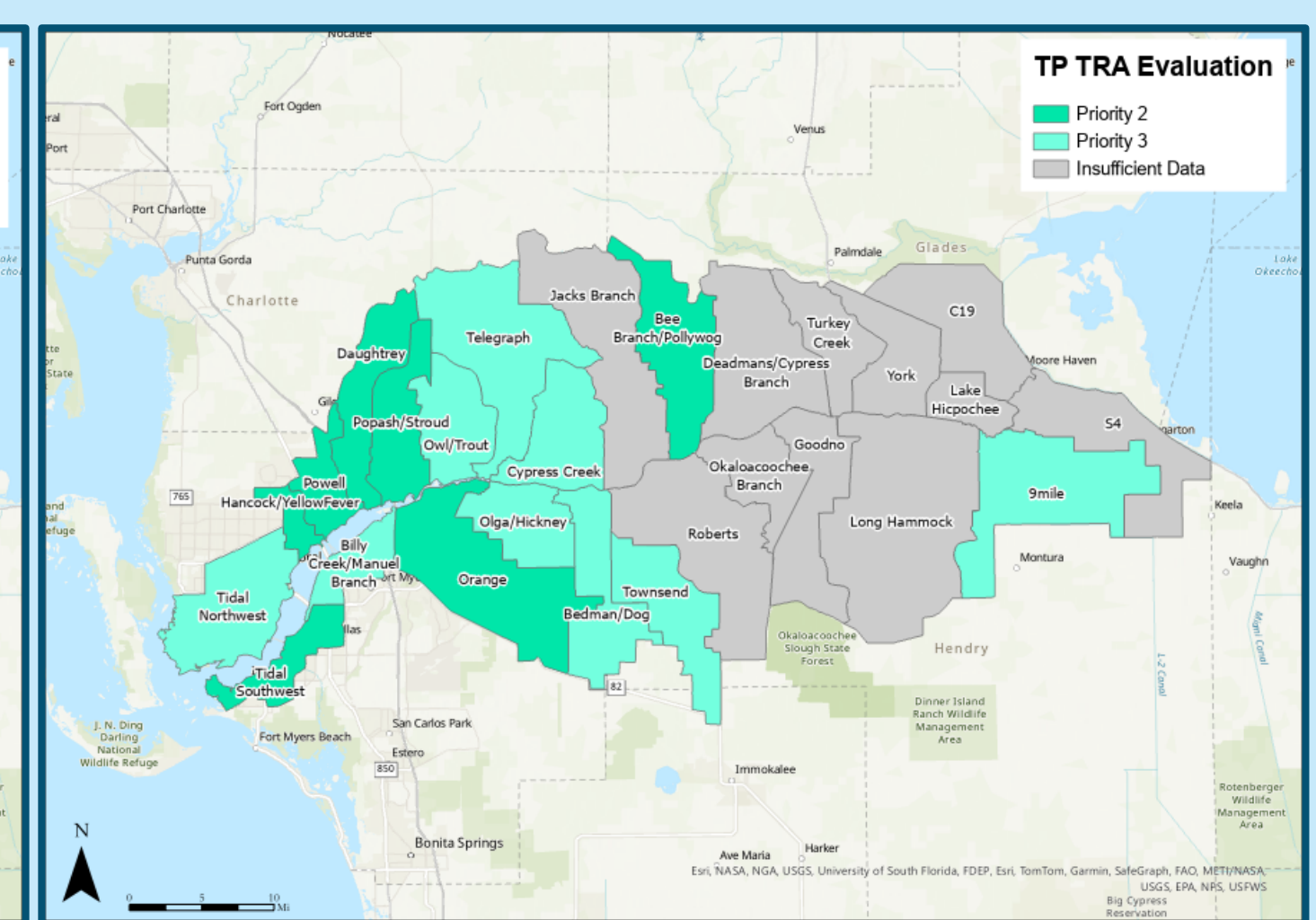
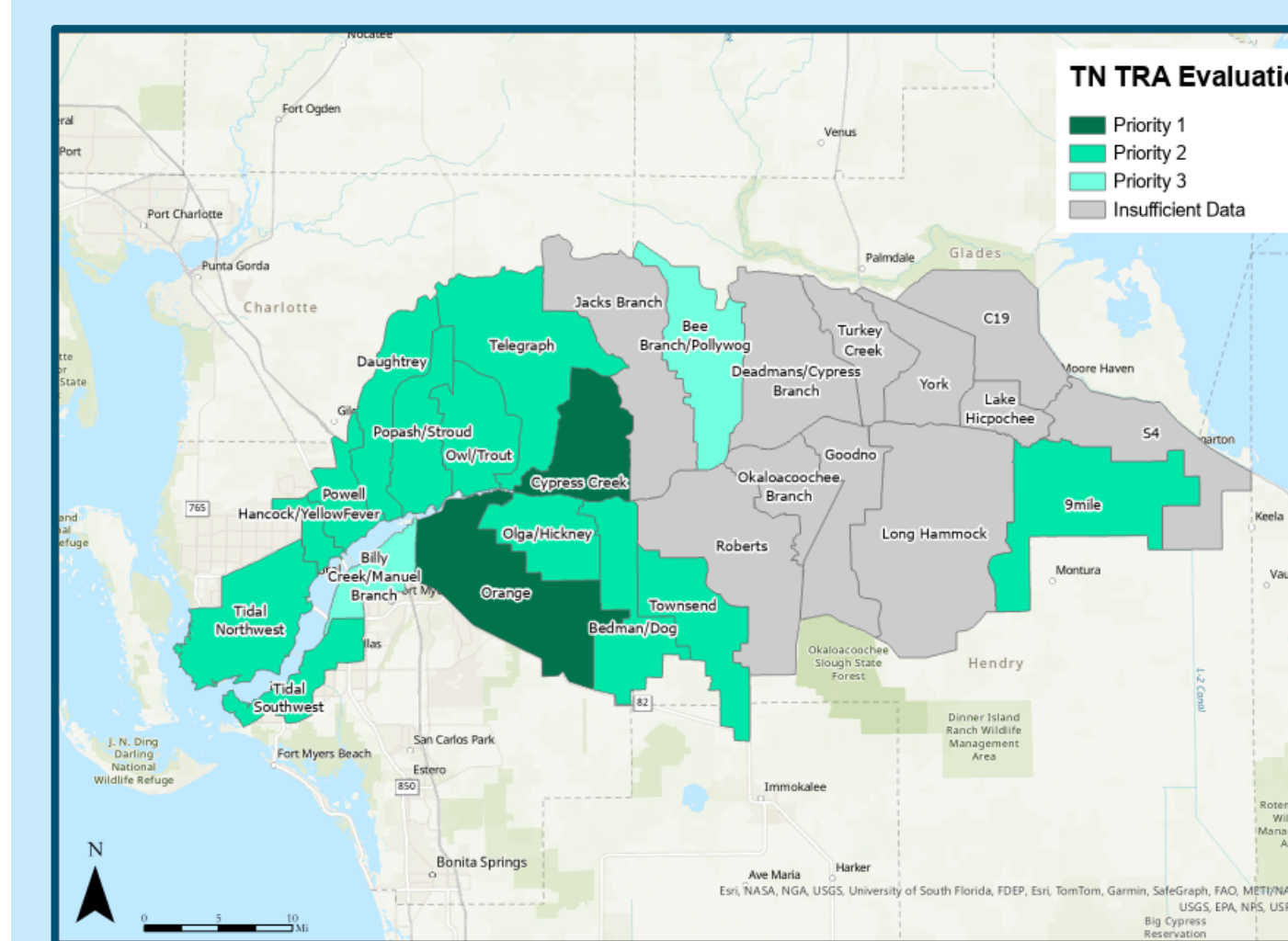
Water Quality Trend Analyses

Seasonal Kendall trend analysis investigates trends in TN and TP concentrations for the basins and for the BMAP monitoring network stations.

