Triennial Review of Florida's Water Quality Standards

Division of Environmental Assessment & Restoration

Nov. 4-7, 2019

Agenda

- Introduction
  - Purpose
  - Background on Triennial Review (TR)
  - Scope
- Topics Currently Under Consideration
  - Chapter 62-4, F.A.C.
  - Chapter 62-302, F.A.C.
  - Chapter 62-303, F.A.C.
  - Chapter 62-304, F.A.C.
- Economic Analysis
- Tentative Schedule
- Public Recommendations and Comments

Purpose

- **Purposes of meeting/Triennial Review (TR)**
  - **Continued improvements to the State's Water Quality Standards (WQS)**
  - **Share DEP's proposed revisions to improve Florida's WQS**
  - **Receive feedback and suggestions from the public**

Background

- Under the Federal Clean Water Act, states are required to periodically conduct a comprehensive review of their surface water quality standards
  - Known as “Triennial Review” because must conduct review at least once every three years
- Department adopted revisions for last TR on Dec. 9, 2015, and EPA approved the revisions on July 24, 2017

Background

(continued)

- General expectation is that States consider adoption of any new or revised EPA recommended water quality criteria
  - "304(a) criteria"
- States are not required to adopt EPA recommendations, but under recent revisions to 40 CFR 131.20(a), States must explain basis for the decision if they decide not to adopt

Scope

- Notices of Rule Development for TR included all rules with surface water quality standards
  - Chapter 62-4 (Permits),
  - Chapter 62-302 (Surface Water Quality Standards), Chapter 62-303 (Identification of Impaired Surface Waters, or “IWR”), and
  - Chapter 62-304 (Total Maximum Daily Loads)
- Published on March 29, 2019
- Notices listed all rule sections related to surface water quality standards
  - All surface water quality standards are open for potential revision and public comment

Proposed Topics for Chapter 62-4, F.A.C.

- **Notice listed the following rules:**

  62-4.242 - Antidegradation Permitting Requirements; Outstanding Florida Waters; Outstanding National Resource Waters

  62-4.243 - Exemptions from Water Quality Criteria

  62-4.244 - Mixing Zones: Surface Waters

  62-4.246 - Sampling, Testing Methods, and Method Detection Limits for Water Pollution Sources

- **However, no planned changes at this time**

Rule 62-302.200, F.A.C. (Definitions)

- **Added two new definitions**

  (8) “Coral reef”, shall mean a limestone structure composed wholly or partially of the living or dead skeletal remains of marine invertebrates in the Class Anthozoa and the Orders Scleractinia (stony corals), Stolonifera (organ-pipe corals), Antipatharia (black corals), and Hydrozoa (hydrocoral).

  (16) “Hardbottom community” shall be defined as a marine benthic community of organisms characterized by the presence of corals and associated reef organisms or worm reefs created by the genus *Phragmatopoma.*

- **Re-numbered definitions to accommodate new definitions**

Rule 62-302.200, F.A.C. (Definitions)

(continued)

- **Revised definition of lake**

(18)~~(16)~~ "Lake" shall mean, for purposes of interpreting the narrative nutrient criterion in paragraph 62-302.530(48)(b)~~62-302.530(47)(b)~~, F.A.C., a lentic fresh waterbody with a relatively long water residence time and an open water area that is free from emergent vegetation under typical hydrologic and climatic conditions. ~~Aquatic plants, as defined in subsection 62-340.200(1), F.A.C., may be present in the open water.~~ Lakes do not include springs, wetlands, or streams (except portions of streams that exhibit lake-like characteristics, such as long water residence time, increased width, or predominance of biological taxa typically found in non-flowing conditions).

Rule 62-302.300, F.A.C. (Findings, Intent…)

- **In response to 2015 revisions to federal WQS regulations, incorporated compliance schedule authorization provisions into Standards**
  - (19) As authorized under section 403.088, Florida Statutes, schedules of compliance shall be incorporated in NPDES permits consistent with the requirements of subsections 62-620.610(12) and 62-620.620(6), F.A.C.

Rule 62-302.300, F.A.C. (Findings, Intent…)

(continued)

- **Changed the reference to the Numeric Nutrient Criteria (NNC) Implementation document to only incorporate by reference the specific portions that EPA considered WQS**

  (20)~~(19)~~ The implementation of numeric nutrient standards under Rules 62-302.531 and 62-302.532, F.A.C., shall be implemented consistent with Sections 6.3 to 6.8 and Chapter 12 of the document titled "*Implementation of Florida's Numeric Nutrient Standards*," dated October 2019 (Link)~~April 2013 (http://www.flrules.org/Gateway/reference.asp?No=Ref-02905)~~, which are ~~is~~ incorporated by reference herein.

Rule 62-302.400, F.A.C. (Classification…)

- **Added text to paragraph 62-302.400(17) to address the fact that Class I-Treated waters classification is not currently effective**

(b): The following listed waterbodies are classified as Class I, Class I-Treated, Class II, Class III-Limited, or Class V. Waters listed as Class I-Treated have not been submitted to or approved by the U.S. Environmental Protection Agency and will remain Class III until the reclassification is approved by EPA.

Rule 62-302.400, F.A.C. (Classification…)

(continued)

- Incorporating maps by reference to show spatial extent of Class II waters (shellfish propagation/harvesting) in
  - Nassau, Duval, St. Johns, Flagler, Martin, Palm Beach, Monroe, Collier, Lee, Jefferson, Wakulla, Gulf, Okaloosa, Santa Rosa, and Escambia Counties
- Also refined rule language describing the spatial extent
  - Rule only - Charlotte, Sarasota, Manatee, and Bay Counties

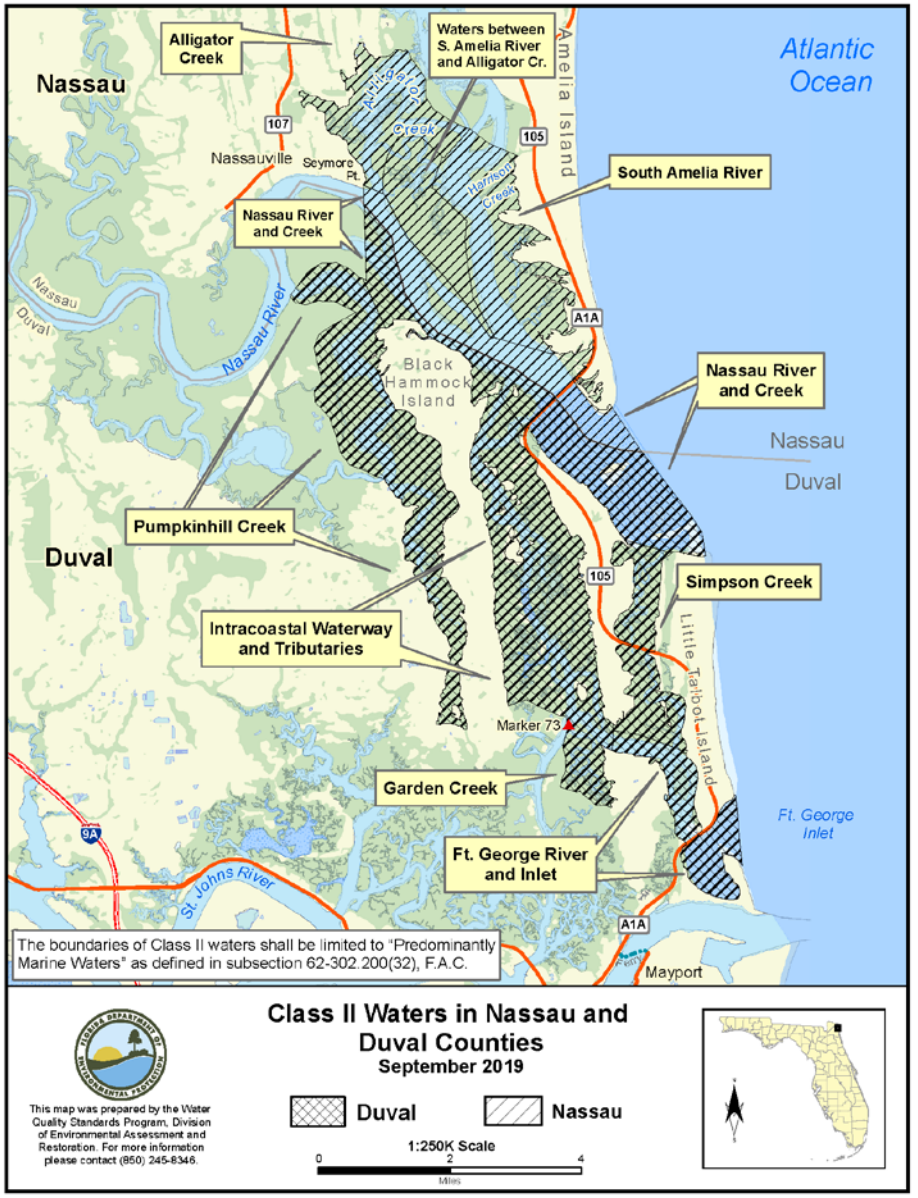
Rule 62-302.400, F.A.C. (Classification…)

(continued)

- Not changing classification of waters, but maps reflect
  - Paragraph 62-302.400(16)(b), F.A.C., was revised in 2013 to limit the boundaries of Class II waters to "predominantly marine waters"
  - Paragraph 62-302.400(16)(a), F.A.C., extends landward extent of classification to extent of waters of the state, which includes wetlands
- GIS resources were used to estimate extent of predominantly marine waters and wetlands

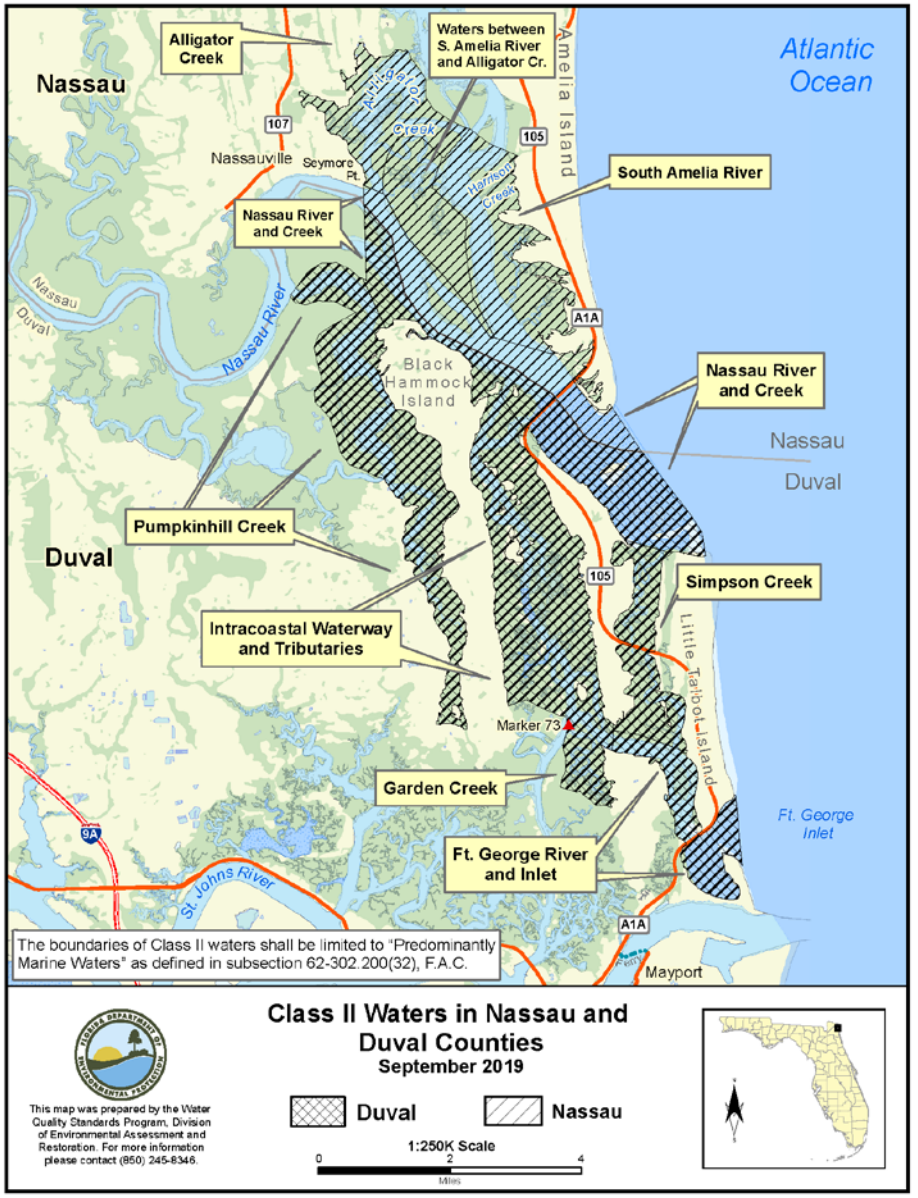
Nassau County Class II

- All or portions of the following waters, as shown on the map titled “Class II Waters in Nassau County, September 2019” (Link), which is incorporated by reference herein:
- Alligator Creek.
- Nassau River and Creek – From the mouth of Nassau Sound (with the mouth starting at a line connecting the northeasternmost point of Little Talbot Island to the southeasternmost point of Amelia Island), westerly to Seymore (Seymour) Point.
- South Amelia River – Nassau River north to a line from the northern shore of the mouth of Alligator Creek to the northernmost shore of Harrison Creek.
- Waters between South Amelia River and Alligator Creek.



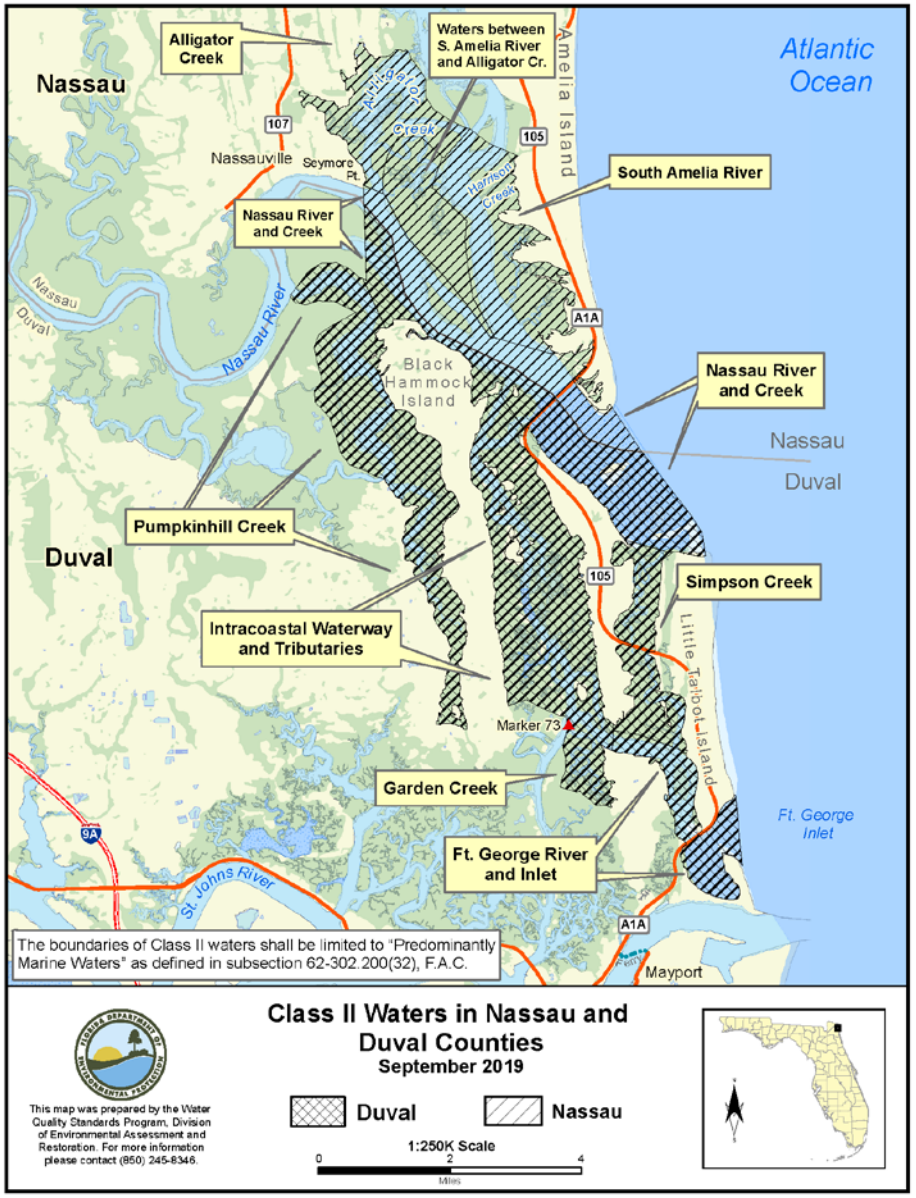
Duval County Class II

- All or portions of the following waters, as shown on the map titled “Class II Waters in Duval County, September 2019” (Link), which is incorporated by reference herein:
- Ft. George River and Simpson Creek~~s~~ – Ft. George Inlet north to Nassau Sound.
- Intracoastal Waterway and Tributaries – Confluence of Nassau and Amelia Rivers south to Flashing Marker 73 thence eastward along Ft. George River to Ft. George Inlet and includes Garden Creek…



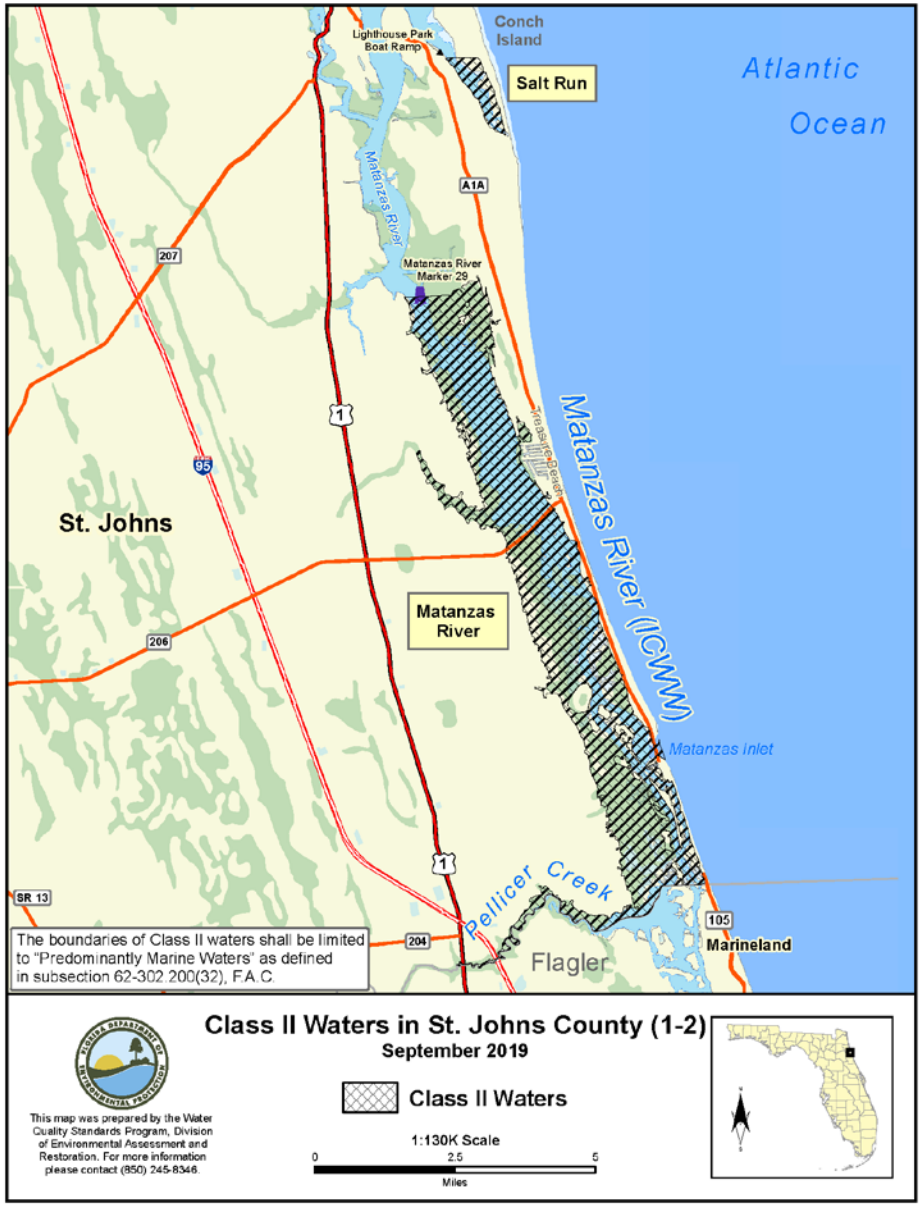
Duval County Class II

- Nassau River and Creek – From the mouth of Nassau Sound, (with the mouth starting at a line connecting the northeasternmost point of Little Talbot Island to the southeasternmost tip of Amelia Island), westerly to a north-south line through Seymore Point.
- Pumpkinhill Creek.



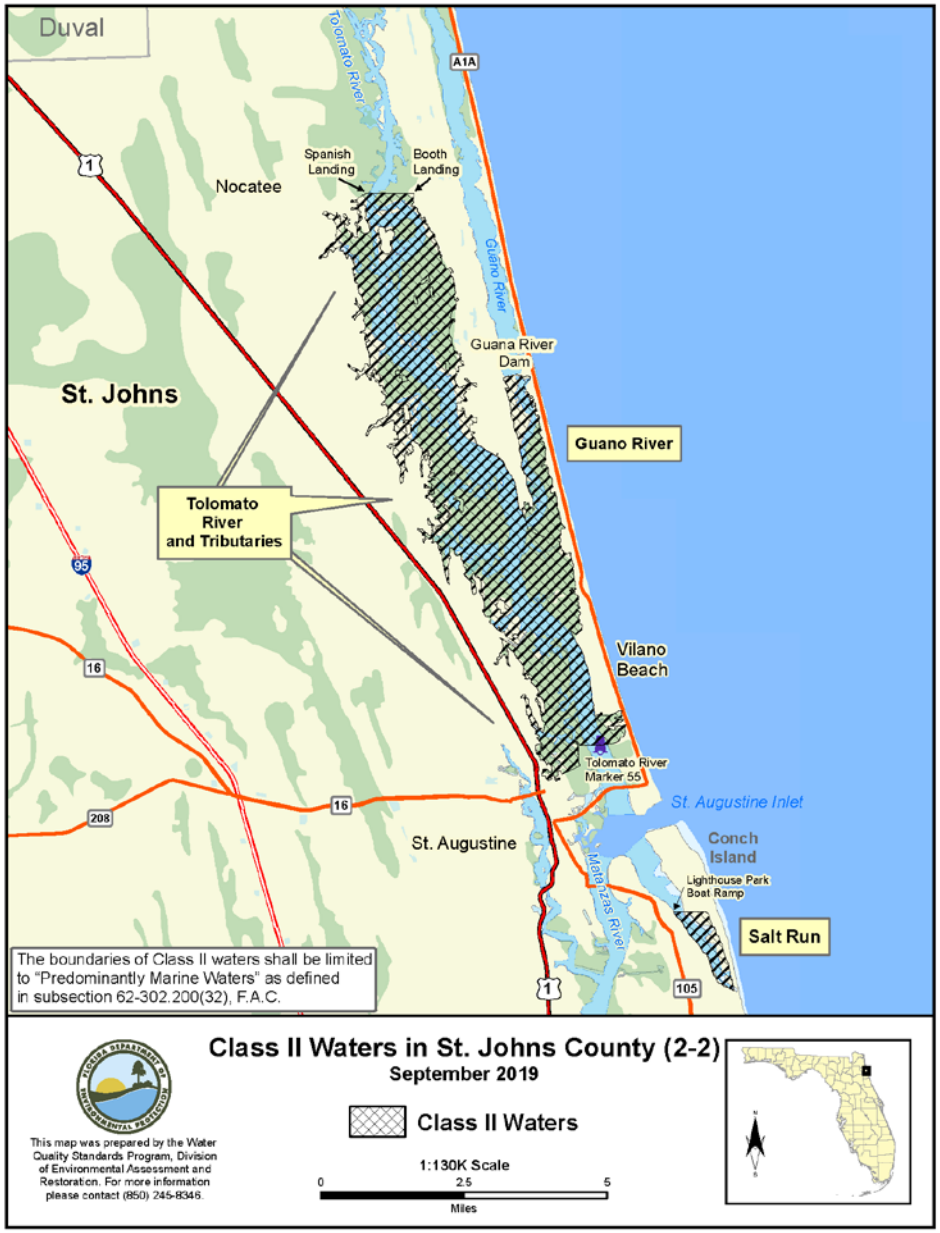
St. Johns Class II

- All or portions of the following waters, as shown in the map titled "Class II Waters in St. Johns County (1-2), September 2019" (Link), which is incorporated by reference herein:
- ~~Guano River and Tributaries – From Guano Lake Dam south to Tolomato River.~~
- Matanzas River, Intracoastal Waterway and Tributaries~~,~~ ~~excluding Treasure Beach Canal System~~ – From Intracoastal Waterway Marker number 29, south to Flagler County Line, excluding Treasure Beach Canal System.
- Pellicer Creek.



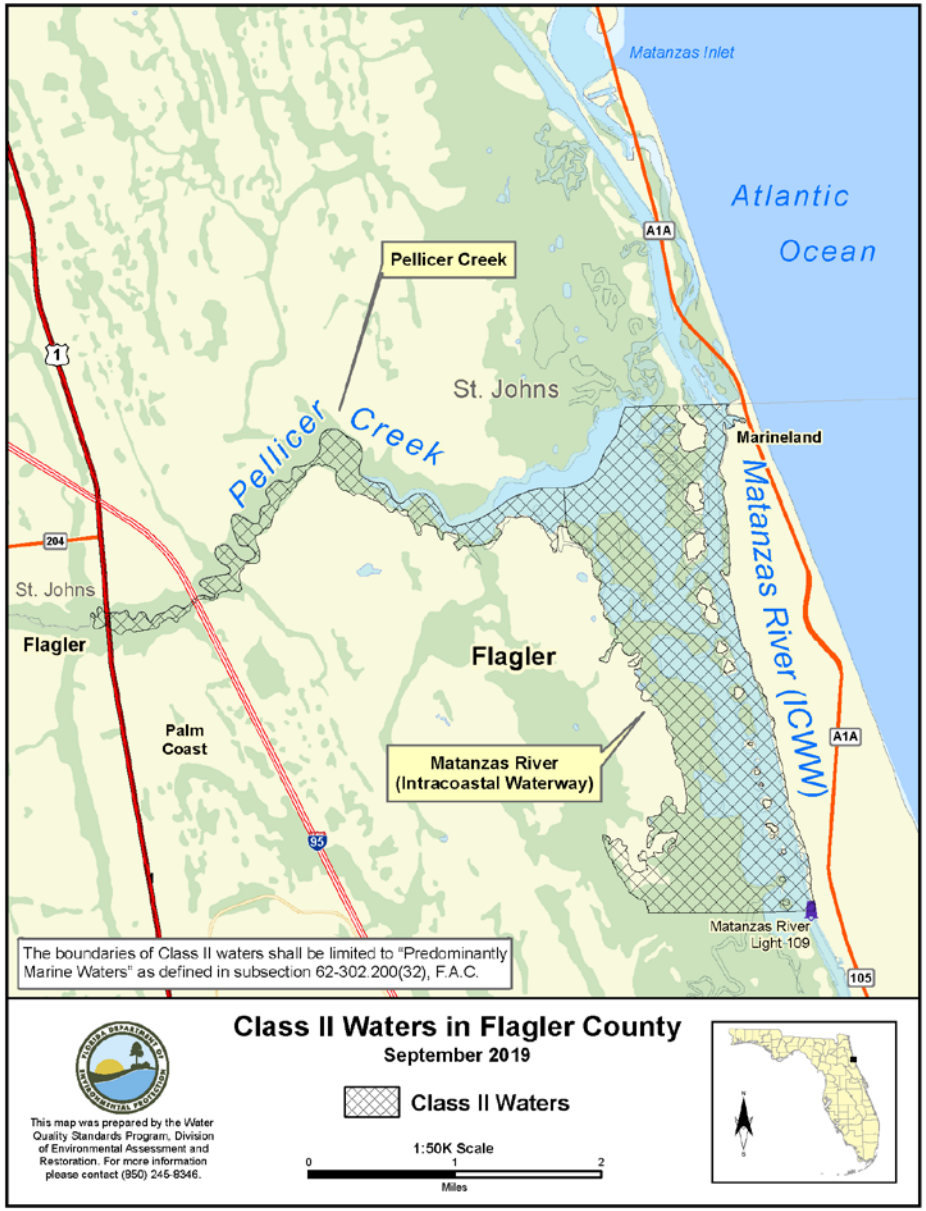
St. Johns Class II

- All or portions of the following waters, as shown in the map titled "Class II Waters in St. Johns County (2-2), September 2019" (Link), which is incorporated by reference herein:
- Guano River and Tributaries – From Guano Lake Dam south to Tolomato River.
- Salt Run – Waters south of an east-west line connecting Lighthouse Park boat ramp with Conch Island.
- Tolomato River (North River) and Tributaries – From a line connecting Spanish Landing to Booth Landing, south to an east-west line through Intracoastal Waterway Marker number 55.



