



*Florida Department of  
Environmental Protection*

# *Development of Numeric Nutrient Standards for Estuaries*

*Florida Department of Environmental Protection*



## *Overall Estuary Approach*

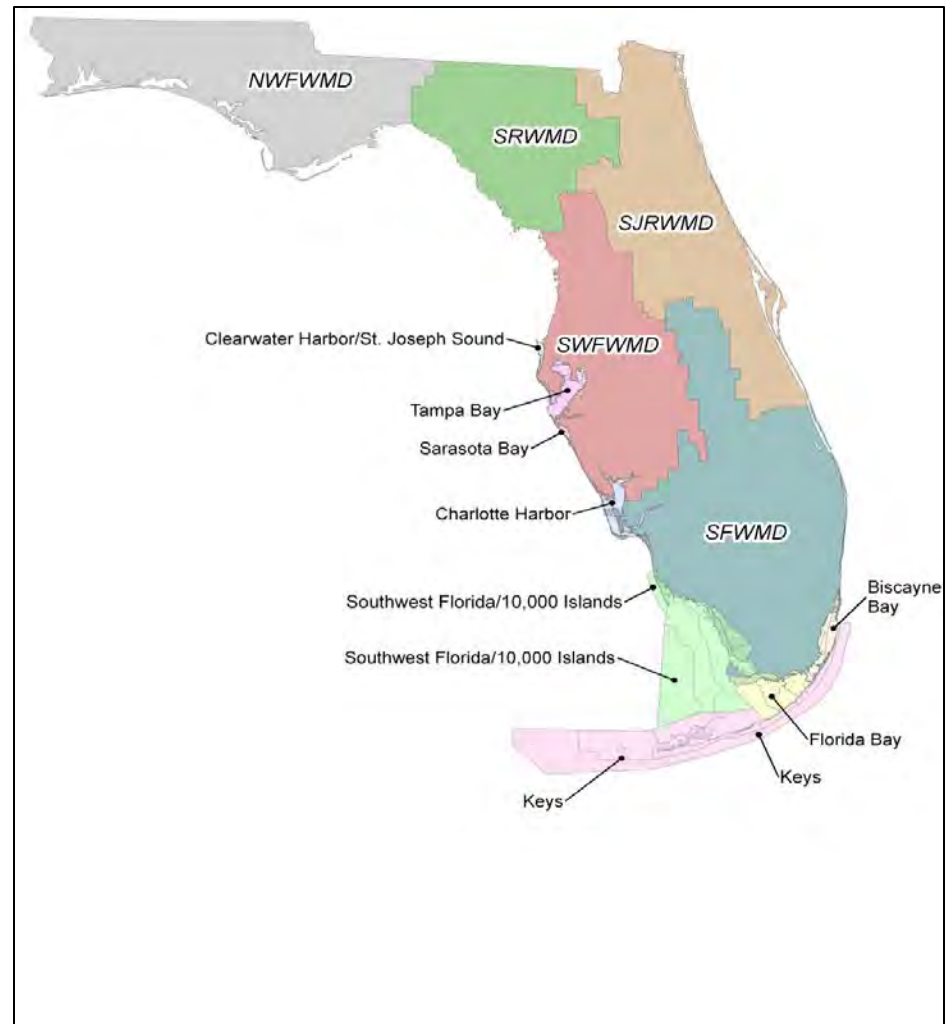
- Given the diversity of estuaries and site-specific nature of nutrient impacts in estuaries, DEP and local scientists developed estuary-specific nutrient standards
  - Rather than generally applicable standards
- Worked with local scientists, including Estuary Programs and EPA, to reach consensus on methods and standards
- Also worked with Marine Technical Advisory Committee (MTAC) on basic methodologies





## *Estuary and Coastal Segments Included in Adopted NNC*

- Adopted nutrient standards for estuaries from Clearwater/Tampa to Miami and the Keys





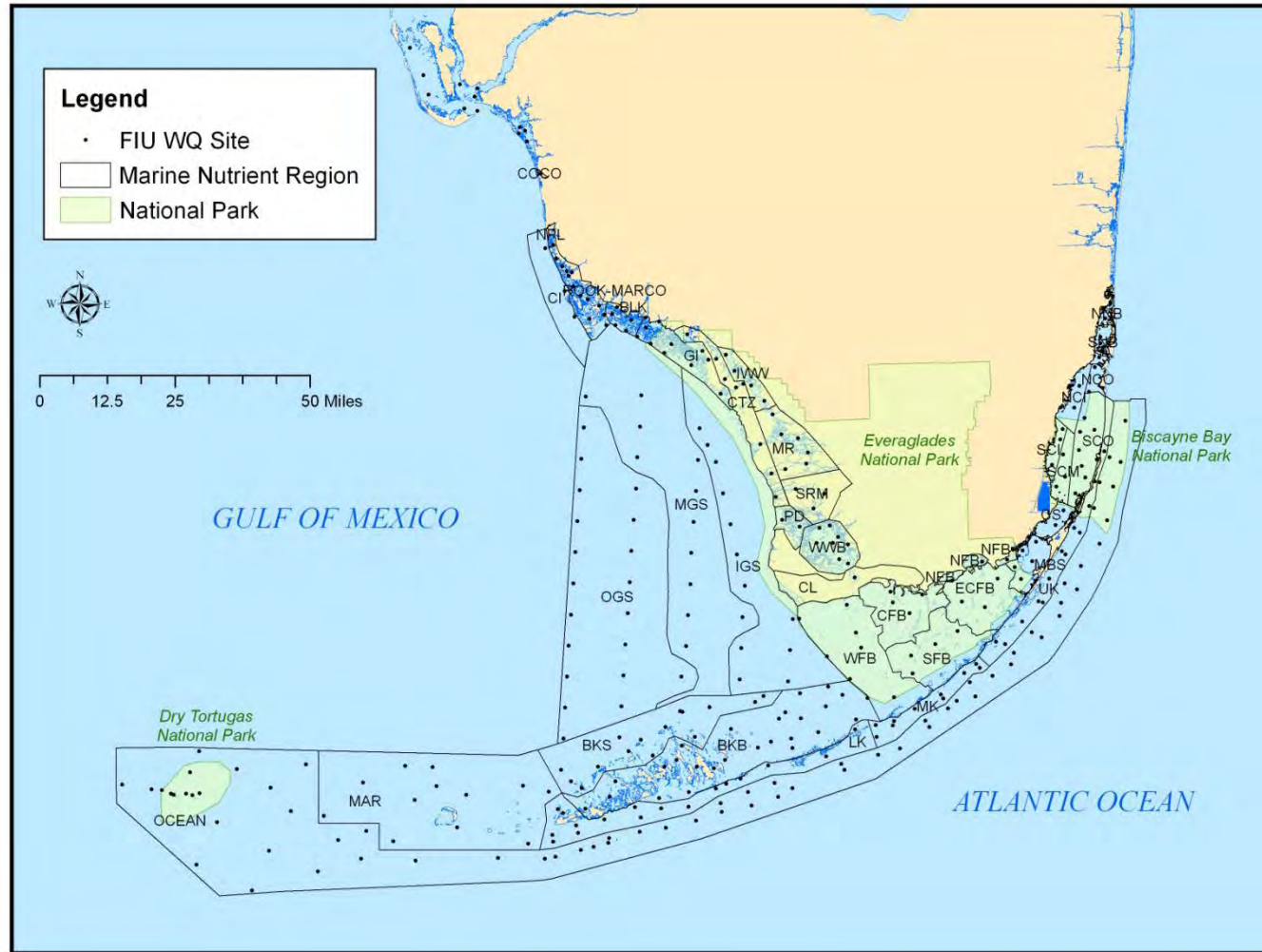
## *Expression of Estuarine Interpretations of Narrative*

- All interpretations for estuaries developed by DEP are expressed as annual geometric means, not to be exceeded more than once in a three-year period
- Apply as average of open water segments
- Proposed standards do not apply to tidal creeks
  - Are important, but distinct, ecological resource that need separate criteria



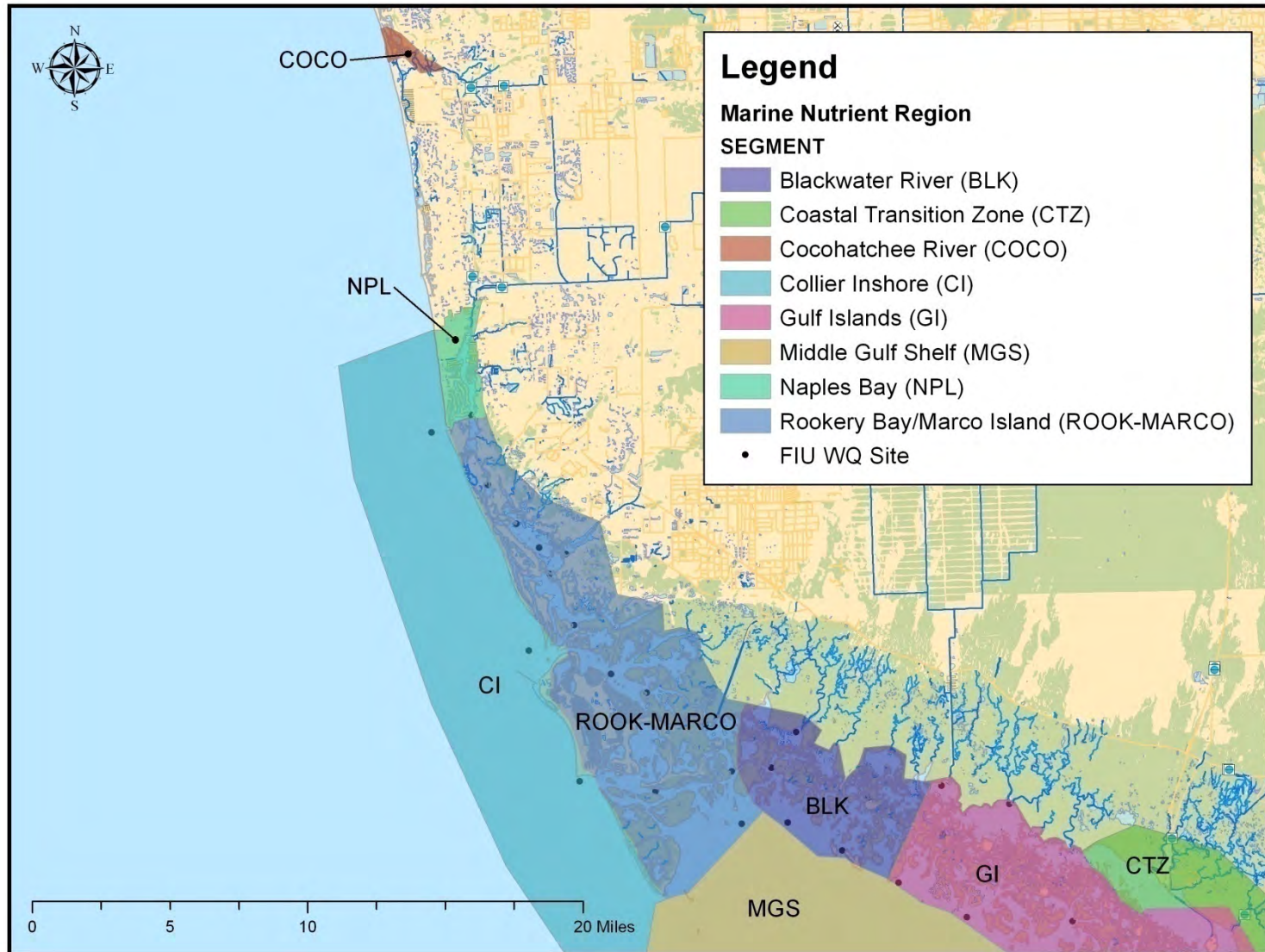


# South Florida Estuary Segmentation (Boyer and Briceno)





# *Southwest Coast Marine Nutrient Regions*





# *Naples Bay*

- Northern portions of the system impacted by drainage, channelization, and urban development
  - Highly urbanized around the Bay
  - Construction of extensive series of dead-end canals





## *Naples Bay Nutrients*

- Although stressed by habitat and hydrological alterations, analysis shows that nutrient and chlorophyll *a* values in Naples Bay are similar to adjacent, minimally disturbed areas
- Therefore, as physical restoration progresses, maintaining existing nutrients is appropriate
- Initial draft standards did not include all data, but DEP worked with City and County and current standards reflect all data

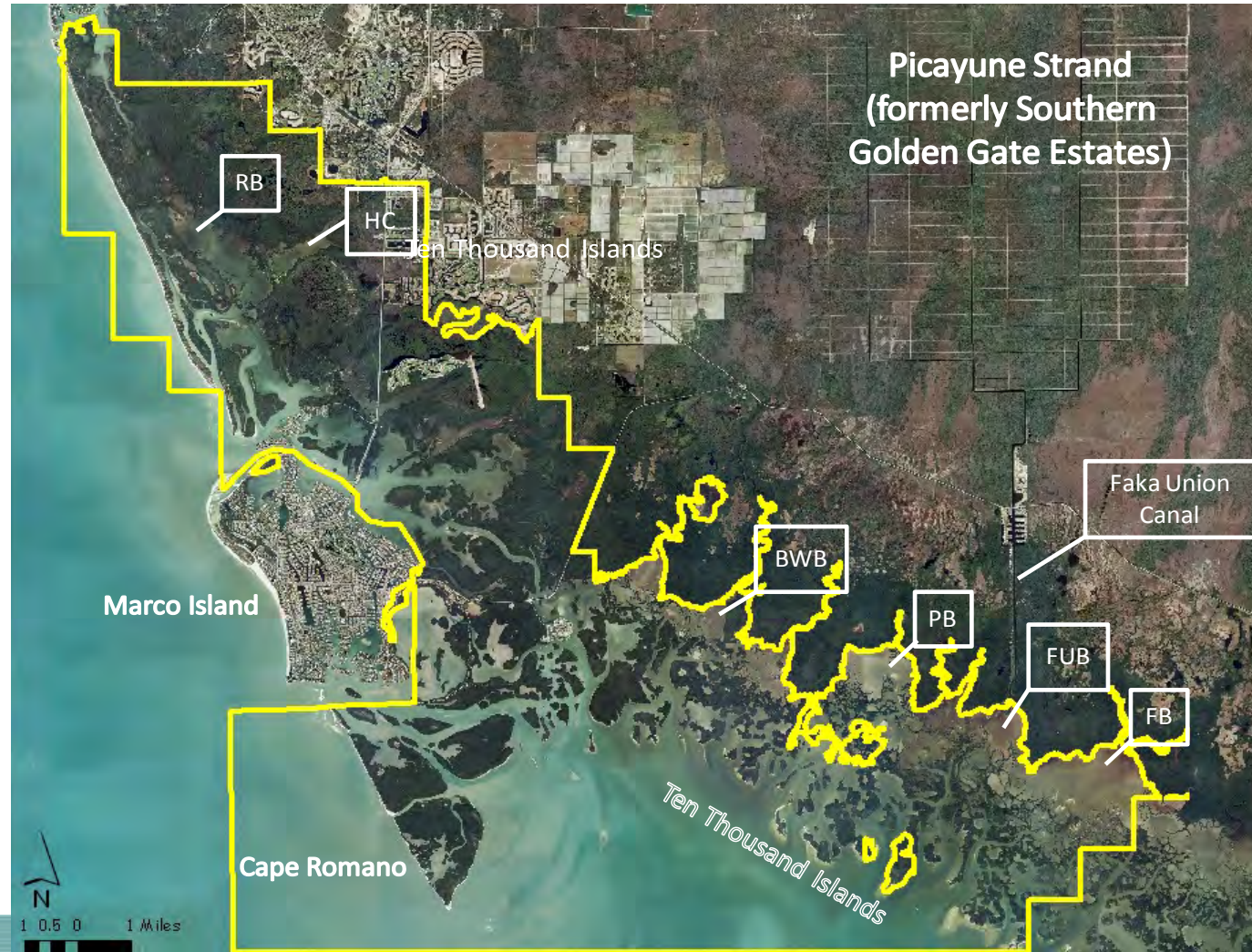
Reached agreement with City and County





# Description of Southern Areas

- Southern areas remain largely undisturbed with large percentage of conservation land in the basin
- Largest undisturbed mangrove forests in the state





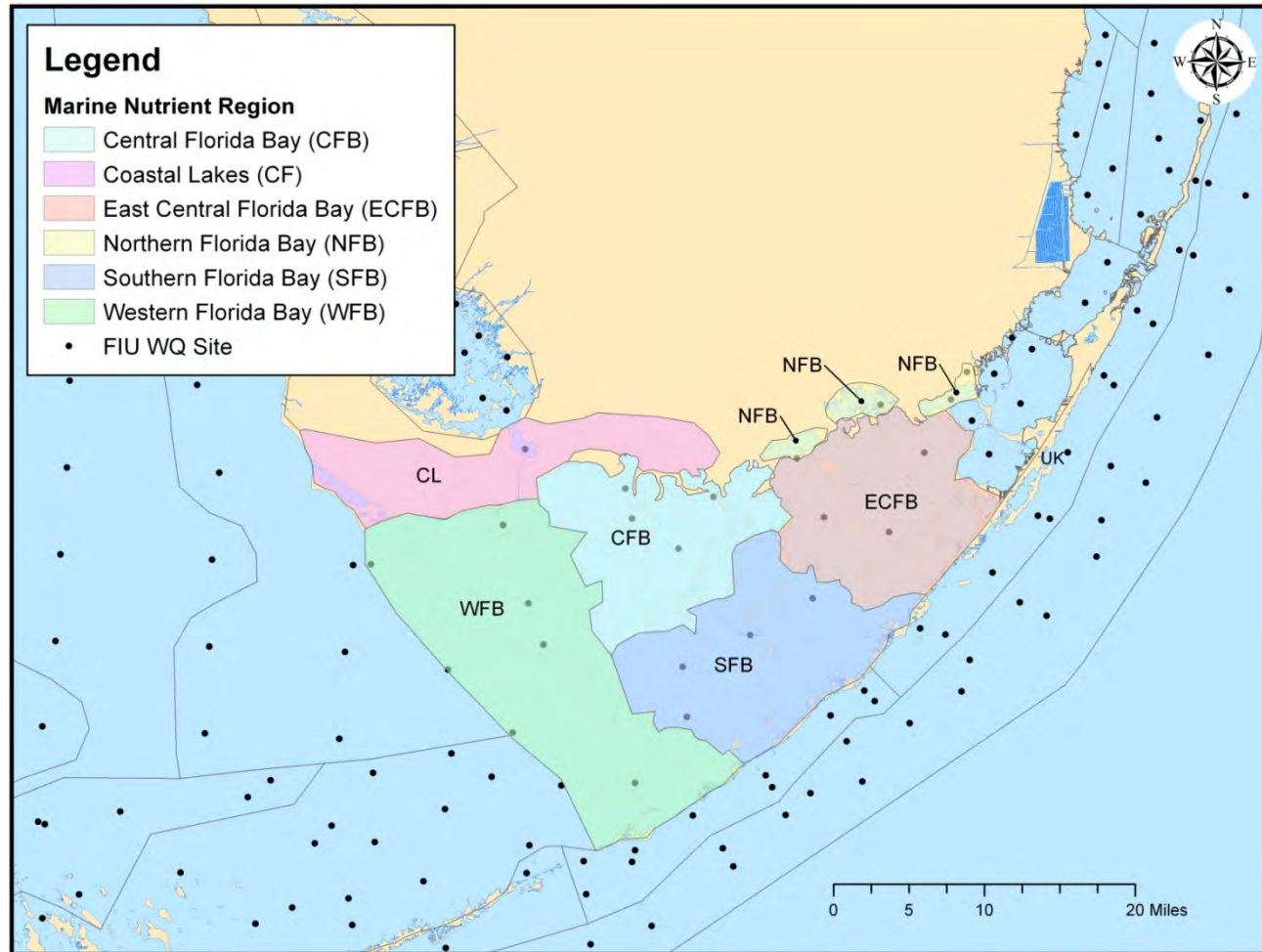
## *SW Coast – Southern Areas*

- Most of the watershed consists of natural, protected areas
  - >80% of basins undisturbed (conservation lands)
- Nutrients are low and are not a stressor
  - No increasing trends in nutrients or chlorophyll
  - Healthy, well-balanced populations of flora and fauna where habitat and hydrology unaltered
- EPA agrees that maintaining existing nutrient conditions is protective





# *Florida Bay Marine Nutrient Regions*





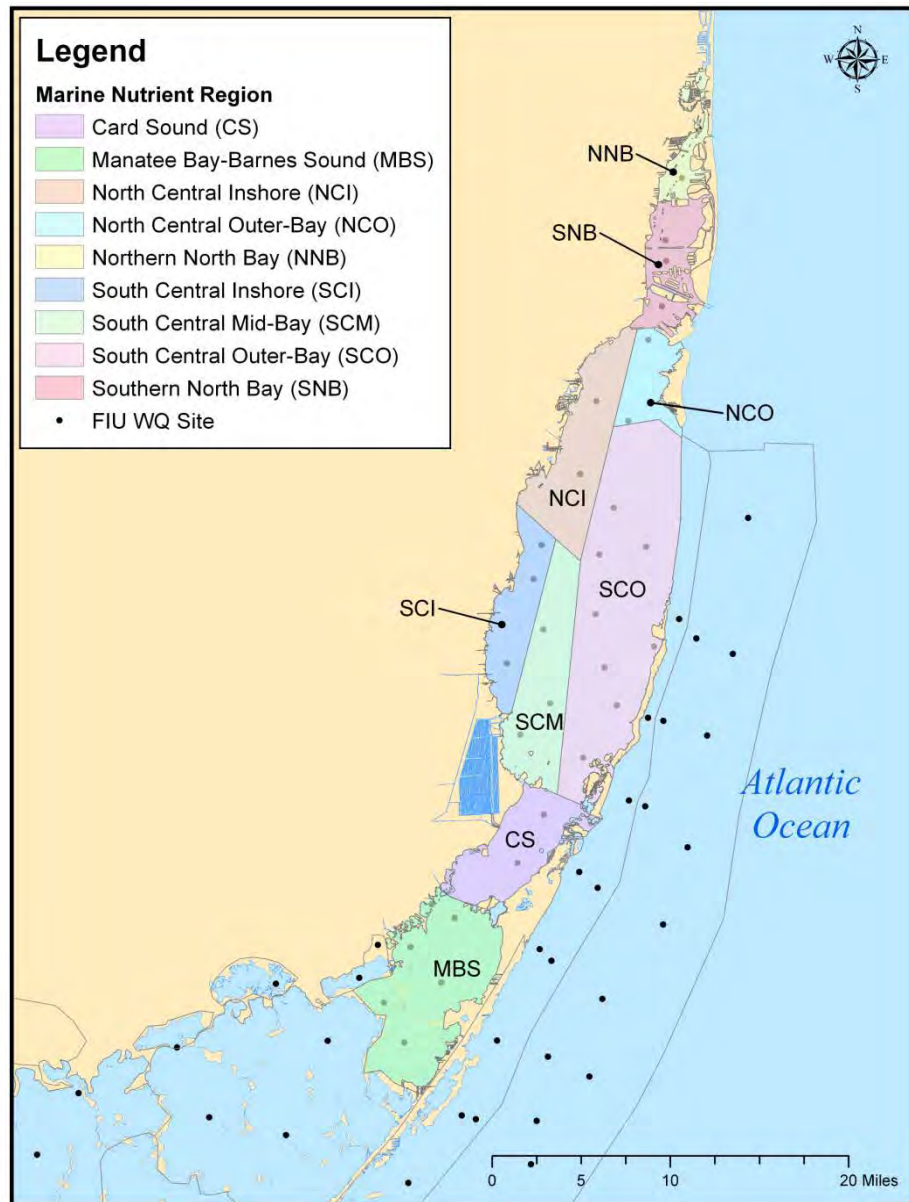
## *Florida Bay*

---

- Relatively low nutrient and chlorophyll *a* levels
- No increasing trends in nutrient and chlorophyll *a* concentrations
- Large amount of natural conservation lands in the basin (Everglades National Park, Water Conservation Areas)
- EPA agrees that maintaining existing nutrient conditions is protective

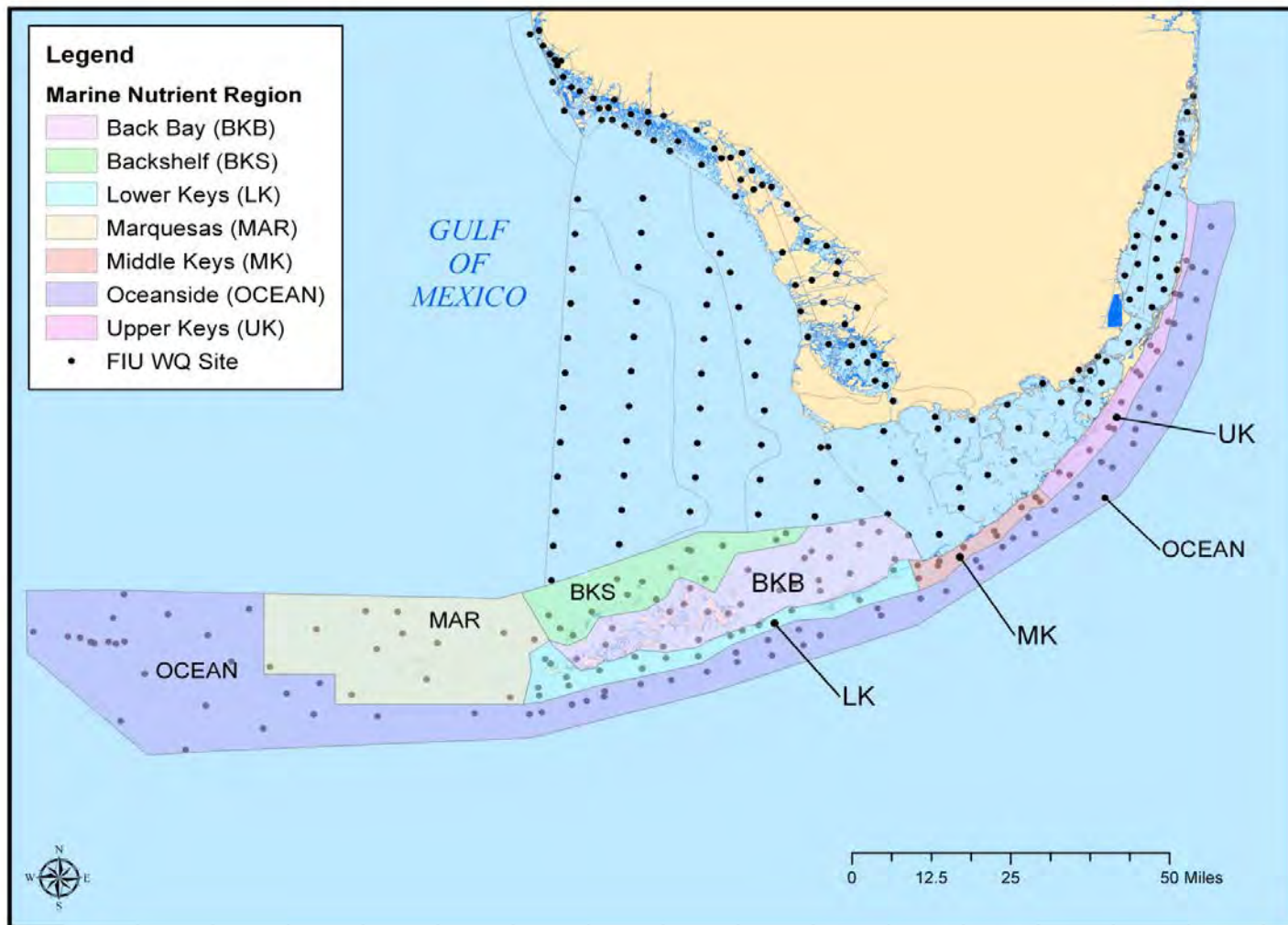


# Biscayne Bay Marine Nutrient Regions





# Keys Marine Nutrient Regions





## *Schedule for Remaining Estuaries*

- Subsection 62-302.532(3) includes a schedule for development of interpretations for remaining estuaries
  - Perdido Bay, Pensacola Bay (including Escambia Bay), St. Andrews Bay, Choctawhatchee Bay, and Apalachicola Bay by June 30, 2013
  - Remaining estuaries by June 30, 2015
- Schedule subject to the provisions of Chapter 120, F.S.