Targeted Restoration Area Evaluation

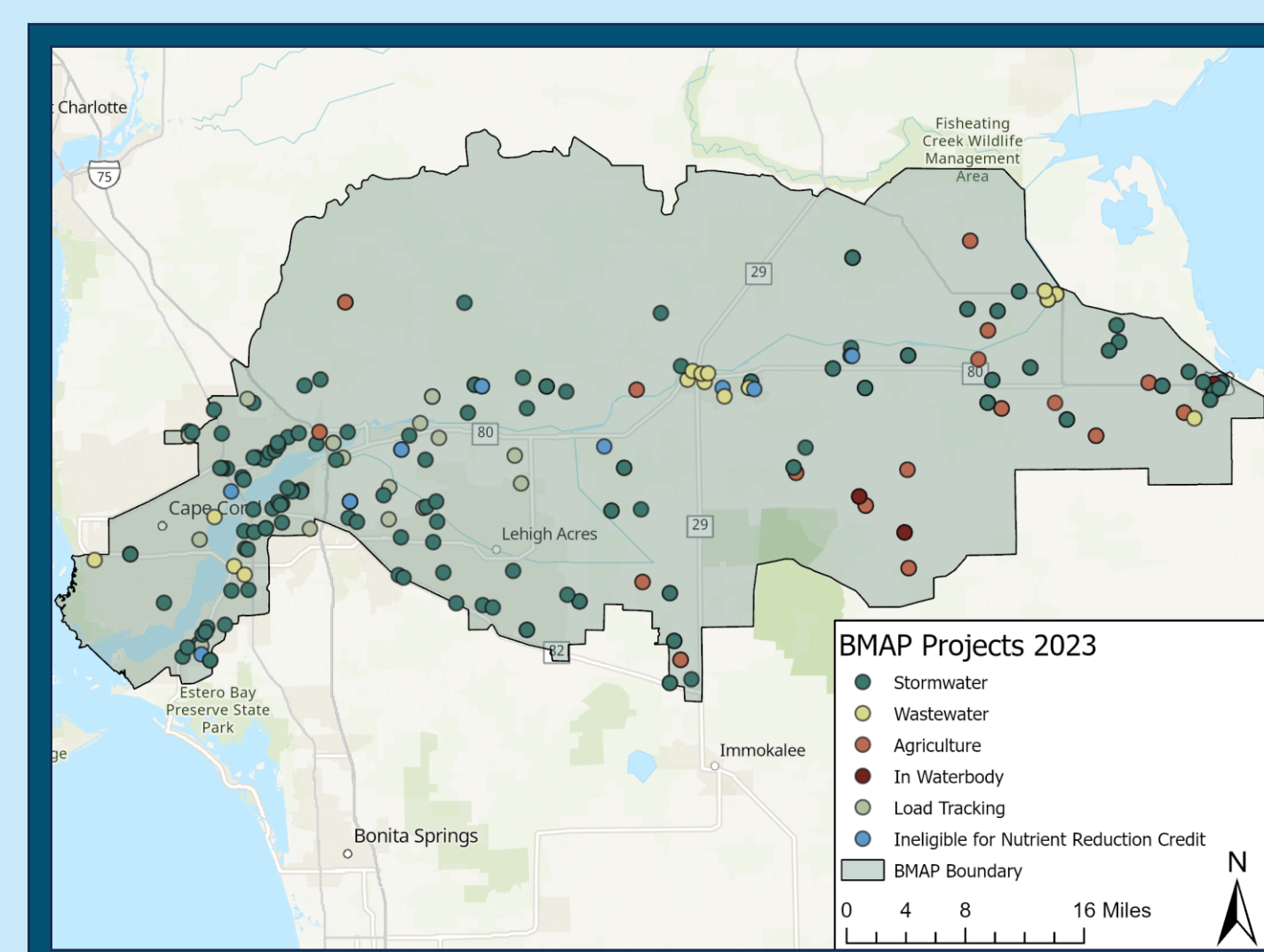


Targeted Restoration Areas (TRA) sequentially compare four