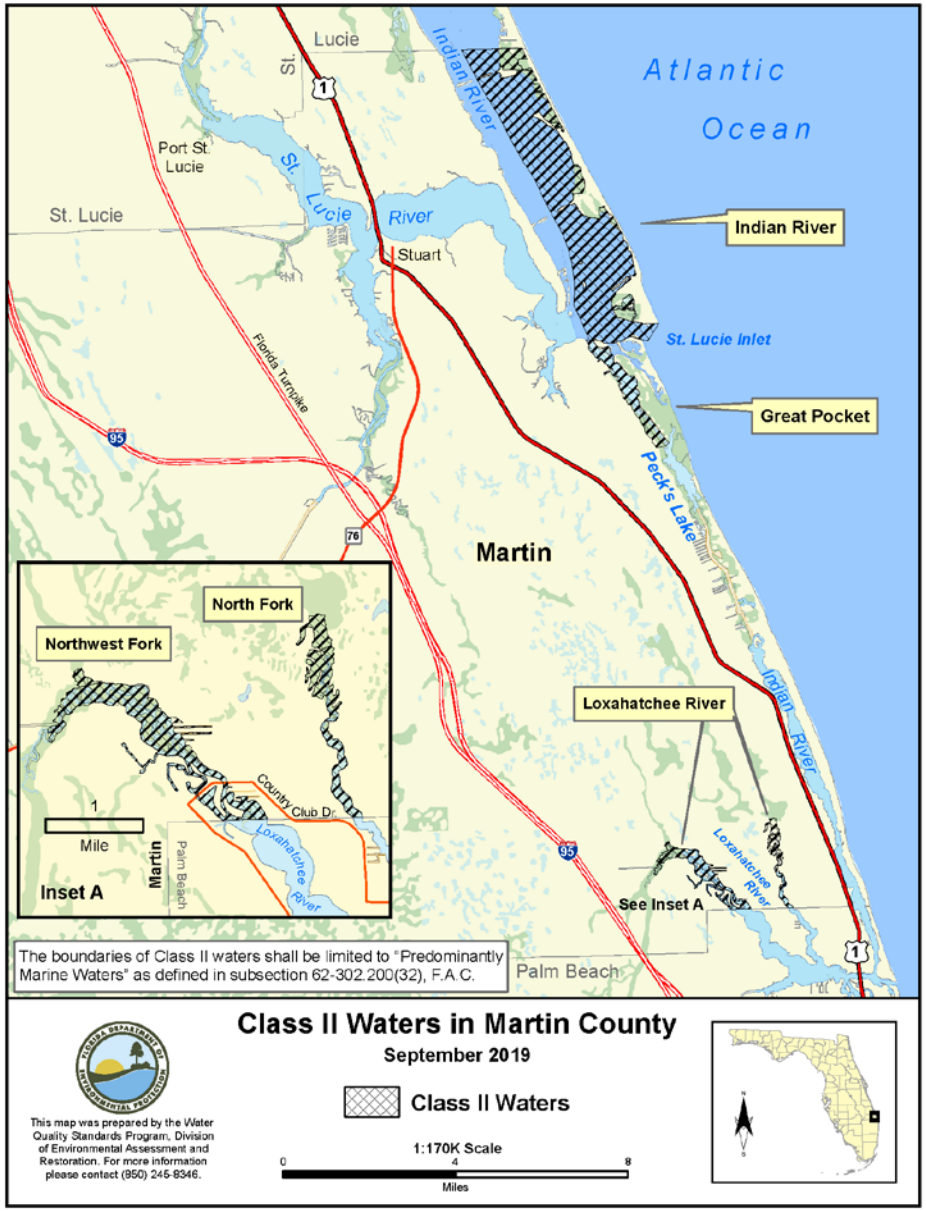
Flagler Class II

- All or portions of the following waters, as shown on the map titled “Class II waters in Flagler County, September 2019” (Link), which is incorporated by reference herein:
- Matanzas River (Intracoastal Waterway) – From the N. Flagler County Line south to an east-west line through Fl. Marker 109.
- Pellicer Creek.



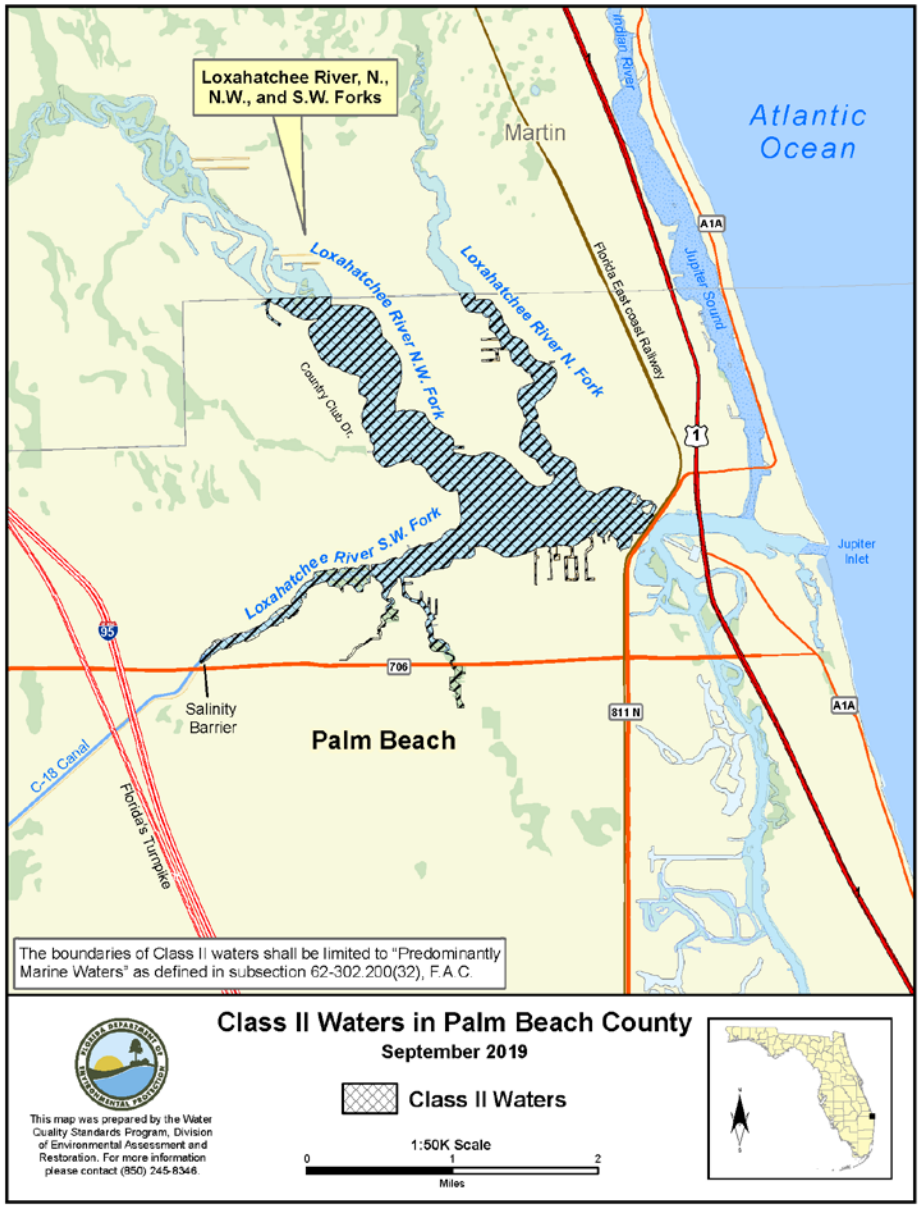
Martin Class II

- All or portions of the following waters, as shown on the map titled “Class II Waters in Martin County, September 2019” (Link), which is incorporated by reference herein:
- Great Pocket – St. Lucie River to Peck’s Lake.
- Indian River – N. Martin County Line south to the mouth of St. Lucie Inlet, east of the Intracoastal Waterway Channel centerline.
- Loxahatchee River, Northwest and North Forks– North of Palm Beach County Line ~~West of the Florida East Coast Railroad Bridge including Southwest, Northwest, and North Forks~~.



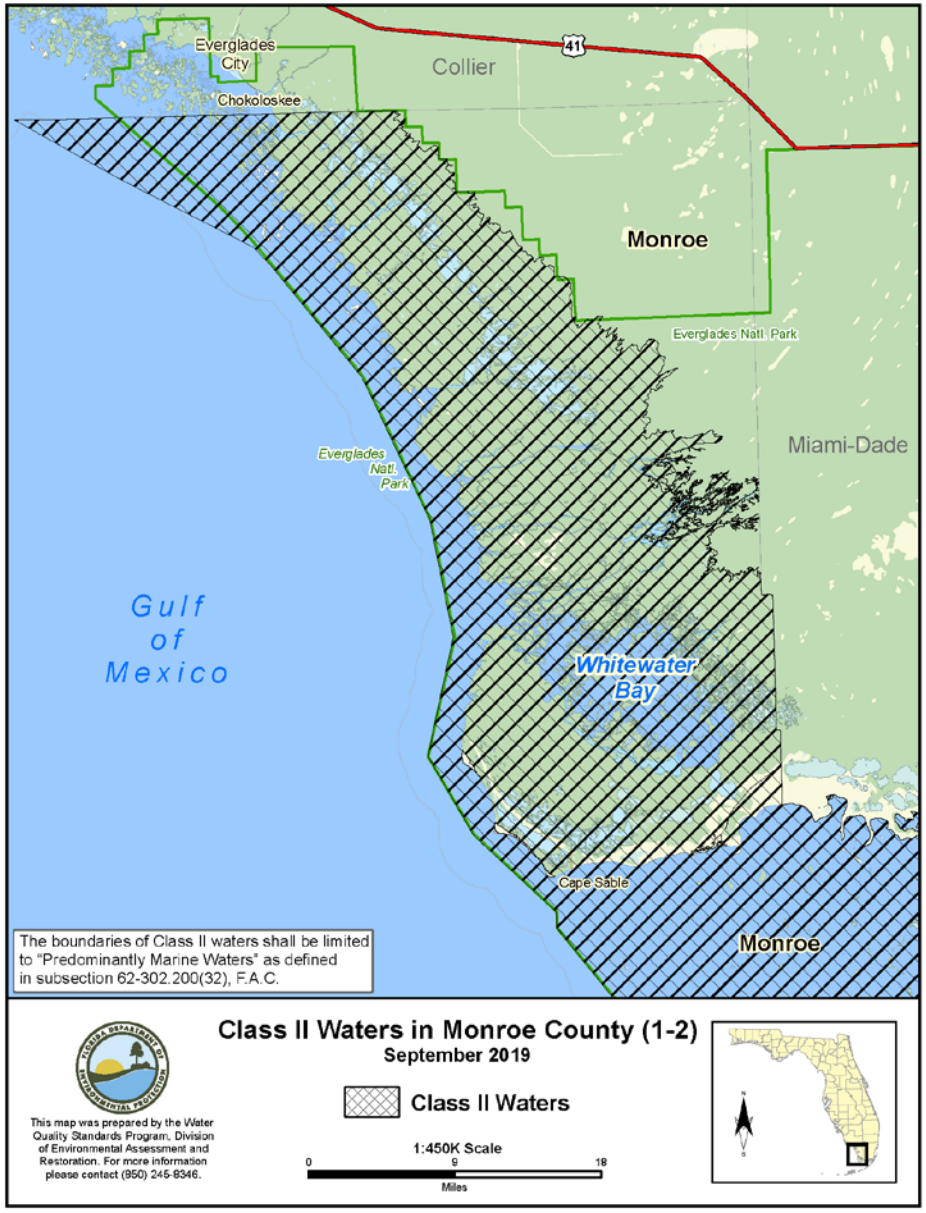
Palm Beach Class II

- All or portions of the following waters, as shown on the map titled “Class II Waters in Palm Beach County, September 2019” (Link), which is incorporated by reference herein:
- Canal C-18 – From the Salinity barrier to the Loxahatchee River.
- Loxahatchee River – Upstream of Florida East Coast railroad bridge including Southwest, Northwest, and North Forks.



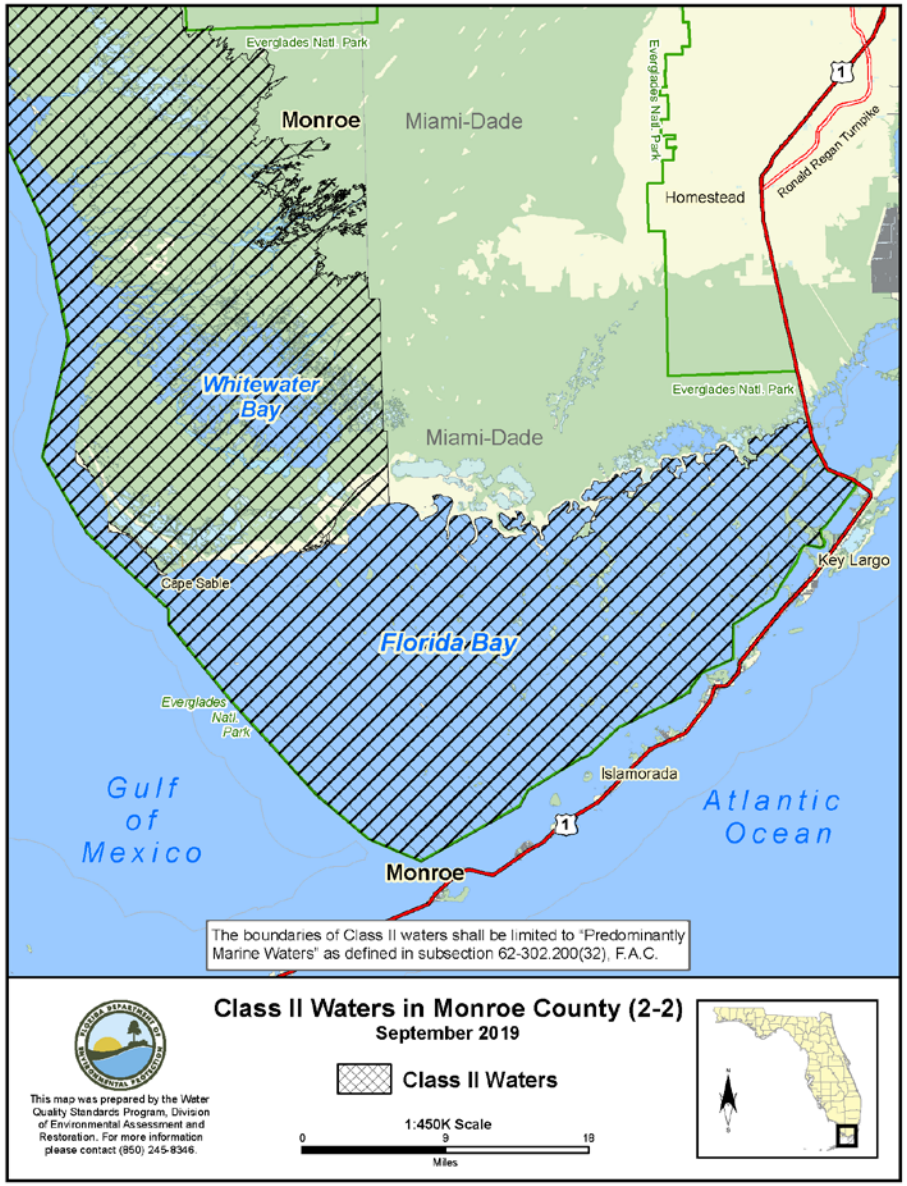
Monroe Class II

- All or portions of the following waters, as shown in the map titled "Class II Waters in Monroe County (1-2), September 2019" (Link) and the map titled "Class II Waters in Monroe County (2-2), September 2019" (Link), which are incorporated by reference herein:
- Monroe County Coastline – From the Collier ~~and Dade~~ County Line~~s~~ southward to Cape Sabel ~~and including that part of~~
- Florida Bay – Those portions within Everglades National Park.



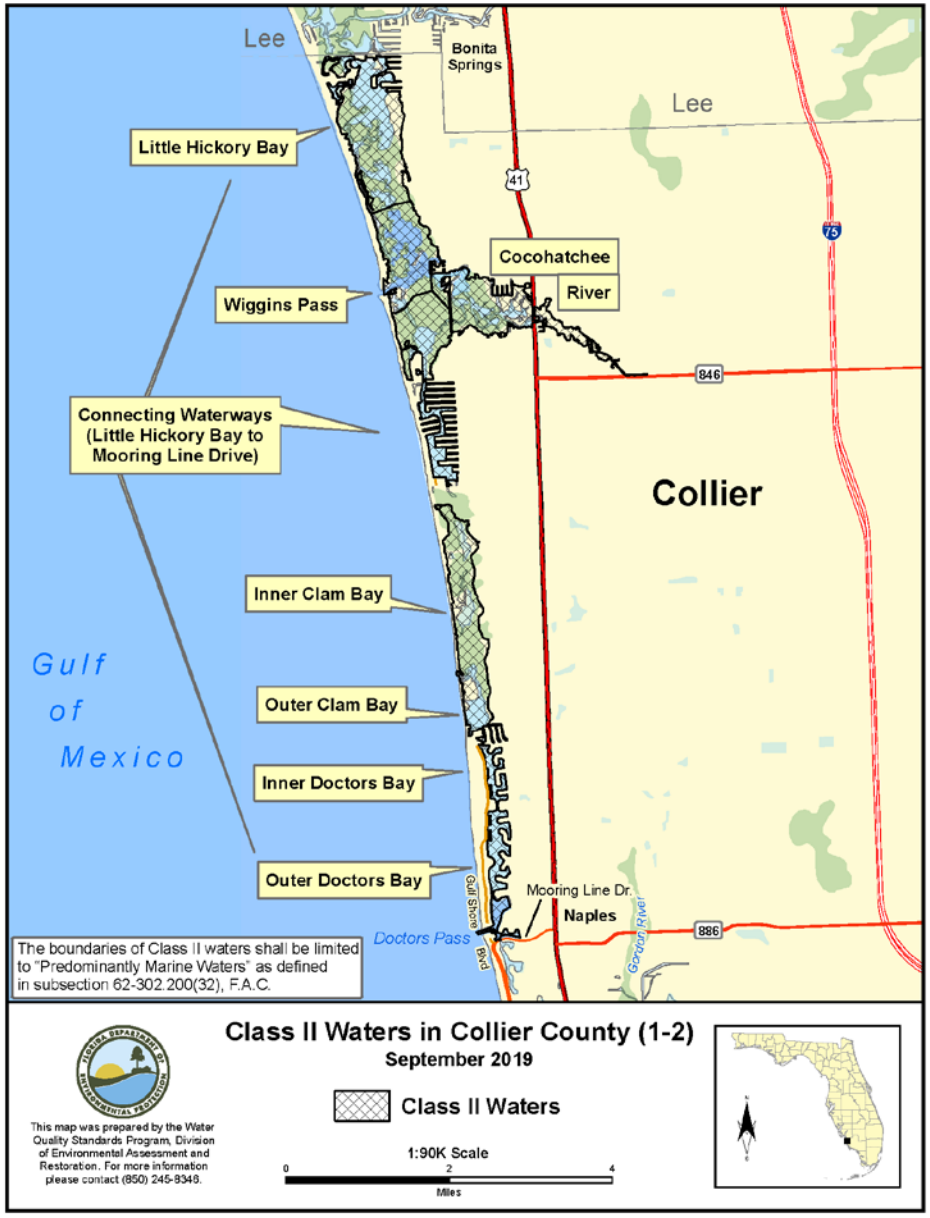
Monroe Class II

- All or portions of the following waters, as shown in the map titled "Class II Waters in Monroe County (1-2), September 2019" (Link) and the map titled "Class II Waters in Monroe County (2-2), September 2019" (Link), which are incorporated by reference herein:
- Monroe County Coastline – From the Collier ~~and Dade~~ County Line~~s~~ southward to Cape Sabel ~~and including that part of~~
- Florida Bay – Those portions within Everglades National Park.



Collier County Class II

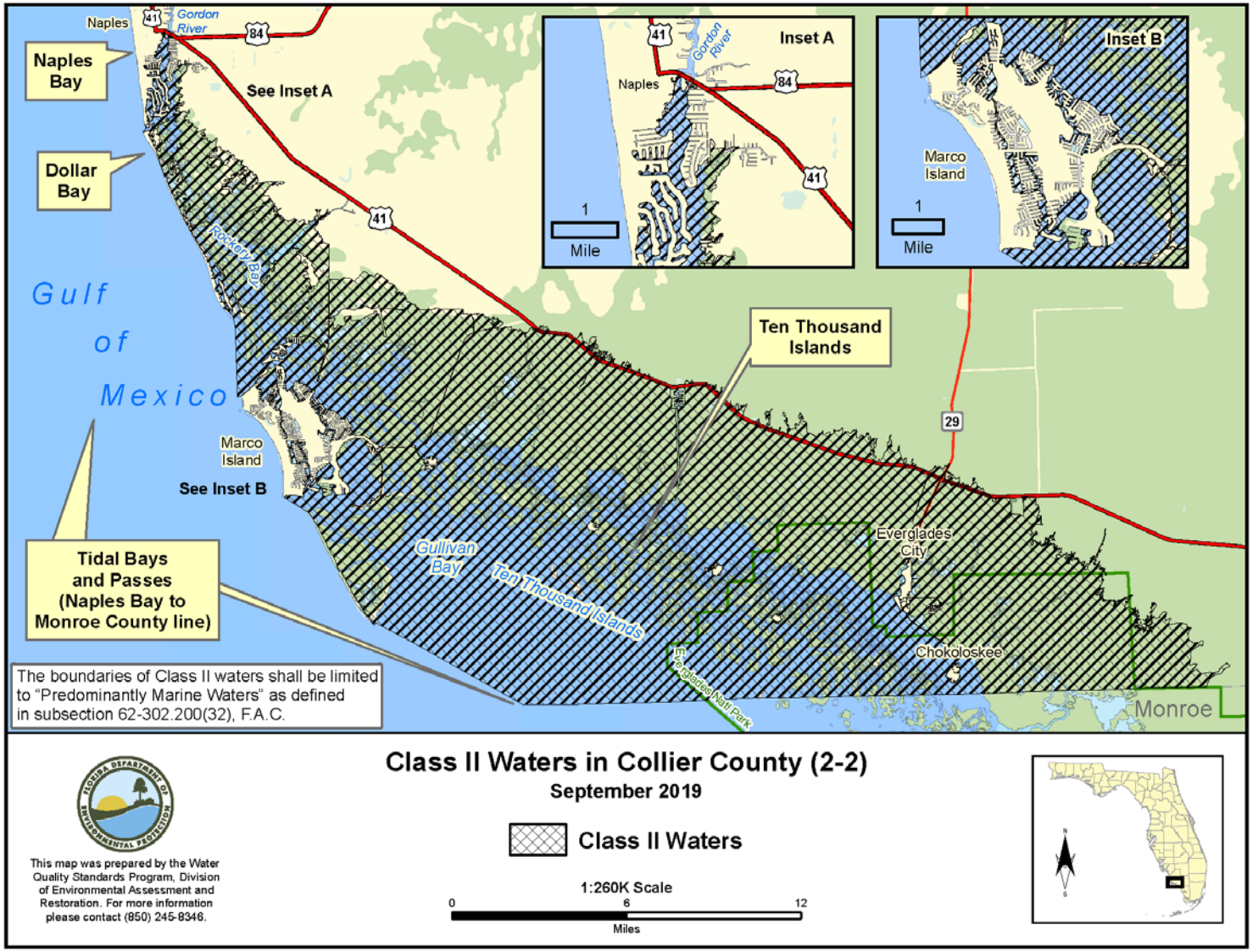
- All or portions of the following waters, as shown on the map titled “Class II Waters in Collier County (1-2), September 2019” (Link), which is incorporated by reference herein:
- Little Hickory Bay, Wiggins Pass, and the Cocohatchee River.
- Connecting Waterways – From Little Hickory Bay south through Inner and Outer Clam Bay ~~Wiggins Pass south~~ and through Inner and ~~to~~ Outer Doctors Bay to Doctors Pass and Mooring Line Drive.
- ~~Dollar Bay.~~
- ~~Inner and Outer Clam Bay.~~
- ~~Inner and Outer Doctors Bay.~~
- ~~Little Hickory Bay.~~



Collier Class II

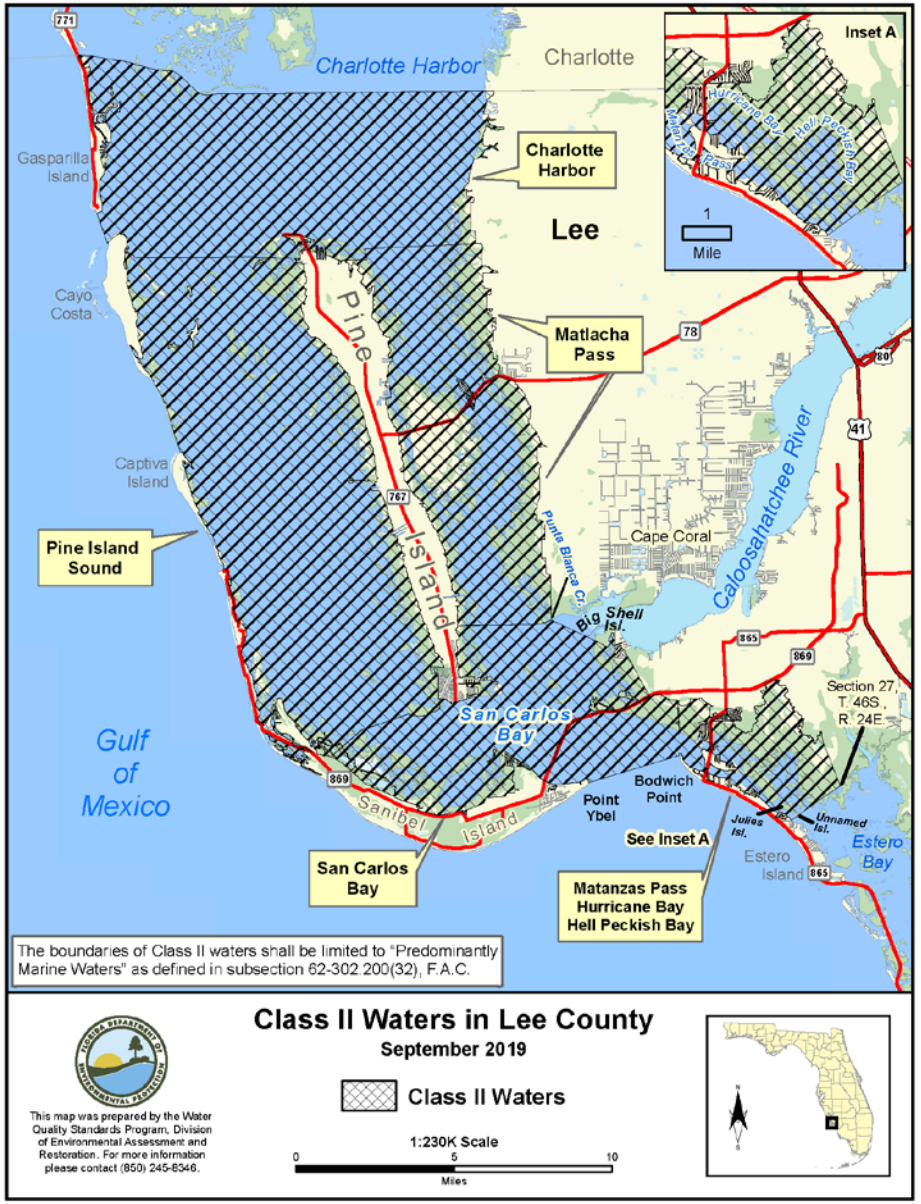
- All or portions of the following waters, as shown on the map titled “Class II Waters in Collier County (2-2), September 2019” (Link), which is incorporated by reference herein:
- Tidal Bays and Passes – Naples Bay ~~and~~ south and easterly through Dollar Bay, Rookery Bay and the Ten Thousand Islands to the Monroe County Line.

Collier Class II



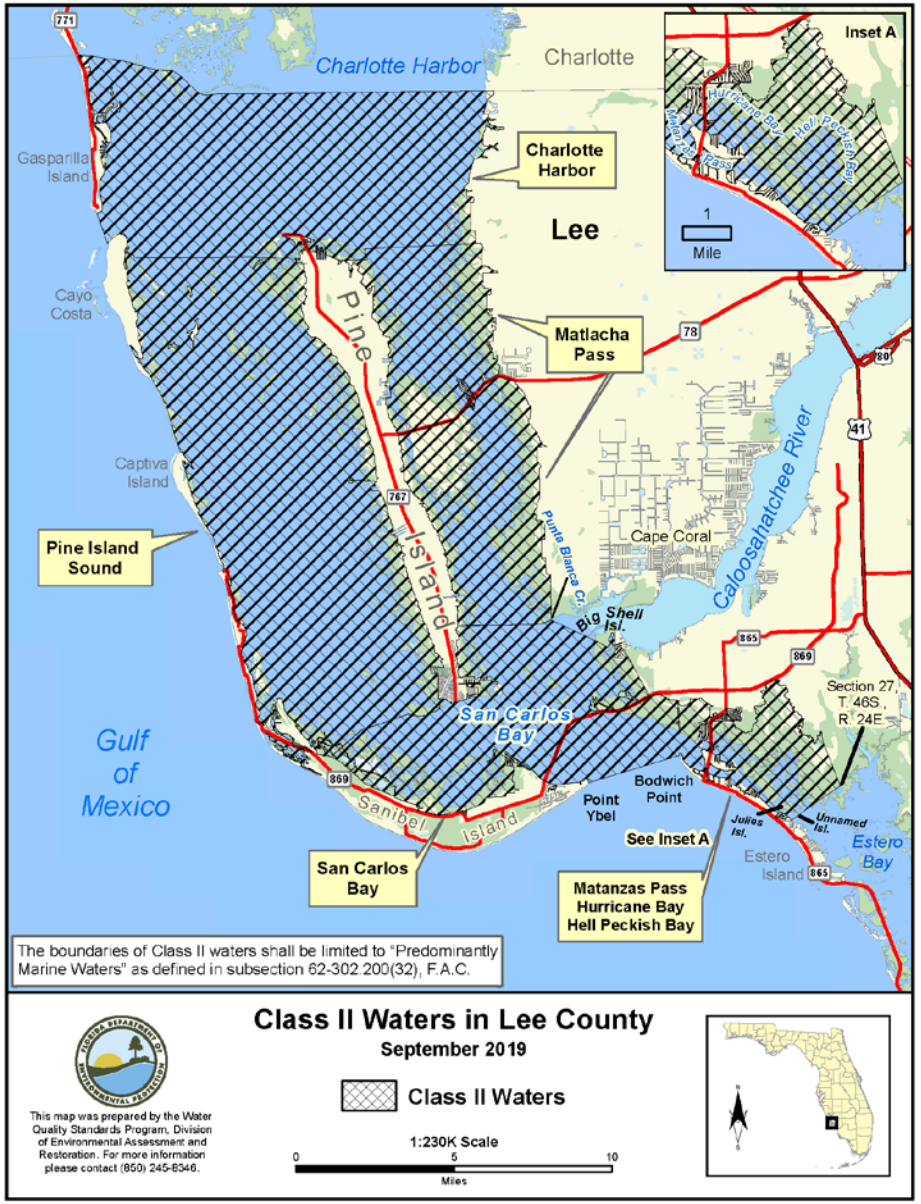
Lee Class II

- All or portions of the following waters, as shown on the map titled “Class II Waters in Lee County, September 2019” (Link), which is incorporated by reference herein:
- Charlotte Harbor
- Matanzas Pass, Hurricane Bay, and Hell Peckish (Peckney) Bay – From San Carlos Bay southeast through Matanzas Pass, Hurricane Bay, and Hell Peckish Bay to a line from Estero Island through the southernmost tip of the unnamed island south of Julies Island, ~~northeastward~~ to the southernmost point of land in section 27, T46S, R24E.



