



FLORIDA'S CORAL REEF WATER QUALITY FRAMEWORK



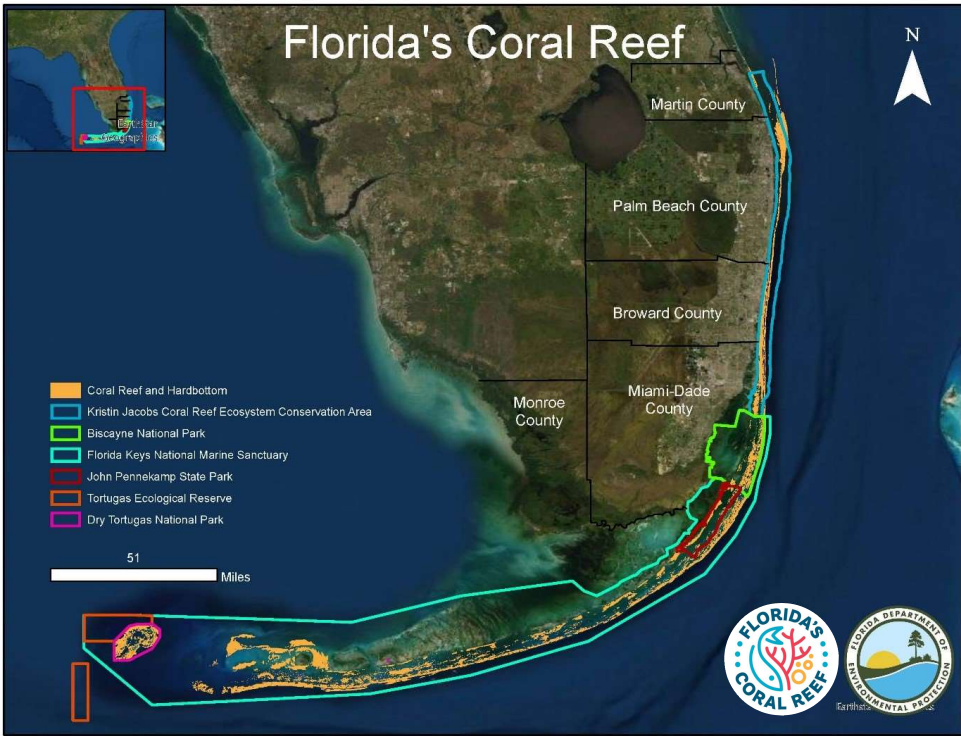
Joanna Walczak
Coral Protection and Restoration Program
Florida Department of Environmental Protection