parameters to determine priority basins for restoration projects.

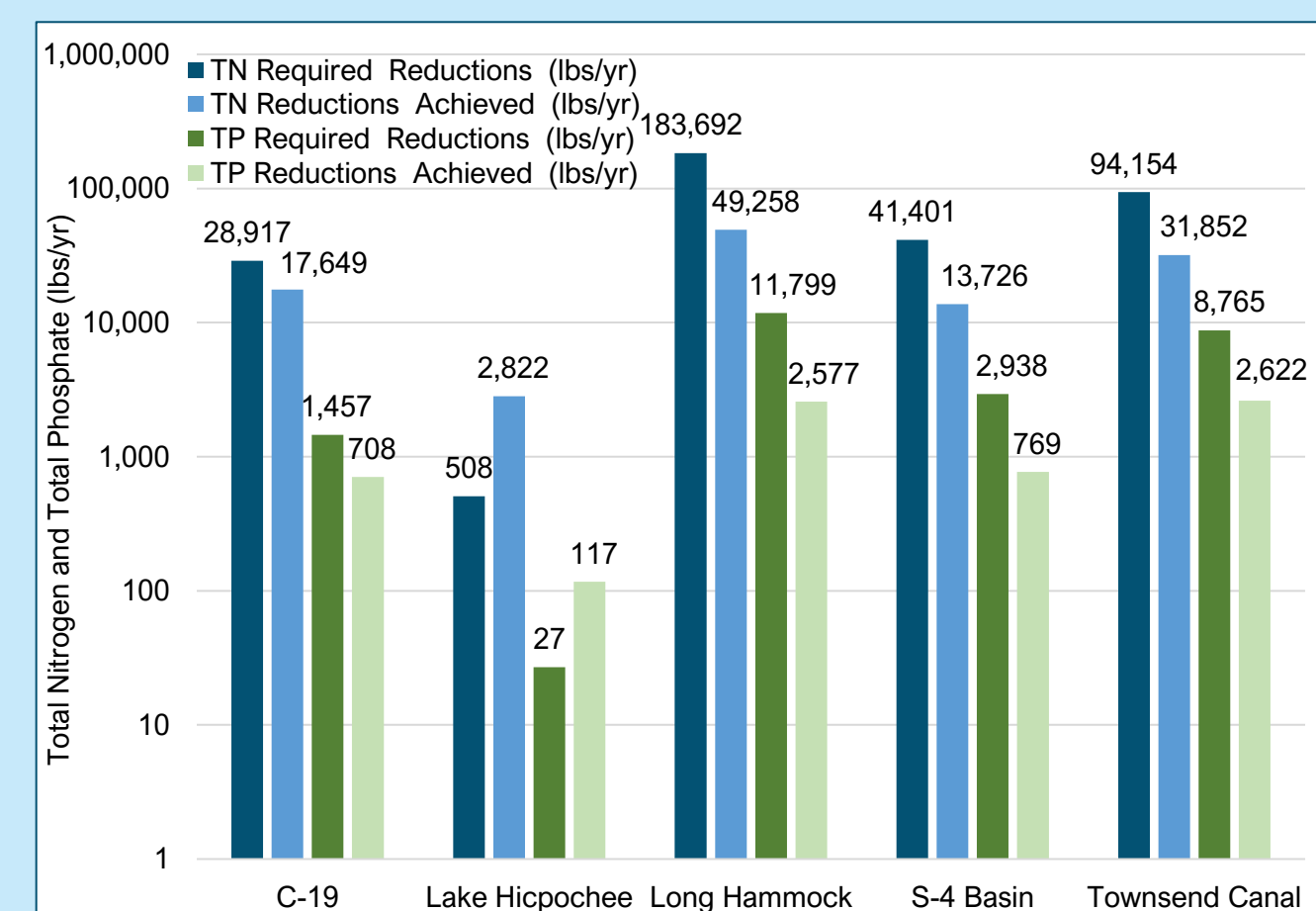
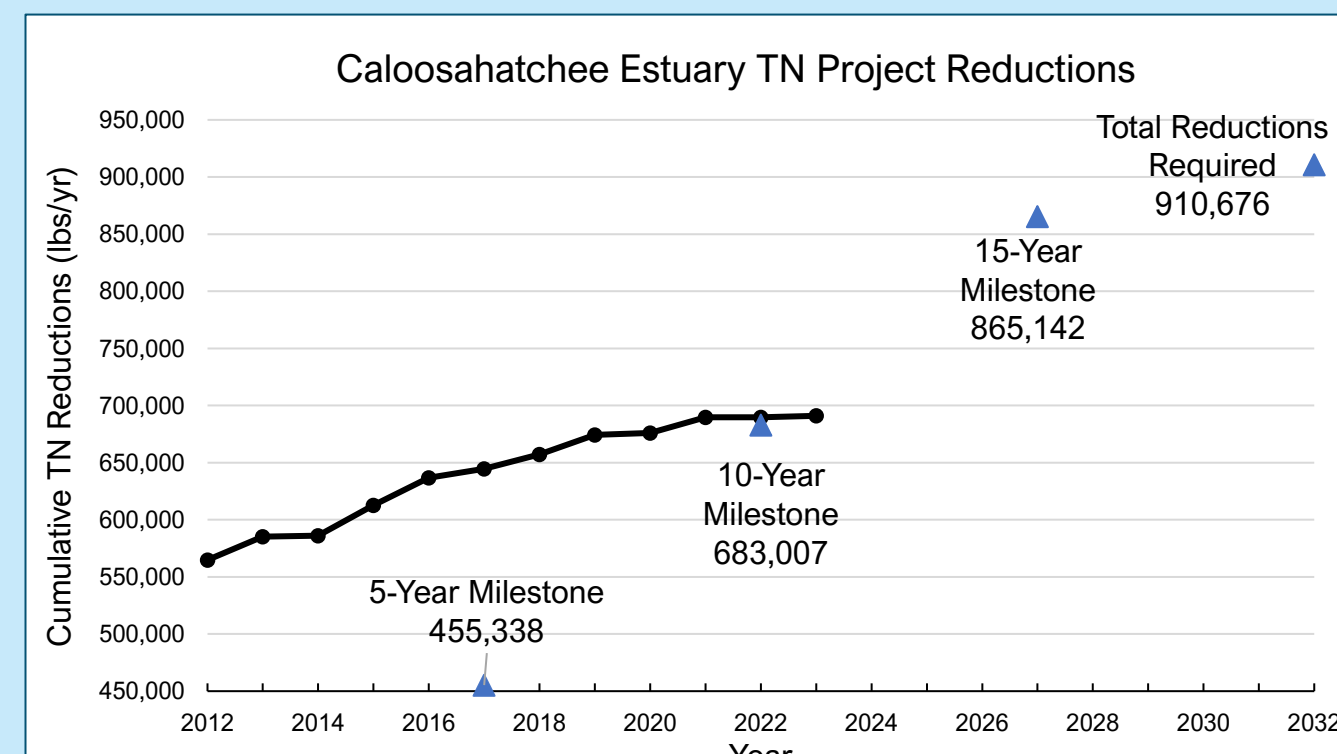