Lee Class II

- Matlacha Pass – From Charlotte Harbor to San Carlos Bay.
- Pine Island Sound – From Charlotte Harbor to San Carlos Bay.
- San Carlos Bay – From a line from Ybel Ppoint ~~Ybel~~ through ~~to~~ Bodwitch Point to Estero Pass, northward along the coast to the southern point of Big Shell Island, then north to ~~a line from~~ the eastern point at the mouth of Punta Blanca Creek~~, southeast through the southern point of Big Shell Island to the mainland~~ and westward to Pine Island Sound.



Charlotte Class II

- Lemon Bay, Placida Harbor, and Tributaries – from the north ~~N.~~ Charlotte County Line south to Gasparilla Sound and bounded on the east by SR 775.
- Charlotte Harbor, Myakka River, and Gasparilla Sound – Waters except Peace River upstream from the northeastern point of Myakka Cutoff to the boat ramp in Ponce de Leon Park in south Punta Gorda, Catfish Creek north of N. Lat. 26º50'56", and Whidden Creek north of N. Lat. 26º 51'15".

GIS data layer and map are still under development

Sarasota Class II

- Lemon Bay – From a line ~~eastward~~ from the northern shore of the mouth of Forked Creek due east to Manasota Key south to the Charlotte County Line.
- Myakka River – From the western line of section 35, T39S, R20E south to the Charlotte County Line.
- Sarasota Bay – West of the Intracoastal Waterway Channel centerline.

GIS data layer and map are still under development

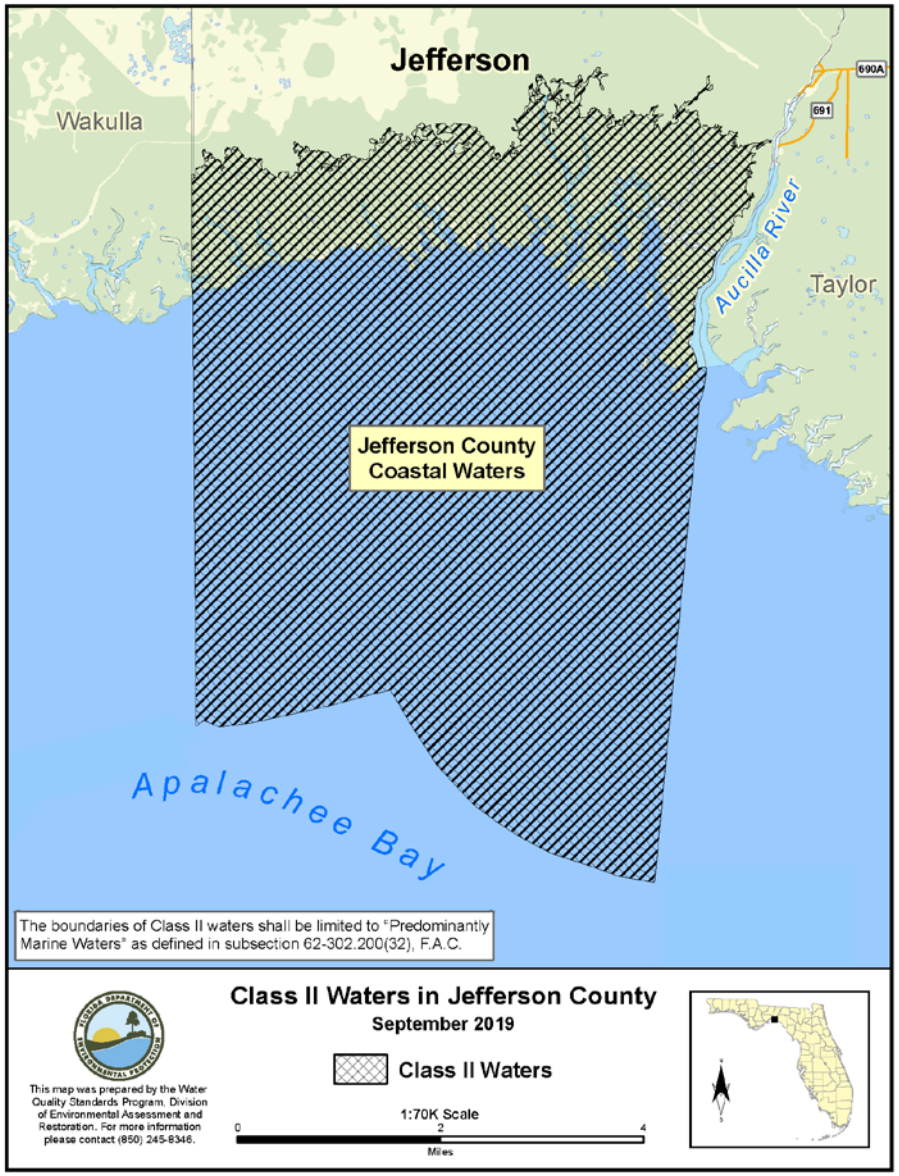
Manatee Class II

- Gulf and Coastal Waters of Tampa Bay – (Including, but not limited to, Terra Ceia Bay, Perico Bayou, Palma Sola Bay, and Sarasota Bay), excluding waters northward of a line from the southern shore of the mouth of Little Redfish Creek northwesterly through the red marker (approximately one nautical mile away) to the county line and; Manatee River upstream of a line from Emerson Pt. to Mead Pt.
- Gulf Waters – North of 27º31' N. Lat.

GIS data layer and map are still under development

Jefferson Class II

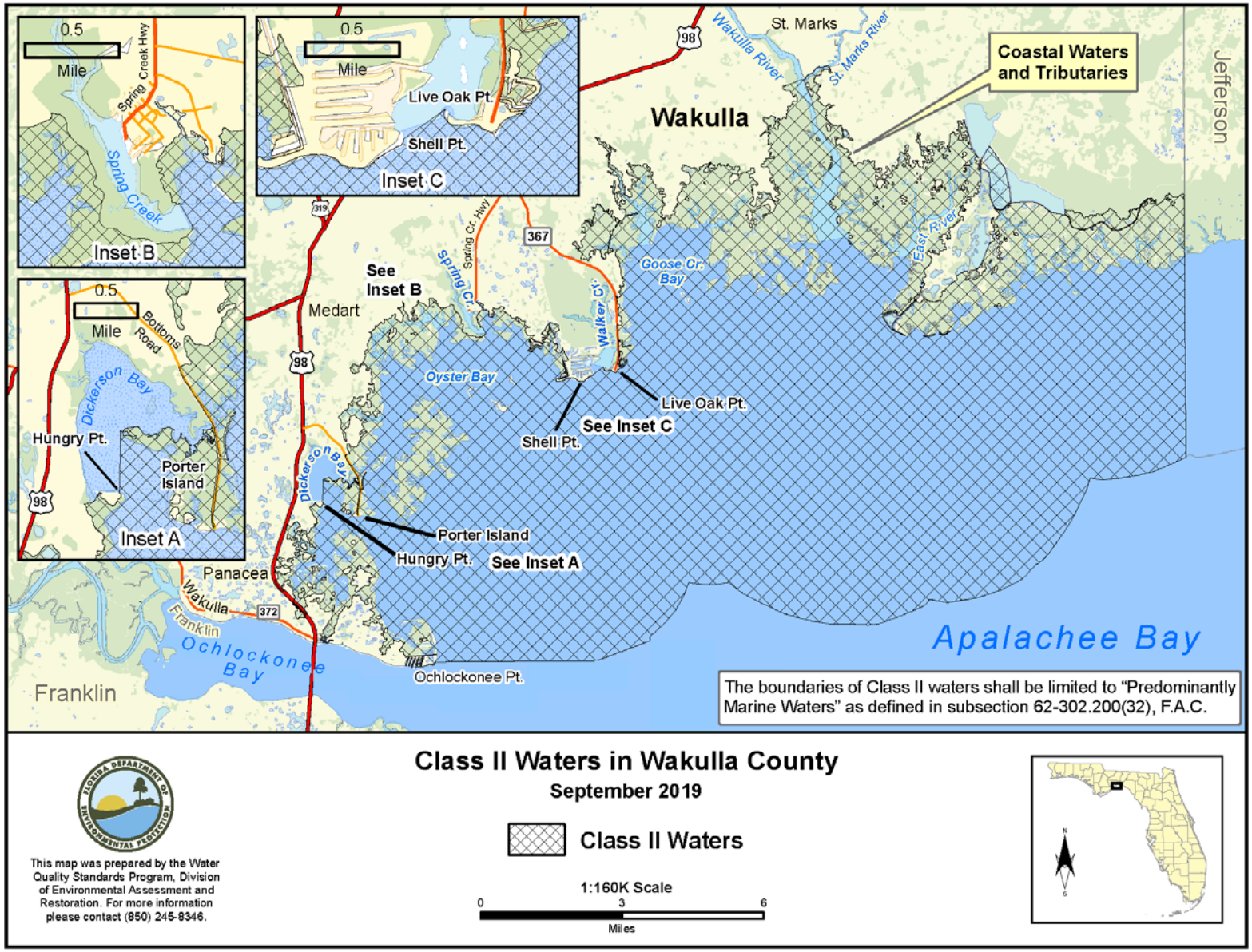
- All or portions of the following waters, as shown on the map titled “Class II Waters in Jefferson County, September 2019” (Link), which is incorporated by reference herein:
- Coastal Waters – Within the county, excluding the ~~mouth of~~ Aucilla River.



Wakulla Class II

- All or portions of the following waters, as shown on the map titled “Class II Waters in Wakulla County, September 2019” (Link) which are incorporated by reference herein:
- Coastal Waters and Tributaries – From the Jefferson County Line westward, with the exception of Spring Creek and the portion of King Bay (Dickerson Bay) west and north of a line from the westernmost tip of Porter Island south to Hungry Point, and Walker Creek north of a line from Live Oak Point southwest across the Creek to the closest tip of Shell Point.

Wakulla Class II



Gulf Class II

- All or portions of the following waters, as shown on the map titled “Class II Waters in Gulf County, September 2019” (Link), which is incorporated by reference herein:
- Indian Lagoon – West of Indian Pass and St. Vincent Sound.
- St. Joseph Bay – South of a line from St. Joseph Point due east to U.S. Highway 98, excluding an area that is both within an arc 2.9 miles from the center of the mouth of Gulf County Canal and east of a line from St. Joseph Point to the northwest corner of Section 13, Township 8 South, Range 11 West.

Bay Class II

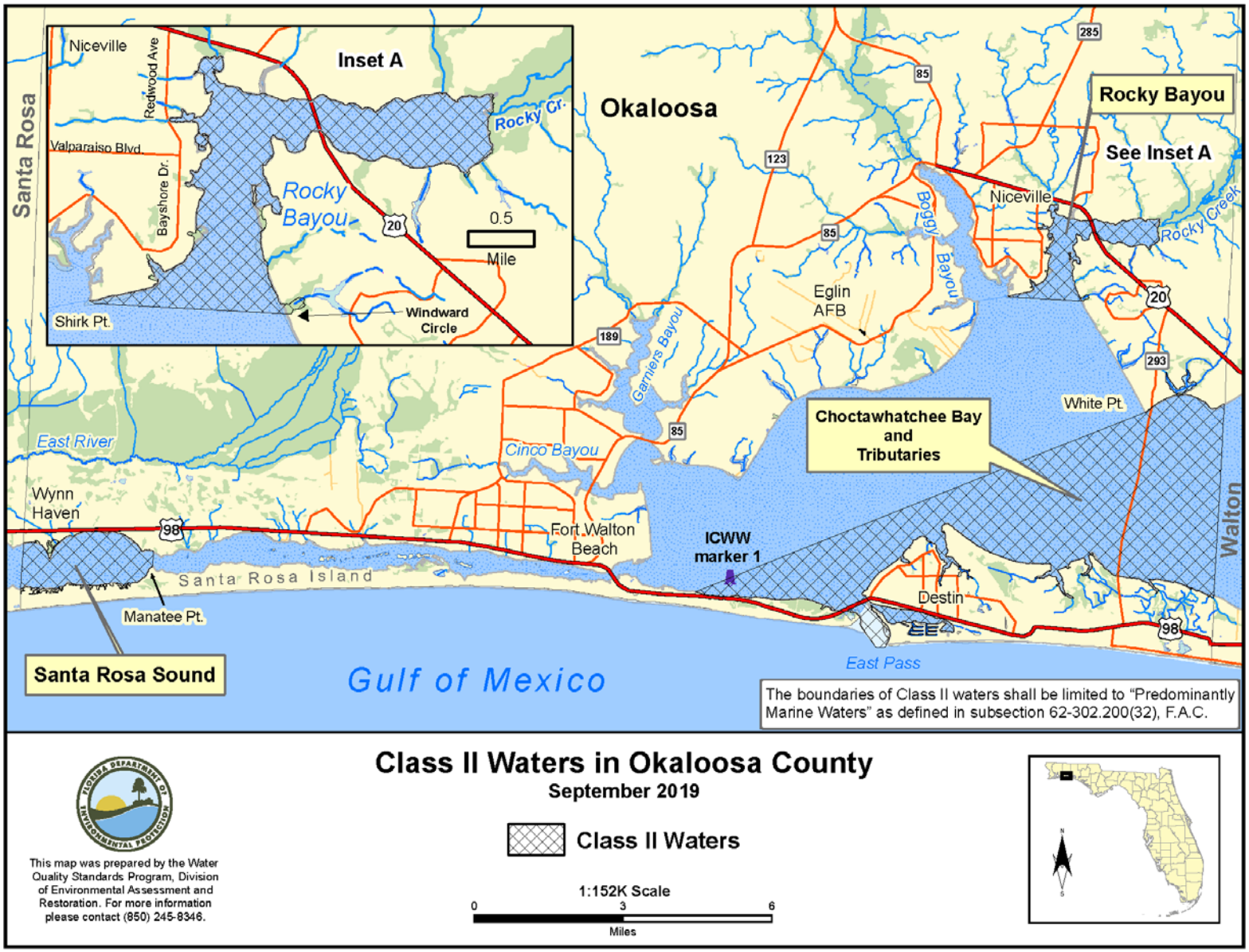
- East Bay and Tributaries – East of U.S. Highway 98 to, but excluding Wetappo Creek.
- North Bay and Tributaries – North of U.S. Highway 98 to Deer Point Dam (CR 2321 / 77A), excluding Alligator Bayou and Fanning (Fannin) Bayous north of an east-west line through Channel Marker 3.
- West Bay and Tributaries – West of North Bay (line from West Bay Point on the north to Shell Point on the sSouth), except West Bay Creek (northwest of Channel Marker 27C off Goose Point), Crooked Creek (north of a line from Crooked Creek Point to Doyle Point), and Burnt Mill Creek (north of a line from Graze Point to Cedar Point).

GIS data layer and map are still under development

Okaloosa Class II

- All or portions of the following waters, as shown in the map titled “Class II Waters in Okaloosa County, September 2019” (Link), which is incorporated by reference herein:
- Choctawhatchee Bay and Tributaries – From a line from White Point southwesterly through Fl. Light Marker 12~~2~~ of the Intracoastal Waterway, eastward to the county line, including East Pass.
- Rocky Bayou – ~~Choctawhatchee Bay (from~~ North of a line extending ~~due~~ east from Shirk Point to the north end of Windward Circle, excluding~~) to~~ Rocky Creek and other tributaries.
- Santa Rosa Sound – From a north-south line through Manatee Point west to the Santa Rosa County Line.

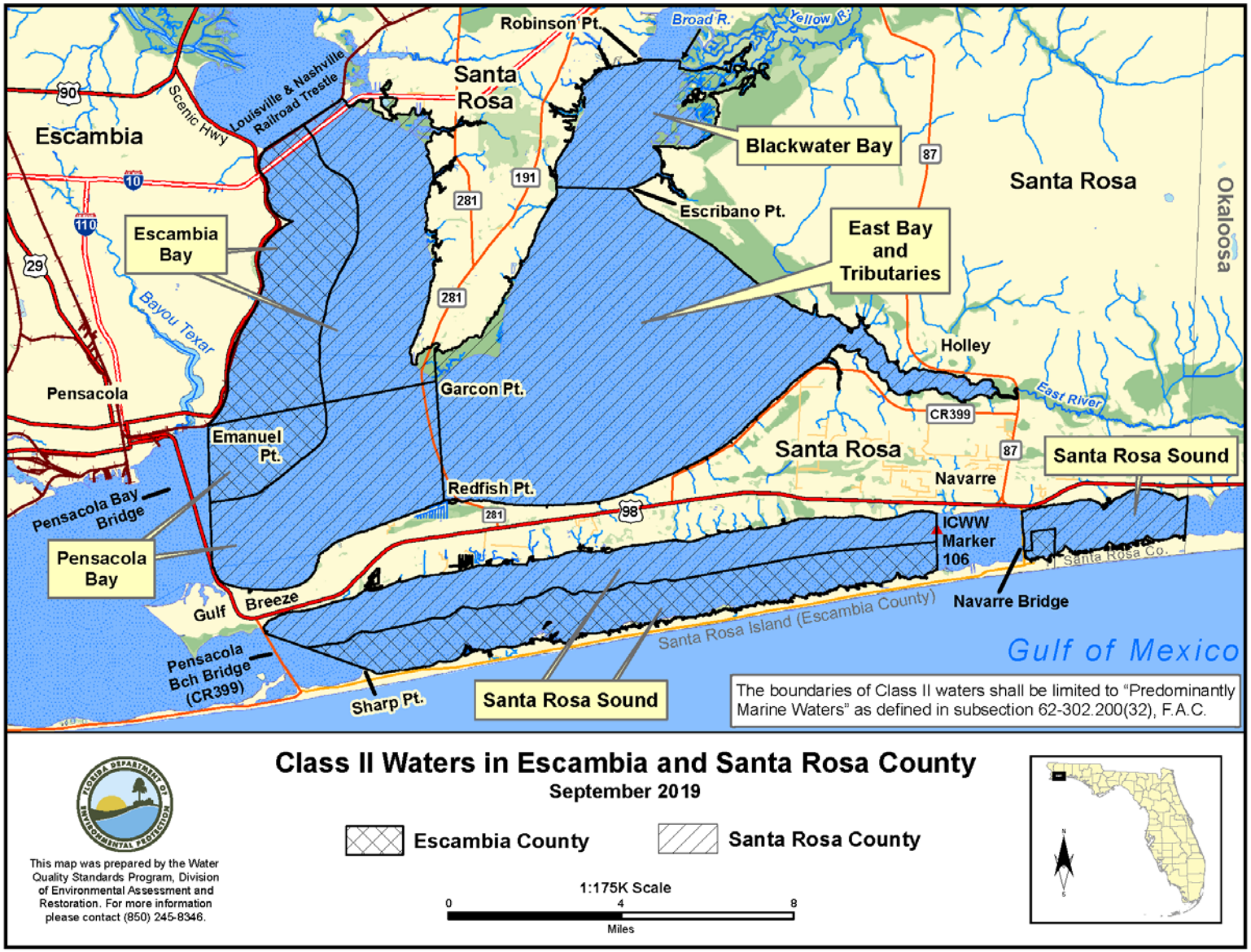
Okalossa Class II



Santa Rosa Class II

- All or portions of the following waters, as shown on the map titled "Class II Waters in Escambia County and Santa Rosa County, September 2019" (Link), which is incorporated by reference herein:
- Blackwater Bay – From a line connecting Robinson's Point to Broad River south to East Bay (line due west from Escribano Point).
- East Bay and Tributaries – From Blackwater Bay (line due west from Escribano Point) southerly to Pensacola Bay (line from Garcon Point on the north to Redfish Point on the south).
- Escambia Bay – From the Louisville and Nashville Railroad Trestle south to Pensacola Bay (Line from Emanuel Point east northeasterly to Garcon Point).
- Pensacola Bay – East of a line connecting Emanuel Point on the north to the south end of the Pensacola Bay Bridge (U.S. Highway 98).
- Santa Rosa Sound – From a line connecting the northern ~~Gulf Breeze~~ approach of the ~~to Pensacola Beach, (~~Pensacola Beach Bridge (CR399)~~,~~ and Sharp Point, east to Santa Rosa/Okaloosa County line with exception of the Navarre Beach area from a north-south line through Channel Marker 106 eastward to Navarre Beach Toll Road.

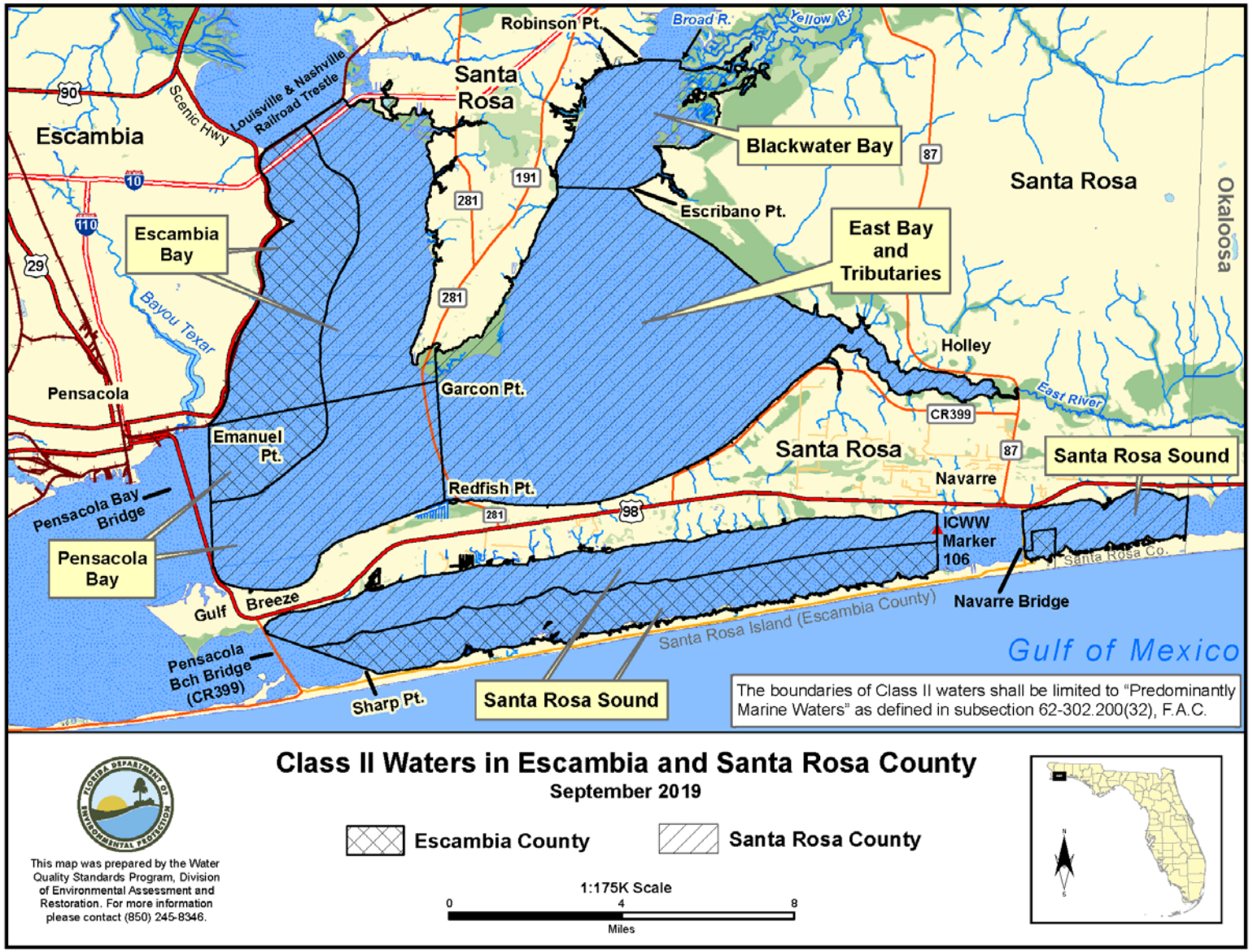
Santa Rosa Class II



Escambia County Class II

- All or portions of the following waters, as shown on the map titled “Class II Waters in Escambia County and Santa Rosa County, September 2019” (Link), which is incorporated by reference herein:
- Escambia Bay – From the Louisville and Nashville Railroad Trestle south to Pensacola Bay (Line from Emanuel Point east northeasterly to Garcon Point).
- Pensacola Bay – East of a line connecting Emanuel Point on the north to the south end of the Pensacola Bay Bridge (U.S. Highway 98).
- Santa Rosa Sound – East of a line connecting the northern ~~Gulf Breeze~~ approach of the ~~to Pensacola Beach (~~Pensacola Beach Bridge (CR399)~~,~~ and Sharp Point, with the exception of the Navarre Beach area from a north-south line through Channel Marker 106 to Navarre Bridge (Navarre Beach Road).

Escambia County Class II



Proposed Revisions to Criteria Table (Rule 62-302.530, F.A.C.)

Total Ammonia Nitrogen

Subsection 62-302.530(3), F.A.C.

The 30-day average TAN value shall not exceed the average of the values calculated from the following equation, with no single value exceeding 2.5 times the value from the equation:

$$30-\text{day Average} = 0.8876 \times \left(\frac{0.0278}{1+10^{7.688-pH}} + \frac{1.1994}{1+10^{pH-7.688}}\right) \times \left(2.126 \times 10^{0.028\times(20-MAX(T,7))}\right)$$

$$30-\text{day Average} = 0.8876 \times \left(\frac{0.0278}{1+10^{7.688-pH}} + \frac{1.1994}{1+10^{pH-7.688}}\right) \times \left(2.126 \times 10^{0.028\times(20-T)}\right)$$

T and *pH* are defined as the paired temperature (°C) and pH associated with the TAN sample. For purposes of total ammonia nitrogen criterion calculations, pH is subject to the range of 6.5 to 9.0. The pH shall be set at 6.5 if measured pH is < 6.5 and set at 9.0 if the measured pH is > 9.0. The temperature (*T*) shall be constrained to values greater than or equal to 7° C. Temperature values less than 7° C shall be set to 7° C for purposes of calculating the TAN criteria.

Bacteriological Quality (Fecal Coliform Bacteria)

Paragraph 62-302.530(6)(a), F.A.C.

- **Revised fecal coliform bacteria criterion applicable to Class II (shellfishing) waters**
  - MPN or MF counts shall not exceed a median value of 14 with not more than 10% of the samples exceeding ~~the Ten Percent Threshold Value (TPTV) of~~ 43 (for MPN) or 31 (for MF)~~, nor exceed 800 on any one day~~…

Bacteriological Quality (*Escherichia coli* Bacteria)

Paragraph 62-302.530(6)(b), F.A.C.

- **Revised E. coli criterion applicable to Class III freshwaters to address small sample sizes**
  - MPN or MF counts shall not exceed a monthly geometric mean of 126 nor exceed the Ten Percent Threshold Value (TPTV) of 410 in 10% or more of the samples during any 30-day period. Monthly geometric means shall be based on a minimum of 10 samples taken over a 30-day period. If there are fewer than 10 samples in a month for a given location, the TPTV is assessed as a single sample maximum.
- **Need to add similar language to text for Class I waters (sample size is different)**

Bacteriological Quality (*Enterococci* Bacteria)

Paragraph 62-302.530(6)(c), F.A.C.

- **Enterococci criterion applicable to Class III marine waters to address small sample sizes**
  - MPN or MF counts shall not exceed a monthly geometric mean of 35 nor exceed the Ten Percent Threshold Value (TPTV) of 130 in 10% or more of the samples during any 30-day period. Monthly geometric means shall be based on a minimum of 10 samples taken over a 30-day period. If there are fewer than 10 samples in a month for a given location, the TPTV is assessed as a single sample maximum.
- **Need to add similar language to text for Class II waters**

Cadmium Criteria

Subsection 62-302.530(15), F.A.C.

- **Revision of marine & freshwater Cadmium criteria based on EPA 2016 recommendations**
  - **Protects aquatic life**
- **Marine criterion would decrease from 8.8 µg/L to 7.9 µg/L**
- **Freshwater criterion is a hardness based equation**
  - **$Cd < e^{(0.7977 \times \ln(hardness) - 3.909)}$**
  - **Criterion would increase (for example, 0.27 µg/L to 0.72 µg/L at hardness of 100 mg/L)**

Why did the Freshwater Cadmium Criterion Increase?

- Section 5.9.2 of the EPA technical document provides a comparison between the 2001 and 2016 criteria recommendations
- Differences between criteria recommendations relate to new/revised data and refined approach
  - New test organism toxicity data
  - Use of revised toxicological endpoints
  - Change in the most sensitive species
  - Smaller range of variation (reduced uncertainty) for the four most sensitive taxa

Turbidity Criterion

Paragraph 62-302.530(70)(a), F.A.C.