FLORIDA'S CORAL REEF

CORAL-RELATED WATER QUALITY PRIORITIES

BOLD VISION FOR A **BRIGHTER FUTURE**





FLORIDA'S CORAL REEF

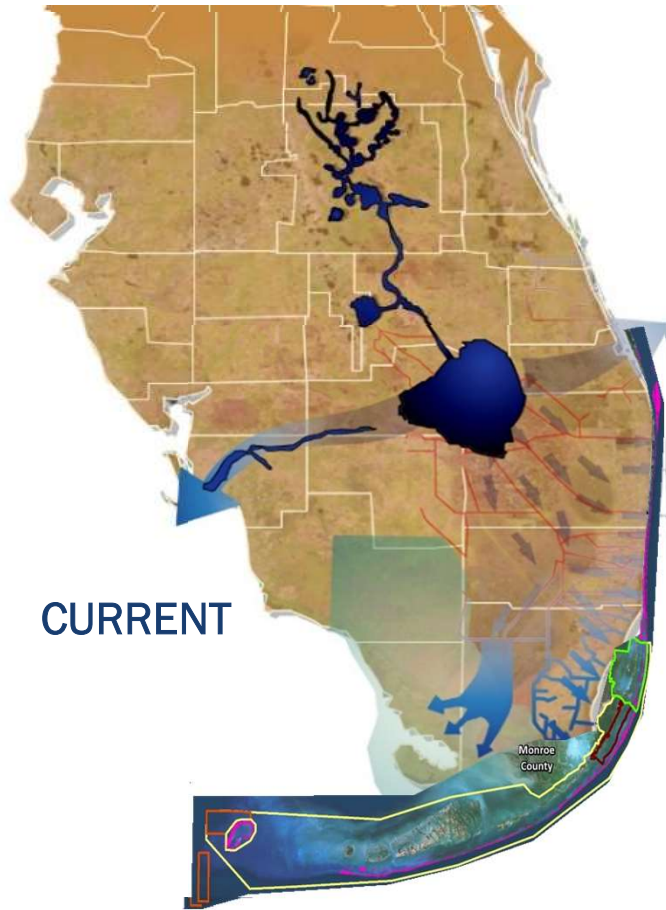
CORAL-RELATED WATER QUALITY PRIORITIES



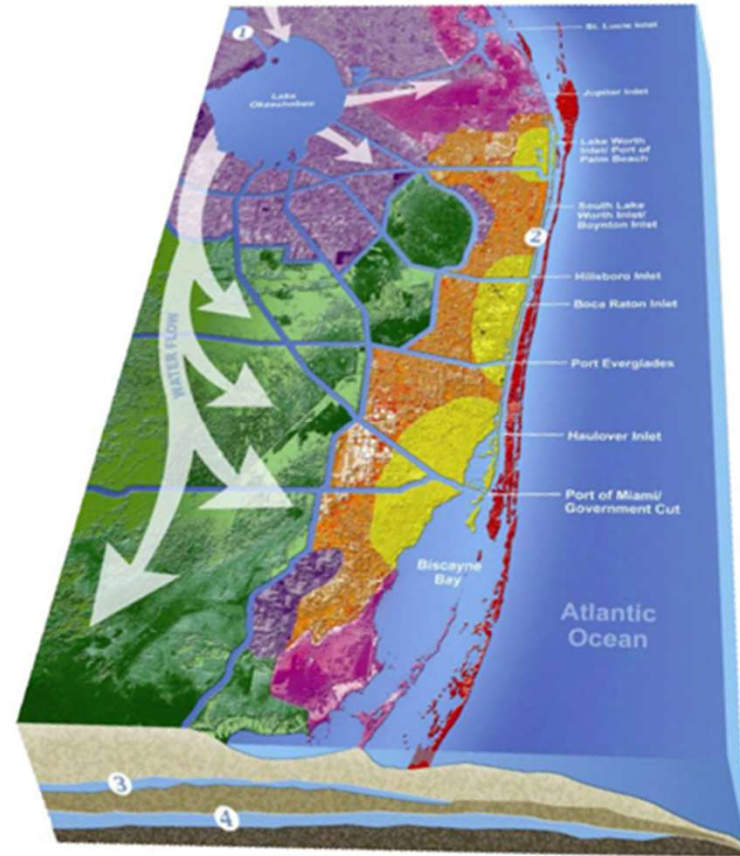


FLORIDA'S CORAL REEF

CORAL-RELATED WATER QUALITY PRIORITIES



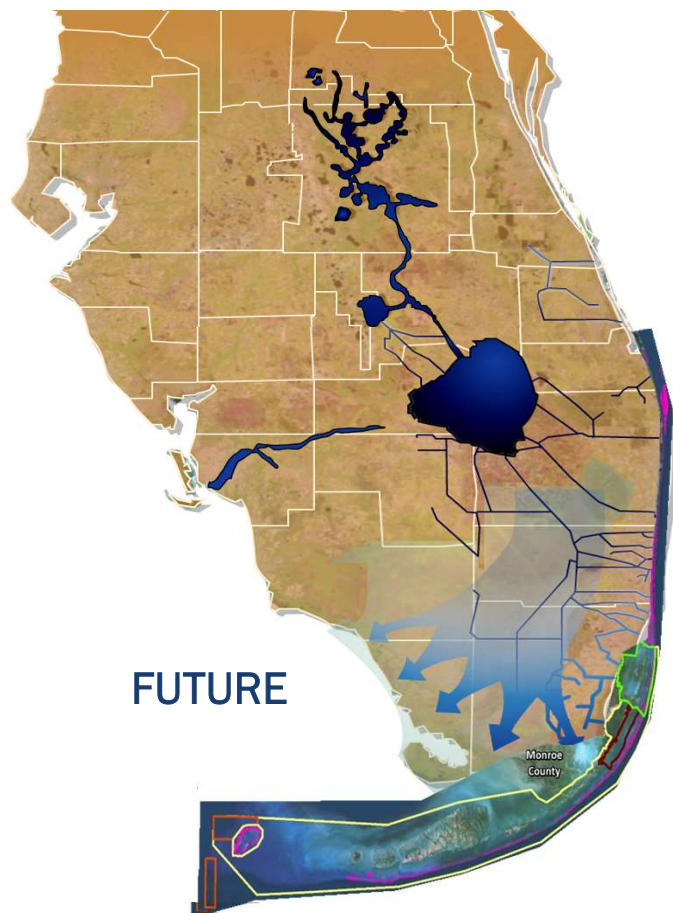
CURRENT





FLORIDA'S CORAL REEF

CORAL-RELATED WATER QUALITY PRIORITIES





FLORIDA'S CORAL REEF

CORAL-RELATED WATER QUALITY PRIORITIES



Florida's Coral Reef Coordination Team Charter:

4b. identify and evaluate opportunities to facilitate, integrate, and enhance monitoring and data collection efforts across Florida's Coral Reef and adjacent coastal waters.

4f. review components of CERP for impacts to Florida's Coral Reef and offer recommendations to secure or enhance the delivery of project benefits to Florida's Coral Reef and associated resources.

k. produce the following deliverables:

I. a collaborative framework for water quality monitoring along Florida's Coral Reef.



FLORIDA'S CORAL REEF

CORAL-RELATED WATER QUALITY PRIORITIES

Monitoring

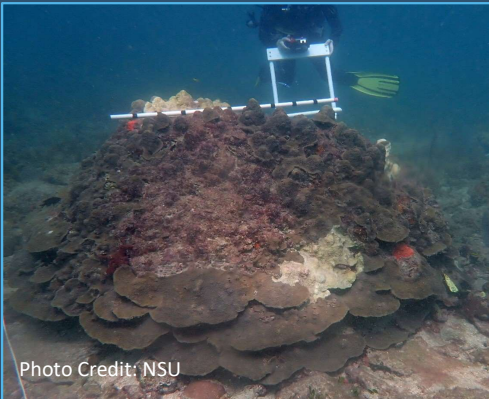


Photo Credit: NSU

Research

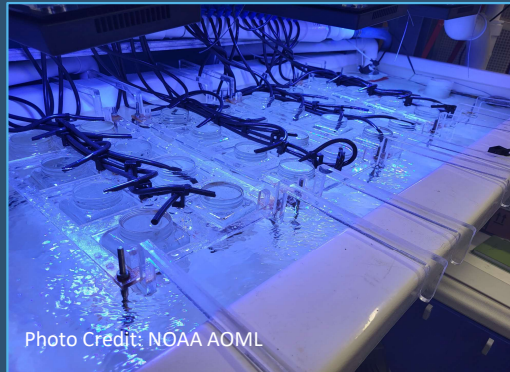


Photo Credit: NOAA AOML

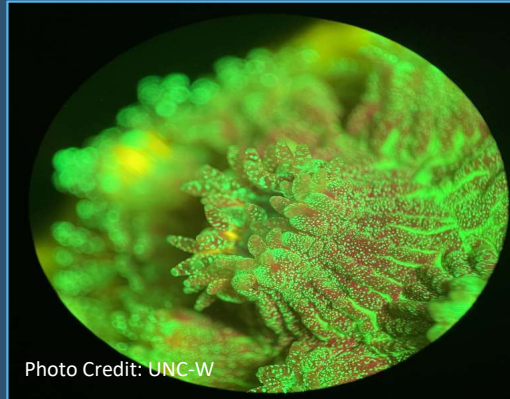


Photo Credit: UNC-W

Regulatory





FLORIDA'S CORAL REEF

CORAL-RELATED WATER QUALITY PRIORITIES

Monitoring

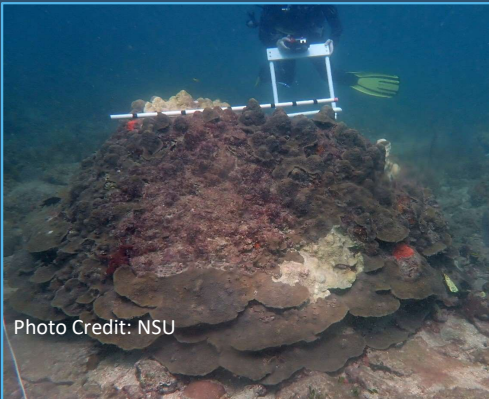


Photo Credit: NSU

Research



Photo Credit: NOAA AOML

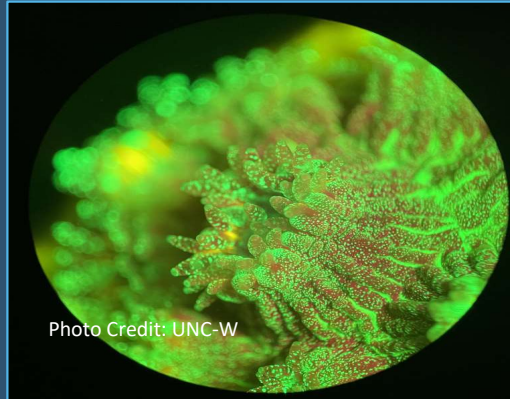


Photo Credit: UNC-W

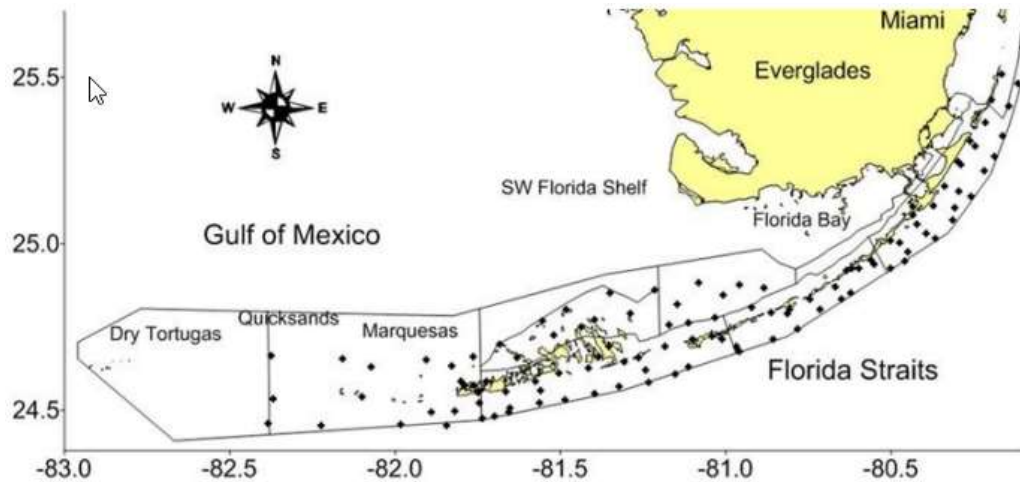
Regulatory



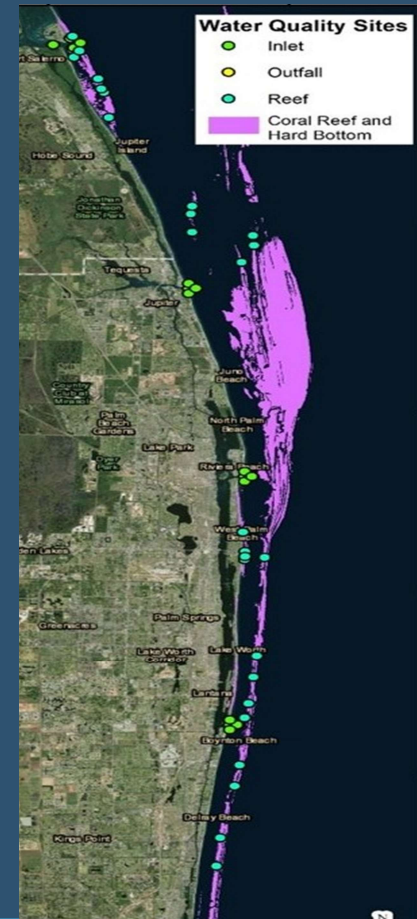


MONITORING CORAL-RELATED WATER QUALITY IN SOUTH FLORIDA

FKNMS Water Quality Monitoring Project



Kristin Jacobs Coral Reef Ecosystem Conservation Area (ECA) Water Quality Monitoring Project



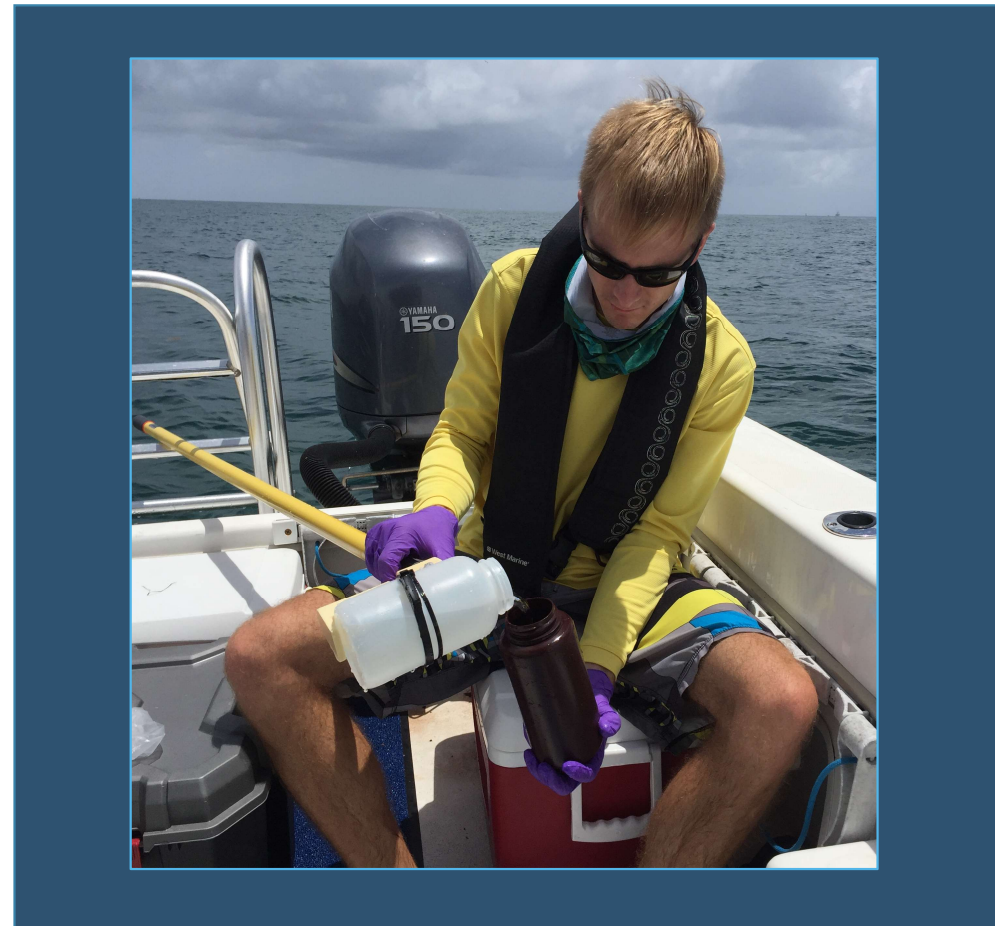


MONITORING CORAL-RELATED WATER QUALITY IN SOUTH FLORIDA

There are many water quality datasets out there...

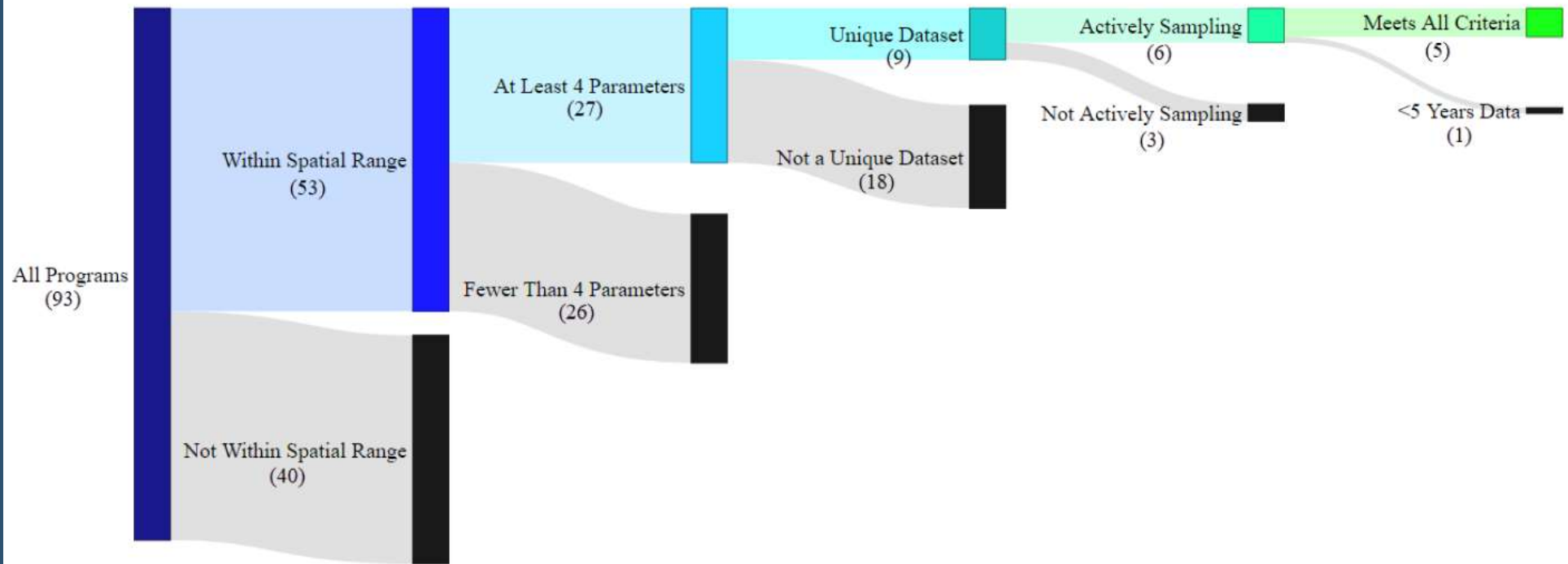
Project funded to collate these datasets and determine which were comparable:

- Actively sampling.
- At least 5 years of data.
- Unique dataset.
- Regular Sampling.
- Sample Nutrients.





