



Florida Department of Environmental Protection

Division of Environmental Assessment and Restoration

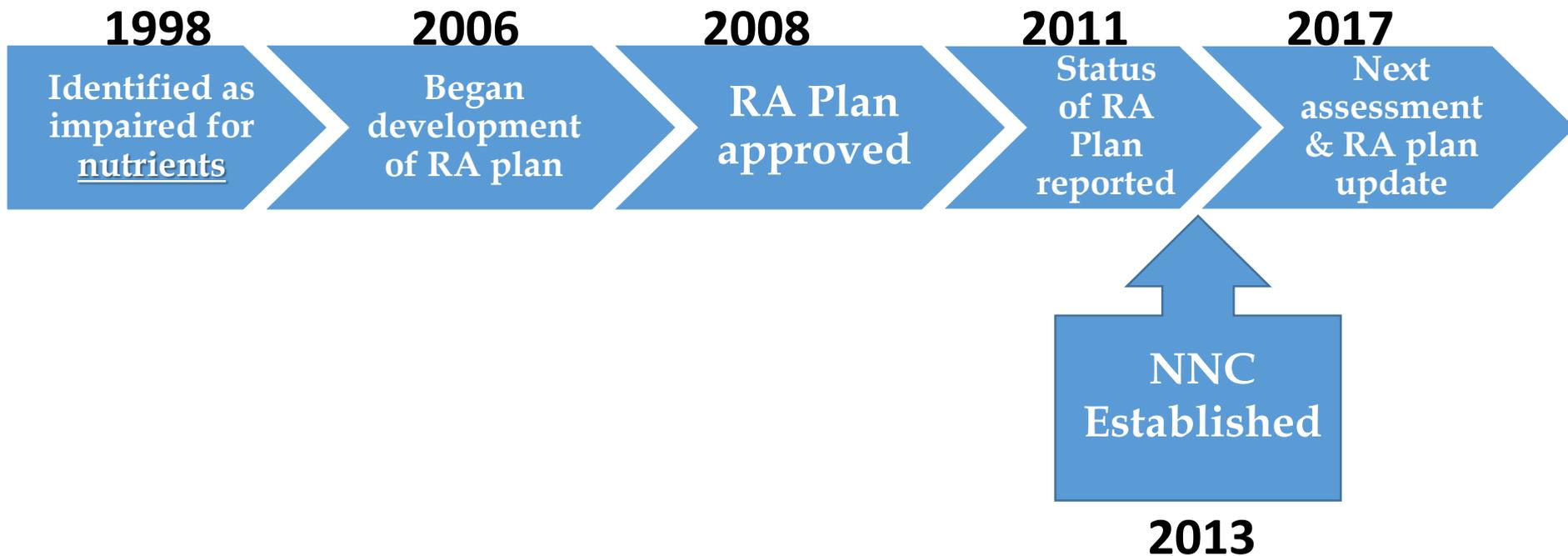
FL Keys Reasonable Assurance Document Monitoring

May 13, 2016





FL Keys Background





FL Keys RAD

- **Four sections and reports**
 - **Northern Keys**
 - Lower Matecumbe, Upper Matecumbe, Windley, Plantation, Radabob, and Largo Keys
 - **Central Keys**
 - Vaca Key, Long Point Key, Crawl Key, Grassy Key, Duck Key, and Long Key
 - **South Central Keys**
 - Boca Chica Key, Saddlebunch Key, Sugarloaf Key, Cudjoe Key, Summerland Key, Ramrod Key, Big Torch Key, Big Pine Key, Long Beach, No Name Key, and Bahia Honda Key
 - **South Keys**
 - Key West and a portion of Stock Island



Components of FL Keys RA Plan

- **Implement sufficient nutrient control mechanisms to return the nearshore waters to the water quality targets.**
- **Perform monitoring to assess progress**
 - Halo Zones (Bubble WBIDs) (within 500 meters from shore)
 - Immediate nearshore waters (within 5600 meters from shore)
 - Nearshore (>5600 meters from shore)
- **Report on progress annually**
- **Achieve target conditions in the Halo Zones by 2020**