- **Applicable to Class I, II, and III waters**
- **Adding a narrative that would apply to all Florida waters and a narrative that applies in specific areas with corals, hardbottom and worm rock communities**
- **For all waters**
  - Turbidity shall not be increased more than 29 NTU above natural background, nor shall turbidity levels be increased to levels that negatively affect designated uses or result in increased sedimentation or reduced light transmission to the point that the normal growth, function, reproduction, or recruitment of aquatic life is impaired.

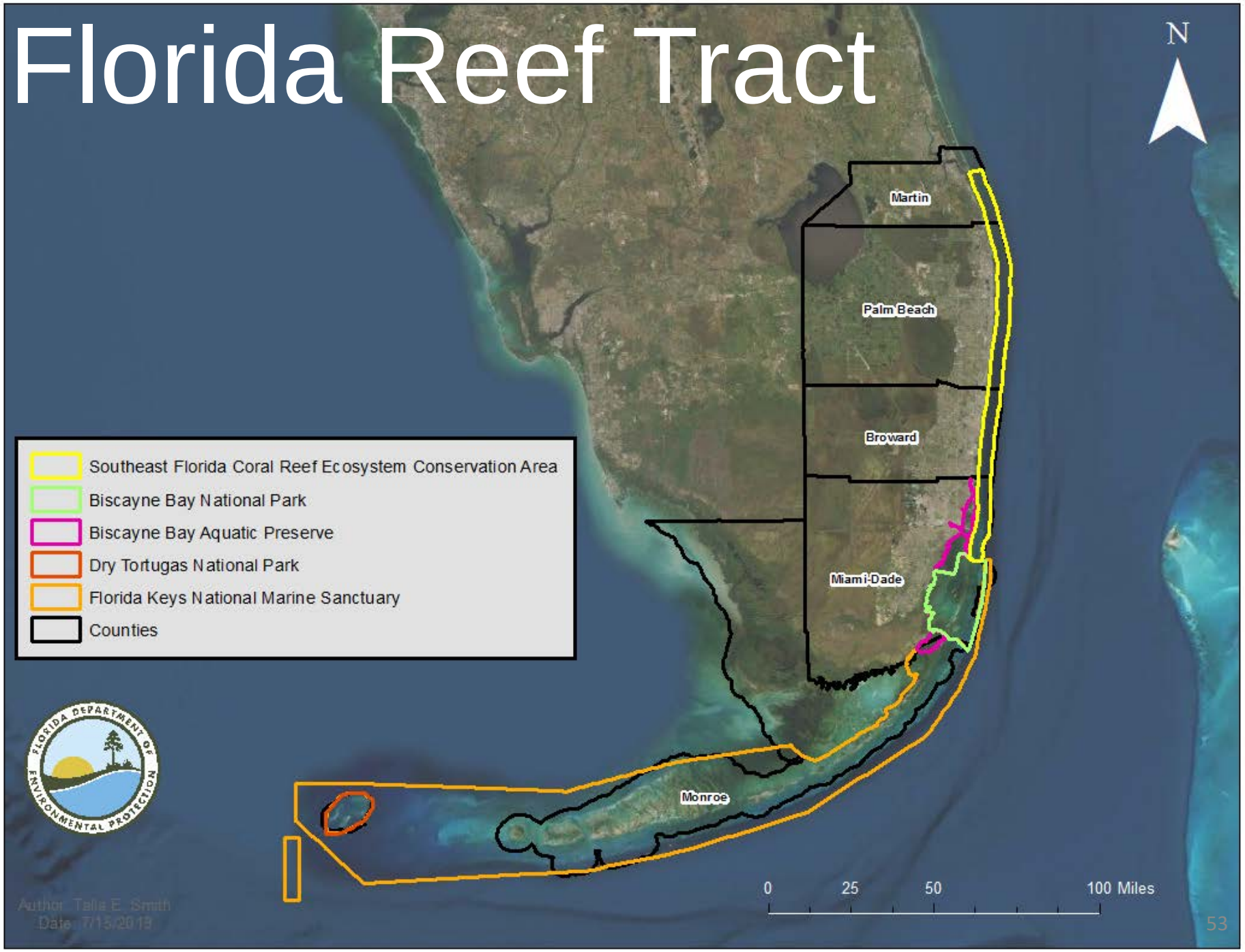
Turbidity Criterion

Paragraph 62-302.530(70)(b), F.A.C.

- **For corals, hardbottom and worm rock communities**

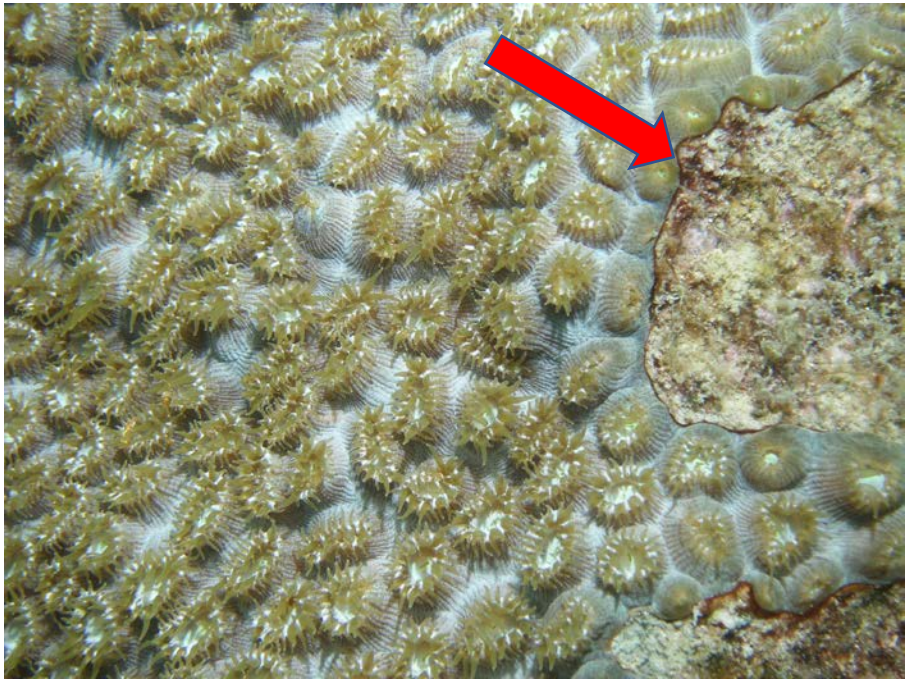
Turbidity shall not be increased above background conditions within the Southeast Florida Coral Reef Ecosystem Conservation Area, Biscayne Bay National Park, Biscayne Bay Aquatic Preserve, Florida Keys National Marine Sanctuary excluding canals, and Dry Tortugas National Park, as shown on the map titled "Florida Reef Tract", July 2019, which is incorporated by reference herein, or other areas of the state where coral reef and hardbottom communities are currently found. For the purposes of evaluating this criterion, background conditions shall take into account the natural variability of turbidity levels and shall be established following the methods described in the document Implementation of the Turbidity Criterion for the Protection of Coral Reef and Hardbottom Communities, dated September 2019, which is incorporated by reference. Note: criterion only applies within predominately marine Class II and III waters.

Florida Reef Tract



Turbidity Effects on Coral

Accumulation of sediment on *Montastraea cavernosa* and resultant partial mortality in area of elevated turbidity



Close-up of partial coral mortality

Turbidity Literature Review

- DEP conducted comprehensive search for studies addressing effects of turbidity on corals
- Found LARGE amount of literature indicating negative impacts to corals due to increased sedimentation, total suspended solids (TSS), and turbidity
- Majority of research conducted in Australia
  - Species used to develop criteria must be representative of sensitive resident (Florida) species
  - However, criteria should be based on Florida or Caribbean species

Turbidity Conclusions

- Clearly conclude from literature that 29 NTU is not protective of corals/hard bottom
- However, there is insufficient data to establish a numeric criterion
  - Criteria cannot simply be incremental improvement
  - Must demonstrate that criterion is protective
- Must also address complexity of natural spatial and temporal variability
  - Resident corals are adapted to the natural variability

Turbidity Implementation Document

- Implementation document adopted by reference
  - Only addresses coral narrative component
- Addresses application in permits (dredging and beach nourishment) and Impaired Waters Rule (IWR)
- For permits, document describes
  - Establishment of pre-construction background condition
  - Data sufficiency
  - Calculation of permit limits (natural background variability) based on the natural background turbidity range during normal tidal cycles

Spatial Extent

Paragraph 62-302.530(70)(b), F.A.C.

- **All marine waters within the Florida Reef Tract (FRT)**
  - **Coral and hardbottom communities are known to either currently or historically occur within the FRT**
  - **Most of the FRT has been designated as critical habitat for the threatened coral species *Acropora cervicornis* (staghorn coral) and *Acropora palmata* (elkhorn coral)**
- **Other marine waters where coral reef or hardbottom communities are present**
  - **These communities are patchy outside of the FRT**
  - **Generally, coastal waters from Brevard to Manatee Counties**

Determining Background

- Natural background variability will be established based on pre-project turbidity data collected at “baseline” stations
- Data collection must follow standard DEP SOPs
  - DEP-SOP-001/01 FT 1600 Field Measurements of Turbidity
- Pre-project baseline stations shall be established independently for each project sub-area
  - Offshore borrow areas, nearshore placement stations, nearshore dredging areas, and offshore dredging areas

Determining Background
(continued)

- Samples must be taken in areas with minimal man-induced alterations
- Pre-project baseline station(s) shall be located above living coral or hardbottom community if any are present
- Projects expected to last longer than three months may have season-specific turbidity limits

Calculation of Background Variability

- Permit-required turbidity limits will be established based on the observed turbidity range at pre-project baseline station(s)
  - Intended to maintain the background turbidity magnitude, frequency and duration
- Limits will be expressed as the allowable increase between the project background and compliance stations
- The permit-required turbidity limits shall be calculated, using data collected at the baseline station(s), as an upper confidence interval of the mean difference between min and max turbidity

Calculation of Background Variability

(continued)

- **Upper 90% confidence interval used if baseline turbidity levels are provided for 3 or 4 pre-project tidal cycles**

$$\text{Upper 90\% confidence interval} = \bar{X} + 1.64 \times \frac{S}{\sqrt{n}}$$

- **If background turbidity levels are provided for 5 or more pre-project baseline tidal cycles use the upper 95% confidence interval**

$$\text{Upper 95\% confidence interval} = \bar{X} + 1.96 \times \frac{S}{\sqrt{n}}$$

$\bar{X}$ = Mean of differences between minimum and maximum turbidity over each baseline tidal cycle

S = Standard deviation of the differences between minimum and maximum turbidity over all baseline tidal cycles

n = the number of baseline tidal cycles

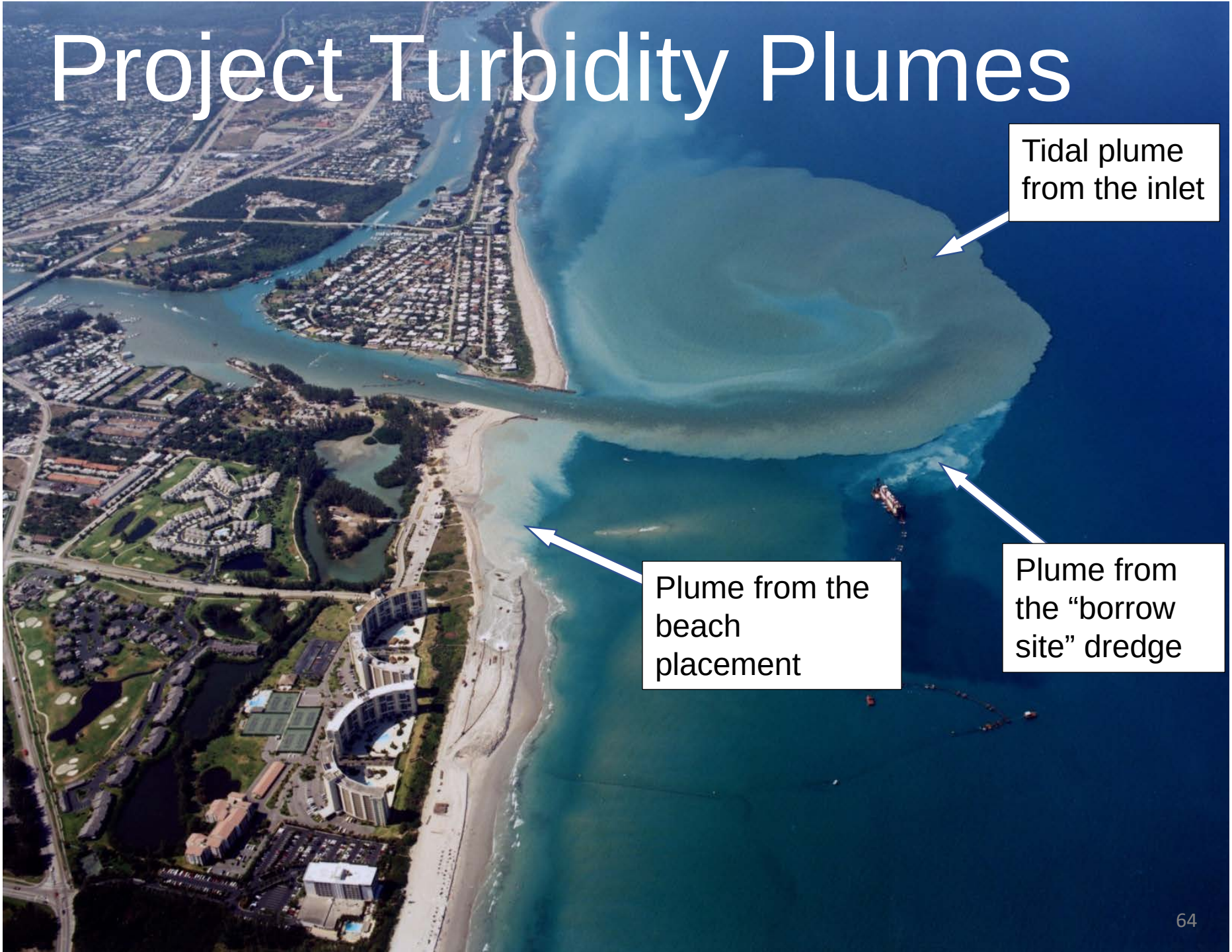
Example Limit Calc.

Based on 5 pre-project tidal cycles

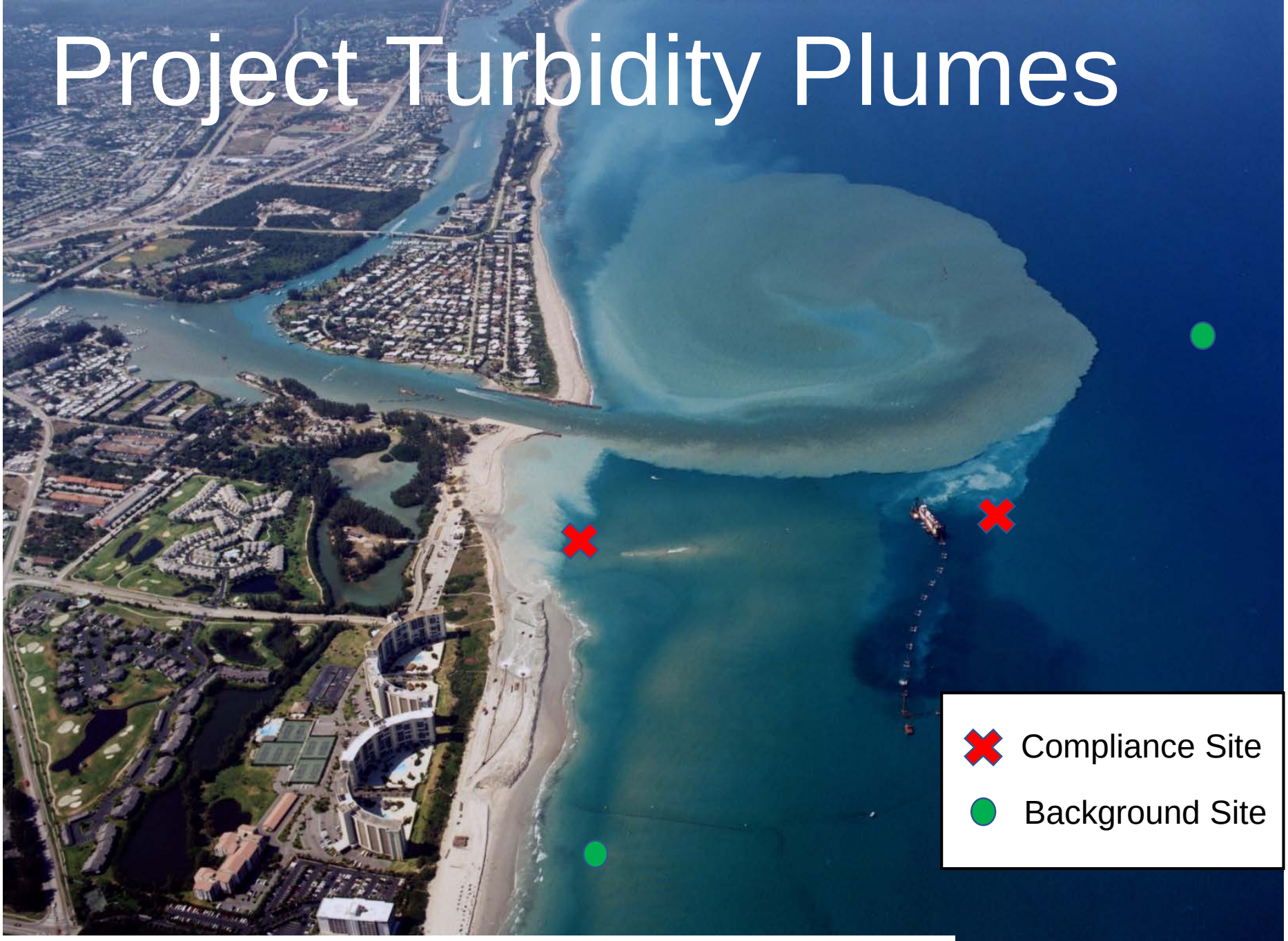
Tidal Cycle	Surface Minimum Turbidity (NTU)	Surface Maximum Turbidity (NTU	Bottom Minimum Turbidity (NTU)	Bottom Maximum Turbidity (NTU)	Turbidity Difference Surface	Turbidity Difference Bottom
1	1.5	2.8	1.2	2.6	1.3	1.4
2	3.1	3.5	2.9	4.1	0.4	1.2
3	1.1	2.7	1.1	2.5	1.6	1.4
4	3.5	3.8	2.5	4.4	0.3	1.9
5	2.4	5.1	2.3	5.6	2.7	3.3
				Mean Difference	1.26	1.84
				Standard Deviation	0.981	0.856
				Sample size (n)	5	5
				Upper 95% C.I.	2.1	2.6

Permit-required limit; i.e., allowable deviation from project background

Project Turbidity Plumes



Project Turbidity Plumes



Disclaimer: site locations are for illustrative purposes only.

Example Application

Based on 5 pre-project tidal cycles

Tidal Cycle	Surface Minimum Turbidity (NTU)	Surface Maximum Turbidity (NTU	Bottom Minimum Turbidity (NTU)	Bottom Maximum Turbidity (NTU)	Turbidity Difference Surface	Turbidity Difference Bottom
1	1.5	2.8	1.2	2.6	1.3	1.4
2	3.1	3.5	2.9	4.1	0.4	1.2
3	1.1	2.7	1.1	2.5	1.6	1.4
4	3.5	3.8	2.5	4.4	0.3	1.9
5	2.4	5.1	2.3	5.6	2.7	3.3
				Mean Difference	1.26	1.84
				Standard Deviation	0.981	0.856
				Sample size (n)	5	5
				Upper 95% C.I.	2.1	2.6

Permit-required limit; i.e., allowable deviation from project background

Example Compliance Report

Date	Surface Background Turbidity (NTU, BG_s)	Surface Turbidity Permit Limit (NTU, BG_s +2.1)	Surface Compliance Turbidity (NTU)	Bottom Background Turbidity (NTU, BG_b)	Bottom Turbidity Permit Limit (NTU, BG_b +2.6)	Bottom Compliance Turbidity (NTU)
5/27/2019	3.9	6.0	5.6	3.4	6.0	5.4
5/27/2019	3.2	5.3	4.1	3.3	5.9	4.9
5/27/2019	2.1	4.2	4.0	2.3	4.9	4.3
5/28/2019	3.7	5.8	5.5	4.0	6.6	6.0
5/28/2019	4.7	6.8	4.8	3.7	6.3	5.3
5/28/2019	2.5	4.6	4.2	2.5	5.1	4.5
5/29/2019	3.6	5.7	4.9	4.4	7.0	6.4
5/29/2019	2.9	5.0	5.0	2.1	4.7	4.7
5/29/2019	5.1	7.2	3.2	2.1	4.7	4.1
5/30/2019	4.7	6.8	4.1	5.0	7.6	7.3

IWR Implementation

Paragraph 62-302.530(70)(b), F.A.C.

- **DEP will assess the attainment of the turbidity criterion for coral reefs and hardbottom communities in the IWR**
- **Only waters where coral and hardbottom communities are known to occur or potentially occur are subject to these turbidity assessment provisions**
  - **Florida Reef Tract**
  - **Open coastal waters within Manatee, Sarasota, Charlotte, Lee, Collier, Monroe, Miami-Dade, Broward, Palm Beach, Martin, St. Lucie, Indian River, and Brevard (to Cape Canaveral) counties**

IWR Implementation

(continued)

Paragraph 62-302.530(70)(b), F.A.C.

- **Appendix A provides baseline turbidity (90th percentile) levels for all assessment units (Waterbody Identification Units or WBIDs) with coral reefs and hardbottom communities**
- **Attainment of the 90th percentile baseline values will be evaluated using the binomial hypothesis test**
  - **80 percent confidence level for Planning List**
  - **90 percent confidence level for Verified List**
- **Waterbodies that exceed the number of exceedances for a given sample size in Tables 1 and 3 in IWR will be placed on the Planning and Verified Lists, respectively**

Example Baseline Turbidity Thresholds

WBID	Area	Sample Size (N)	Mean (NTU)	90th (NTU)
8091	Coral ECA	54	1.8	3.6
8100	Coral ECA	76	0.6	1.2
8101	Coral ECA	158	1.0	2.0
6001	Biscayne Bay	9470	1.3	2.9
8088	Biscayne Bay	339	1.3	1.8
8089	Biscayne Bay	316	1.7	2.7
8076	Florida Keys	464	1.7	2.1
8079	Florida Keys	723	1.6	2.2
8080	Florida Keys	281	1.6	2.4
8065	10,000 Islands	125	4.8	8.9
8066	10,000 Islands	253	5.9	8.2
8050	Gulf of Mexico	91	2.8	6.1
8051	Gulf of Mexico	364	2.7	5.8

Coral ECA = Southeast Florida Coral Reef Ecosystem Conservation Area

Cyanotoxin Criteria

Paragraphs 62-302.530(72) and (73), F.A.C.

- **EPA finalized national recommended recreational water quality criteria and swimming advisories for cyanotoxins**
  - **May 22, 2019**
  - **Addressed both Microcystin and Cylindrospermopsin**

EPA Recommended Cyanotoxin Criteria/Advisory Thresholds

Table 6-1. Recreational Criteria or Swimming Advisory Recommendations for Microcystins and Cylindrospermopsin[a]

Application of Recommended Values	Microcystins			Cylindrospermopsin		
	Magnitude (µg/L)	Duration	Frequency	Magnitude (µg/L)	Duration	Frequency
Recreational Water Quality Criteria	8	1 in 10-day assessment period across a recreational season	More than 3 excursions in a recreational season, not to be exceeded in more than one year[b]	15	1 in 10-day assessment period across a recreational season	More than 3 excursions in a recreational season, not to be exceeded in more than one year[b]
Swimming Advisory		One day	Not to be exceeded		One day	Not to be exceeded

Basis for EPA Recommended Cyanotoxin Criteria/Advisory Thresholds

Recreational Value = RfD x Body Weight/Ingestion Rate

where RfD = reference dose

0.05 µg/kg/day X 31.8 kg/0.21 L/day = 8 µg/L microcystins

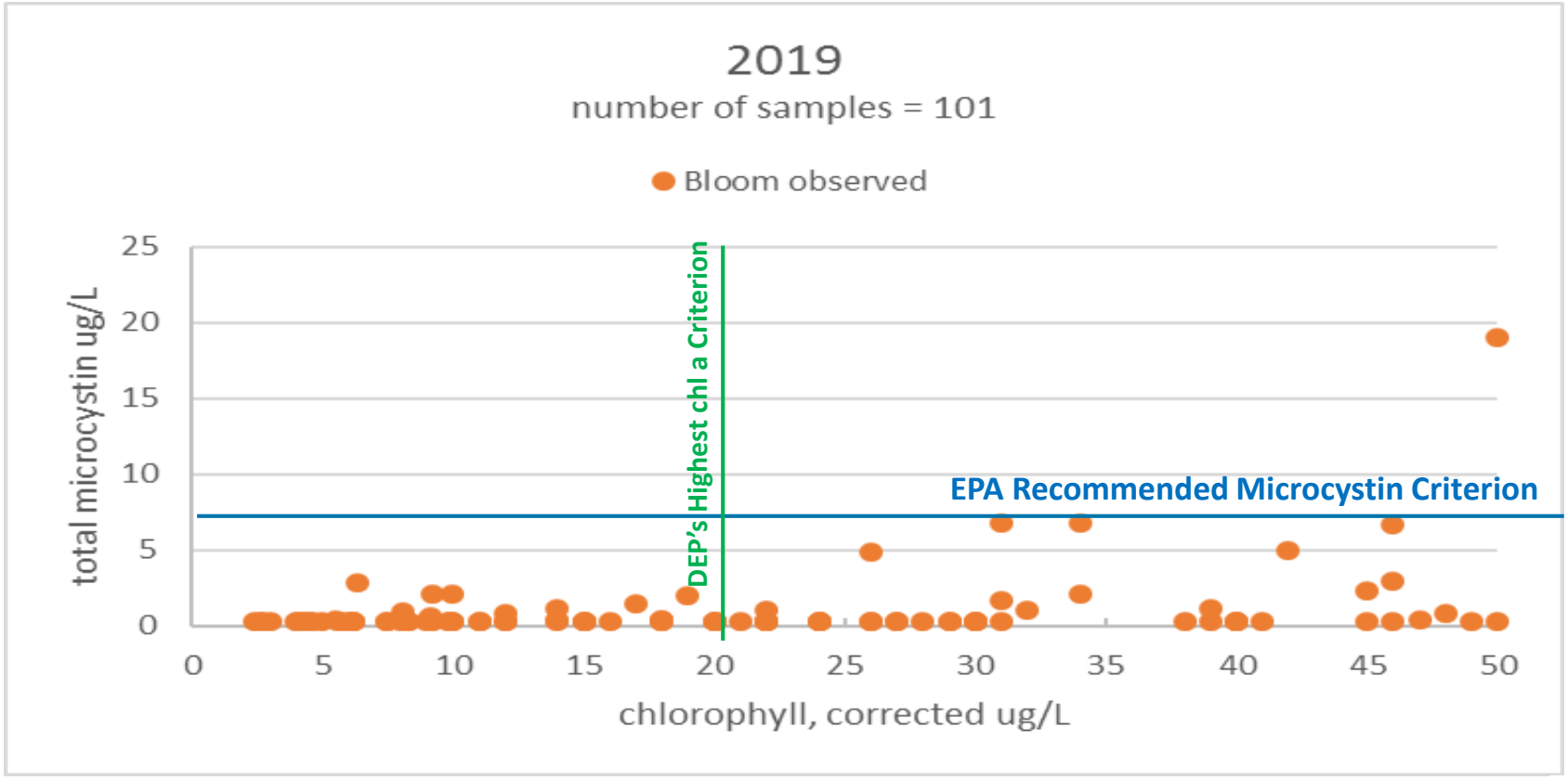
0.1 µg/kg/day X 31.8 kg/0.21 L/day = 15 µg/L cyclindrospermopsin

- **Assumes 100% of child's exposure (ages 6 – 10) comes from incidental ingestion during swimming**
- **2016 draft document applied a Relative Source Contribution (RSC) factor of 0.8 and an incidental ingestion estimate of 0.33 L/day, yielding draft values of 4 µg/L microcystins and 8 µg/L cyclindrospermopsin**
- **DEP received a petition requesting that we adopt EPA 2016 draft thresholds as water quality criteria**

Basis for EPA Recommended Cyanotoxin Criteria/Advisory Thresholds

- EPA recommended cyanotoxin criteria are specifically designed to protect human health
- DEP has already adopted NNC designed to be protective of aquatic life use support, which was determined to be most sensitive use
  - Also protects human health
- Adopted NNC for streams, springs, lakes and estuaries
- Highest adopted chlorophyll *a* criterion is 20 µg/L (for colored lakes at 20 µg/L), and data indicate that microcystin concentrations are well below recommended cyanotoxin criteria at 20 µg/L chl *a*

