



Florida Keys National Marine Sanctuary



floridakeys.noaa.gov



National Marine Sanctuary System

NATIONAL MARINE SANCTUARY SYSTEM



- National Marine Sanctuary
- Marine National Monument
- Proposed National Marine Sanctuary

Scale varies in this perspective. Adapted from National Geographic Maps.

South Florida Ecosystem



Kissimmee River

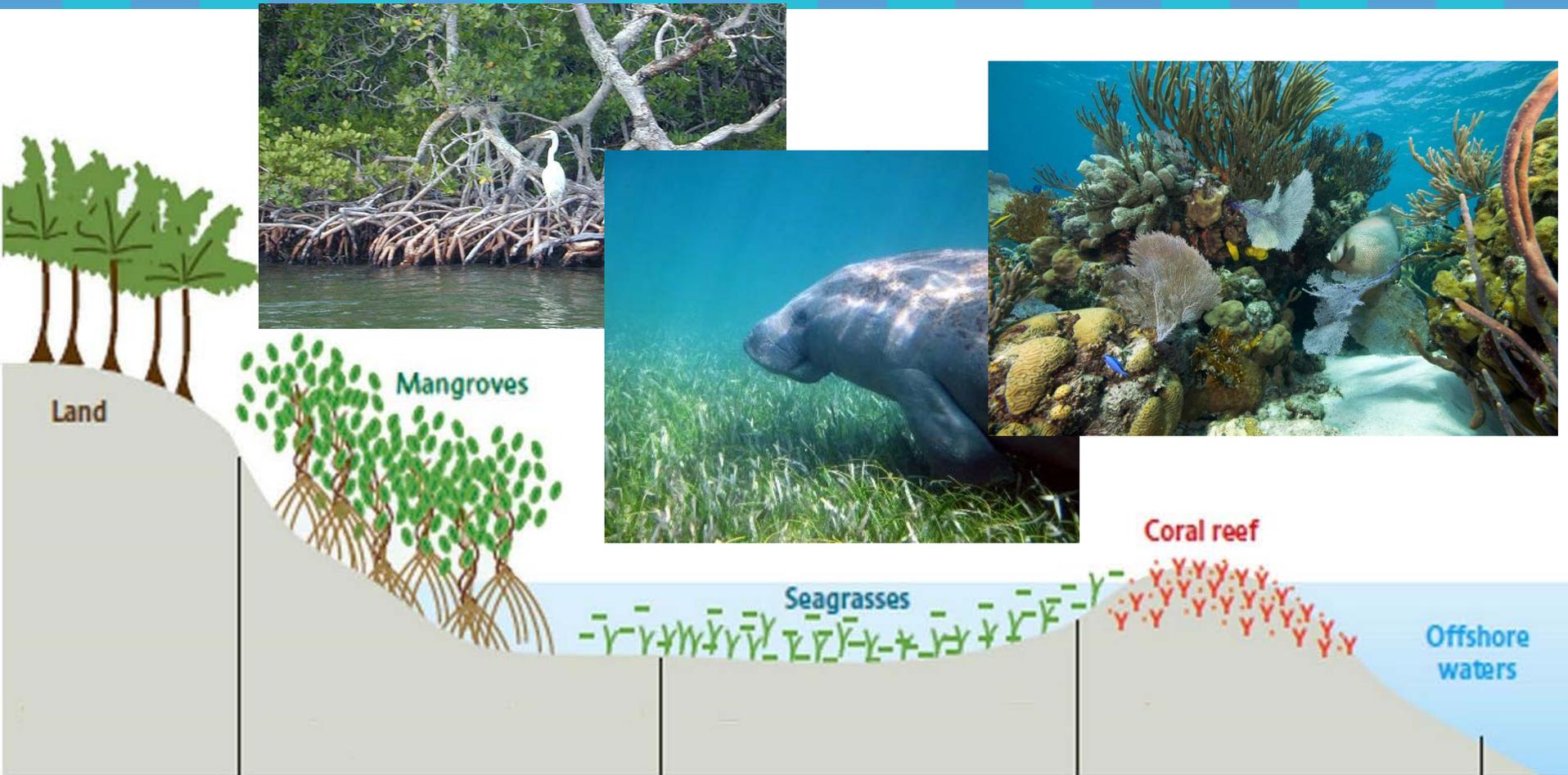
Lake Okeechobee

Everglades wetlands

Florida Bay estuary

Florida coral reef

Florida Keys Ecosystem



Currents & Connectivity

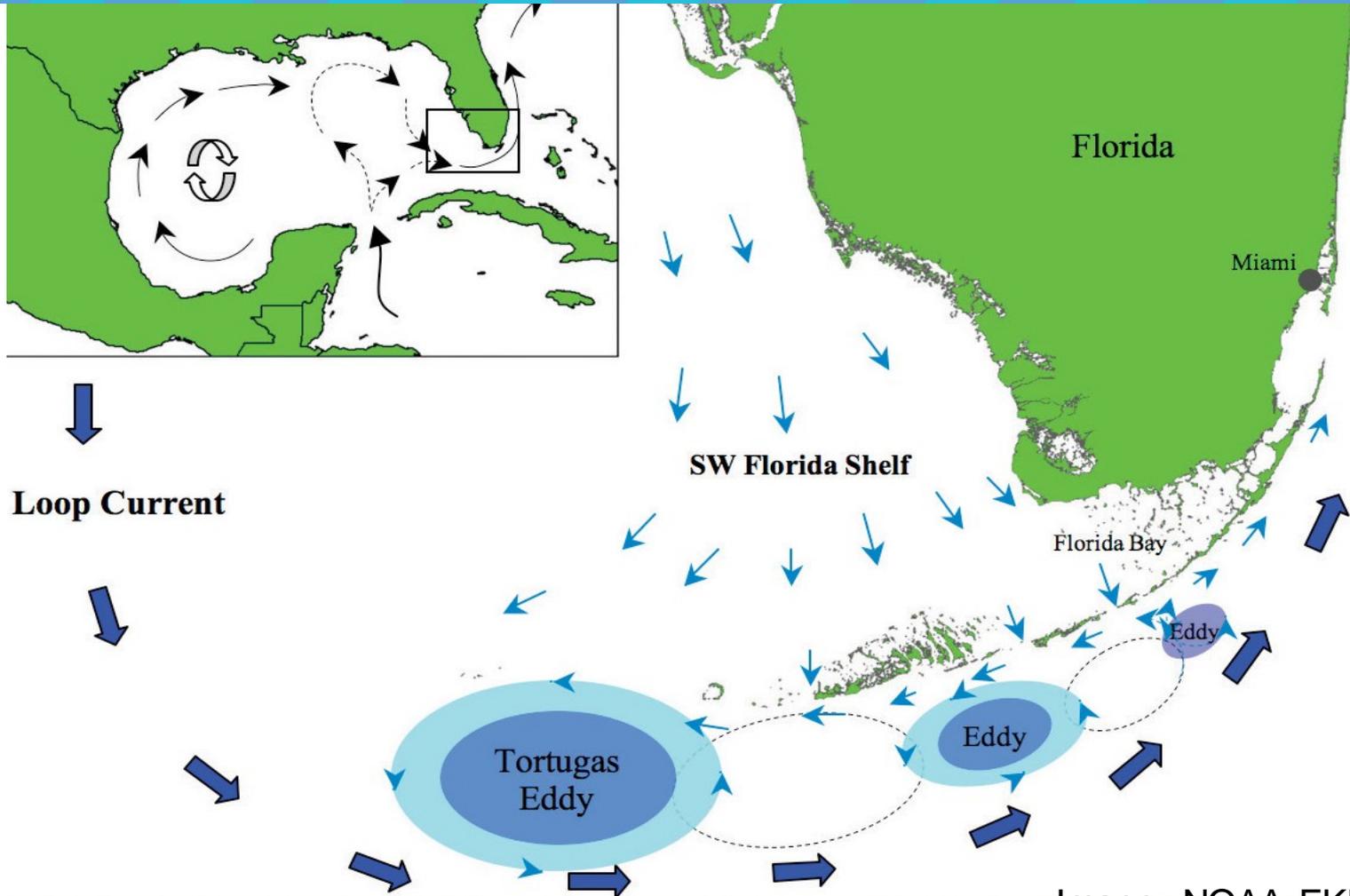


Image: NOAA FKNMS

Geology of the Keys

Porous limestone substrates

Upper Keys

Key Largo Limestone

Lower Keys

Miami Oolite



Cross-section of Key Largo
Limestone on Key Largo

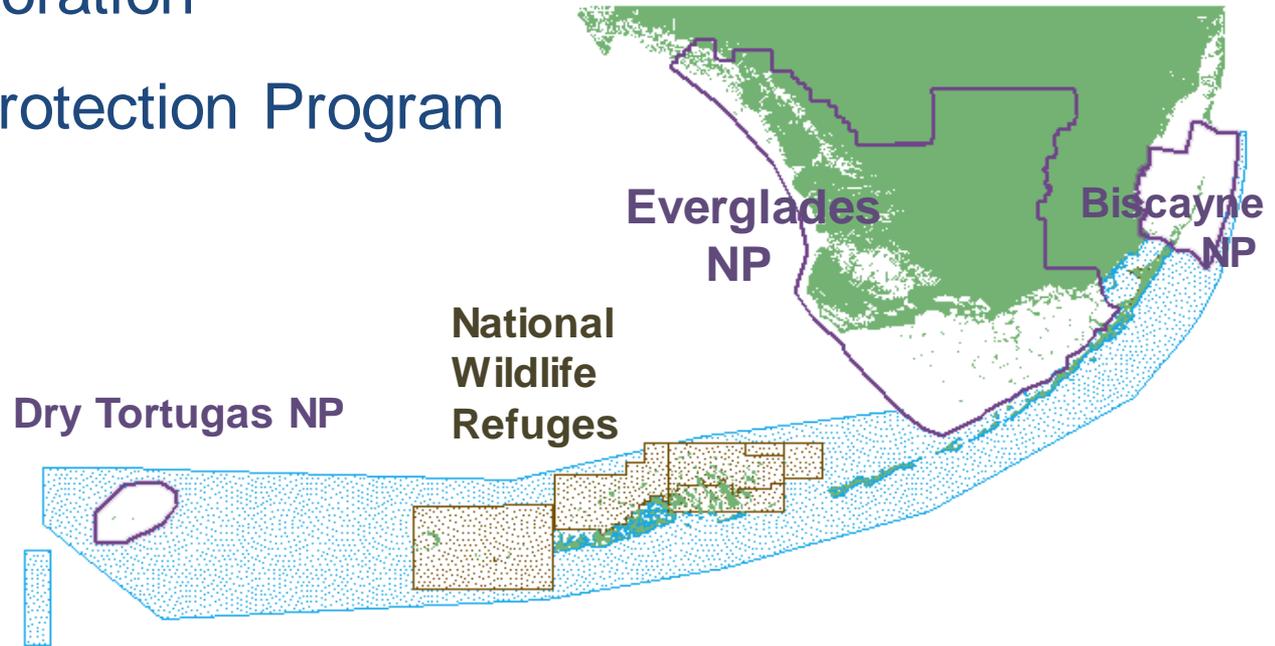
Photo: NOAA FKNMS



Florida Keys National Marine Sanctuary & Protection Act 1990



- Managed with State of Florida (FDEP)
- Area To Be Avoided (Large ships)
- No Oil Gas Exploration
- Water Quality Protection Program
- Marine Zoning
- Sanctuary Advisory Council



Florida Keys National Marine Sanctuary 2900 sq. nautical miles



FKNMS Management Plan Strategies



- Channel/Reef Marking
- Education/Outreach/Media
- Law Enforcement
- Mooring Buoys
- Research & Monitoring
- Maritime Heritage
- Volunteer
- Marine Zoning
- Water Quality



Photos: NOAA FKNMS



1997 Management Plan Goals & Science



- Improve water quality
- Protect habitat
- Conserve marine life



1996 Marine Zone Monitoring
1990 Water Quality Protection
Program (WQPP)

Photos: NOAA FKNMS



FKNMS Marine Zones — Ecological Reserves



Western Sambo Ecological Reserve 1997

- From mangrove shoreline to outer reefs
- includes hardbottom, seagrass, patch reef habitat

Tortugas Ecological Reserve 2001

- Dry Tortugas National Park and Research Natural Area (RNA)
- crossroads of major ocean currents, which carry marine larvae
- deep reefs, sandy soft bottom

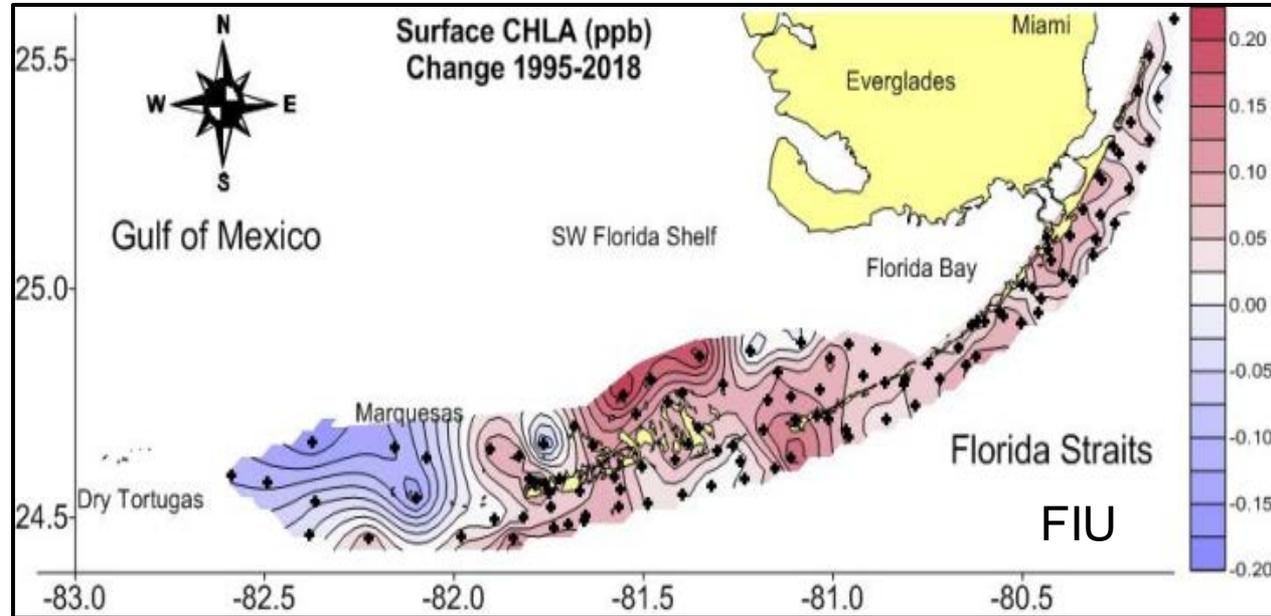
Long-term WQPP Monitoring in FKNMS



**Water Quality
Monitoring
Program**

Florida
International
University (FIU)

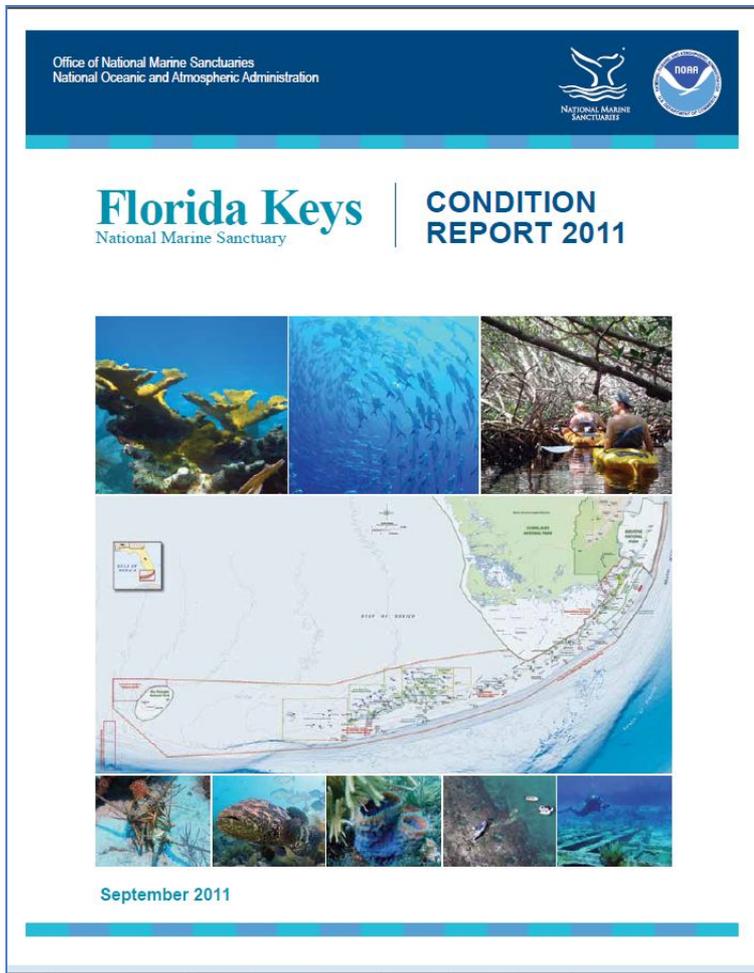
Seagrass/Benthic
Florida International
University



**Coral Reef Evaluation &
Monitoring Program**

FWC Fish and Wildlife
Research Institute

Condition Report 2011 & Marine Regulatory Review



- Summary of current conditions
- Report card on water quality, biodiversity, etc.
- History of resources
- **2012 Marine Zone & Regulatory Review**
- **NEPA process**



2019 Restoration Blueprint Revised Management Plan



<https://floridakeys.noaa.gov/blueprint/>

HOME / RESTORATION BLUEPRINT

FLORIDA KEYS NATIONAL MARINE SANCTUARY RESTORATION BLUEPRINT

World class fishing and diving

More than 6,000 species

2,900 square nautical miles

mangrove shorelines

FL KEYS	Coral Reef
	Fish Species
	Acidification
	Florida Keys NMS Restoration Blueprint

Marine Zone and Regulatory Review

<https://floridakeys.noaa.gov/review/welcome.html>



2019 Restoration Blueprint & Revised Management Plan



Release of Blueprint -- August 20, 2019 Marathon
Sanctuary Advisory Council Meeting

Federal Register August 30, 2019
(Written comments taken through Jan. 31, 2020)

Public Meetings (6 p.m. to 9 p.m.)

Sept. 23 - Key West High School

Sept. 30 - Marathon Middle High School

Oct. 7 - Coral Shores High School

**Oct. 28 - University of Miami Alumni
Center Coral Gables**

Nov. 4 - Holiday Inn, Fort Myers



Photo: NOAA FKNMS



Water Quality Protection Program (WQPP)



Florida Keys National Marine Sanctuary and Protection Act 1990 (Public Law 101- 605)

- EPA and FDEP, Steering Committee + public
- Corrective actions for point and nonpoint sources of pollution
- Restoration and maintenance
 - populations of corals, shellfish, fish and wildlife
 - recreational activities in and on the water.



Photo: NOAA FKNMS



Water Quality Protection Program (WQPP)



WQPP Steering Committee
interagency/stakeholders/public comment

Management
Committee
+ EPA office

Technical
Advisory
Committee

Canal Restoration
Subcommittee

Sanctuary Advisory
Council (public
body/representative on
Steering Committee)



<https://www.monroecounty-fl.gov/598/Canal-Restoration>



MONROE COUNTY
FLORIDA

Wastewater Upgrades Monroe Co. Ch. 99-395, Laws of Florida 2010

- **Eliminate Cesspits**
- **Upgrade Onsite systems to *Aerobic* Treatment Units or Comparable**



Photo: NOAA FKNMS

- **Upgrade Treatment Plants to Advanced Wastewater Treatment (AWT) or Best Available Treatment**
- **Disposal by Reuse, Deep- or Shallow-Injection Well**

No Discharge Rules in Sanctuary Waters

- **2002 No Discharge Rule (EPA-FL)**

EPA/State of Florida discharge/marine heads in state waters)

- **2010 NOAA**

Federal Regulation

no discharge in federal waters

- **Enforcement –**

FWC, USCG and NOAA Office of Law Enforcement



Photo: NOAA FKNMS



Impaired Waters Rule Clean Water Act



Impaired Waters Rule – 62-303 F.A.C. Water Quality Standards – 62-302 F.A.C

Numeric Nutrient Standards 2012



Photo: NOAA FKNMS

Class III Designated Use

All surface waters = Class III

Uses = fish consumption,
recreation, healthy well
balanced population of fish &
wildlife



Clean Water Act (EPA/FDEP)



Impaired Waters Rule– Class III Designated Use

Data & Information



Reasonable Assurance
Plan/Document (Rap/RAD)
(Local stakeholders)

Total Maximum Daily Loads
(TMDLs) with Basin Action
Management Plan



FDEP Watershed Assessment

**Waterbody ID units (WBIDs) using Monitoring Plan based on
Nutrient Targets (2008 Florida Keys RADs)**

- 1 – Based on above Background levels in Halo Zone
- 2 – Outstanding Florida Waters 1985 averages



Florida Keys Nutrient Impairment



2008 Florida Keys = Impaired for *nutrients*

Reasonable Assurance Documents/Plan (RAD) 2008

RAD – list of actions such as wastewater upgrades required by Florida law plus stormwater improvements

Assessment Category 4b

– impaired, but does not require TMDLs because water will attain water quality standards due to existing proposed measures



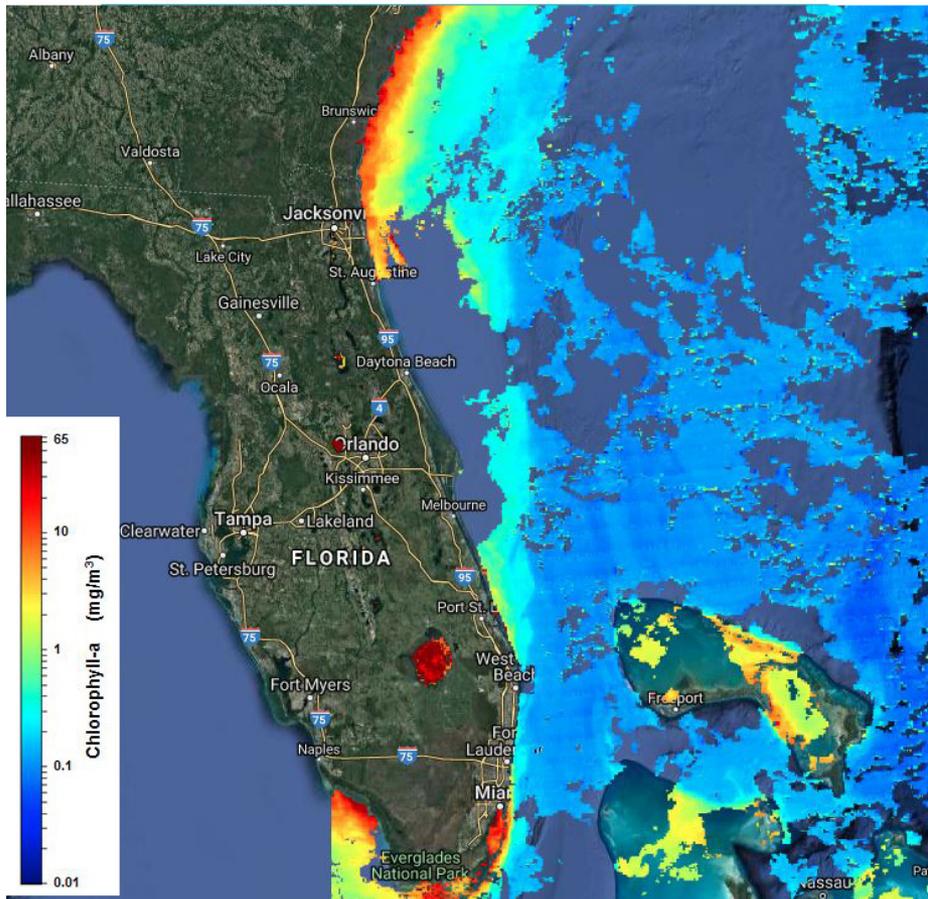
Photo credit: Key Largo Wastewater Treatment District

2008 RAD Description of Water Quality Far-field Sources



NOAA CoastWatch
EAST COAST NODE

Providing Oceanographic Satellite Data for the U.S. East Coast



Water Quality in Florida
Keys is affected by:

**Far-Field Sources in
Nearshore Waters
(from 500 to 12,100 m)**

- Naturally occurring nutrient loads and anthropogenic storm sources located outside the Keys
- Far-field sources are not within the control of the residents of the Florida Keys

2008 RAD Description in Halo Zone (within 500 m of shore)

Water Quality in Florida Keys **Halo Zone** (waters coast to 500 meters of shore) are *incrementally* affected by **nutrient loads** from

- wastewater and stormwater on developed properties
- natural stormwater on undeveloped land



Photo: NOAA FKNMS

RAD Waterbody ID Units & Commitments

Signed Agreements or Letters of Commitment were received from all participants.

Monroe County

KLWTD

Northern Area RA Document

South-Central Area RA Document

Southern Area RA Document

US Navy

Layton

Marathon

Islamorada

Key Colony Beach

Central Area RA Document

- Florida Parks
- FDOT

Key West



2011 RAD Update FDEP

Florida Keys RAD/RAP Process

Impaired Waters Rule– Class III Designated Use

 Data/Information

2008 Florida Keys Reasonable Assurance Plan/Documents *

 FDEP Watershed Assessment Waterbody ID units (WBIDs) *using* Monitoring Plan

 2011 RAD Update based on Monitoring/Data = Watershed Assessment *

 2018 RAD based on Monitoring/Data Watershed Assessment 4-b *

*Public Input/Meetings

2018 Reasonable Assurance

- 42 restoration projects completed
~90% of the Keys is on AWT
- Waterbodies (WBIDs) in assessment category 4b — plan in place to address nutrient impairments
- Establish New Monitoring program, Data will be reported in 2020 RAD update

*2018 Update to the Florida Keys
Reasonable Assurance Document*

Division of Environmental Assessment and Restoration
Water Quality Assessment Program
Florida Department of Environmental Protection

with participation from the
Florida Keys Stakeholders

June 2018

2600 Blair Stone Rd.
Tallahassee, FL 32399
Floridadep.gov



Fishing for Funding Sources

\$ Local/Federal/State \$

- Local Taxes/Tax Districts
- State Revolving Loans/Grants
- Federal/State Grants
 - Miami-Dade EPA Federal Loan Awarded Miami-Dade in April 2019



Photo: NOAA FKNMS

Funding Sources

Local/Federal/State

EPA's \$99.7 Million WIFIA loan to Miami-Dade County will:

- ✓ Redirect treated wastewater from ocean outfalls
- ✓ Increase availability of reclaimed water for potential reuse
- ✓ Better protect ocean health
- ✓ Save taxpayers up to \$15.7 million



FDEP Contacts

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Water Quality Assessment Program

Watershed Assessment Section

<http://www.dep.state.fl.us/water/watersheds/assessment/index.htm>

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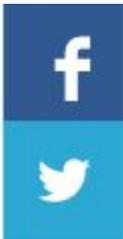


Questions?



Thank You!

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Science Interpreter



Florida Keys National
Marine Sanctuary

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