RAD Nutrient Targets

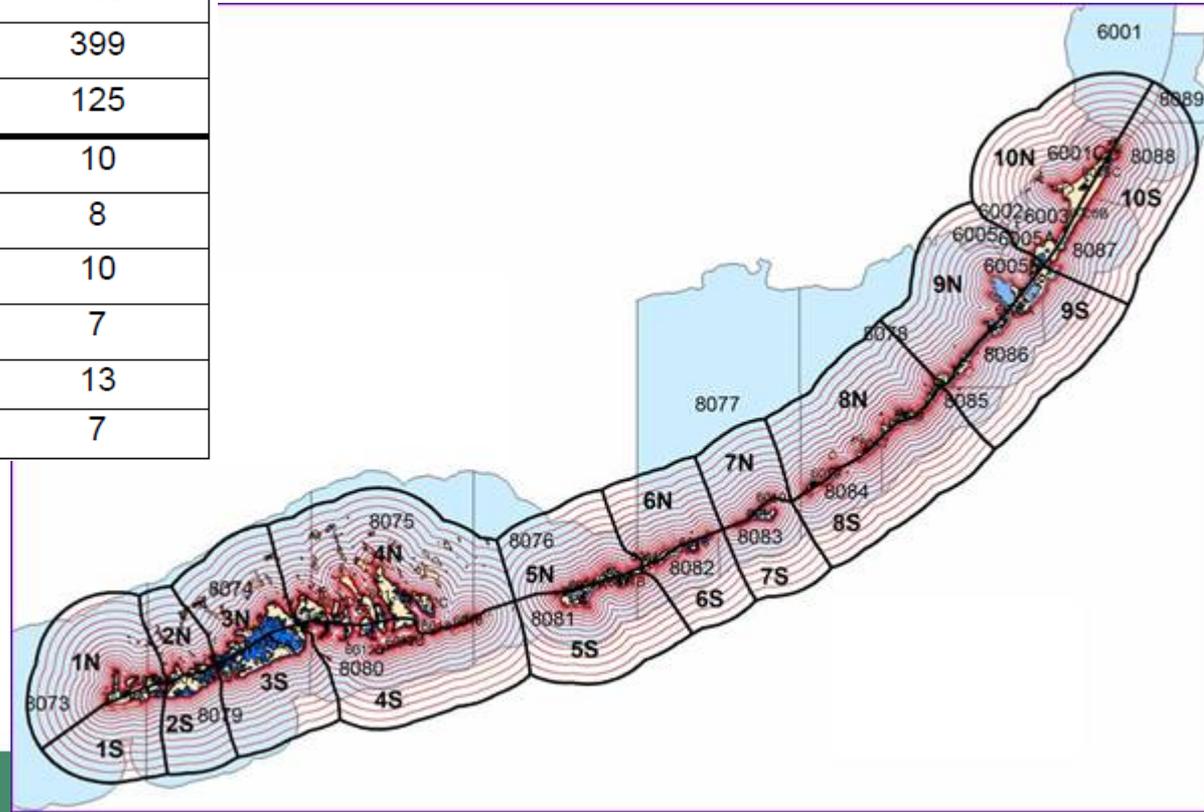
- **“The target to be achieved is an insignificant increase in the farfield (boundary) concentrations.”**
- **The targets to ensure an insignificant change were modeled based on a natural background conditions and vary at different locations.**
 - **There are values for each area along the Keys and they vary based on the local area and from bay to ocean side.**



Nutrient Targets Example

Nutrient		Natural Conditions Concentration (µg/l)	Water Quality Target (µg /l)
Total Nitrogen	5N	215	225
	5S	125	135
	6N	238	248
	6S	125	135
	7N	389	399
	7S	115	125
Total Phosphorus	5N	8	10
	5S	6	8
	6N	8	10
	6S	5	7
	7N	11	13
	7S	5	7

Central Keys





Compliance Post RAD Implementation

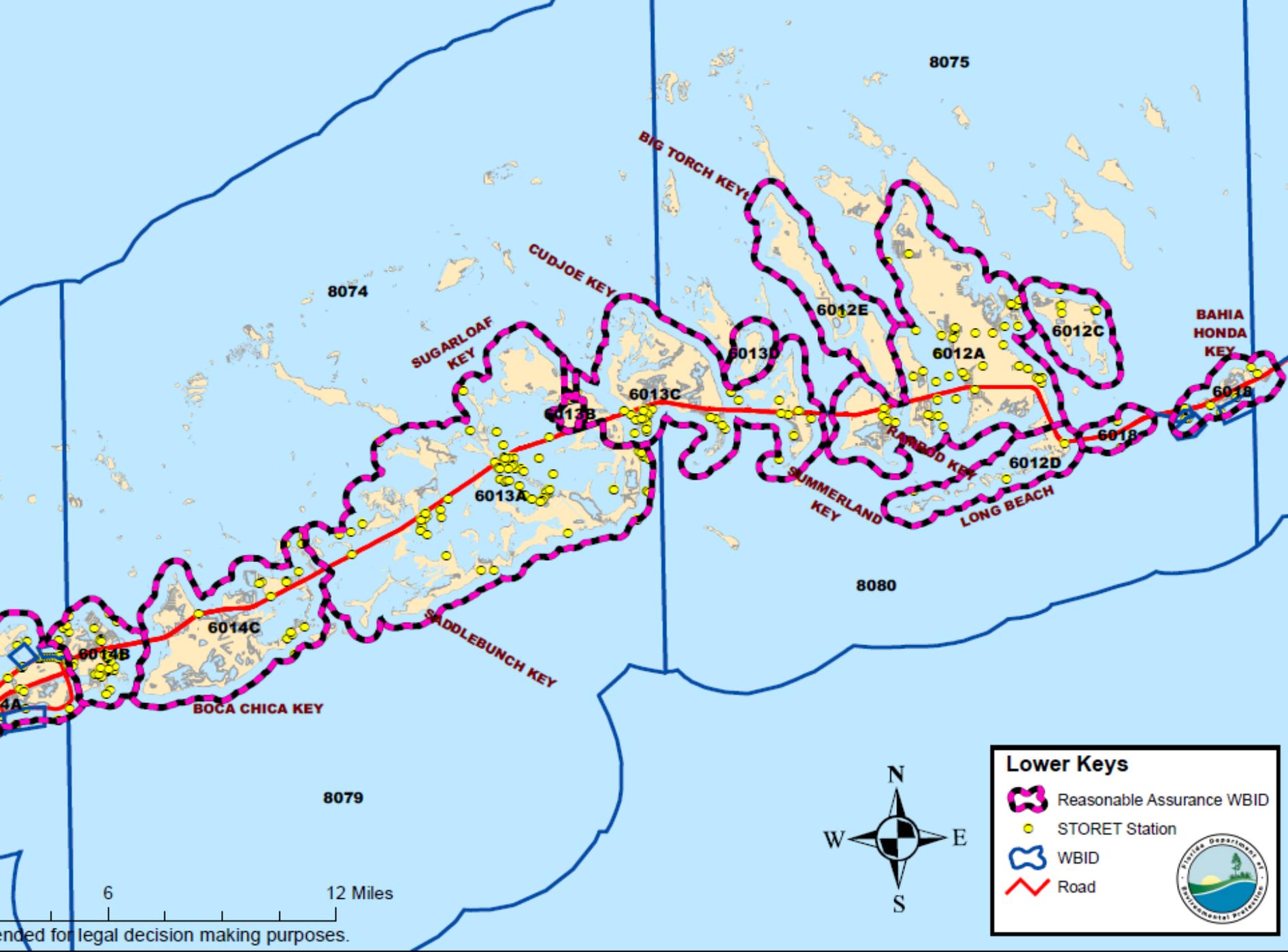
- **The anthropogenic loads – after achievement of the management activities – cannot cause an increase of TN and TP in the halo zone above the farfield concentration.**
- **An increase > 0.01 mg/L of TN or 0.002 mg/L TP above the natural conditions concentrations would indicate a significant increase and the management activities were insufficient.**
 - **These values are to be met at 500 meters from shore (also known as - the halo zone edge)**



WBIDs of Interest

- **Upper Keys**
 - WBIDs: 6019, 6017, 6009, 6006A, 6006B, 6006C, 6005EB
- **Middle Keys**
 - WBIDs: 6010, 6011A, 6011B, 6011C, 6016
- **Lower Keys**
 - WBIDs: 6014A, 6014B, 6014C, 6013A, 6013B, 6013C, 6013D, 6012A, 6012B, 6012C, 6012D, 6012E, 6018

These boundaries match the Halo Zones established in the RA Plan (500 meters from shore).