2019 CyanoHAB Sampling Results



State	Recreational Water Guidance/Action Levels
California	Microcystin: 0.8 µg/L; Anatoxin-a: 90 µg/L; Cylindrospermopsin: 4 µg/L
Connecticut	-Visual Rank Category 1: Visible Material is not likely cyanobacteria or water is generally clear. -Visual Rank Category 2: Cyanobacteria present in low numbers. -Visual Rank Category 3: Cyanobacteria present in high numbers.
Illinois	Microcystin-LR concentration results approach or exceed 10 µg/L
Indiana	Level 1: very low/no risk < 4 µg/L microcystin-LR Level 2: low to moderate risk 4 to 20 µg/L microcystin-LR Level 3: serious risk > 20 µg/L microcystin-LR Warning Level: Cylindrospermopsin: 5 ppb
Iowa	Microcystin ≥ 20 µg/L
Kansas	Health advisory: >4 µg/L to <20 µg/L for microcystin or > 20,000 cell/mL to <100,000 cell/mL cyanobacteria cell counts Health Warning: > 20 µg/L or > 100,000 cell/mL cyanobacterial cell counts and visible scum present
Kentucky (Louisville District)	Advisory: >20,000 cells/mL of cyanobacteria cell counts; Caution: > 100,000 cells/mL of cyanobacteria cell counts
Massachusetts	14 µg/L for microcystin-LR and ≥ 70,000 cells/mL for cyanobacteria cell counts
Nebraska	Microcystin ≥ 20 µg/L
New Hampshire	>50% of cell counts from toxigenic cyanobacteria
North Carolina	Visible discoloration of the water or a surface scum may be considered for microcystin testing
Ohio	Microcystin-LR: PHA: 6 µg/L; NCA: 20 µg/L; Anatoxin-a: PHA: 80 µg/L; NCA: 300 µg/L Saxitoxin: PHA: 0.8 µg/L; NCA: 3 µg/L; Cylindrospermopsin: PHA: 5 µg/L; NCA: 20 µg/L
Oklahoma	100,000 cell/mL of cyanobacteria cell counts and > 20µg/L for microcystin
Oregon	Option 1: Visible scum and cell count or toxicity Option 2: Toxigenic species >100,000 cells/mL Option 3: Microcystis or Planktothrix > 40,000 cells/mL Option 4: Microcystin : 10 µg/L ; Anatoxin-a: 20 µg/L; Cylindrospermopsin: 6µg/L; Saxitoxin: 100 µg/L
Rhode Island	Visible cyanobacteria scum or mat and/or cyanobacteria cell count > 70,000 cells/mL and/or ≥14 µg/L of microcystin-LR
Texas	> 100,000 cell/mL of cyanobacteria cell counts and >20µg/L microcystin
Vermont	4,000 cells/mL cyanobacteria cell counts or ≥ 6µg/L microcystin-LR and the visible presence of cyanobacterial scum Anatoxin-a ≥ 10 µg/L
Virginia	Microcystin provisional action level: 6µg/L
Washington	Microcystin-LR: 6 µg/L; Anatoxin-a: 1 µg/L; Cylindrospermopsin: 4.5 µg/L; Saxitoxin: 75 µg/L
Wisconsin	> 100,000 cells/mL or scum layer

Slide Courtesy of Lesley D'Anglada, EPA OST

Cyanotoxin Exposure

- Florida currently monitors surface waters for cyanotoxins when blooms are detected
- Cyanotoxins are not regularly monitored in fish tissues, sediments, or air, but have been detected in all 3 media
- EPA's recommended recreational thresholds assume 100% of exposure is through incidental ingestion of water during recreational activities
- There are few commercially available cyanotoxin analytical standards compared to the overall number of known toxins
- More realistic estimates of cyanotoxin risk to people, pets, livestock, and wildlife would require additional monitoring and research

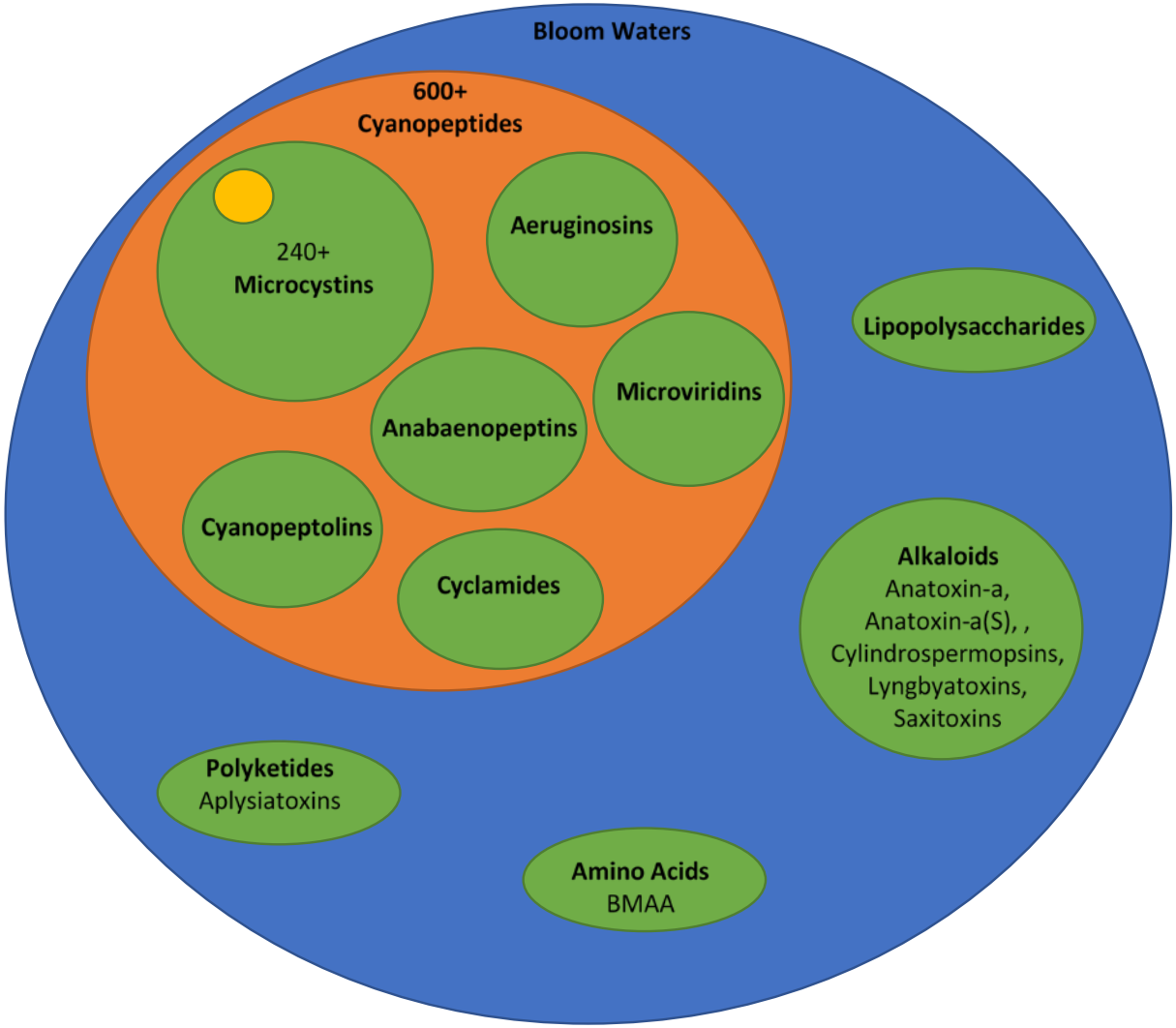
Current Florida Practice for Algal Bloom Response

- DEP and DOH use visual presence of an algal bloom as one threshold
  - Used as a trigger by DEP to perform Algal Bloom Response Sampling (cyanotoxins, algal ID, Nutrients, and Chl *a*)
  - If cyanobacteria are present, but no toxins detected, DOH encourages local county health units to issue a Caution Advisory
- If cyanotoxins are detected (at all), DOH encourages local county health units to issue an Alert Advisory
  - DEP performs repeat sampling at sites with detectable toxin levels until toxins are no longer detected
  - Alerts are removed once cyanobacteria bloom or toxins are no longer present per DEP HAB Dashboard

Precautionary Principle

- **Visual presence of bloom used as threshold instead of numeric toxin value because:**
  - **Lag time between sample collection and dissemination of results**
  - **Allows the public to make decisions about recreating in a water at the time of use**
  - **High spatial and temporal variability in algal cell and toxin concentrations**
  - **Very low incidence of toxins in waters without visible bloom present**
  - **Application of EPA's recommended criteria would not cause any additional waters in Florida to be listed as impaired**
  - **Concerns regarding EPA's derivation of cyanotoxin thresholds**

Cyanotoxins



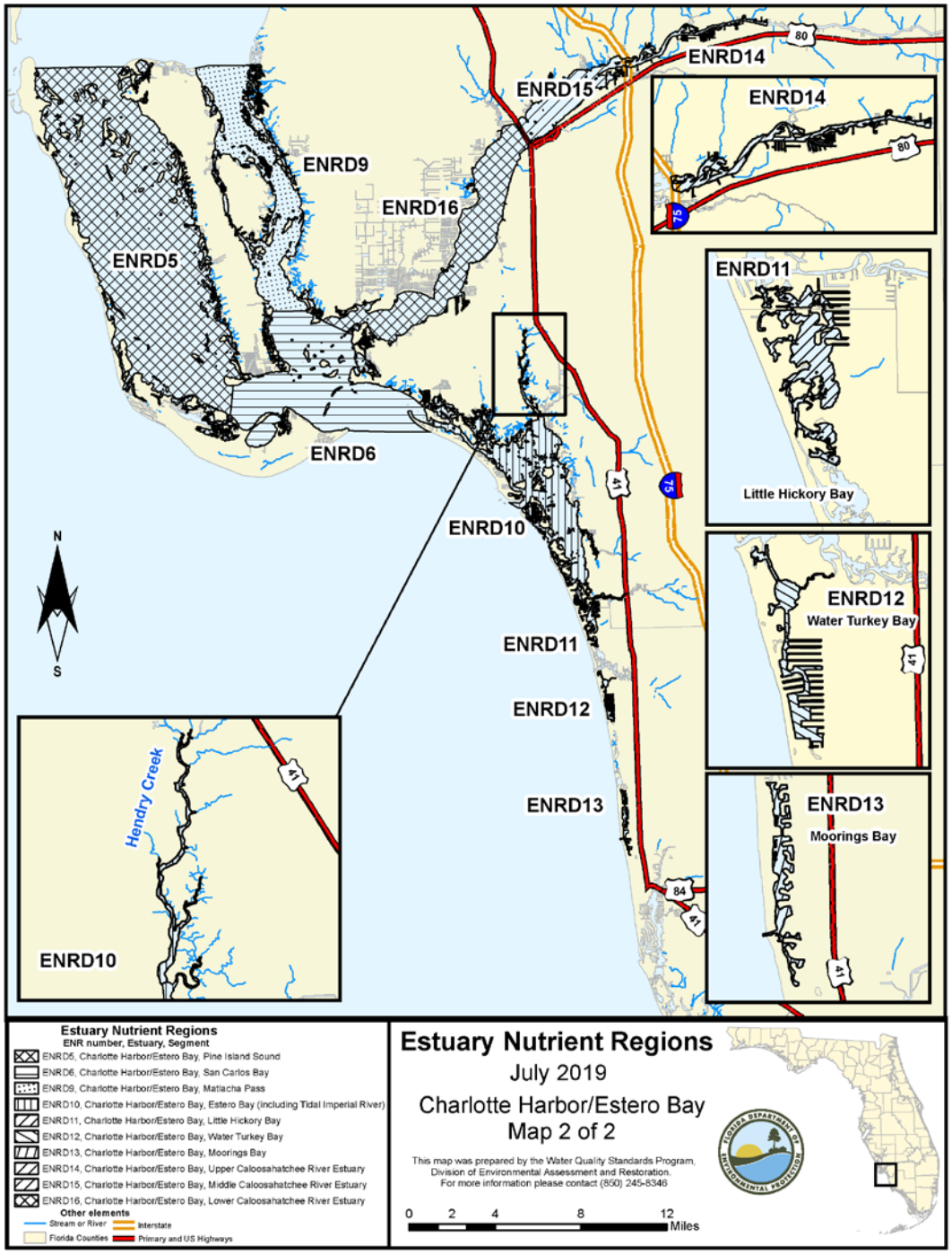
Rule 62-302.532, F.A.C.

Estuary NNC

- **Revised Estuary Nutrient Region (ENR) maps for four estuaries**
  - **Estero Bay (ENRD10)**
  - **Upper Escambia Bay (ENRL7)**
  - **Lower Halifax River Estuary (ENRS1)**
  - **St. Marks River Estuary (ENRX3)**

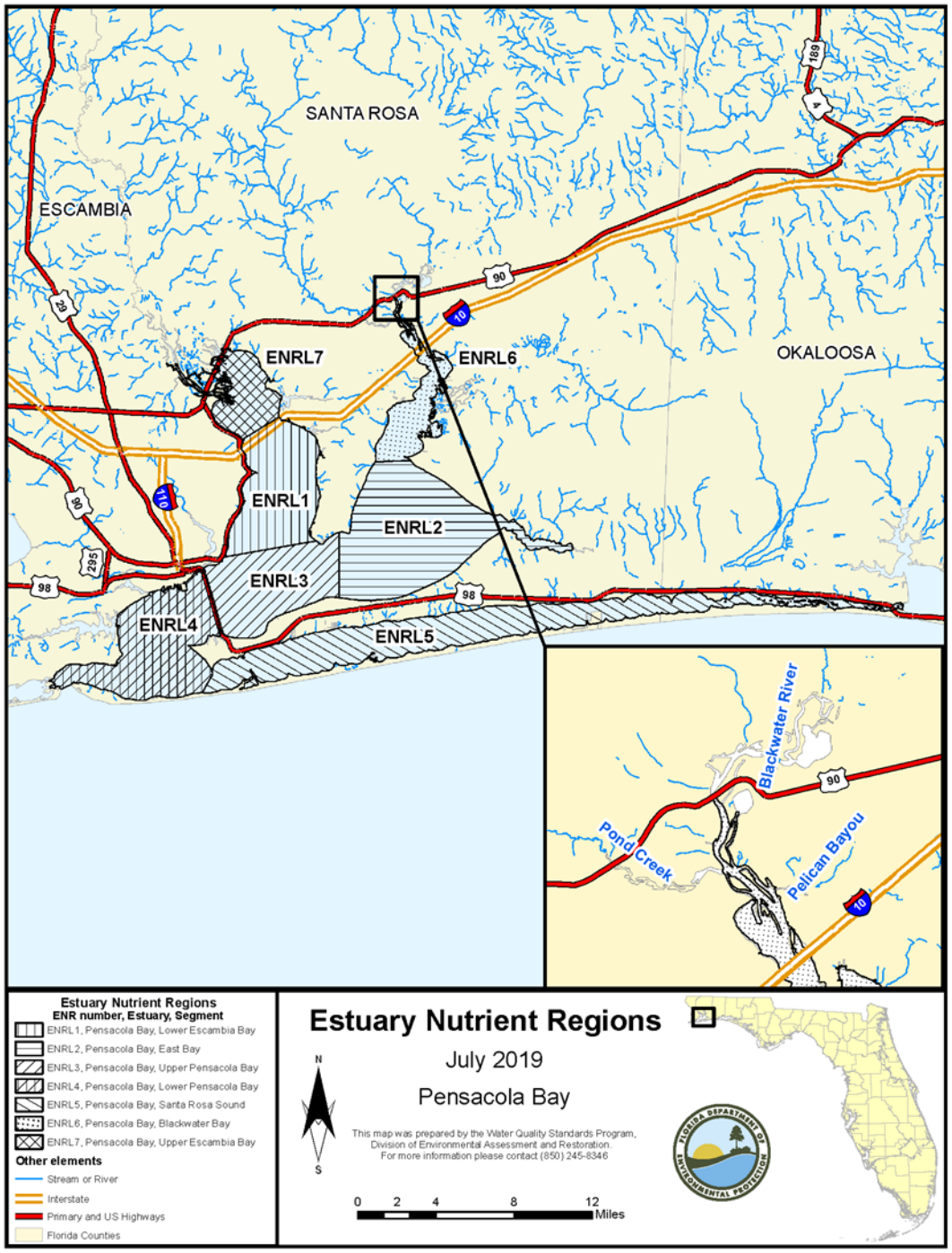
Estero Bay

- ENRD10
- Original ENR did not include the full extent of marine waters in Hendry Creek
- Extended to cover predominately marine waters



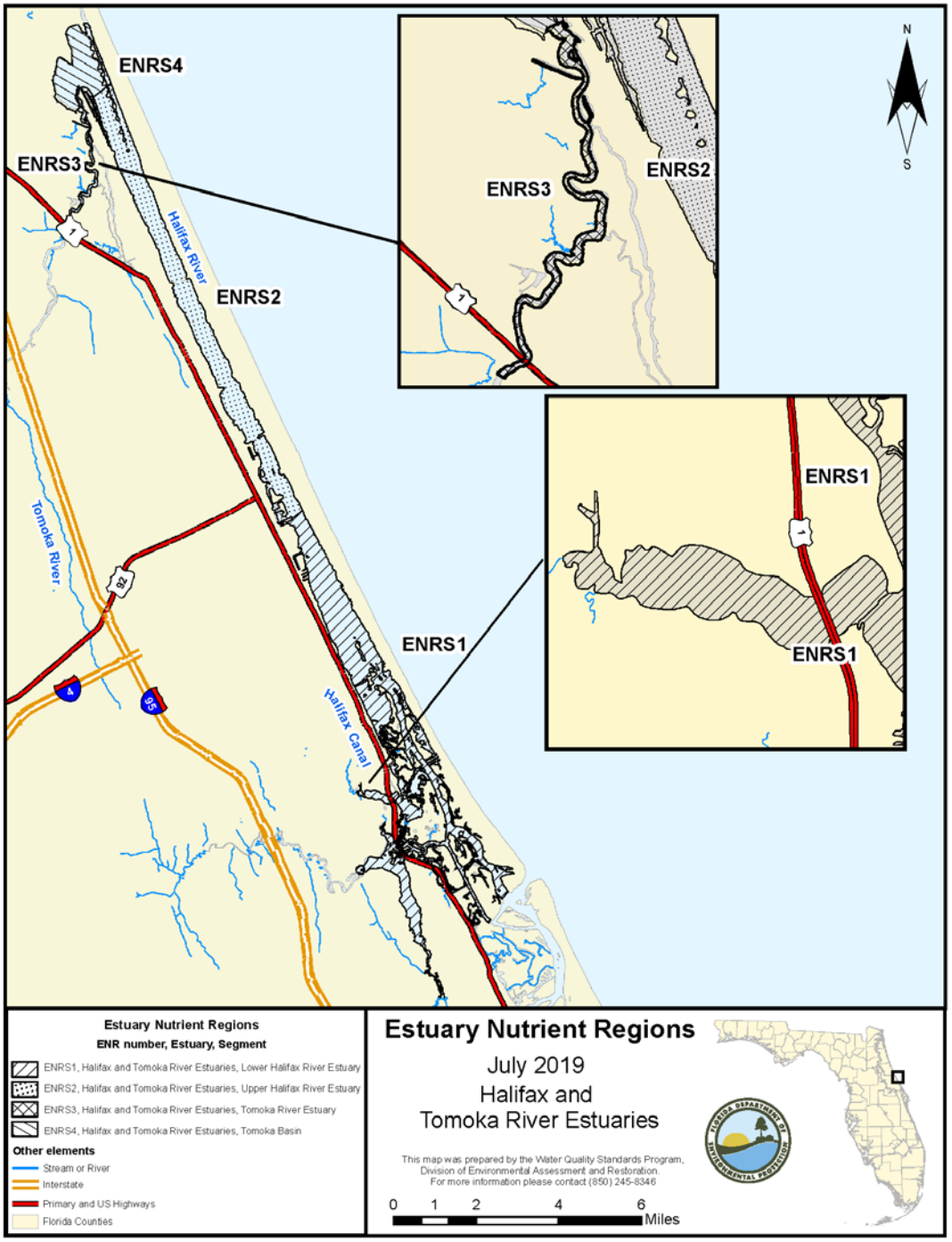
Upper Escambia Bay

- ENRL7
- ENR previously extended beyond the extent of predominately marine waters in Blackwater River
- Adjusted (reduced) to only include marine waters



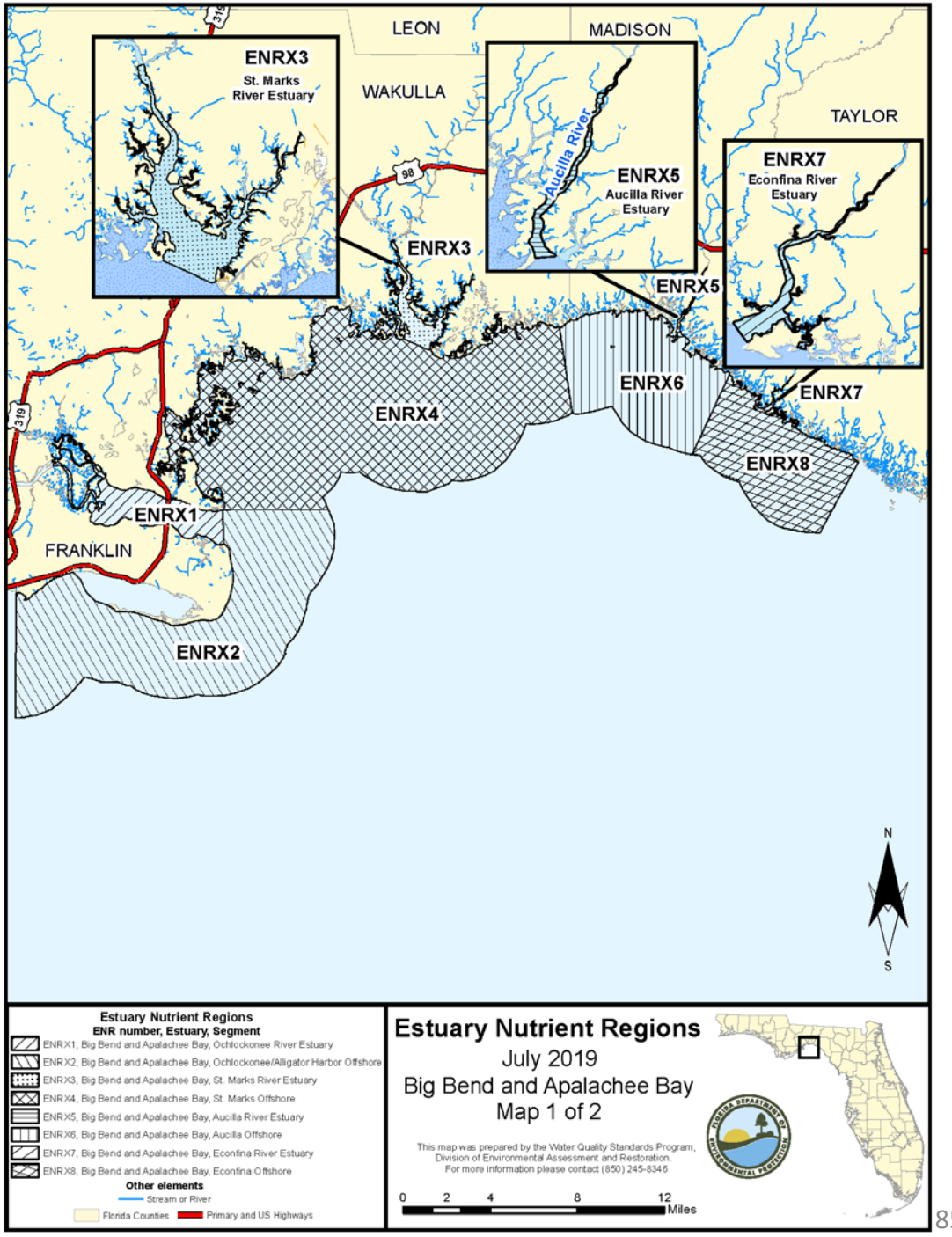
Lower Halifax River Estuary

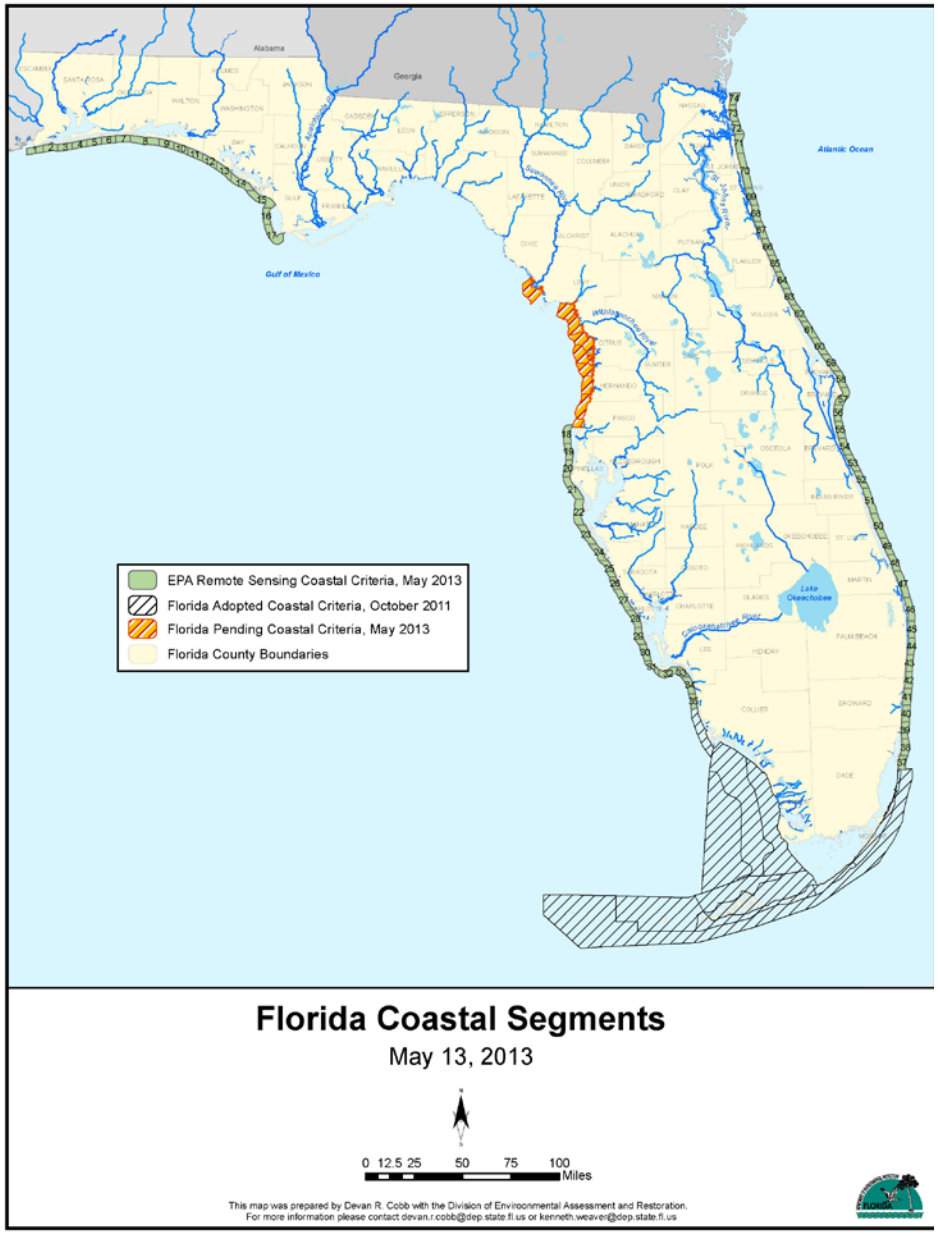
- ENRS7
- Existing ENR does not include all of Rose Bay
- Adjusted to include all predominately marine waters of Rose Bay

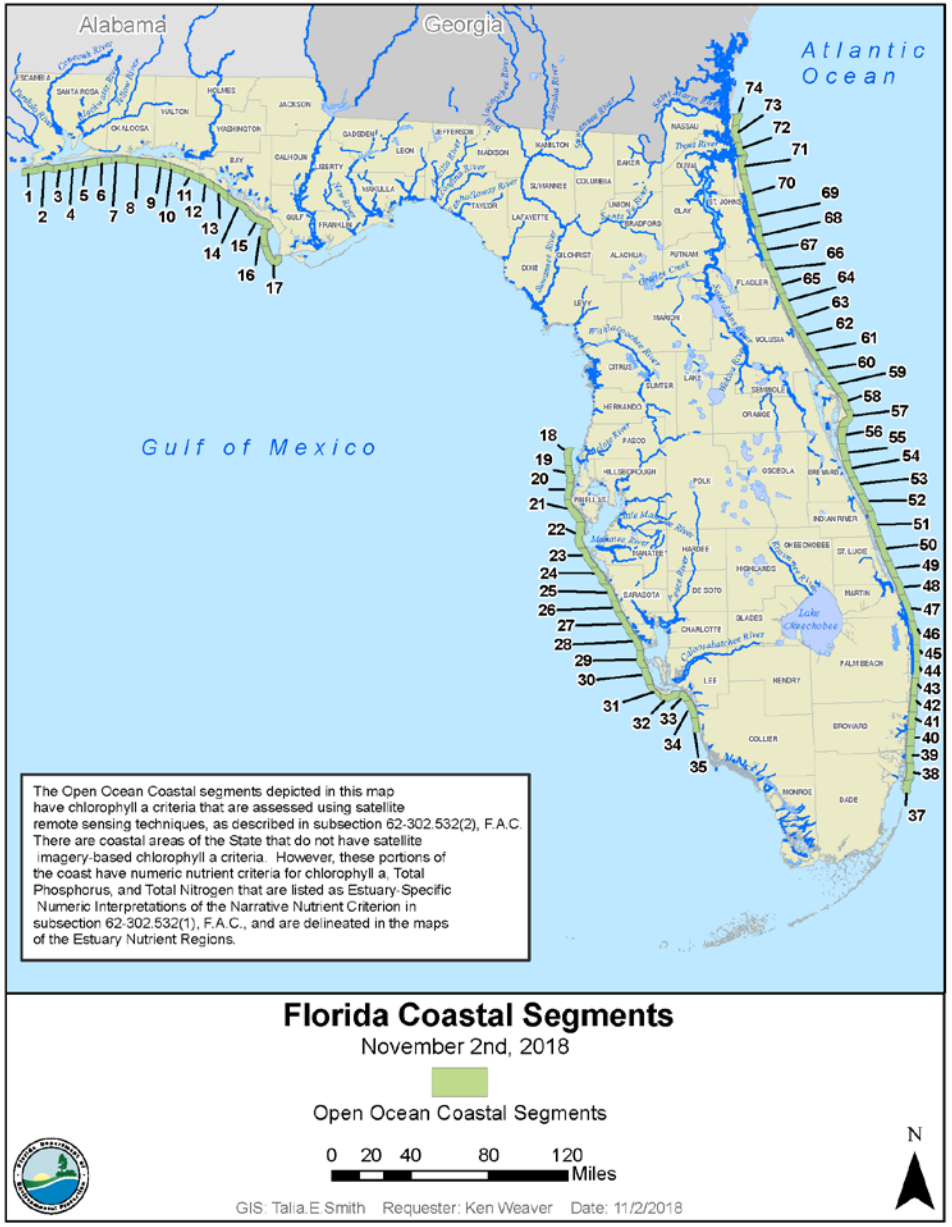


St. Marks River Estuary

- ENRX3
- Upstream extent was slightly adjusted to correspond with revised Class II and WBID boundaries







Florida Coastal Segment Map

Rule 62-302.533, F.A.C.