MONITORING WATER QUALITY IN SOUTH FLORIDA

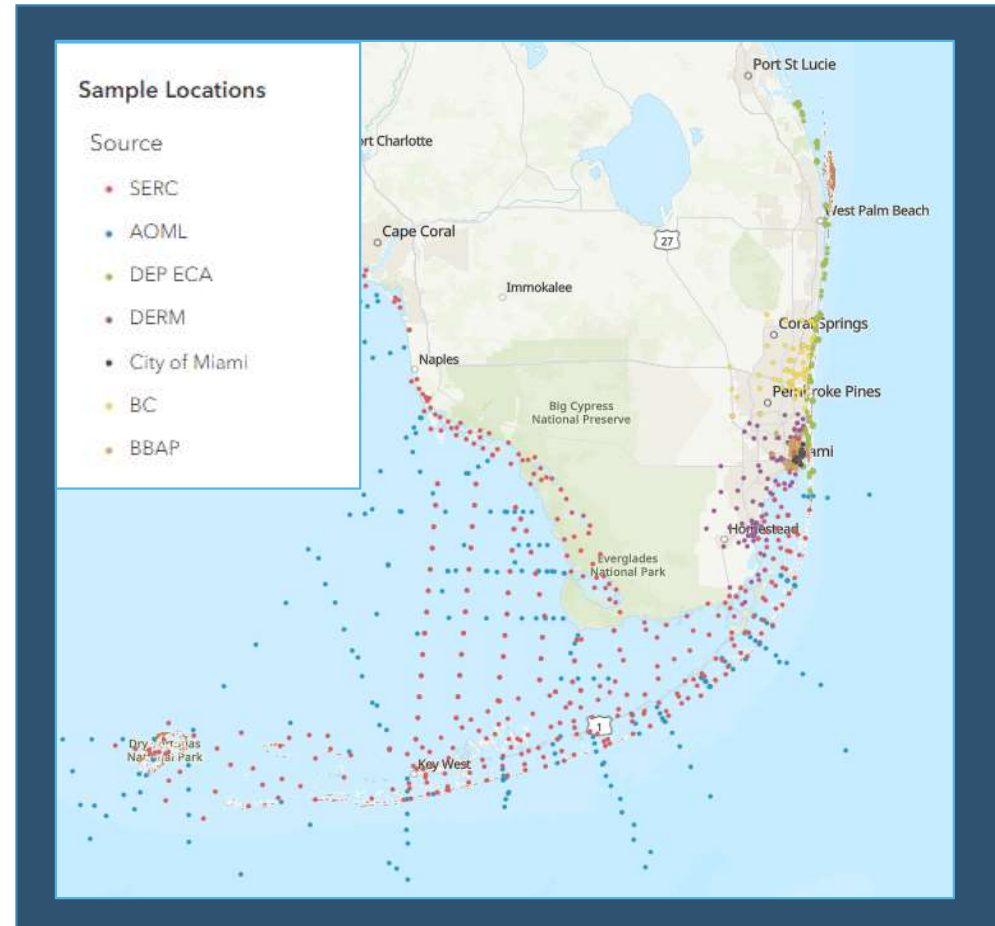




MONITORING WATER QUALITY IN SOUTH FLORIDA

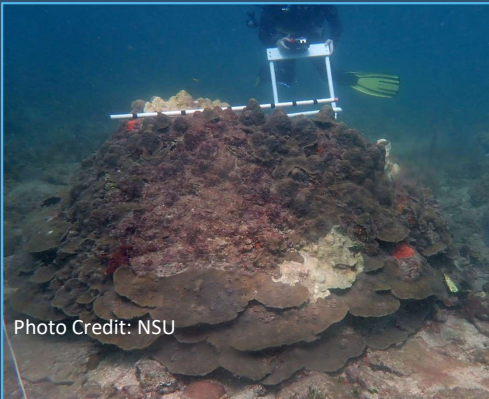
- Monitor trends over time.
- Allow us to see pollution “hotspots.”
- Redirect monitoring efforts where most needed; optimize efficiencies.
- Long-term Goal: Integrate into a decision support tool.

What WQ-related management questions do we want to answer?

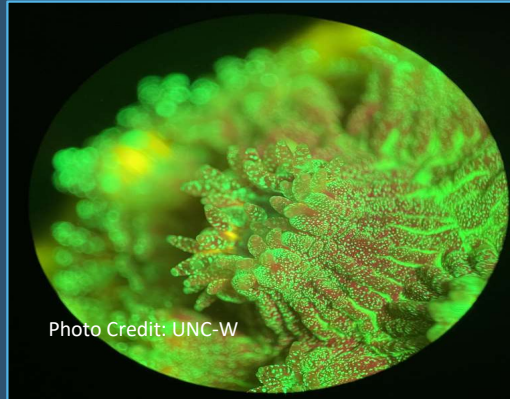




Monitoring



Research



Regulatory





RESEARCH

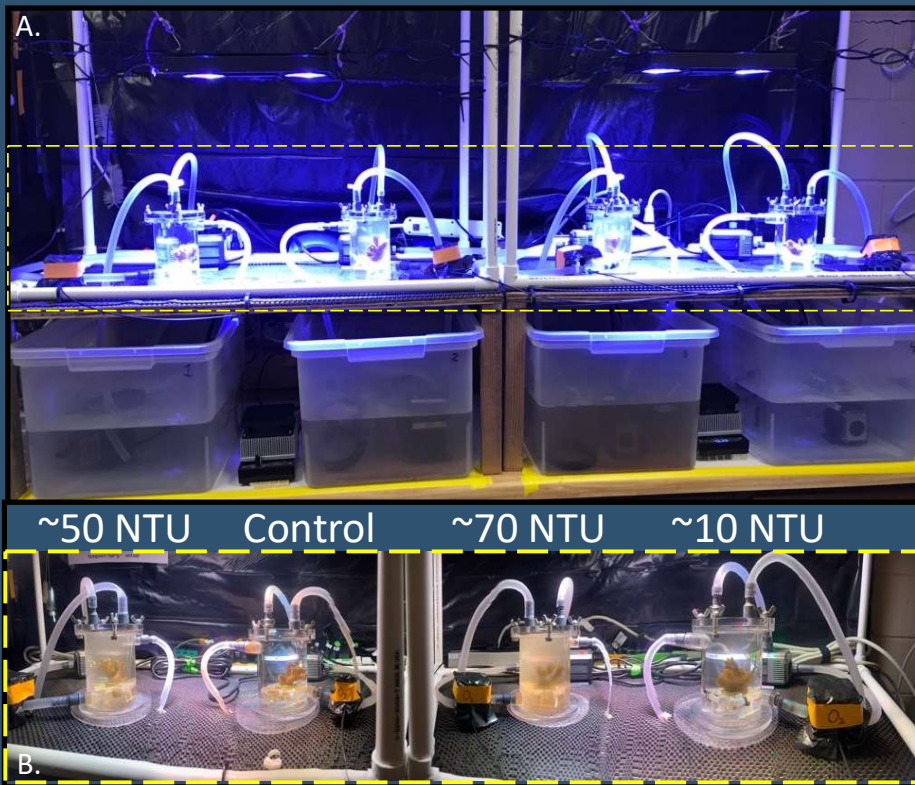


Photo Credit: TAMUCC

DEP Coral Protection and Restoration Program funds coral-related water quality research:

- **Coral Specific Water Quality Benchmarks.**
- **Effects of Elevated Nutrients and Temperature on Coral Disease.**
- **Biological Condition Gradient.**



RESEARCH

Coral-Specific Water Quality Benchmarks

Determine at what levels corals show signs of sub-lethal stress.

- Turbidity.
- Nutrients.
- Pollutants.

CONTROL



~10 NTU



~50 NTU



Photo Credit: TAMUCC



RESEARCH

Effects of Elevated Nutrients and Temperature on Coral Disease

Coral disease more likely:

- After periods of high temperature stress.
- After periods of high rainfall.
- After periods of high inlet flow.
- In areas with >100 septic tanks within 5 km.