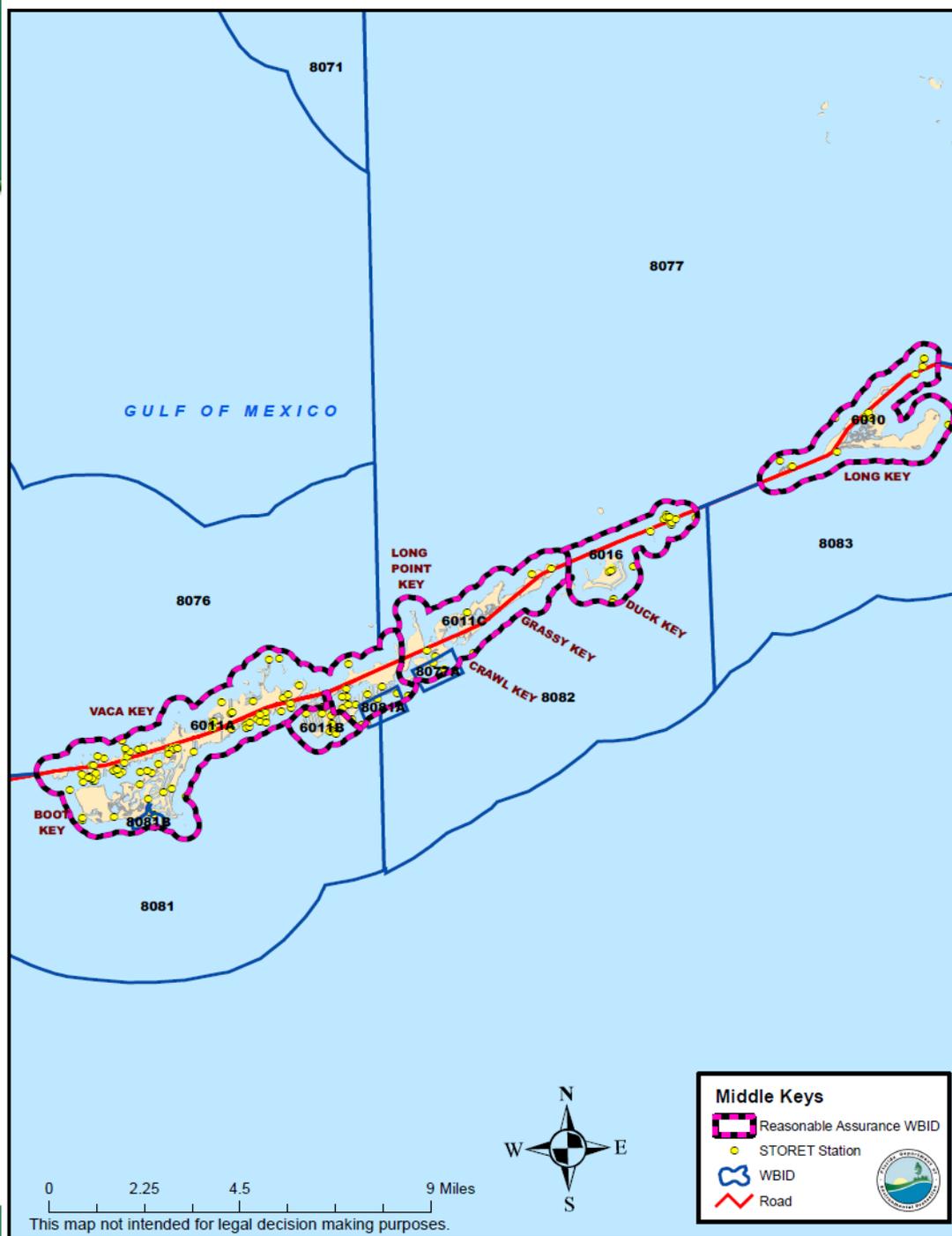
Lower Keys

-  Reasonable Assurance WBID
-  STORET Station
-  WBID
-  Road

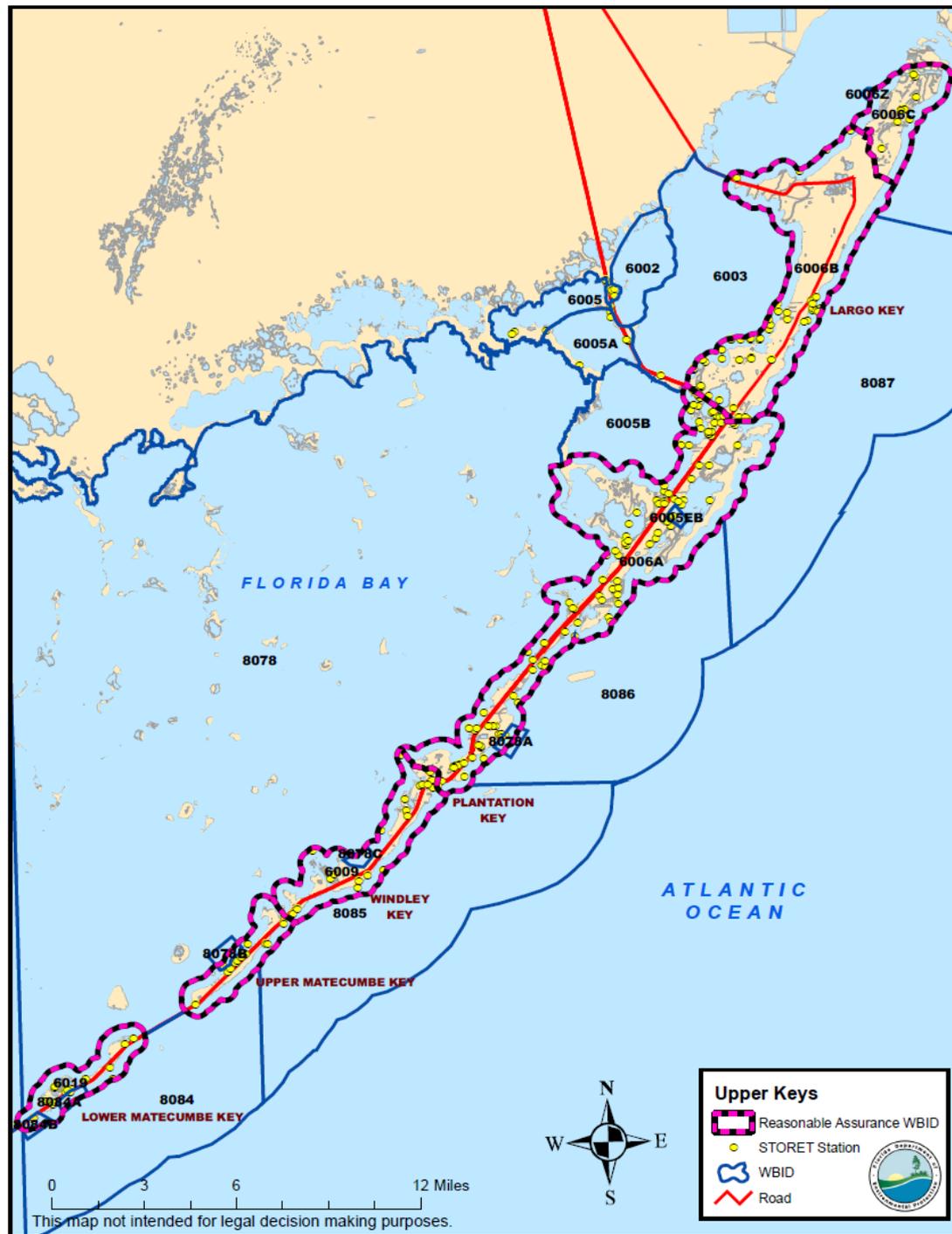



6 12 Miles

ended for legal decision making purposes.



This map not intended for legal decision making purposes.