Dissolved Oxygen Criteria

- **Added text for time-of-day adjustments for ambient DO data**
  - **Same text that is currently in IWR**

62-302.533(1)(a) - When assessing ambient surface water samples, the freshwater DO criteria shall be assessed preferentially using daily average values calculated from full days of diel monitoring data consisting of 24 hours of measurements collected at a regular time interval of no longer than one hour. If diel monitoring data are not available, instantaneous surface water samples may be used to assess the DO criterion by comparing the instantaneous value with a time-of-day-specific translation of the daily average criterion using the procedure described in subparagraph 62-303.320(4)(b)4., F.A.C.

Rule 62-302.533, F.A.C.

(continued)

Dissolved Oxygen Criteria

- **Removed text in subsection (5) related to maintenance of DO levels (trend assessment)**

(5) - Ambient DO levels above the minimum criteria specified in subsections 62-302.533(1) and (2), F.A.C., shall be maintained in accordance with and subject to Rules 62-302.300 and 62-4.242, F.A.C. Ambient DO levels will be considered to have declined, for purposes of this subsection if~~, after controlling for or removing the effects of confounding variables, such as climatic and hydrologic cycles, quality assurance issues, and changes in analytical methods,~~ a waterbody segment is shown to have a statistically significant decreasing trend in DO percent saturation or an increasing trend in the range of daily DO fluctuations at the 95 percent confidence level using the one-sided Seasonal Kendall test for trend..

Rule 62-302.700, F.A.C.

Outstanding Florida Waters

- **Revised references to definitions of "canals" and "channels" in the descriptions of Special Waters OFWs listed in Rule 62-302.700, F.A.C.**
  - **Current reference for definition of canals is subsection 62-312.020(3), F.A.C., has been repealed,**
  - **Propose to change reference to 403.803(2), Florida Statutes (F.S.), which is the statutory definition**
  - **Current reference for definition of channels is subsection 62-312.020(4), F.A.C., and propose to change to 403.803(3), F.S.**
- **Definitions very similar**

Rule 62-302.800, F.A.C.

Site Specific Alternative Criteria

- **Added to requirements for SSACs to require information about threatened and endangered species**
  - 62-302.800(1)(a) The affirmative demonstration required by this section shall mean a documented showing that the proposed alternative criteria would exist due to natural background conditions or man-induced conditions which cannot be controlled or abated. Such demonstration shall be based upon relevant factors which include:

1-3. Unchanged

4. A discussion of any impacts of the proposed alternative criteria on the designated use of the waters and downstream ~~adjoining~~ waters

5. A description of the occurrence of any Federally listed threatened or endangered plant or animal species and critical habitats within the water or downstream waters. An affirmative demonstration that the alternative criteria will not negatively affect threatened or endangered species or critical habitats must be included if any are present in the water or downstream waters.

Rule 62-302.800, F.A.C.

Site Specific Alternative Criteria

- **Updated text for Type II SSACs**
  - 62-302.800(2)(c)2. In making the demonstration required by this paragraph (c), the petition shall include an assessment of aquatic toxicity, except on a showing that no such assessment is relevant to the particular criterion. The assessment of aquatic toxicity shall show that physical and chemical conditions at the site alter the toxicity or bioavailability of the compound in question and shall meet the requirements and follow the Water-Effect Ratio approach ~~Indicator Species procedure~~ set forth in Appendix L of the *Water Quality Standards Handbook* (February 1994~~December 1983~~), a publication of the United States Environmental Protection Agency, incorporated here by reference. The Water-Effect Ratio approach is not applicable to the following parameters: nutrients, nutrient response variables, dissolved oxygen, alkalinity, specific conductance, transparency, turbidity, biological integrity, iron, total ammonia nitrogen, or pH. If the Water-Effect Ratio approach~~, however, the Indicator Species Procedure~~ is not applicable to the proposed site-specific alternative criterion, the petitioner may propose another generally accepted scientific method or procedure to demonstrate with equal assurance that the alternative criterion will protect the aquatic life designated use of the waterbody.

Type II DO SSACs

- Dissolved Oxygen (DO) Site Specific Alternative Criteria (SSAC) for 11 streams
- Streams were selected from a list of candidate waters listed in Category 4c (impaired for one or more criteria or designated uses, but do not require TMDL development because the impairments are not caused by a pollutant)
  - Low DO levels were determined to be caused by natural background conditions
  - Support healthy biology (Stream Condition Index, SCI)

Identifying Waterbodies for SSAC Development

- To identify waterbodies appropriate for SSAC development, several different screens were used:
  - Landscape Development Intensity Index (LDI)
  - Land use: the WBIDs needed to be composed of either

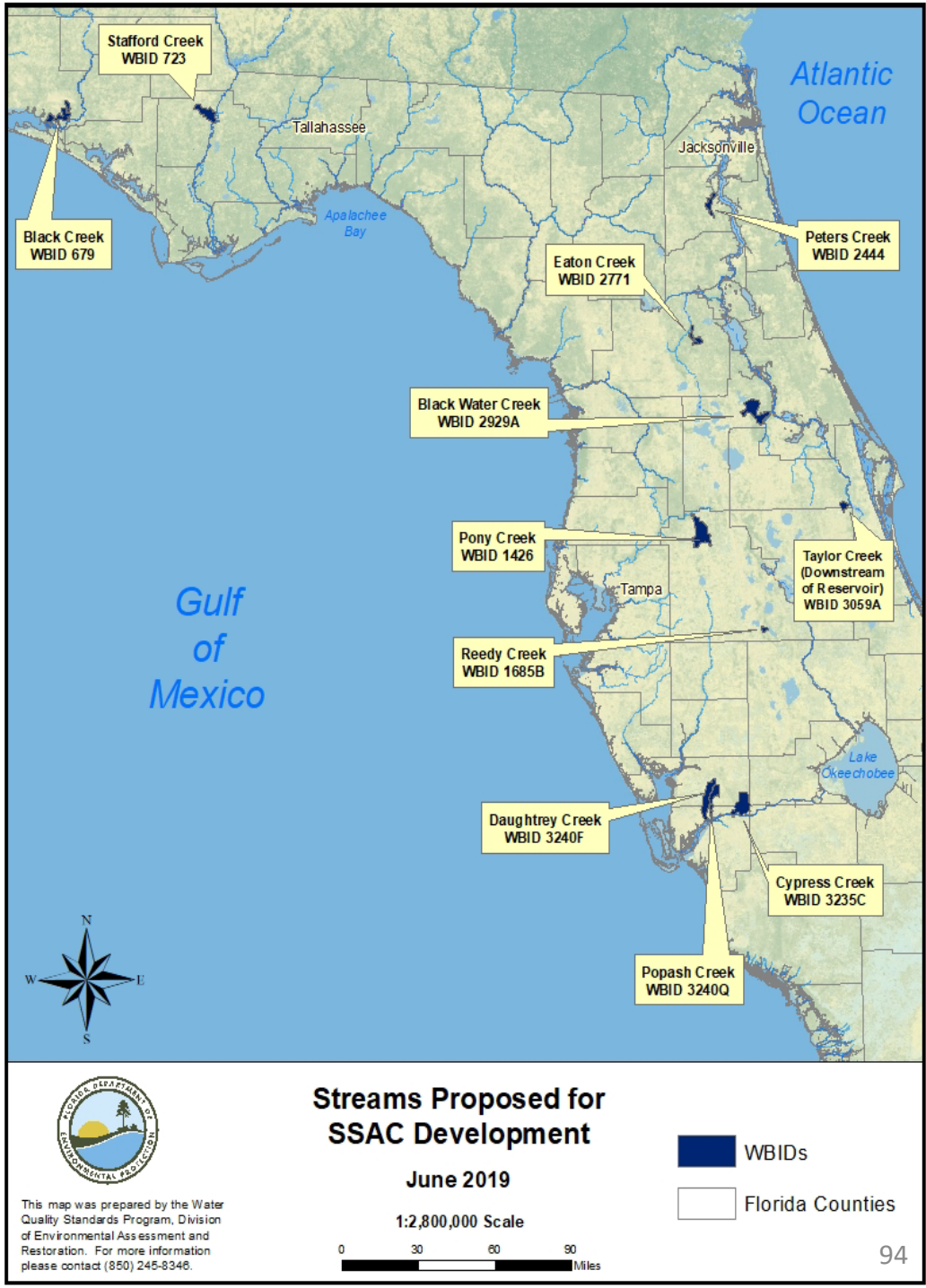
    a) 20% or more wetlands; or,

    b) at least 50% combined wetland, forested and/or shrub and brushland uses, and have no more than 20% urban land uses
  - Minimum of 50 DO values collected from 2006 to 2018
  - At least 2 temporally independent SCIs of 40 or higher, with neither of the 2 most recent SCI scores < 35

Streams Selected

Waterbody	WBID	Bioregion	County
Black Creek	679	Panhandle	Walton
Stafford Creek	723	Panhandle	Calhoun
Pony Creek	1426	Peninsula	Polk
Reedy Creek[1]	1685B	Peninsula	Polk
Daughtrey Creek	3240F	Peninsula	Charlotte/Lee
Popash Creek	3240Q	Peninsula	Charlotte/Lee
Cypress Creek	3235C	Peninsula	Charlotte/Glades/ Hendry/Lee
Taylor Creek (Downstream of Reservoir)	3059A	Peninsula	Orange/Osceola
Black Water Creek	2929A	Peninsula	Lake
Eaton Creek	2771	Peninsula	Marion
Peters Creek	2444	Northeast	Clay

[1]This system was previously named Livingston Creek and was re-named Reedy Creek during IWR Run 55 edits.



SSAC Development Data Screening

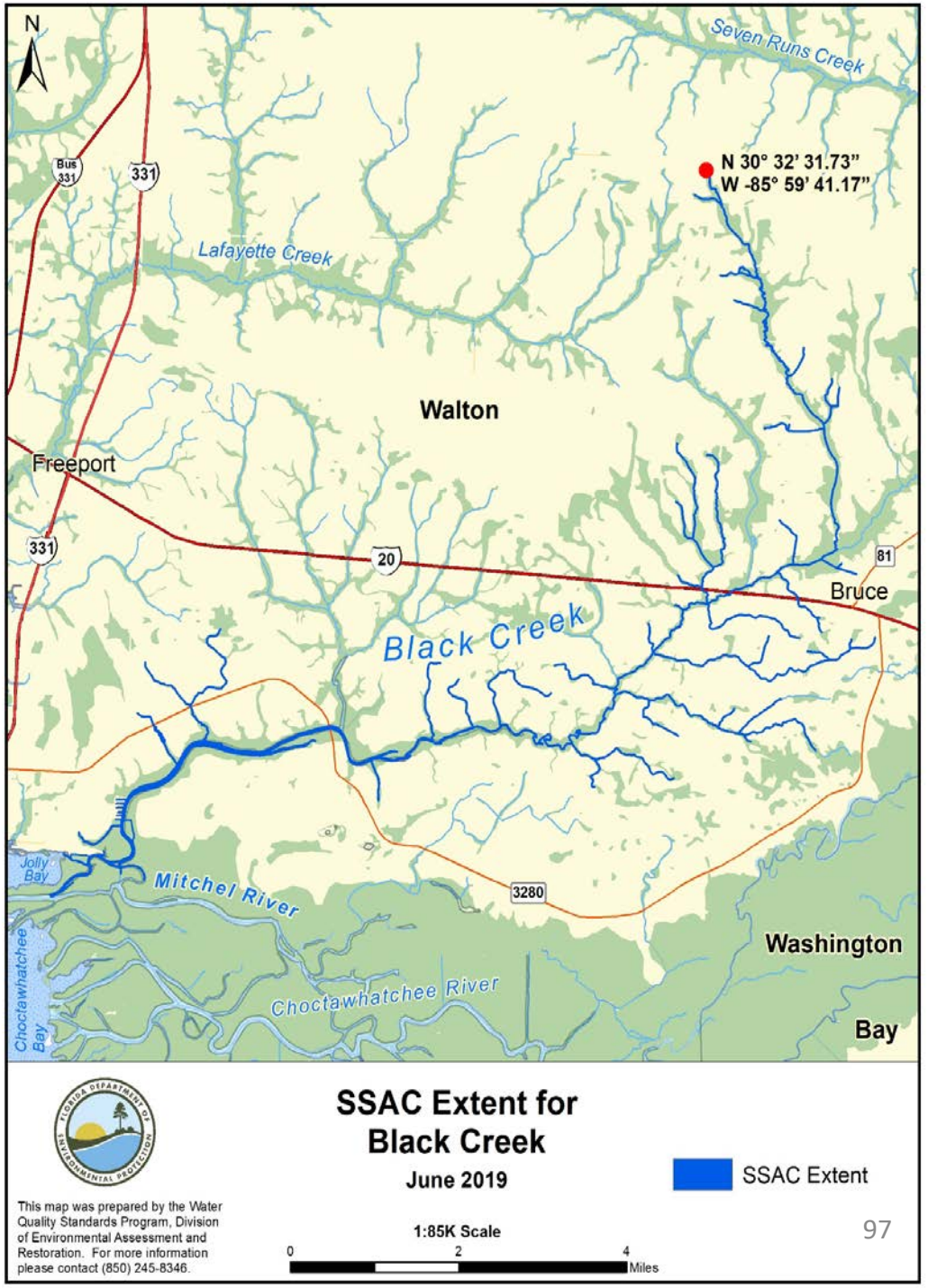
- Water quality data collected from 2006 through 2018 were retrieved from the DEP's IWR database (Run 56)
- Data screened based on lab qualifier codes, consistent with the DEP's QA Rule (Chapter 62-160, F.A.C.)
  - Any datum associated with a fatal qualifier was removed from the analysis
- Data reported as less than the Method Detection Limit (MDL) were assigned a value of one-half the MDL
- Values that exceeded possible physical or chemical measurement constraints (e.g., negative DO levels) were excluded
- Multiple samples/measurements collected during the same day at a site were averaged

SSAC Derivation

- To account for natural variability, the proposed SSACs were calculated as the 10th percentiles of existing (2006-2018) DO saturation levels within each waterbody
- The proposed DO SSACs will be applied such that no more than 10 percent of the DO saturation measurements collected within each waterbody during a calendar year shall be below the specified SSAC
- The 10 percent allowable exceedance frequency is consistent with the derivation of the SSAC based on the 10th percentile of the existing distribution
  - Approximately 10 percent of the measurements would be expected to be below the 10th percentile under typical conditions

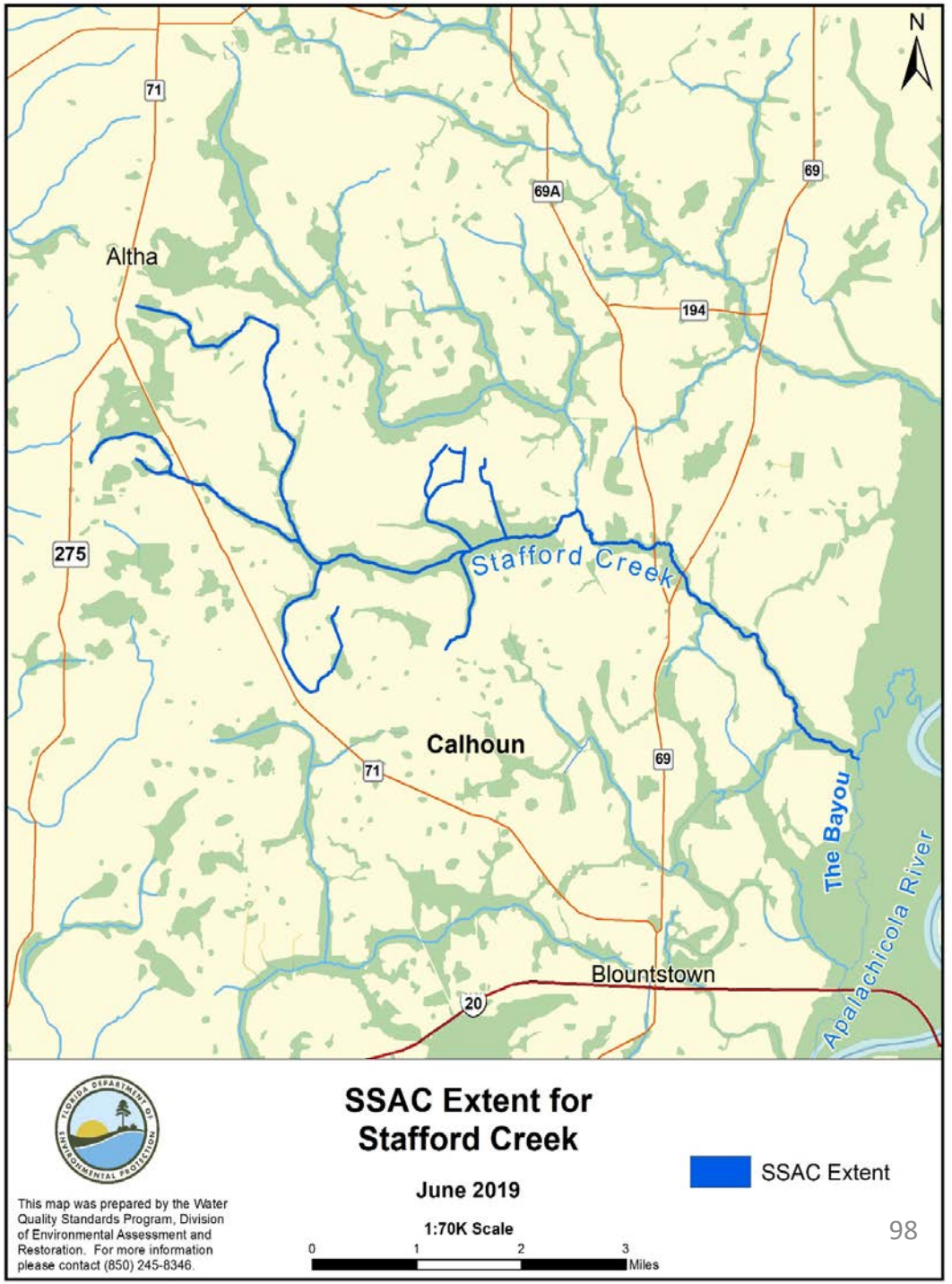
Black Creek

DO SSAC Extent	Proposed Type II DO SSAC
The freshwater portion of Black Creek and its tributaries from the geographic coordinates, latitude: N 30° 32’ 31.73” and longitude: W -85° 59’ 41.17” to the confluence with the Mitchell River	30.9%



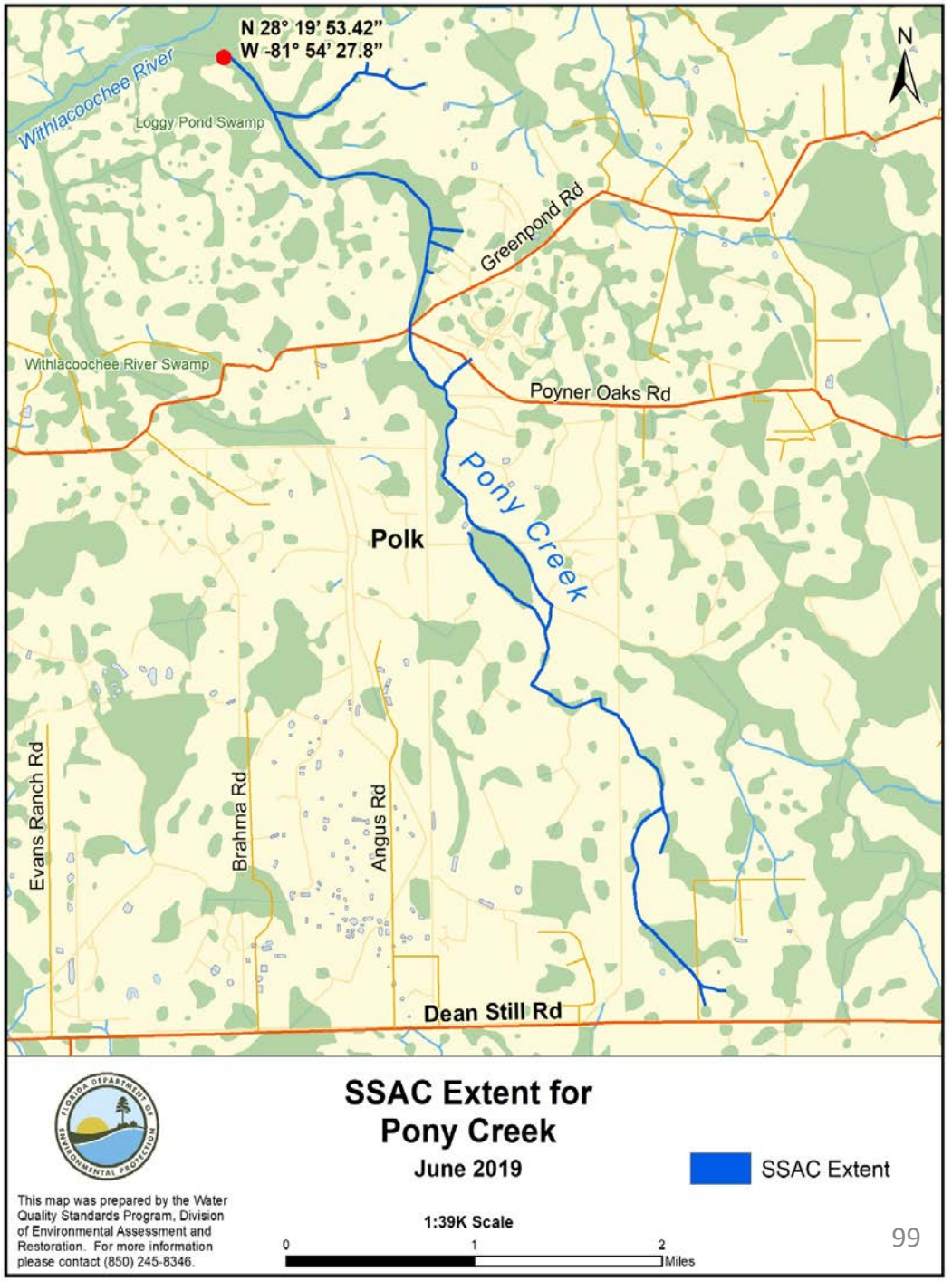
Stafford Creek

DO SSAC Extent	Proposed Type II DO SSAC
Stafford Creek and its tributaries from the headwaters of Stafford Creek east of Highways 275 and 71 to the confluence with the “Bayou”	44.6%



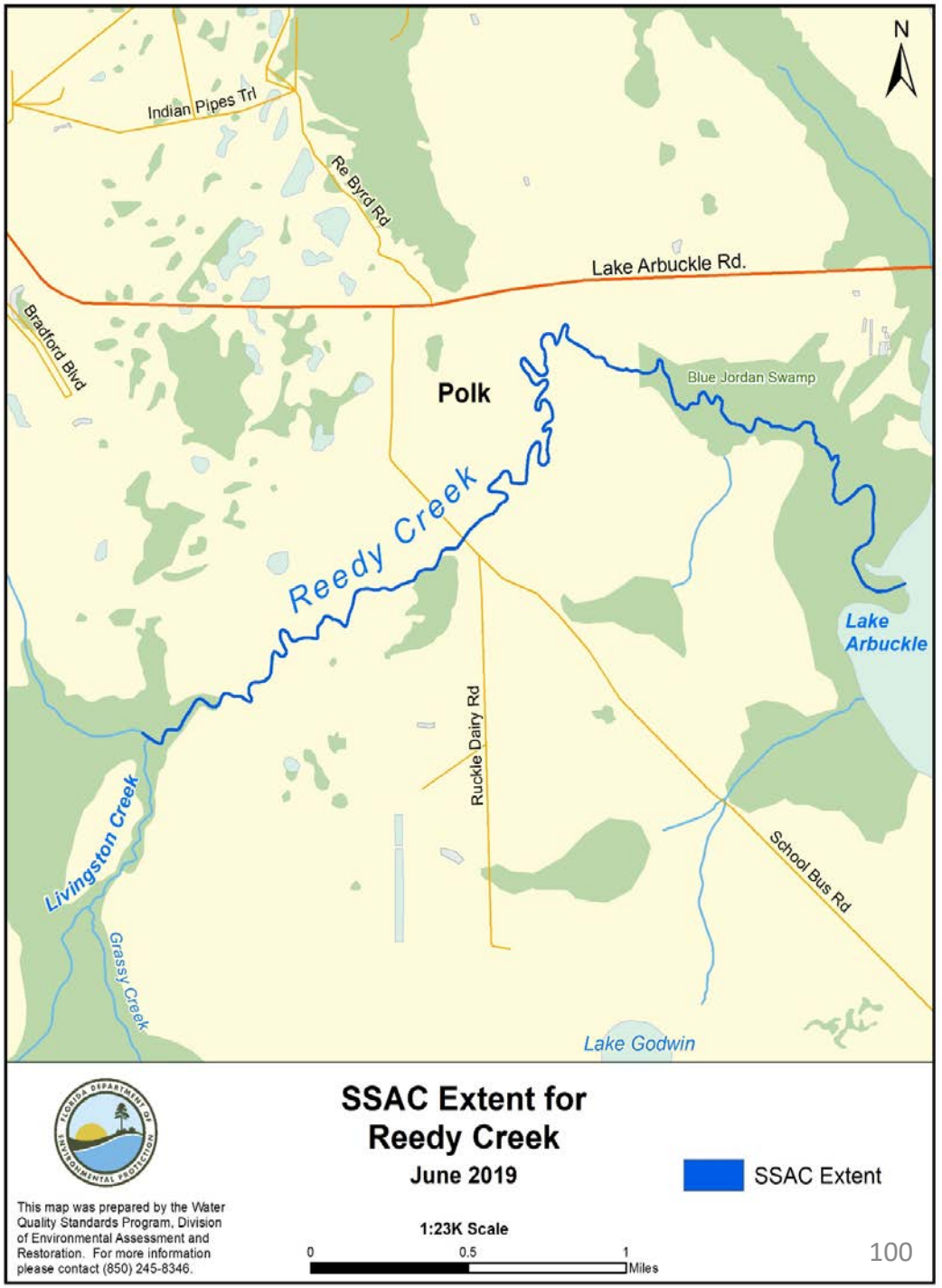
Pony Creek

DO SSAC Extent	Proposed Type II DO SSAC
Pony Creek and its tributaries from the headwaters north of Dean Still Road to the geographic coordinates: longitude: N 28° 19’ 53.42” and longitude: W -81° 54’ 27.8”	32.6%



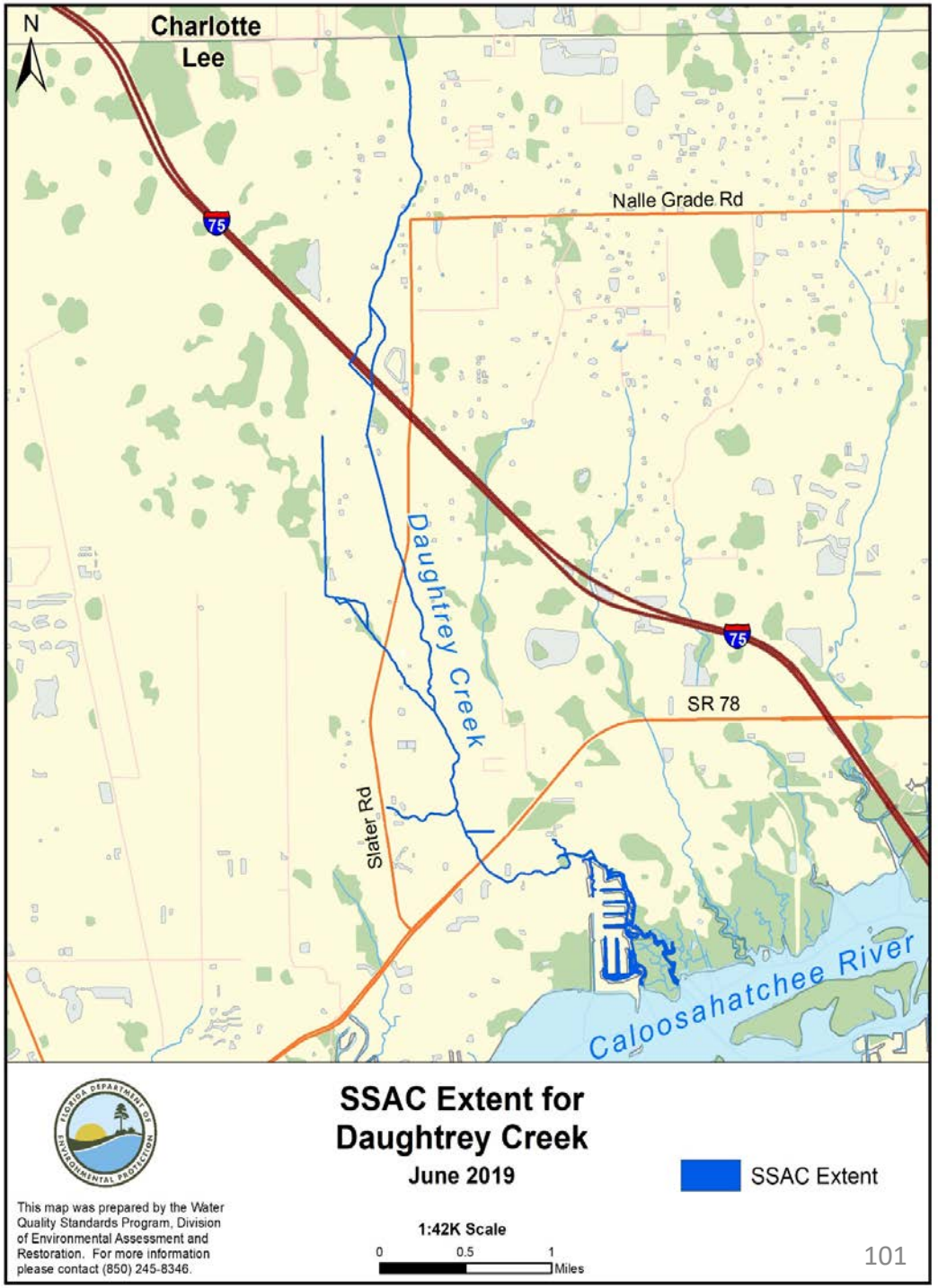
Reedy Creek

DO SSAC Extent	Proposed Type II DO SSAC
Reedy Creek from the confluence of Reedy Creek and Livingston Creek downstream to Lake Arbuckle	35.5%