Statewide Annual Report (STAR) 2023

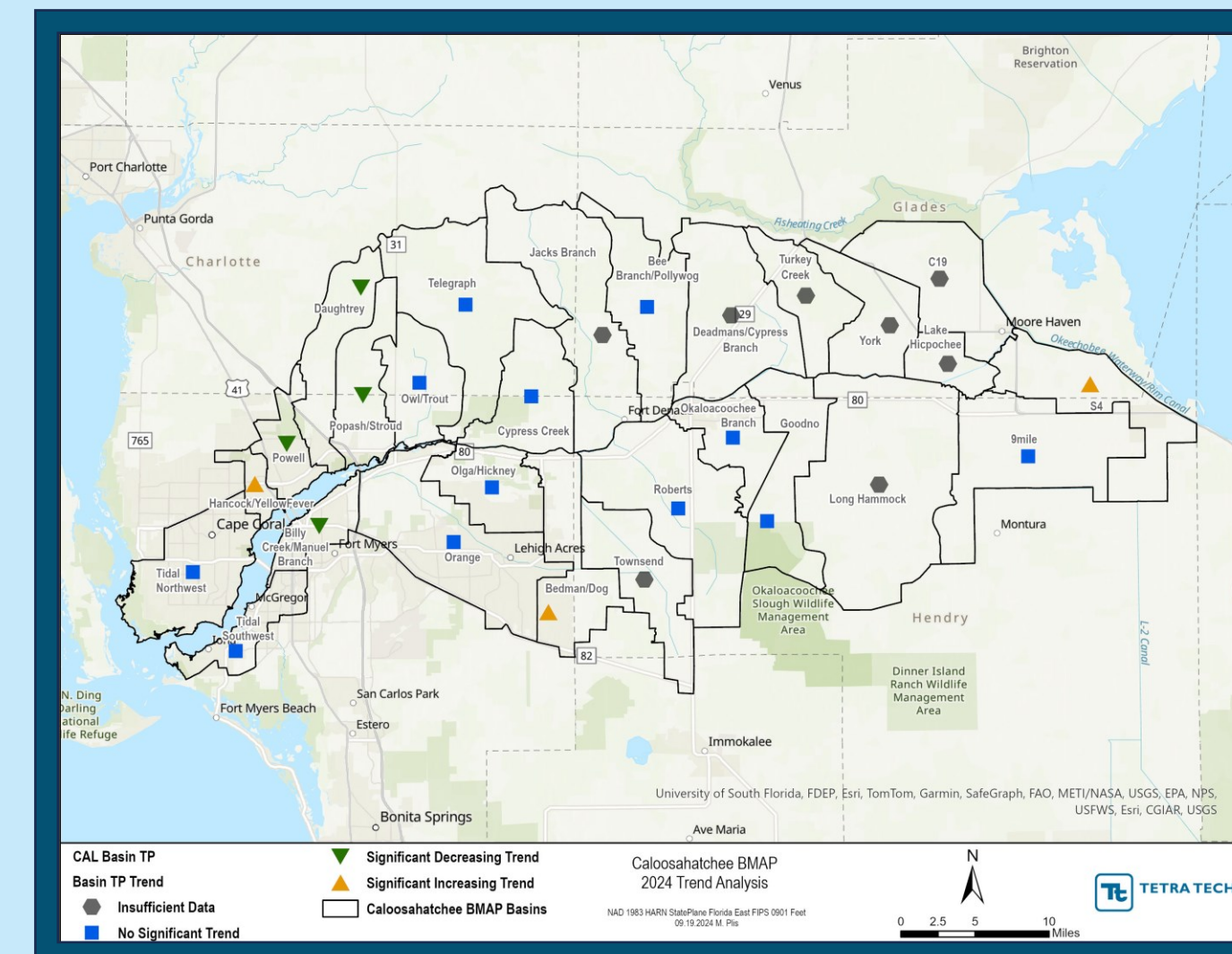
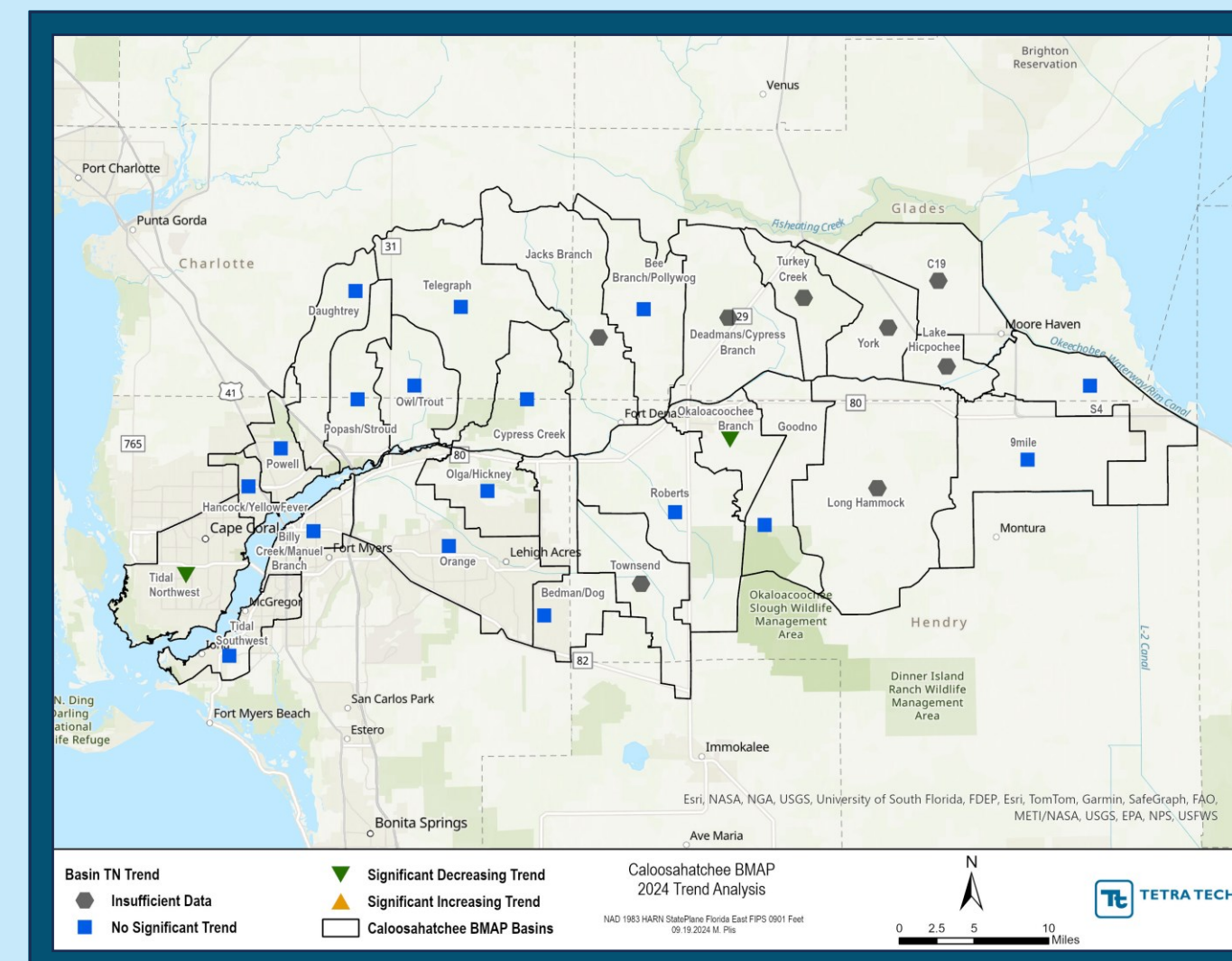
Lead Entity	Completed	Ongoing	Planned	Underway
Barron WCD	1	1	3	
Charlotte County	14	3	1	1
City of Cape Coral	3	3		
City of Clewiston	11	2	3	1
City of Fort Myers				5
City of LaBelle	1		1	
City of Moore Haven	1	1		
Clewiston Drainage District	1	1	3	
Collins Slough WCD	1	1	3	
County Line Drainage District	1	1		3
Cow Slough WCD	1	1	3	
Devil's Garden WCD	1	1	3	
Diston Island Conservancy District	1	1	3	
FDACS	29	2		
FDOT District 1	1	1	3	
Flagler Drainage District	1	1		
Gerber Groves WCD	1	1	3	
Glades County	2			2
Hendry County	1	4		3
Hendry-Hilliard WCD	1	1	3	
LA-MSD (formerly ECWCD)	15	1	1	1
Lee County	44	2	4	1
Lucaya CDD	2			
Mirada CDD	2			
Port LaBelle CDD			1	
Portico CDD	3	1		
SPWMD - Coordinating Agency	3		3	2
Sugarland Drainage District	1	1	3	
Verandah East CDD		1		
Verandah West CDD		1		