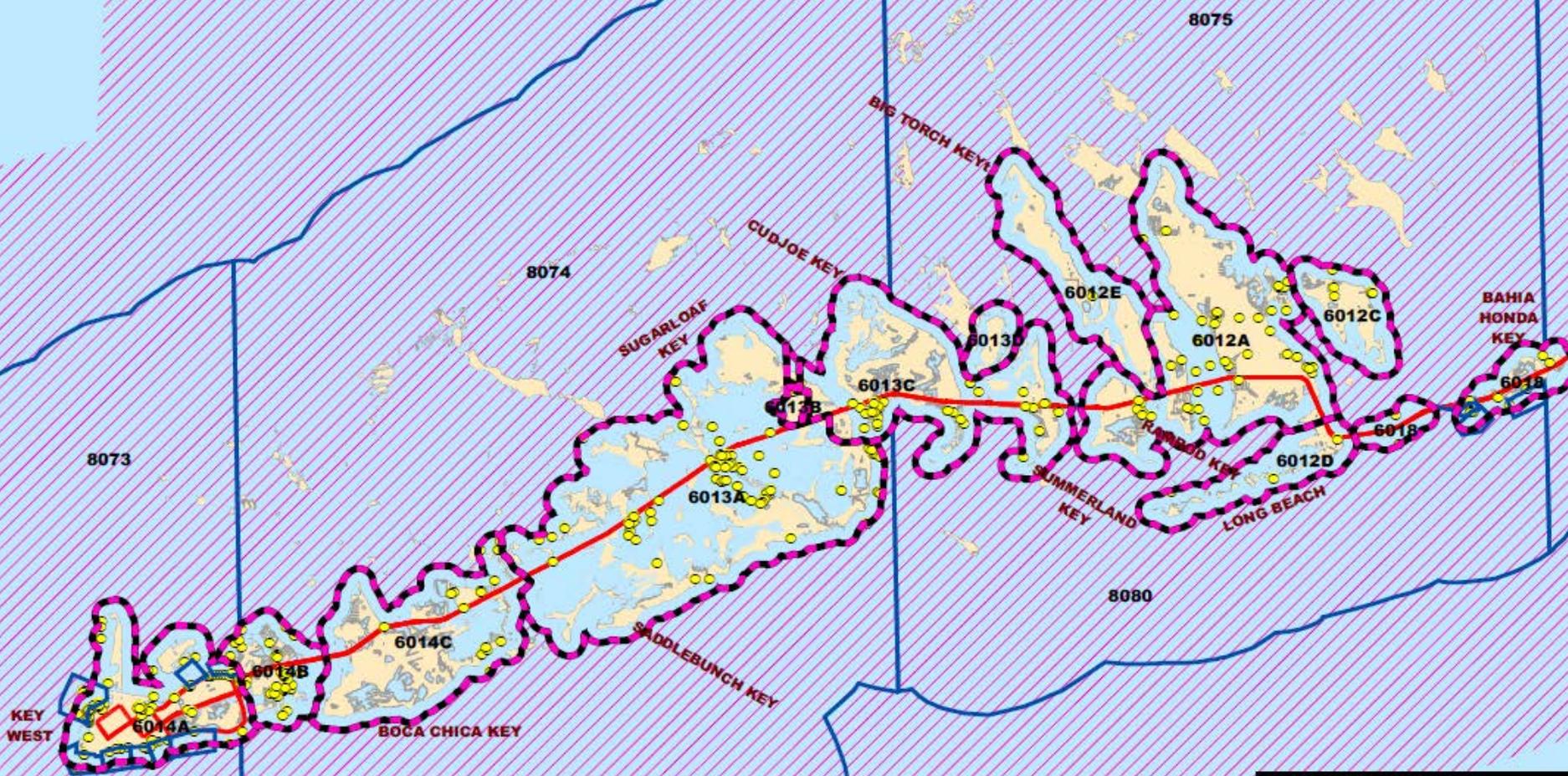
This map not intended for legal decision making purposes.



Florida's Nutrient Criteria

- **Narrative nutrient Criteria** – “In no case shall nutrient concentrations of a body of water be altered so as to cause an imbalance in natural populations of aquatic flora or fauna.”
- **Numeric Nutrient Criteria (NNC) covering the FL Keys were adopted by the ERC in June 2013;**
 - Criteria for chlorophyll-a, total nitrogen, and total phosphorus
 - Annual geometric means shall not be exceeded more than once in a three-year period.
 - Created Estuary Nutrient Regions for nearshore and waters further out.
- **These criteria do not cover the near shore halo zones that were established in the RA plan.**
 - The narrative still applies which is interpreted as values in the RA plan.
 - Will be evaluated in 2017.

GULF OF MEXICO



Lower Keys

- Reasonable Assurance WBID
- STORET Station
- WBID
- Road
- ENRs



This map not intended for legal decision making purposes



2011 Assessment

- **RA Update - Report focused on status of projects**
 - 68 projects completed, others in progress
- **Some improving WQ seen in nearshore waters (within 5,600 meters of shore)**
- **Dissolved Oxygen (DO) identified as not being met in some WBIDs**
 - Applied 4.0 mg/L marine DO criterion
 - Impairments were associated with monitoring locations within canals
 - Placed in assessment category 4e



2017 Assessment

- **RA Update - Will need status of projects**
- **Evaluate Halo Zones for RA plan**
 - More monitoring will be needed, some being done now by DEP
- **Dissolved Oxygen (DO)**
 - **New marine DO criteria**
 - Daily >42%
 - Weekly >51%
 - Monthly >56%
 - Some may attain the new criterion
 - Evaluate nearshore and farther out based on WBIDs and ENRs



Questions?

- **Contact Information**

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