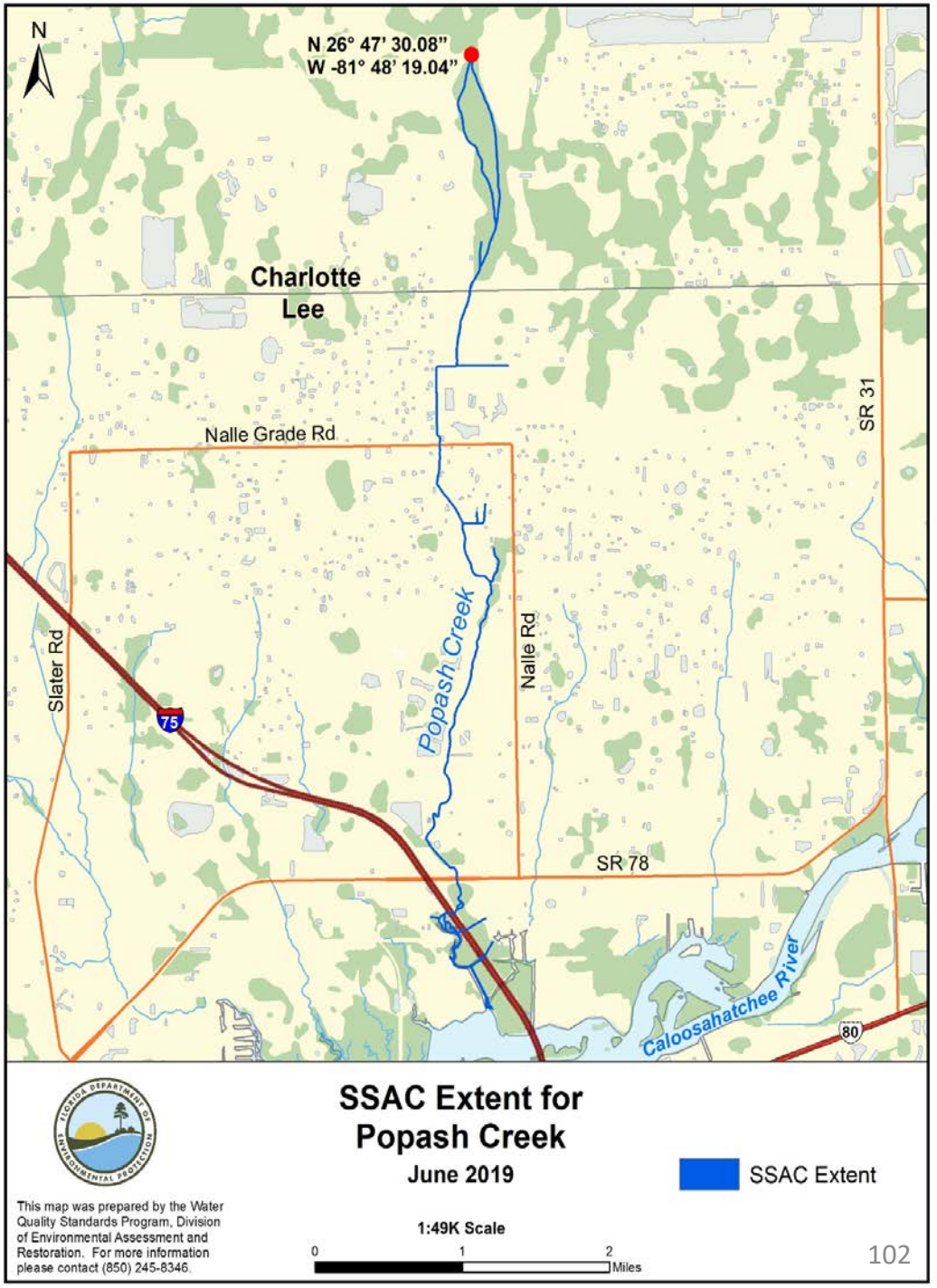
Daughtrey Creek

DO SSAC Extent	Proposed Type II DO SSAC
The freshwater portion of Daughtrey Creek and its tributaries from Charlotte/Lee County line to the confluence with the Caloosahatchee River	20.3%



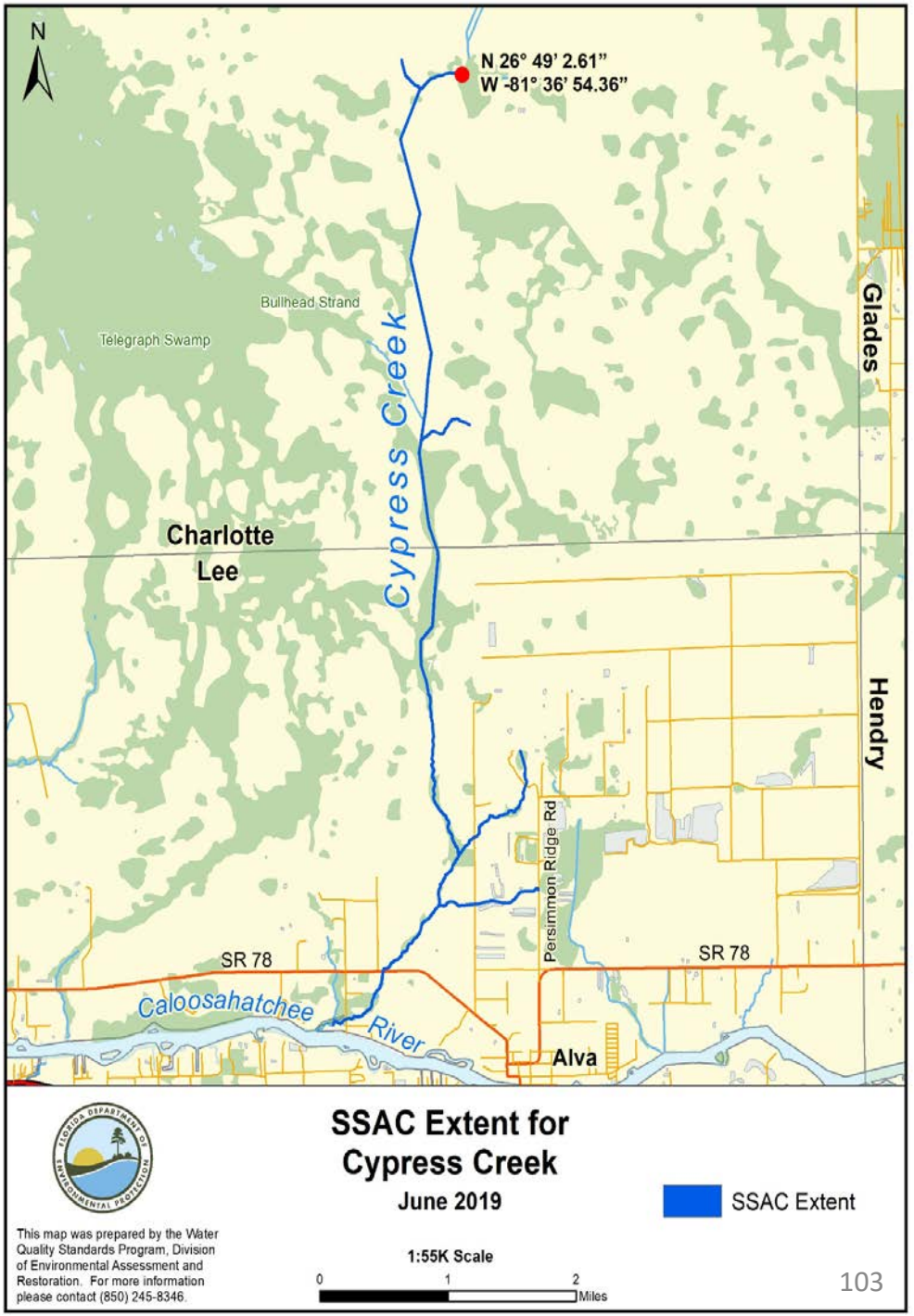
Popash Creek

DO SSAC Extent	Proposed Type II DO SSAC
The freshwater portion of Popash Creek and its tributaries from the Charlotte/Lee County line to the confluence with the Caloosahatchee River	21.2%



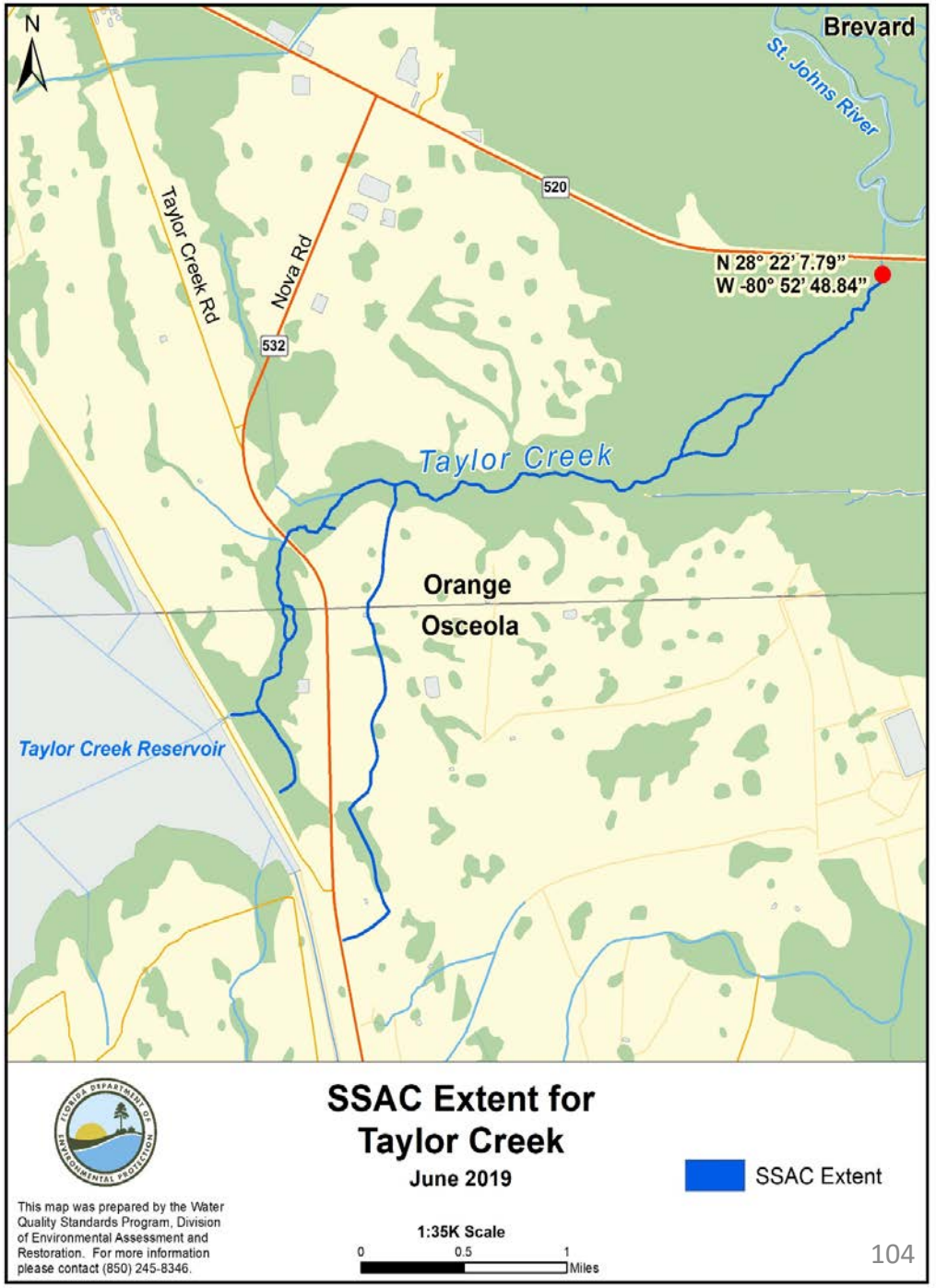
Cypress Creek

DO SSAC Extent	Proposed Type II DO SSAC
Cypress Creek and its tributaries from the geographic coordinates, latitude: N 26° 49' 2.61" and longitude: W -81° 36' 54.36", to the confluence with the Caloosahatchee River	28.9%



Taylor Creek
(Downstream of the Reservoir)

DO SSAC Extent	Proposed Type II DO SSAC
Taylor Creek from the S-164 outlet structure from the Taylor Creek Reservoir downstream to the geographic coordinates: longitude: N 28° 22’ 7.79” and longitude: W -80° 52’ 48.84”.	33.2%

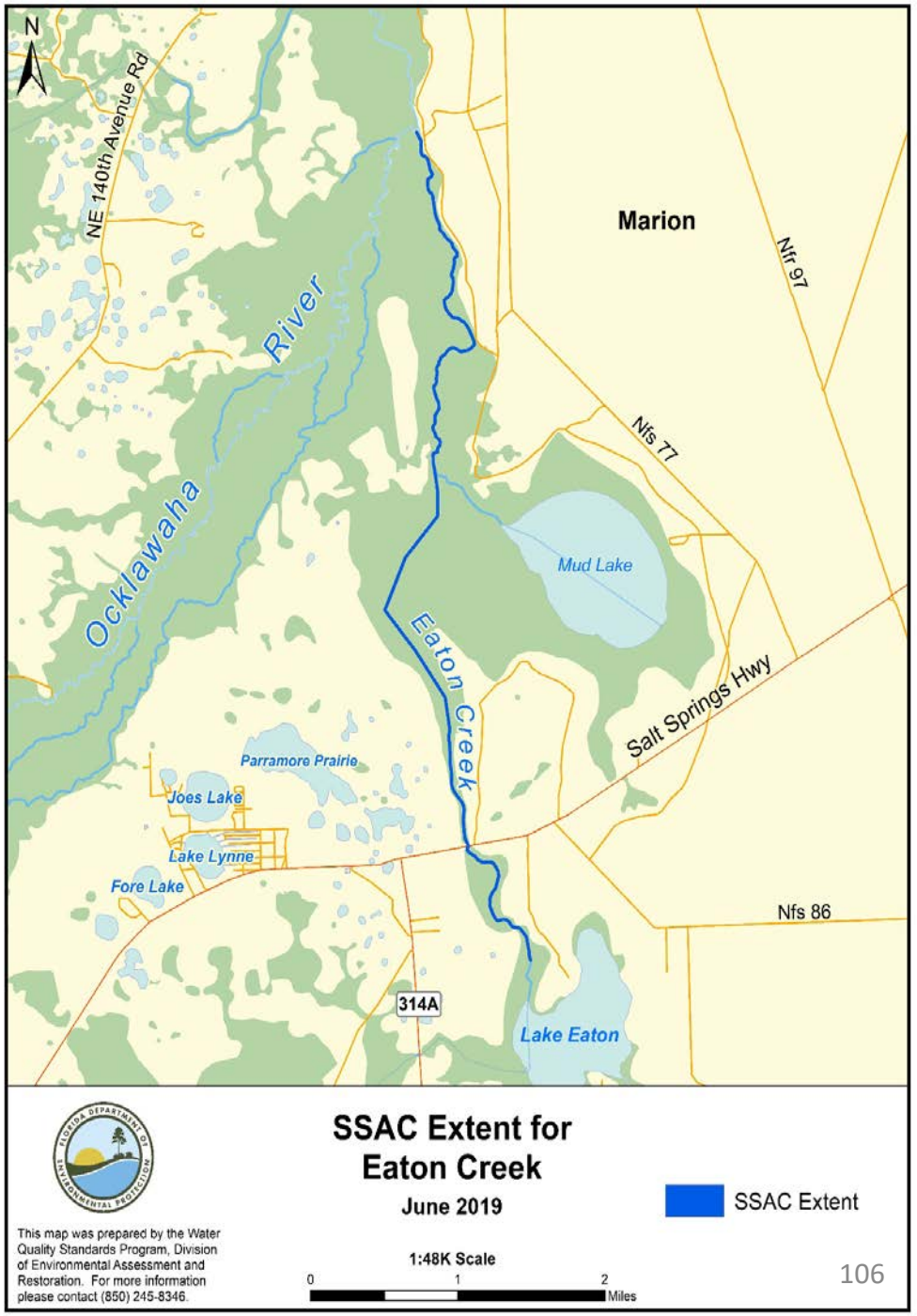


Black Water Creek

DO SSAC Extent	Proposed Type II DO SSAC
Black Water Creek and its tributaries from the outlet of Lake Norris to the geographic coordinates, latitude: N 28° 51’ 44.56” and longitude: W -81° 23’ 3.3”.	28.3%

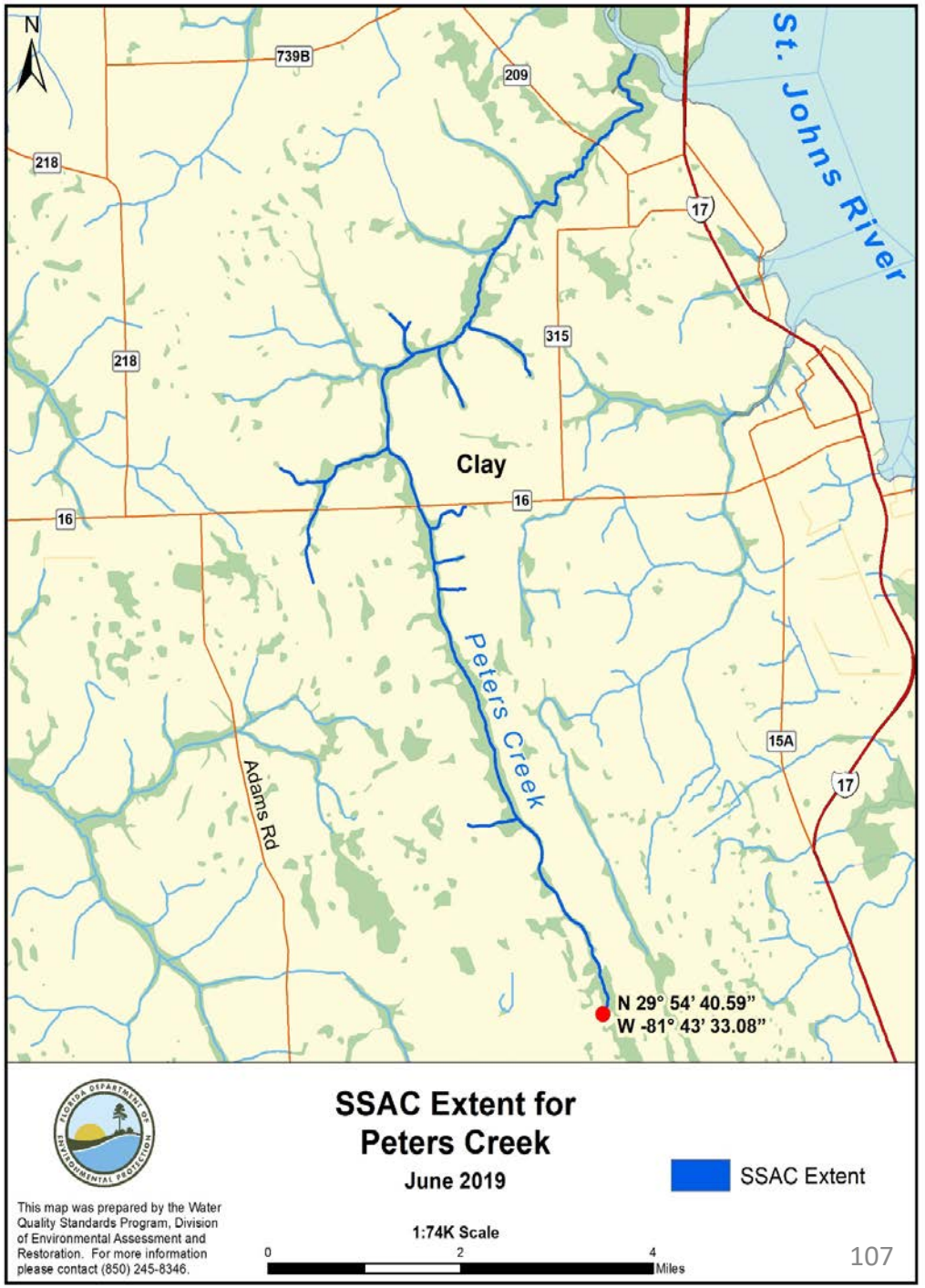
Eaton Creek

DO SSAC Extent	Proposed Type II DO SSAC
Eaton Creek from Lake Eaton to the confluence with the Ocklawaha River	29.4%



Peters Creek

DO SSAC Extent	Proposed Type II DO SSAC
The freshwater portion of Peters Creek and its tributaries from geographic coordinates, latitude: N 29° 54’ 40.59” and longitude: W -81° 43’ 33.08” downstream to the confluence with Black Creek	27.1%



Proposed Changes to NNC Implementation Doc

- Proposing updates to the "Numeric Nutrient Criteria Implementation Document," which was incorporated by reference in 2012
  - Want to clarify key issues, streamline document, and make corrections
- Plan to only incorporate specific portions
  - Floral Metrics (Sections 6.3 to 6.8), and
  - Stream Exclusions (Chapter 12)
- These portions were considered by EPA as changes to Florida water quality standards

Proposed Changes to NNC Implementation Doc

(continued)

- Changes to Purpose of Document
  - Added text noting specific sections that are incorporated by reference
  - Added text noting that, in the event of conflicts with any provision of Chapters 62-302 or 62-303, F.A.C., the rule provisions control
  - Deleted reference to “weight of evidence approach” (and all other references to the “weight of evidence approach” in document)
    - We originally proposed a weight of evidence approach, but EPA previously required that each metric be applied independently
    - Does not alter implementation

Proposed Changes to NNC Implementation Document

(continued)

- Changes to <u>Background Section</u>
  - Deleted Figure 1 that graphically showed “hierarchy”
  - Added a footnote to note that the narrative nutrient criterion applies in all Class I, II, III, and III-Limited waters

Proposed Changes to NNC Implementation Document

(continued)

- **Changes to Discussion of TMDLs as NNC**
  - **Most of this text is NOT new, and was simply moved up in the document**
    - **Was on pages 33 and 34 of previous version**
  - **In bullet discussing TMDL response targets (chlorophyll *a*), added text noting that nutrient TMDLs for streams replace the entire numeric nutrient standard for streams, including the floral metrics, if the TMDL includes a response variable and establishes site-specific interpretations of the narrative nutrient standard for both TN and TP**

Quick Refresher on the Numeric Nutrient Standard for Streams

- **Achieve Numeric Nutrient Standard for Streams If:**
  - **Information on chlorophyll *a* levels, algal mats or blooms, nuisance macrophyte growth, and changes in algal species composition do not indicate an imbalance in flora or fauna;**

    AND EITHER
  - **The average score of at least two temporally independent Stream Condition Indices (SCIs) is 40 or higher, with neither of the two most recent SCI scores less than 35, OR**
  - **The Nutrient Thresholds (expressed as annual geometric means) are not exceeded more than once in a three year period**

Proposed Changes to NNC Implementation Document

(continued)

- Changes to <u>Discussion of SSAC as NNC</u>
  - Most of this text is NOT new, and was simply moved up in the document
    - Was on page 34 of previous version
  - Deleted text noting changes to Type II SSAC provision and “new” Type III SSAC provision
  - Combined last two bullets of previous version into one bullet

Proposed Changes to NNC Implementation Document

(continued)

- Changes to Nutrient Criteria for Lakes
  - Updated definition of “lake” to match revisions discussed previously
  - Added text clarifying that TN, TP and chl *a* criteria are applied independently
    - This is not new
  - Clarified text that addresses TN and TP criterion when chlorophyll *a* criterion attained
    - Any annual geometric means (AGMs) below maximum in table are in compliance
  - Added text noting that lake does not attain if TN and/or TP exceed maximum even if attains chl *a*
  - Moved paragraph about WQBELs to WQBEL chapter

Proposed Changes to NNC Implementation Document

(continued)

- Changes to “NO2/3 Criterion for Spring Vents”
  - Added reference to Technical Support Document for derivation of nitrate-nitrite criterion for informational purposes

Proposed Changes to NNC Implementation Document

(continued)

- Changes to Numeric Nutrient Standard for Streams – Introductory Text
  - Explains how numeric nutrient standard for streams incorporates both TN and TP "thresholds" and bioassessment data
  - Explains how "thresholds" are different than "criteria"
    - "Threshold" is combined with bioassessment data and standard can be achieved even if waterbody exceeds threshold if flora and fauna healthy
    - Criteria applied independently

Changes to "Numeric Nutrient Standard for Streams"

(continued)

Section 6.3 – Floral Evaluation

- Clarified text noting derivation of floral metrics
  - Used reference stream distribution (generally, 90th percentile) to establish thresholds for Rapid Periphyton Survey (RPS), Linear Vegetation Survey (LVS) and chl *a*
- Deleted text explaining why we selected floral metrics
- Added text such that streams that fail the LVS are placed on the Study List of potentially impaired waters (rather than Verified List) to evaluate whether nutrients contributed to LVS failure
  - Exotic or tolerant plants can occur even without anthropogenic nutrient enrichment
  - Study List also considered part of federal 303(d) list

Changes to "Numeric Nutrient Standard for Streams"

(continued)

Section 6.3 – Floral Evaluation (continued)

- Dropped details of Watershed Assessment Cycle and clarified that waterbodies will be placed on Study List if they exceed nutrient thresholds and there is insufficient floral data (RPS, LVS, and chl *a*) to assess
- Added requirement that RPS and LVS be conducted in different hydrological seasons (May-Sept and Oct-April)
  - Previously only required 2 temporally independent surveys
    - Collected ≥ 3 months apart
- Deleted text that discussed comparisons to contemporaneous floral data from minimally disturbed reference streams

Changes to "Numeric Nutrient Standard for Streams" (continued)

Section 6.3 – Floral Evaluation (continued)

- Added text summarizing overall assessment approach
  - Assessment based on two most recent samples
  - If both pass an evidentiary threshold, then passes
  - If both fail, then site fails
  - If one passes and one fails, then either look at third most recent assessment or conduct additional assessment
    - For RPS, third most recent or new sample must be conducted in hydrologic season that failed
    - Assessment determination based on third assessment

Changes to "Numeric Nutrient Standard for Streams"

(continued)

Section 6.4 – Evaluating Algal Mats (RPS)

- Added text reiterating assessment approach (described in previous slide), but specific for RPS
  - Did not change evidentiary threshold for RPS, which remains < 25% rank 4-6 coverage for attainment
  - Also did not change requirement to evaluate algal species composition when ≥ 20% rank 4-6 coverage
- Merged RPS Decision Key with Algal Species Composition decision key in next section

Changes to "Numeric Nutrient Standard for Streams"

(continued)

Section 6.5 - Evaluating Dominant Algal Species Composition

- Deleted introductory paragraph, paragraph with Everglades TP criterion example, and text describing site-specific, weight of evidence approach
- Added examples of toxin-producing taxa, and noted that dominance of these taxa indicate numeric nutrient standard not achieved
- Added text noting how assess most recent two or three samples

Changes to "Numeric Nutrient Standard for Streams"

(continued)

- **RPS and Algal Species Composition Decision Key**
  - **Revised text to implement overall strategy of focusing on most recent 2-3 samples**
  - **Added table of nutrient enrichment indicators or potentially toxin-producing algal taxa**
  - **Also revised text for the outcomes to focus on attainment of this specific floral metric, rather than attainment of numeric nutrient standard for streams**

Changes to "Numeric Nutrient Standard for Streams"

(continued)

Section 6.6 - Evaluating the Presence or Absence of Nuisance Macrophyte Growth (LVS)

- Some wordsmithing to introductory paragraphs, but did not change thresholds for LVS
  - Coefficient of Conservatism (C of C) score ≥ 2.5, &
  - Florida Exotic Plant Pest Council (FLEPPC) ≤ 25%
- Added text similar to that in Section 6.3 describing overall assessment approach
- Added text (again) noting streams that fail LVS will be placed on Study List

Changes to "Numeric Nutrient Standard for Streams" (continued)

Section 6.6 - Evaluating the Presence or Absence of Nuisance Macrophyte Growth (LVS) (continued)

- Decision Key implements overall assessment strategy mentioned previously, but slightly complicated because have two thresholds (C of C and FLEPPC)

Changes to "Numeric Nutrient Standard for Streams"

(continued)

Section 6.7 - Evaluating Algal Blooms, Chlorophyll *a*, and Phytoplankton Taxonomic Data

- Did not change chlorophyll *a* metric endpoints
  - Streams with Annual Geometric Mean (AGM) < 3.2 µg/L attain, and streams with AGM > 20 µg/L more than once in 3-year period do not
- Still Evaluate streams with chl *a* between 3.2 and 20 µg/L on site-specific basis by comparing to reference streams in region
  - If inconclusive, will be placed on Study List if either TN or TP thresholds exceeded