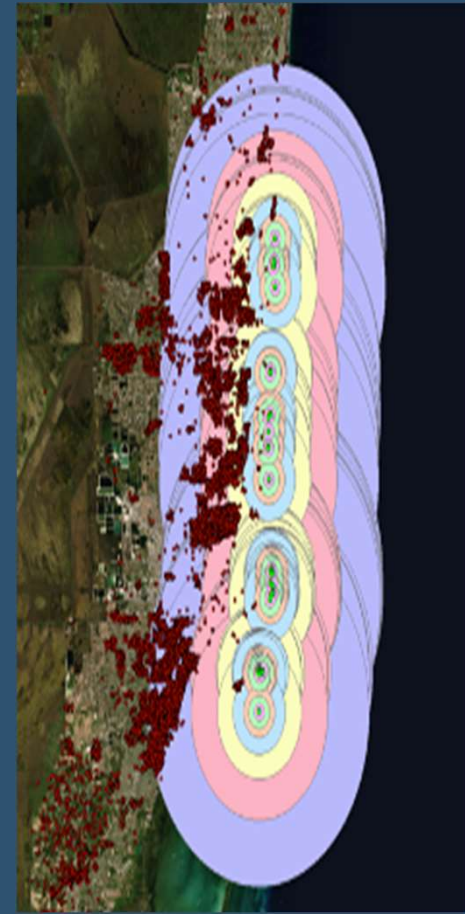
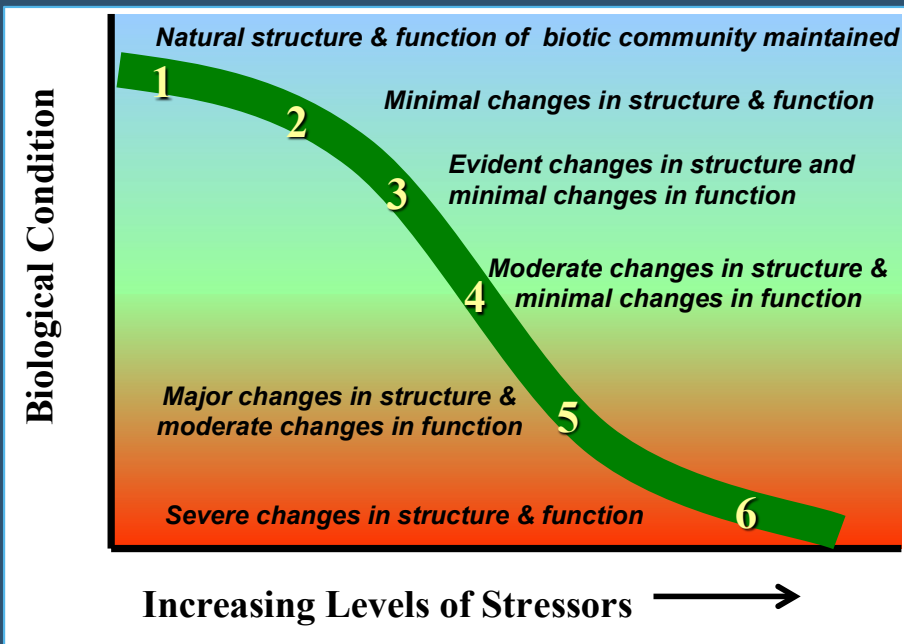


Photo Credits: NSU



RESEARCH



Biological Condition Gradient

A scientific framework for interpreting incremental changes in biological condition with increasing levels of human stressors.

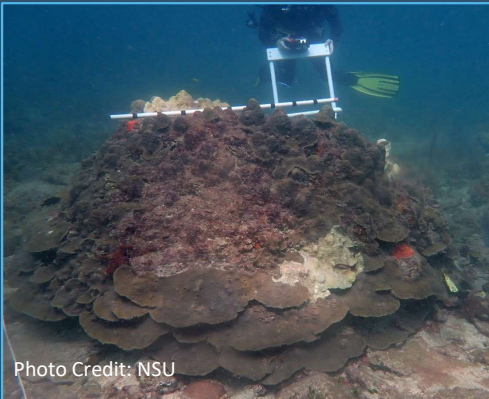
This method has been used across a wide variety of ecosystems:

- Streams in California.
- Rivers in New Mexico.
- Lakes in Wisconsin.
- Corals in the US Virgin Islands and Puerto Rico.

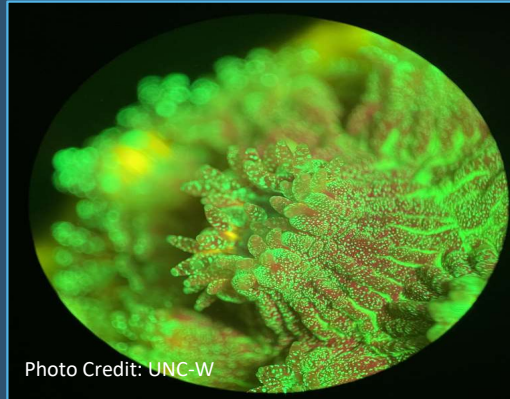
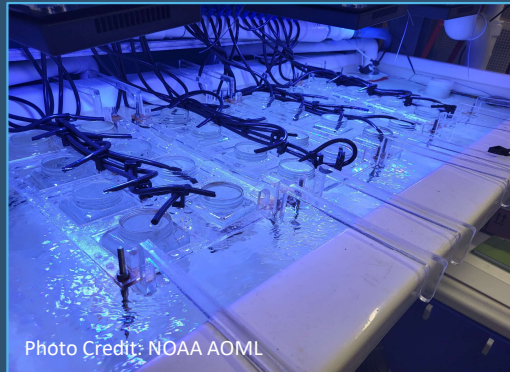
Pair with WQ data and coral benchmarks



Monitoring



Research



Regulatory





REGULATORY WATER QUALITY IN SOUTH FLORIDA

Turbidity Triennial Review

Proposed revised coral turbidity criterion:

“...summarize the current scientific understanding of coral species sensitivities and responses to turbidity and describe efforts to revise the generally applicable turbidity criterion to better protect coral reef and hardbottom communities that occur in South Florida.”

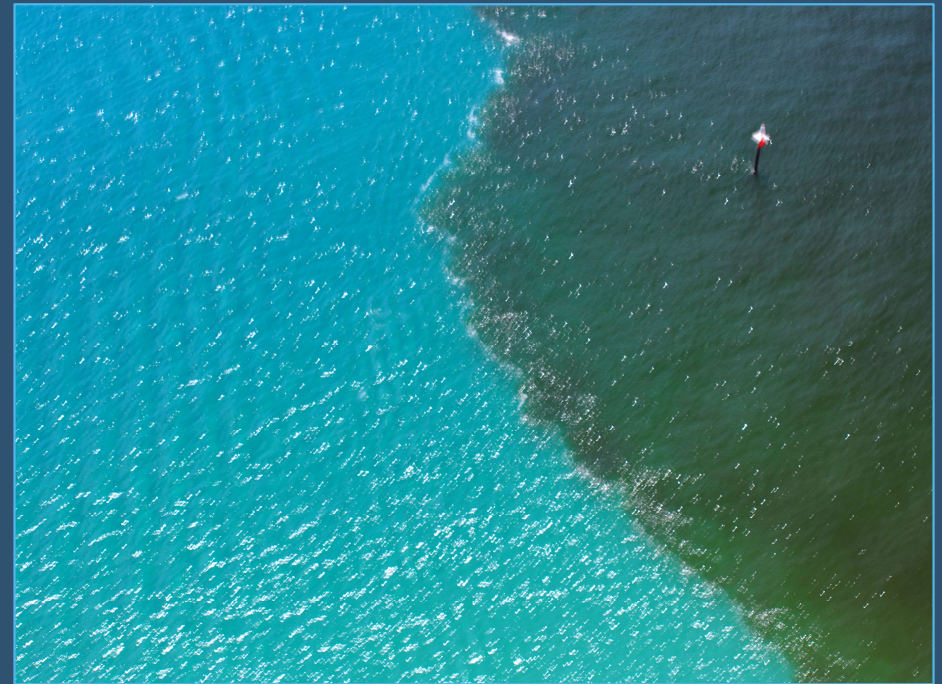


Photo Credit: Broward Co



THANK YOU

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ABOUT US

CORAL PROTECTION AND RESTORATION PROGRAM

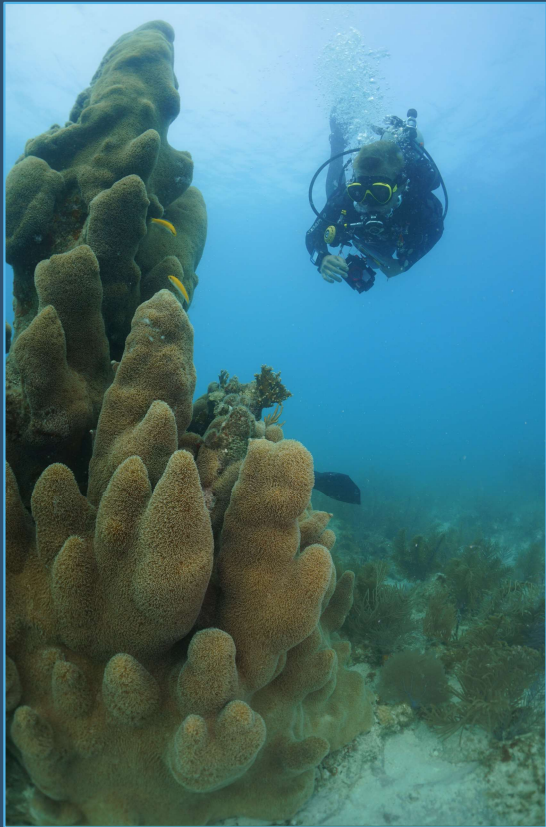


Photo Credit: NPS

- **Resilient Coastlines Funding**
 - Currently \$8M annually
 - Supports SCTLD research and response, restoration and propagation, and enhancement of regional water quality
- **Biscayne Bay Water Quality Improvement Grant**
 - \$20,000,000 annually
- ***NEW* Florida's Coral Reef Restoration and Recovery Initiative**
 - \$10,000,000
 - Infrastructure to support reef restoration