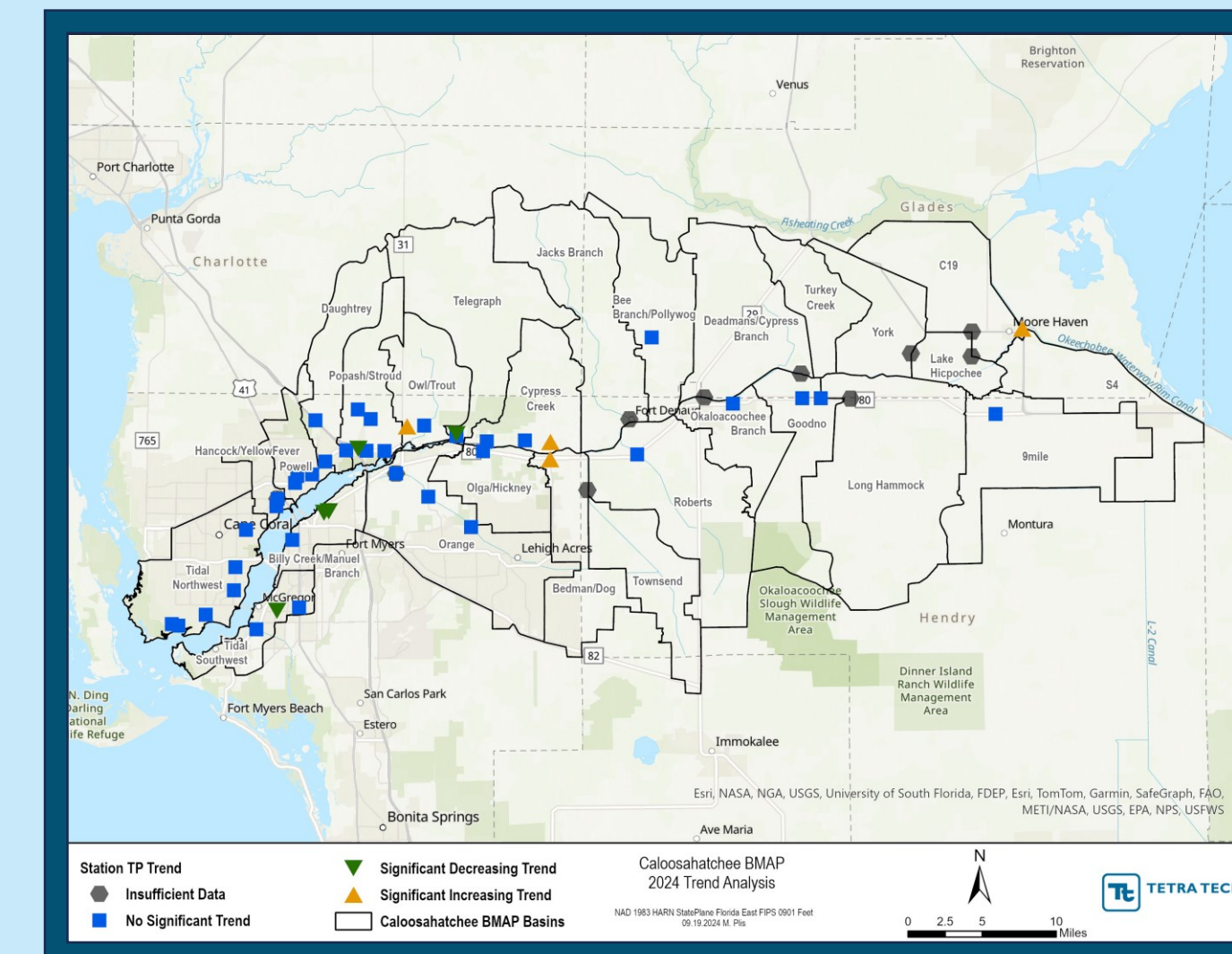
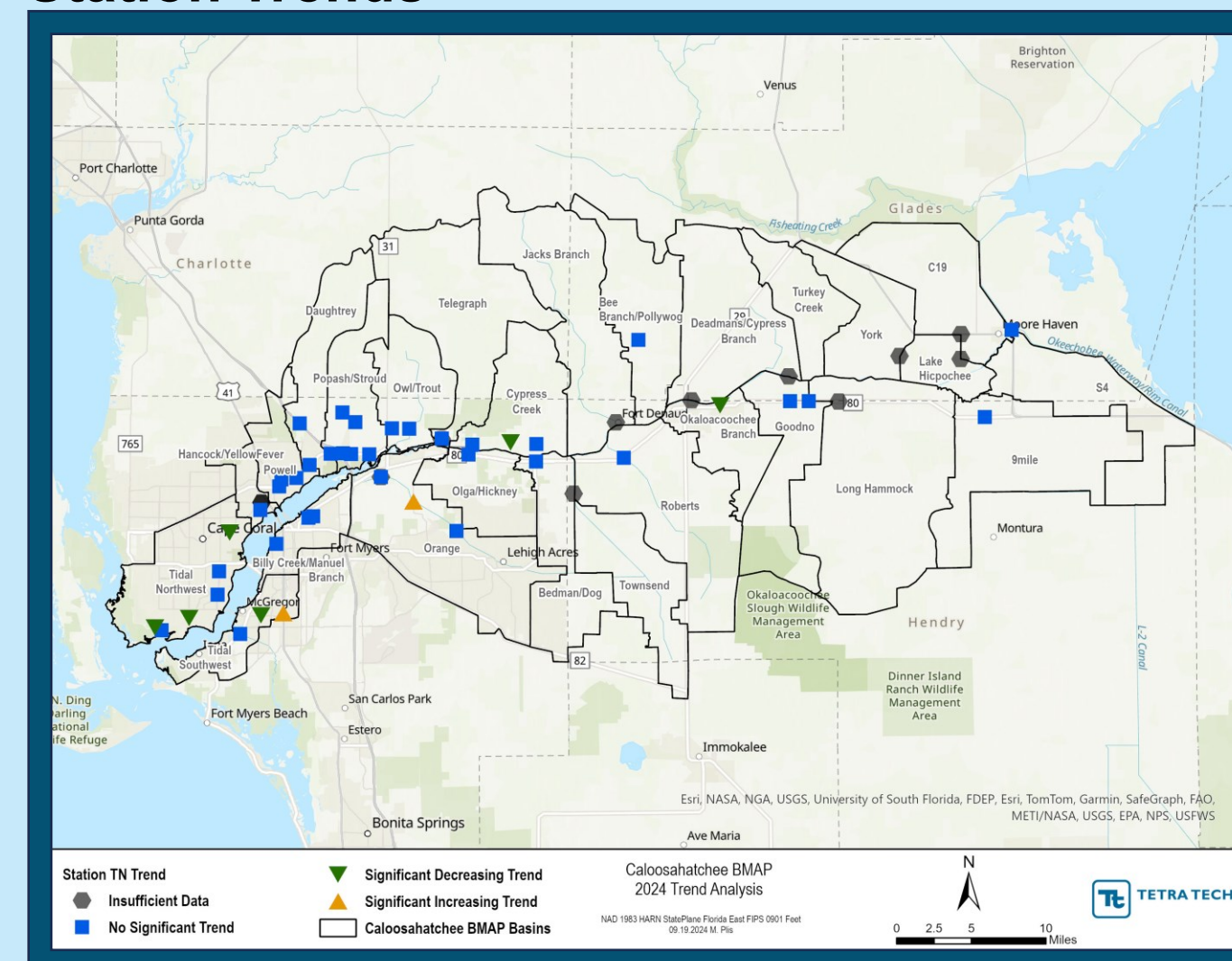
More recent tributary projects have begun to address TN and TP loading in the East and West Caloosahatchee subwatersheds.



Basin Trends

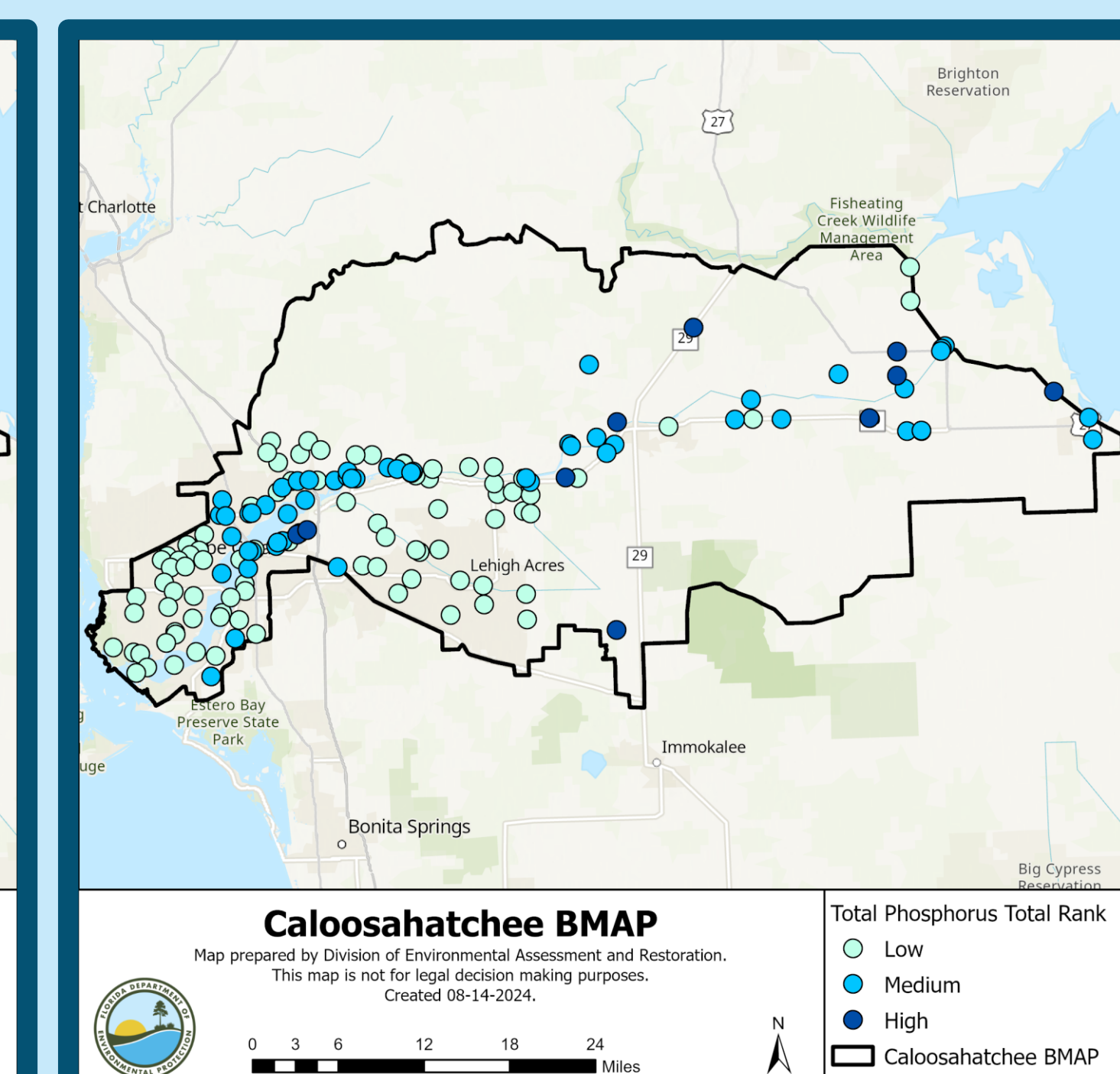
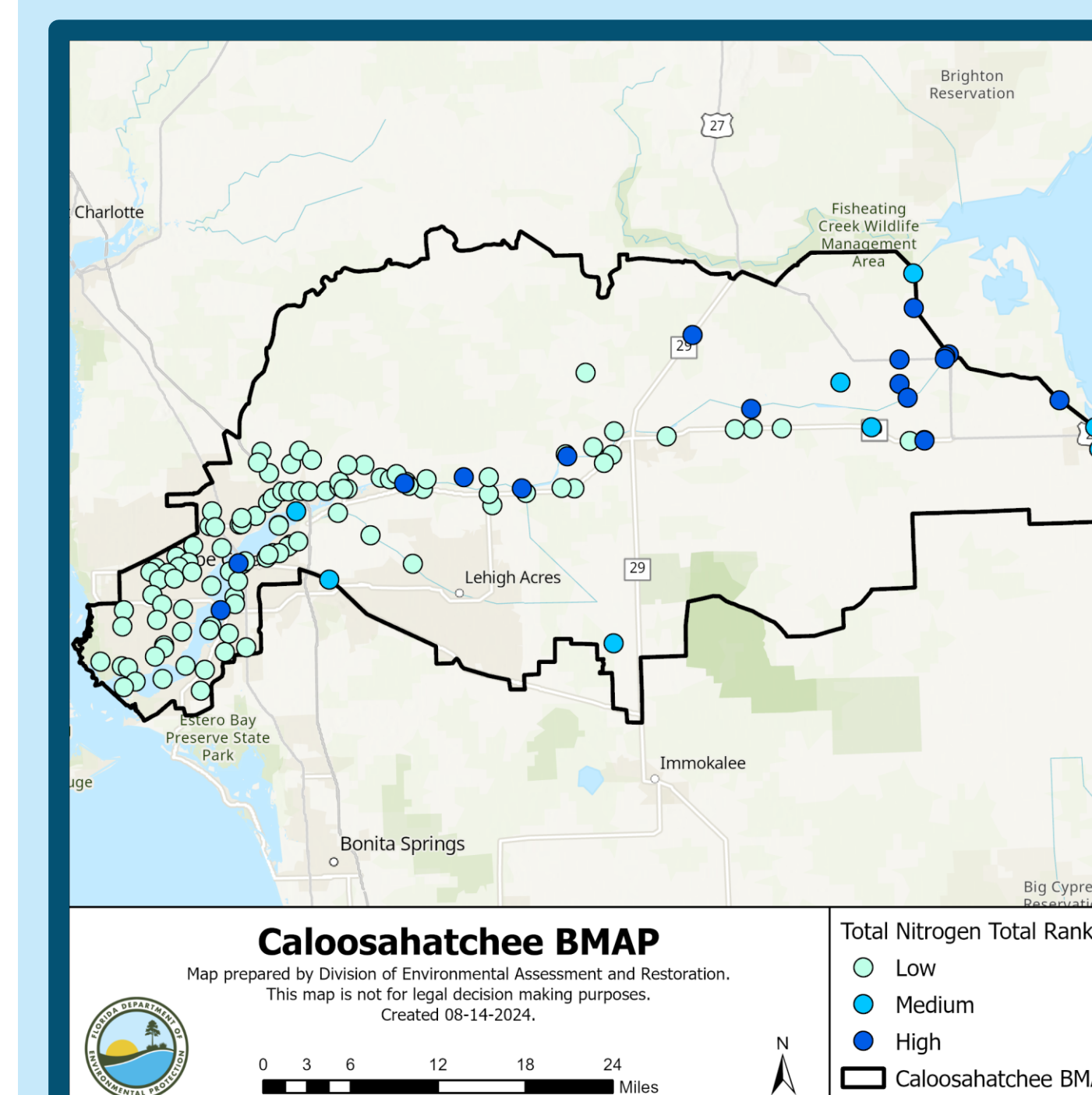
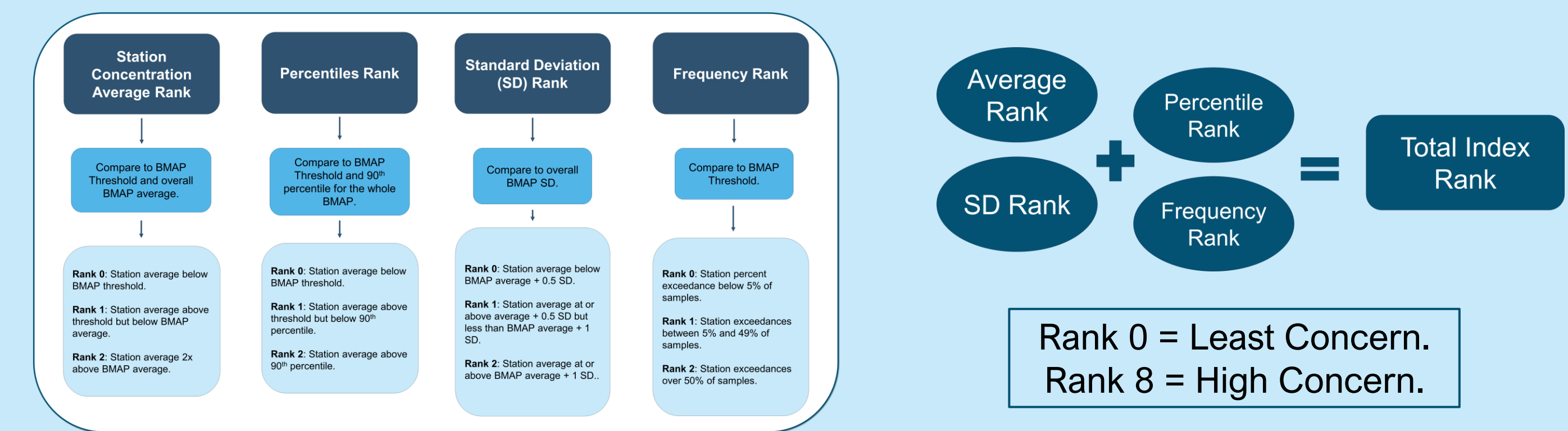


Station Trends



Hot Spot Analysis

Analysis method for prioritization at a more local scale than the TRA analysis.



CALOOSA HATCHEE RIVER AND ESTUARY BASIN MANAGEMENT ACTION PLAN (BMAP)

REQUIRED REDUCTIONS AND MILESTONES

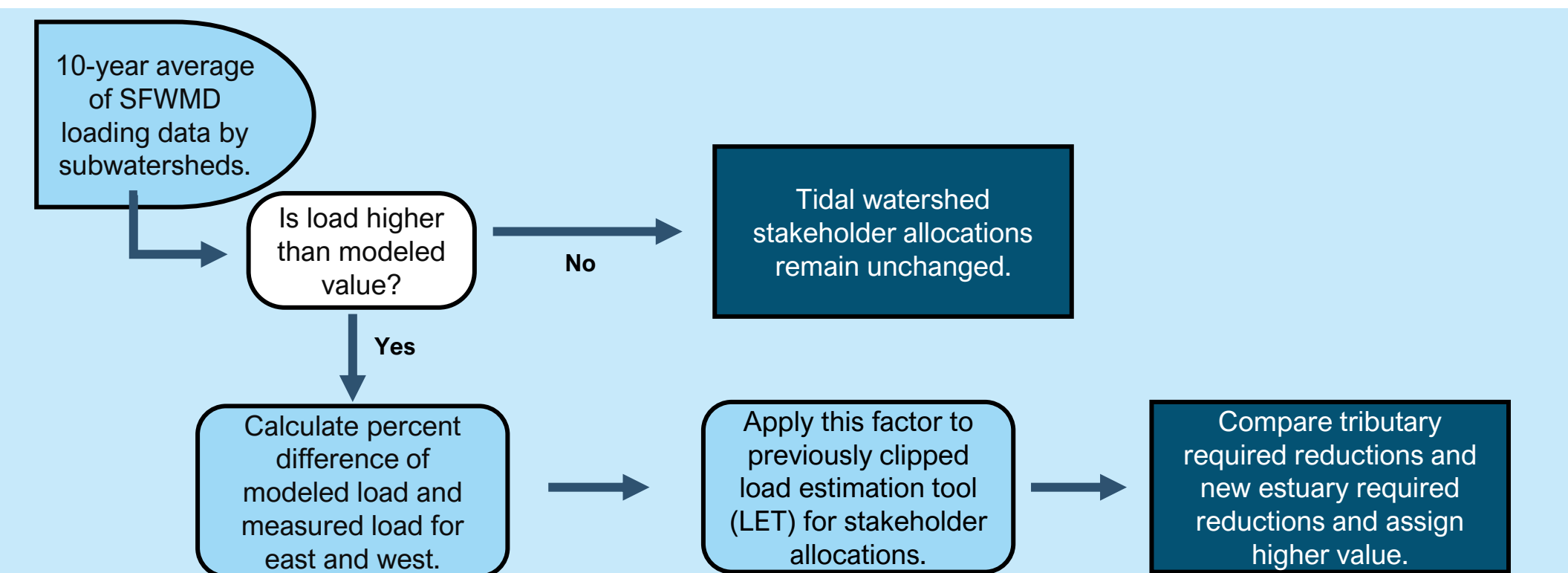
Projects

Responsible entities are required to identify, plan, complete and report on projects that reduce the loading of nitrogen from sources.

The basin wide reductions are assessed by source and then allocated to responsible entities.

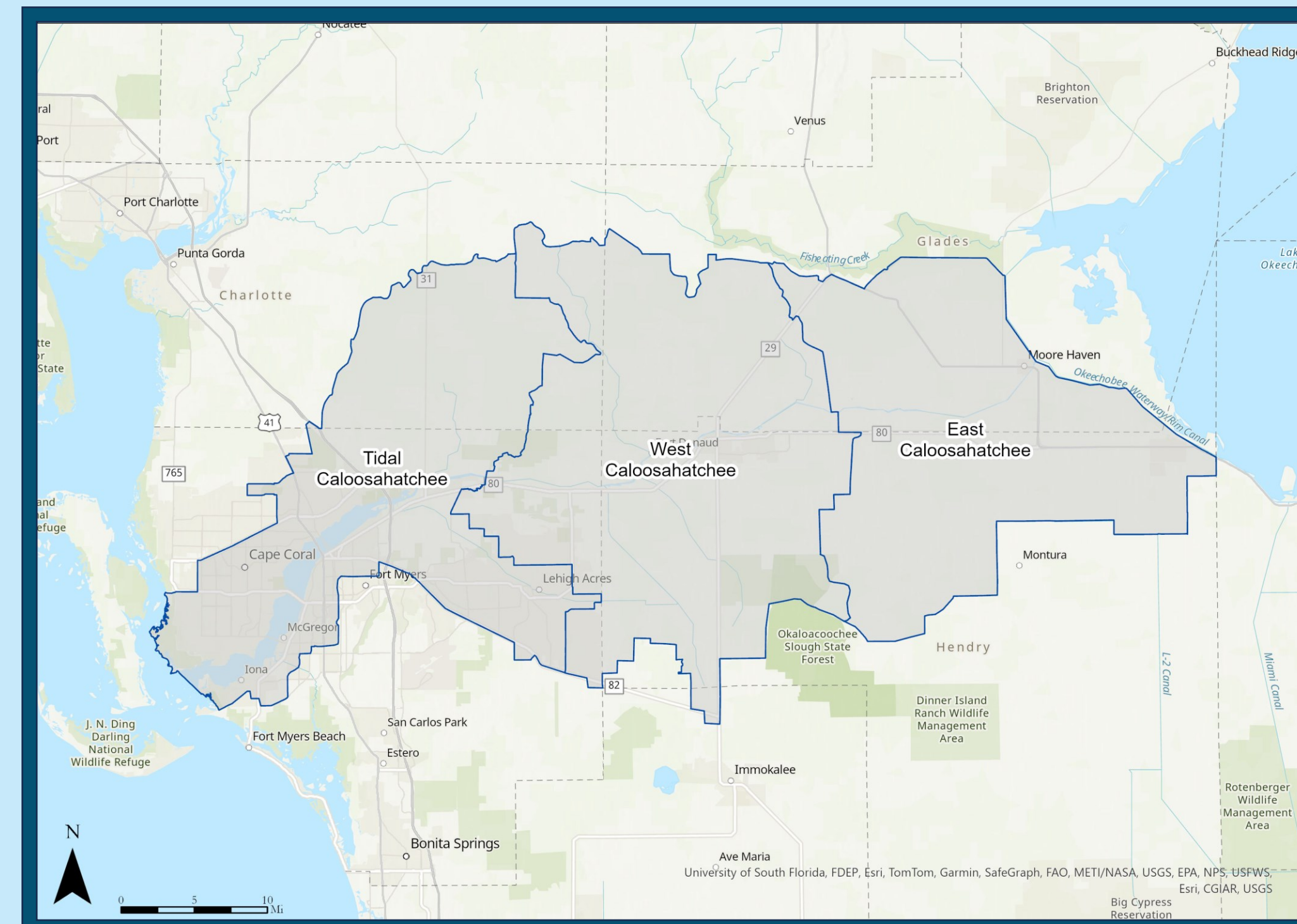
Project collection and reporting are crucial to the successful implementation and management of BMAPs. Projects are reported to the Florida Department of Environmental Protection (DEP) annually through the BMAP Project Collection Portal. Project lists with associated reductions are published in the Statewide Annual Report (STAR).

Required Reductions Update



Subwatershed	BMAP TN Start Load (lbs./yr.)	TN Required Reduction (lbs./yr.)	10-Year Average Water Year 2013-22 (lbs./yr.)	Percent Increase
East Caloosahatchee	1,008,818	232,028	1,329,467	31.78%
Tidal Caloosahatchee	1,200,195	276,045	1,137,632	▼ 5.21%
West Caloosahatchee	1,750,448	402,603	2,457,362	40.38%
Total	3,959,461	910,676	4,924,461	24.37%

Allowable Load = 3,048,785 lbs/yr TN.
New required reductions: ~1,938,241 lbs/yr TN.

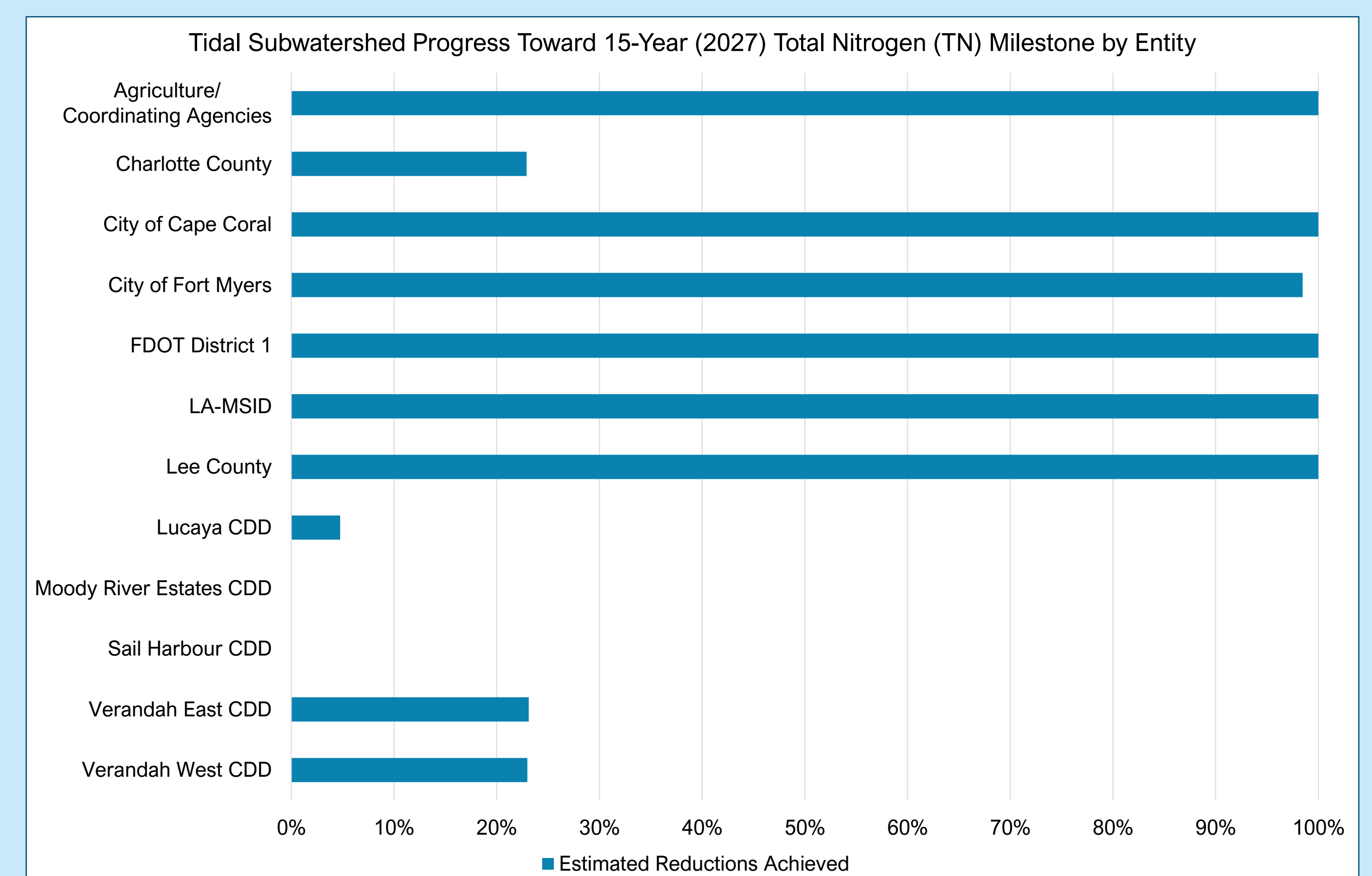


Upcoming Milestones

Responsible entities are required to provide lists of projects that demonstrate how they plan to achieve their required reductions for the next five-year milestone.

It is important that all projects needed to achieve milestone targets are included in the STAR, even if a funding mechanism is not currently identified, as this information gives the State an understanding of the support necessary to achieve BMAP goals and assists with the prioritization of projects.

Estimated reductions in the progress chart below reflect projects entered through December 2023.



BMAP Management Strategies

Nutrient reduction credits can be earned through implementing projects addressing sources of nutrients. Reduction milestones must be met to ensure sufficient progress towards meeting the total maximum daily load (TMDL) target.

Source-Specific Management Strategies:

- Onsite Sewage Treatment and Disposal Systems:** No new installations of conventional septic systems on lots 1 acre or less.
- Wastewater Treatment Facilities:** Facilities must meet certain effluent limitations.
- Agriculture Best Management Practices (BMP) Enrollment:** This program is mandatory in BMAP areas, assumes certain efficiencies as described in the BMAP.
- Other Agriculture:** Agricultural sources that are not addressed through BMP enrollment and implementation will need to be addressed through activities such as regional projects, cost-share BMPs or innovative technologies.
- Urban Stormwater:** Ordinances, education, street sweeping and structural stormwater improvements.

Entity Required Reductions

Proposed Reductions in Tidal Caloosahatchee Subwatershed

Entity	TN Existing Load (lbs/yr)	TN BMAP Allowable Load (lbs/yr)	TN Required Reduction (lbs/yr)	5-year (2017) TN Reduction Milestone (lbs/yr)	10-year (2022) TN Reduction Milestone (lbs/yr)	15-year (2027) TN Reduction Milestone (lbs/yr)	20-year (2032) TN Reduction Milestone (lbs/yr)
Agriculture	489,280	280,610	208,669	104,335	156,502	198,236	208,669
Charlotte County	21,446	15,599	5,847	2,923	4,385	5,554	5,847
City of Cape Coral	154,987	116,022	38,965	19,482	29,224	37,016	38,965
City of Fort Myers	77,536	58,043	19,493	9,747	14,620	18,518	19,493
FDOT District 1	14,351	9,253	5,098	2,549	3,824	4,843	5,098
LA-MSID	98,214	63,498	34,716	17,358	26,037	32,981	34,716
Lee County	222,451	162,892	59,559	29,780	44,670	56,581	59,559
Lucaya CDD	350	262	88	44	66	84	88
Moody River Estates CDD	1,687	1,263	424	212	318	403	424
Sail Harbour CDD	505	378	127	64	95	121	127
Verandah East CDD	2,119	1,586	533	266	400	506	533
Verandah West CDD	3,279	2,455	824	412	618	783	824
Total	1,086,205	711,862	374,343	187,172	280,758	355,626	374,343

Proposed Reductions in East and West Caloosahatchee Subwatershed

Entity	TN Existing Load (lbs/yr)	TN BMAP Allowable Load (lbs/yr)	TN Required Reduction (lbs/yr)	5-year (2025) TN Reduction Milestone (lbs/yr)	10-year (2030) TN Reduction Milestone (lbs/yr)	15-year (2035) TN Reduction Milestone (lbs/yr)	20-year (2040) TN Reduction Milestone (lbs/yr)
Agriculture	3,185,129	1,826,728	1,358,401	135,840	475,441	1,018,801	1,358,401
Charlotte County	2,362	1,718	644	64	225	483	644
City of Clewiston	8,557	4,853	3,704	370	1,296	2,778	3,704
City of LaBelle	16,426	8,783	7,643	764	2,675	5,732	7,643
City of Moore Haven	2,371	1,344	1,026	103	359	770	1,026
Collier County	82	44	38	4	13	29	38
FDOT District 1	15,013	9,679	5,333	533	1,867	4,000	5,333
Glades County	38,727	21,288	17,439	1,744	6,104	13,079	17,439
Hendry County/Port LaBelle CDD	88,484	48,034	40,451	4,045	14,158	30,338	40,451
LA-MSID	89,653	57,963	31,690	3,169	11,092	23,767	31,690
Lee County	18,395	13,470	4,925	493	1,724	3,694	4,925
Portico CDD	1,686	902	785	79	275	588	785
River Hall CDD	9,334	4,991	4,343	434	1,520	3,257	4,343
Total	3,476,217	1,999,795	1,476,422	147,642	516,748	1,107,316	1,476,422

Total Phosphorus (TP) required reductions are not being updated with the 2025 update because of ongoing model updates.

Entity	C-19 Canal (lbs/yr TP)	Lake Hicpochee (lbs/yr TP)	Long Hammock (lbs/yr TP)	S-4 Basin (lbs/yr TP)	Townsend Canal (lbs/yr TP)	Total (lbs/yr TP)
Agriculture	1,276	25	11,106	1782	8,623	22,811
FDOT	48	0	57	45	82	232
City of Clewiston	N/A	N/A	N/A	316	N/A	316
Glades County	133	2	51	199	N/A	386
Hendry County/Port LaBelle CDD	N/A	N/A	585	596	54	1,235
Collier County	N/A	N/A	N/A	N/A	6	0
Total	1,457	27	11,799	2938	8,765	249,860