Changes to "Numeric Nutrient Standard for Streams"

(continued)

Section 6.8 – Floral Measures Summary

- Revised format of summary table (Table 4), but not the actual metrics
  - Added "Floral Community" column
  - Moved RPS Algal Community Composition to follow RPS

Changes to "Numeric Nutrient Standard for Streams"

(continued)

Section 6.9 – Faunal Evaluation for Determining Achievement of NNC

- No substantive changes – just moved up
- Deleted examples of weight of evidence approach

Section 6.10 – Stream Sampling Locations…

- Added text noting sampling locations will vary based on objective of sampling

Proposed Changes to NNC Implementation Document

(continued)

Section 7 – Nutrient Criteria in Estuaries

- Added text noting that, for estuaries with NNC based on "H1" nutrient TMDLs, the criteria table in Rule 62-302.531(2)(a), F.A.C., references the rule citation in Chapter 62-304, F.A.C., and as new nutrient TMDLs are adopted, DEP plans to update criteria table during subsequent Triennial Review

Proposed Changes to NNC Implementation Document

(continued)

Section 8.0 – NNC and Protection of Downstream Waters

- Most of this text is NOT new, and was simply moved up in the document
  - Was on page 29 of previous version
- Added sentence listing types of water quality models and empirical modeling techniques used

Proposed Changes to NNC Implementation Document

(continued)

Decision Matrix and Examples for Implementing the Hierarchical Process

- Deleted matrix and examples because not needed
- Some assessment details presented in Chapter 10

Section 9.0 – Other Components of NNC

- Deleted text about spatial extent of stream segments when deriving stream nutrient thresholds and details about combining stream segments
- Kept key text stating that spatial application of stream numeric nutrient standard determined by stream homogeneity and determined by site-specific considerations

Proposed Changes to NNC Implementation Document

(continued)

Section 10 – Implementing the NNC in the IWR

- Text streamlined by removing text and table associated with phases of basin management cycle
- Added Section 10.1 to address assessment of floral metrics of the numeric nutrient standard for streams
  - If any station within a WBID conclusively fails a floral evidentiary threshold, WBID is listed as impaired
- In Section 10.2 (Assessment of Estuaries), added an example of a significant change in monitoring network
  - When several stations used to derive the NNC are no longer monitored

Proposed Changes to NNC Implementation Document

(continued)

Section 10.3 – Assessment of Waterbodies with NNC Expressed as Loads or Delivery Ratios

- Just wordsmithing, and still need to attain the load-based criteria for the causative pollutants and any concentration-based response criteria (chl *a*)

Proposed Changes to NNC Implementation Document

(continued)

Section 10.4 Evaluation of Trends

- Moved and revised!
- Use same statistical method (updated reference) and still looking at trends in AGMs
- No longer place waters on Study List to assess for "confounding factors" nor extrapolate into the future
- In draft distributed before workshops, list on VL if
  - Increasing trend in nutrients or chl *a* over the Period of Record (POR) and last 7.5 years, and
  - Annual slope of trend of POR is > 10% of applicable NNC

Proposed Changes to NNC Implementation Document

(continued)

Section 10.4 Evaluation of Trends

- Considering new change to second part such that annual slope over last 7.5 years must be ≥ 10% of applicable NNC or > 20% of difference between current levels and NNC
  - Current Levels defined as average of AGMs for last 7.5 years
- Previously, could only list on VL due to increasing trend in chl *a*, but now can be TN, TP or chl *a*
- Establish minimum requirements for POR (10 years with sufficient data) and 7.5 year (5 years with data)
- Define length of POR

Proposed Changes to NNC Implementation Document

(continued)

Section 11 – WQBELs for Surface Water Discharges

- Deleted some text about permitting basics/rules and flow chart to better focus on WQBEL process
  - WQBEL - Water Quality Based Effluent Limitation
- Added text about use of "Level I" WQBEL process for permit renewals without increase in load

Section 11.1 – WQBEL Procedures for Each Tier

- Deleted some details that are stated elsewhere
- Revised text about H1 TMDLs when DEP did not establish a Wasteload Allocation (WLA) for a facility
  - Used to say would not allow any increase in nutrient loading, and now says must be evaluated at time of permit renewal

Proposed Changes to NNC Implementation Document

(continued)

Hierarchy 3 – Streams

- Most of the text is not new, and was just moved
- Added text acknowledging challenges with modeling changes in floral and faunal metrics, other than chl *a*
  - Some stream models can estimate periphyton biomass

Proposed Changes to NNC Implementation Document

(continued)

Section 12 – Basic Info Needs for Distinguishing Flowing Waters (Stream Exclusion)

- Added new introductory paragraph that notes
  - The numeric nutrient standards for streams only applies to “flowing waters” meeting the stream definition, but
  - Default assumption is that any flowing water meets the definition unless demonstration is made that the waterbody meets one of the exclusions, and
  - All exclusions will be tracked/documented

Proposed Changes to NNC Implementation Document

(continued)

Section 12 – Basic Info Needs for Distinguishing Flowing Waters (Stream Exclusion) (continued)

- Exclusions for
  - Non-perennial streams, wetlands, lake-like portions of streams, and tidal creeks, and
  - Ditches, canals, and other conveyances that are man-made or predominantly channelized or physically altered, and primarily used for water management purposes and have marginal or poor stream habitat or habitat components
- If excluded, water still assessed for nutrient impairment using nutrient impairment thresholds
  - Chl *a* > 20 µg/L for freshwater and > 11 µg/L for marine
  - "Other information" and Trends

Proposed Changes to NNC Implementation Document

(continued)

Section 12.1 – Non-Perennial Water Segments

- Added introductory text noting confounding effects of natural drying events when assessing flowing waters and text noting 3 main methods to demonstrate that a segment is non-perennial
- Previously could only demonstrate non-perennial based on taxa present, but now can also demonstrate based on
  - Stream flow data, and
  - Drainage area using the HydroBioGeomorphic (HGB) classification system developed by John Kiefer of Amec Foster Wheeler, Inc

Proposed Changes to NNC Implementation Document

(continued)

Section 12.1.1 – Stream Flow as an Indicator

- Define several terms:
  - Perennial – measurable flow for at least 180 consecutive days in at least 90% of years
  - Likely Perennial – measurable flow for at least 180 consecutive days in at least 50% of years
  - Seasonally Perennial – measurable flow for at least 90 consecutive days in at least 75% of years
  - Non-perennial – flows less than any of the above
- Meet stream exclusion if neither perennial nor likely perennial
- Minimum flow record is five years
- Can estimate using nearby gages

Proposed Changes to NNC Implementation Document

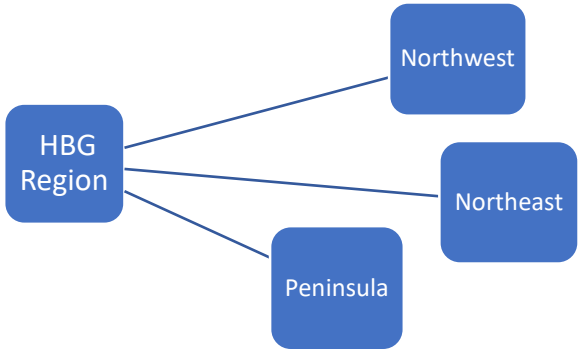
(continued)

Section 12.1.2 – Geomorphology as an Indicator

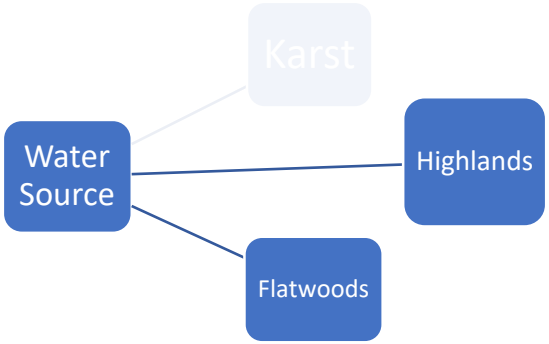
- Text describes HBG as hierarchical 4-step process (see next slide) that breaks streams out by regions and classes (karst, highlands, flatwoods)
- Lists regions and provides a map
- Describes how soils are used to determine stream class using GIS layers
- Describes flow characteristics of each class in each region
- Summarizes perenniality info in table – note that only non-perennial streams clearly meet stream exclusion
  - If seasonally non-perennial, need biology or flow data

HBG as Indicator of Perenniality

1 – Regional Scale – how climate structures streams

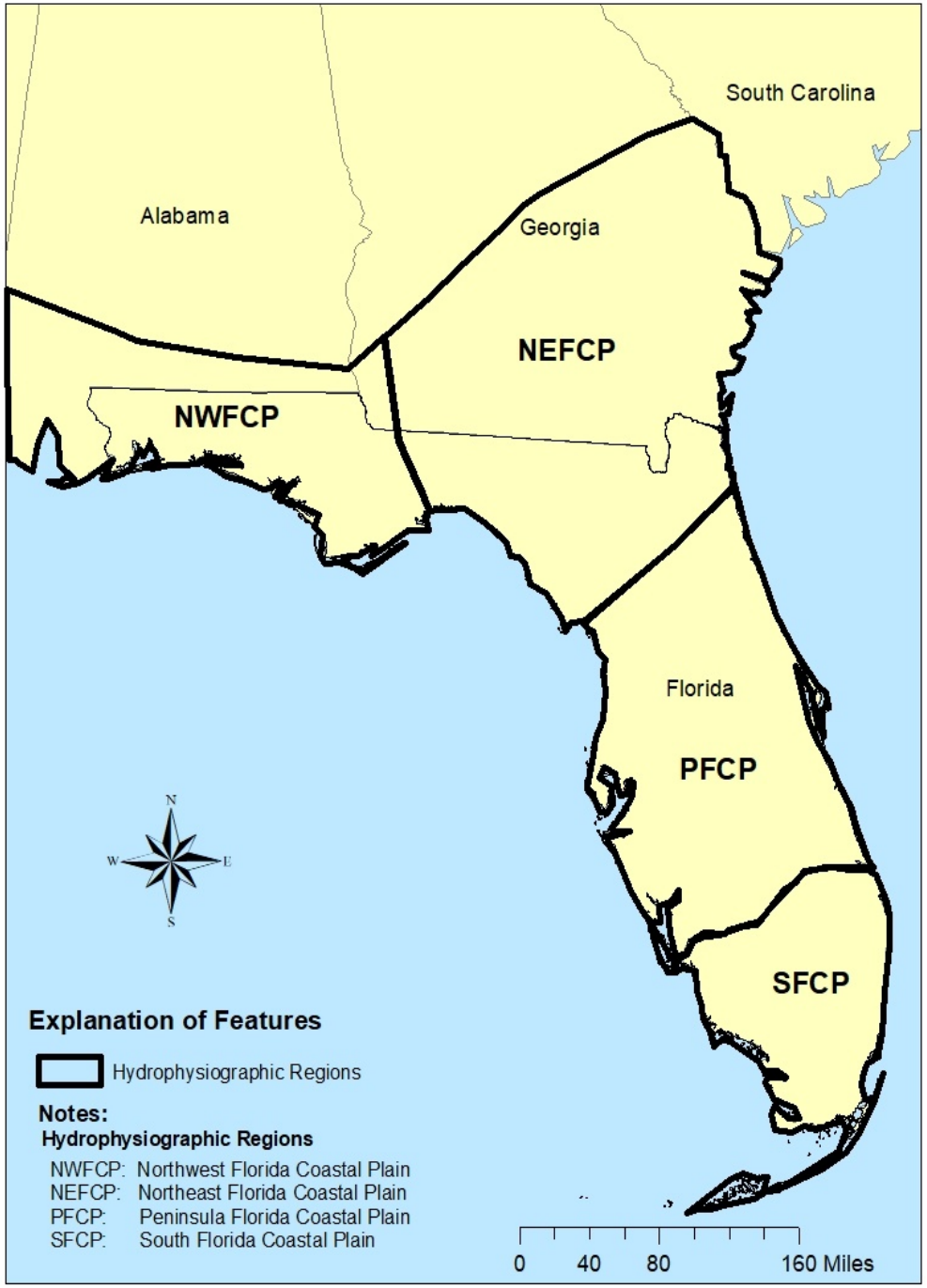


2 – Watershed Scale – how geology affects flow and water delivery



- Karst watersheds are assumed to be perennial
- Highlands or flatwoods determined using percent hydrologic soils in the drainage area using GIS data layers
- Final step in the determination of perenniality involves determining the drainage area

Hydrophysio-graphic Regions



Non-Perenniality based on HBG

Region	Water Source	Drainage Area (DA) sq. miles	Perenniality	NNC Guidance
Peninsula	Flatwoods	DA <5	Non-perennial	Stream NNC not applicable.
		≥5 DA <20	Seasonally Perennial	Need biological or hydrologic demonstration.
		≥20 DA <50	Likely Perennial	NNC applies.
		DA ≥50	Perennial	NNC applies.
	Highlands	DA <1	Non-perennial	Stream NNC not applicable.
		≥1 DA ≤5	Likely Perennial	NNC applies.
		DA ≥ 5	Perennial	NNC applies.
Northeast	Flatwoods	DA <1	Non-perennial	Stream NNC not applicable.
		≥1 DA <5	Seasonally Perennial	Need biological or hydrologic demonstration.
		≥5 DA <20	Likely Perennial	NNC applies.
		DA ≥20	Perennial	NNC applies.
	Highlands	DA <3	Seasonally perennial	Need biological or hydrologic demonstration.
		3 ≥DA ≥5	Likely Perennial	NNC applies
		DA ≥5	Perennial	NNC applies
Northwest	Flatwoods	DA <1	Non-perennial	Stream NNC not applicable.
		≥1 DA <5	Seasonally Perennial	Need biological or hydrologic demonstration.
		≥5 DA <10	Likely Perennial	NNC applies.
		DA ≥10	Perennial	NNC applies.
	Highlands	DA <1	Seasonally Perennial	Need biological or hydrologic demonstration.
		≥1 DA <5	Likely Perennial	NNC applies.
		DA ≥5	Perennial	NNC applies.

Proposed Changes to NNC Implementation Document

(continued)

Section 12.1.3 – Vascular Plants as Indicators

- No substantive changes

Section 12.1.4 – Macroinvertebrates as Indicators

- No substantive changes

Section 12.2 – Tidally Influenced Segments

- Updated definition of predominantly fresh and marine waters to match definition in Chapter 62-302
- Deleted text that provided approximate number of wastewater discharges to tidal streams
- Deleted text about establishment of NNC for upstream or downstream waters since already done

Proposed Changes to NNC Implementation Document

(continued)

Section 12.3 – Water Management Conveyances

- Revised first paragraph
  - Added scores for “poor” and “marginal” Habitat Assessment, and scores for “poor category” Substrate Diversity, Availability, and Artificial Channelization, but did not change requirements for exclusion
  - Text about sites with “marginal” scores was moved here from last paragraph
    - Can be marginal if due to temporary lack of maintenance

Proposed Changes to NNC Implementation Document

(continued)

Appendix A. Minimally Disturbed and Healthy Streams

- Deleted from document, but lists of healthy and benchmark streams will be available on DEP website

Proposed Revisions to Chapter 62-303, F.A.C.

- **Propose variety of revisions to IWR, with most designed to clarify, but some new provisions:**
  - **Revising the trend test for nutrients and chlorophyll *a***
  - **Revising the acute toxicity threshold for cadmium**
  - **Adding assessment of the proposed turbidity criterion for certain South Florida marine and open coastal waters**
  - **Revisions to streamline the biological health assessments**
  - **Assessment of additional expressions of NNC**
  - **Revisions that incorporate portions of the NNC Implementation Document in the IWR Rule**
  - **Revising the listing methodology for the LVS floral metric**
  - **Revisions related to data uploads to WIN**
  - **Revising text for listings based on FDOH fish consumption advisories**

Proposed Revisions to Chapter 62-303

(continued)

- **Non-substantive changes that won't be presented**
  - **Clarified definitions for "predominantly fresh" and "predominantly marine" waters**
  - **Revisions to assessment period terminology**
  - **Revisions to text describing rule and listing cycle**
  - **Updates to rule citations, including new hyperlinks, formatting changes, renumbering, duplicative text, and changes to text related to documents incorporated by reference**

Proposed Revisions to Rule 62-303.150, F.A.C.

- In Rule 62-303.150, Relationship Among Planning, Study, and Verified Lists, deleted statement
  - ~~The Study List also addresses increasing nutrient or nutrient response variable trends in waterbodies.~~
- Implements changes in trend test described previously
  - Waters that are identified as impaired for trend will no longer be placed on the Study List
  - Instead, waters identified as impaired for trend must meet certain requirements, but can be placed directly on the Verified List

Proposed Revisions to Rule 62-303.320, F.A.C. (Aquatic Life-Based Criteria)

- **Revised acute toxicity level for Cadmium in Table 2 consistent with revised water quality criteria**
  - **Based on EPA 2016 Recommendations for acute criteria**
  - **Provision only applied when multiple samples within 4-day period**
    - **If any sample > number in table, use "worst case" value rather than median**

Table 2. Acutely Toxic Levels for Parameters with Aquatic Life-Based Criteria

Parameter	Units	Freshwater Value	Marine Value
Aldrin	ug/L	3	1.3
Aluminum	ug/L	750	N/A
Arsenic	ug/L	340	69
Cadmium	ug/L	exp((0.9789*(lnH) -3.866 ~~exp((1.0166*(lnH)) -3.924)~~	3540

Proposed Revisions to Rule 62-303.320, F.A.C. (Aquatic Life-Based Criteria)

(continued)

- **Added subsection 62-303.320(16), for assessment of the proposed turbidity criterion**

(16) For the assessment of the turbidity criterion under paragraph 62-302.530(70)(b), F.A.C., for marine waters within the Florida Reef Tract and open coastal waters within Manatee, Sarasota, Charlotte, Lee, Collier, Monroe, Miami-Dade, Broward, Palm Beach, Martin, St. Lucie, Indian River, and Brevard (to Cape Canaveral) counties, waters will be listed on the Planning List if there is a sufficient number of samples from the water segment that exceed the background value for the segment based on the methodology described in subsection 62-303.320(1), F.A.C. Data must meet the requirements of subsections 62-303.320(2), (3), paragraphs 4(c)-4(e), and subsections (8), (9), F.A.C. The applicable background values for each segment are listed in Appendix A of the "Implementation of the Turbidity Criterion for the Protection of Coral Reef and Hardbottom Communities," dated September 2019 (Link), which is incorporated by reference herein. Copies of Appendix A may be obtained by writing to the Florida Department of Environmental Protection, 2600 Blair Stone Road, MS #6511, Tallahassee, FL 32399-2400.

Proposed Revisions to Rule 62-303.330, F.A.C. (Biological Assessment)

- Revisions to biological health assessments for Planning List
  - In paragraph 62-303.330(3)(b), added that if average score of all SCIs is below 40, waterbody placed on Planning List
  - In paragraph 62-303.330(3)(e), added that if average score of all LVIs is below 43, waterbody placed on Planning List
- Language is consistent with Verified List methodology
- Allows for earlier identification of potential impairments and consistency in assessment periods

Revisions to Rule 62-303.350, F.A.C. (Assessments of Numeric Interpretations of Narrative Nutrient Criterion)

- In subsection (1), clarified text related to "other information" indicating an imbalance in flora/fauna
  - Added "native" in text that discusses decreases in submerged aquatic vegetation
    - Now considering the word "natural" rather than "native"
  - Added "and other scientifically credible and compelling information meeting the requirements of Chapter 62-160, F.A.C., indicating a waterbody is imbalanced"
- In subsection (4), clarified data requirements for calculating NNC expressed as long-term averages of annual means
  - Added "annual medians" & "annual geometric means"
    - Requires at least 3 years of data, with 4 data points in each year and meet nutrient seasonal component

Revisions to Rule 62-303.350, F.A.C. (Assessments of Numeric Interpretations of Narrative Nutrient Criterion)

(continued)

- In subsection (5), clarified data requirements for calculating NNC expressed as long-term averages
  - Added "seven-year" average
    - At least 10 data points over at least 3 years, with at least 2 temporally-independent data points each year that meet nutrient seasonal component
- Added subsection (6) to clarify data requirements for assessment of salinity or specific conductance dependent nutrient criteria
  - Measurements shall be based on same station and time as the applicable nutrient concentration samples
- In subsection (7), clarified data requirements for NO2/3 criteria expressed as monthly average to be "minimum of one sample collected within the month"

Proposed Revisions to Rule 62-303.351, F.A.C. (Nutrients in Freshwater Streams)

- In subsection (1), clarified that floral metrics are sufficient to place a waterbody on the PL, and incorporated relevant sections of NNC Implementation Document by reference
- In subsection (3), clarified that other information indicating an imbalance in flora or fauna due to nutrient enrichment will be considered to place a waterbody on the Planning List
- In subsection (5), removed text for trend test citation and updated name of the "Mann-Kendall Trend Test"
  - As noted previously, it's the same trend test

Proposed Revisions to Rule 62-303.352, F.A.C. (Nutrients in Freshwater Lakes)

- In paragraph (1)(b), clarified that other information indicating an imbalance in flora or fauna due to nutrient enrichment will be considered to place a waterbody on the Planning List
- In paragraph (1)(c), removed text for trend test citation and updated name of the “Mann-Kendall Trend Test”
- In paragraph (1)(d), changed chl *a* threshold for listing lakes with insufficient color, alkalinity or specific conductance data to determine lake type
  - If the annual geometric mean chlorophyll *a* value is greater than 6 µg/L, rather than 20 µg/L

Revisions to Rule 62-303.353, F.A.C. (Nutrients in Estuaries & Open Coastal Waters

- In subsection (3), clarified that other information indicating an imbalance in flora or fauna due to nutrient enrichment will be considered to place a waterbody on the Planning List
- In subsection (4), removed text for trend test citation and updated name of the "Mann-Kendall Trend Test"
  - DEP intends to delete the proposed new text "For the assessment of nutrient trends in estuaries and open coastal waters, there shall be at least one station with a minimum of 10 temporally independent samples."
- In subsection (5), clarified that, for estuary NNC expressed as not to be exceeded in more than 10% of samples, data must meet certain data sufficiency provisions in Rule 62-303.320, F.A.C.

Revisions to Rule 62-303.354, F.A.C. (NO2/3 in Freshwater Spring Vents)

- In subsection (2), clarified that other information indicating an imbalance in flora or fauna due to nutrient enrichment will be considered to place a waterbody on the Planning List
- In subsection (3), removed text for trend test citation and updated name of the “Mann-Kendall Trend Test”
- In subsection (4), clarified that springs with a nitrate-nitrite criterion expressed as a monthly average will be evaluated based on subsection 62-303.320(1), F.A.C. (Binomial in Table 1), and data must meet certain data sufficiency provisions in Rule 62-303.320, F.A.C.

Proposed Revisions to Rule 62-303.370 (Fish & Shellfish Consumption Use Support)

- In subsection (1), clarified the language for placing a water on the Planning List due to FDOH fish advisory
  - Changed from “limited to or no consumption” fish advisory to “an advisory to limit consumption of any fish species from that water to one meal per week or less frequent consumption”
- In subsection (2), updated name of DACS’ section that address shellfish harvesting
  - “Shellfish Harvest Area Classification Program”

Proposed Revisions to Rule 62-303.390, F.A.C. (The Study List)

- In subsection (1),
  - Removed text related to adverse trend in nutrients or nutrient response variables (if water will become impaired within 10 years)
  - Clarified that a TMDL will not be established “by the Department” for a waterbody on the Study List
- In subsection (2),
  - Removed text for placing a water on the Study List for increasing trend in nutrients or chlorophyll *a*

Proposed Revisions to Rule 62-303.390, F.A.C. (The Study List)

(continued)

- In paragraph (2)(e), added text to list streams on the Study List if they fail the LVS and the LVS results cannot be linked to anthropogenic nutrient inputs
  - If they also meet the stream definition and do not have a site specific numeric interpretation of the narrative
- In subsection (3), removed text for waters placed on the Study List due to adverse trend in nutrients or chlorophyll *a*
- In subsection (6), added text for waters placed on the Study List due to failing LVS floral metric noting DEP shall conduct a site-specific assessment of the stream to determine potential causes of the nuisance macrophyte growth

Revisions to Rule 62-303.400, F.A.C. (Methodology to Develop Verified List)

- In subsection (2),
  - Clarified that additional data and information for waters on the Planning “and Study List” will be evaluated for placing waters on the Verified List, and
  - Clarified the timeframe for collecting additional data through the department’s watershed management approach
    - Subsequent cycle

Proposed Revisions to Rule 62-303.420, F.A.C. (Aquatic Life-Based Criteria)

- In subsection (10), removed duplicate text regarding the department identifying the causative pollutant for DO impairments
  - Requirement already in subsection 62-303.710(3), F.A.C.
- In subsection (11), clarified that, for assessment of the DO criteria for endangered species in the Suwannee, Withlacoochee (North), and Santa Fe Rivers, waters will be placed on the Verified List when 50% of the "daily average values", rather than "measurements," exceed the applicable criteria
- Added subsection 62-303.320(16), for assessment of the proposed turbidity criterion
  - Same text as for Planning List except references VL provision

Proposed Revisions to Rule 62-303.430, F.A.C. (Biological Impairment)

- In paragraph (2)(a), clarified that an additional SCI will be collected for the biological health assessments if the average score is below 40
  - In cases where there are only two SCIs and there is greater than a 20 point difference between the two scores
- In paragraph (2)(b), added provision to place a lake on Verified List if "either of the two most recent temporally independent LVI scores is less than 43"
- Also in paragraph (2)(b), clarified that an additional LVI will be collected if the average score is below 43
  - In cases where there are only two LVIs and there is greater than a 20 point difference between the two scores

Revisions to Rule 62-303.450, F.A.C.
(Assessments of Numeric Interpretations of Narrative Nutrient Criterion)

- In subsection (1), updated reference to data sufficiency requirements to subsections “62-303.350(2)-(3)”
- In subsection (5), expanded trend assessment to include “nutrients” and revised assessment as described previously such that will list on VL if there is
  - A statistically significant increasing trend at 95 percent confidence level over both the POR and the most recent 7.5 years using the Mann-Kendall Trend Test, and
  - The slope of the POR expressed in units per year is at least 10% of the applicable NNC
    - For lakes, the applicable TN and TP criteria is the maximum based on the lake classification
    - Note – need to include provision for unclassified lakes, propose to evaluate using the TN and TP criteria for a high color lakes
  - Note – subsection 62-303.352(3) should be 62-303.352(1)(c)

Revisions to Rule 62-303.450, F.A.C.
(Assessments of Numeric Interpretations of Narrative Nutrient Criterion)
(continued)

- In subsection (8), added provision for data sufficiency to assess the POR trend assessment
  - Shall be at least 10 years with sufficient data to calculate AGMs
  - POR shall start in the most recent year with sufficient data and go as far back in time as possible as long as at least 50% of the years in the POR have sufficient data to calculate AGMs
- In subsection (9), added provision for data sufficiency to assess the 7.5 trend assessment
  - "there shall be at least 5 years with sufficient data to calculate AGMs."

Revisions to Rule 62-303.470, F.A.C. (Fish and Shellfish Consumption Use Support)

- In paragraph (1)(a), revised the data sufficiency needed to place a waterbody on the Verified List from 12 fish to 8 fish
  - This is consistent with the FDOH fish data collection methodology

Revisions to Rule 62-303.600, F.A.C. (Evaluation of Pollution Control Mechanisms)

- In subsection (1) addressing which waters will be evaluated for pollution control programs, updated text to reflect changes in trend assessment
  - Added language to include waters with increasing trends in “nutrient response variables”
    - If the waterbody meets the requirements for impairment based on the trend assessment in subsection 62-303.450(5), F.A.C.
  - Removed language that required “with a reasonable expectation that the waterbody will become impaired within 5 years”

Revisions to Rule 62-303.700, F.A.C. (Listing Cycle)

- Clarified description of assessment cycle
  - Changed “basins” to all “surface water” (need to make plural)
  - Deleted “preliminary basin” since no longer use that term
  - Replaced reference to STORET with WIN, the new water quality database
  - Require data be loaded to WIN no later than “June 30” of the year of the assessment, rather than 60 days after the end of the verified period

Proposed Revisions to Rule 62-303.720, F.A.C. (Delisting Procedure)

- In paragraph (2)(k)5, added language to include NNC "expressed as a monthly average"
- In paragraph (2)(k)7, revised provision for delisting waters listed as impaired for increasing trends in "nutrients"
  - If data shows that the trend is no longer statistically significant or the "slope of the trend for the POR expressed in units per year is no longer at least 10% of the applicable numeric nutrient criterion"
    - May revise as described previously
  - Deleted language that the "water is no longer expected to become impaired within 5 years"

Planned Revisions to Chapter 62-304, F.A.C.

- Pursuant to Rule 62-302.531(2)(a), F.A.C., nutrient TMDLs that interpret the narrative water quality criterion for nutrients are considered changes to Florida's water quality standards
  - Are "primary site specific interpretation" or "Hierarchy 1 (H1)"
- No planned changes as part of TR

Economic Evaluation

- As part of rulemaking, Department will conduct an economic evaluation of impact of rule changes
  - For new or revised criteria, will evaluate whether change will result in increased listing of impaired waters, new requirements for regulated sources, or if there will be additional violations for point sources
  - Part of Statement of Estimated Regulatory Costs (SERC)
- Need information about potential costs of treatment

Schedule

- Written comment period through Nov. 22
  - Comments to Kaitlyn Sutton at
    - Kaitlyn.Sutton@FLORIDADEP.gov, or
    - 2600 Blair Stone Road, Mail Station 6511, Tallahassee, FL 32399-2400
- Will decide whether another round of workshops is needed based on comments received
- If not needed, would bring to Environmental Regulation Commission (ERC) for adoption early next year
  - 45-day notice period prior to adoption hearing

Public Comments

- **Please provide your name and affiliation**
- **And contact information if you didn't sign in**


FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION