



Florida Department of Environmental Protection

Florida Reef Tract Coral Disease Outbreak

**Karen Bohnsack
4/26/2017**





Overview

Coral Disease 101

Florida Coral Disease Outbreak

Ongoing Response Efforts



Coral Disease 101

Disease is defined as:

Any impairment (interruption, cessation, proliferation, or other disorder) of vital body functions, systems or organs.¹



Coral Disease 101

Causes of coral disease:

Infectious agents (pathogens)

- Microorganisms such as viruses, bacteria, fungi, and protists
- Transmitted from one host to another

Natural or human-induced environmental stressors

- Non-infectious
- Result from changes in ambient conditions

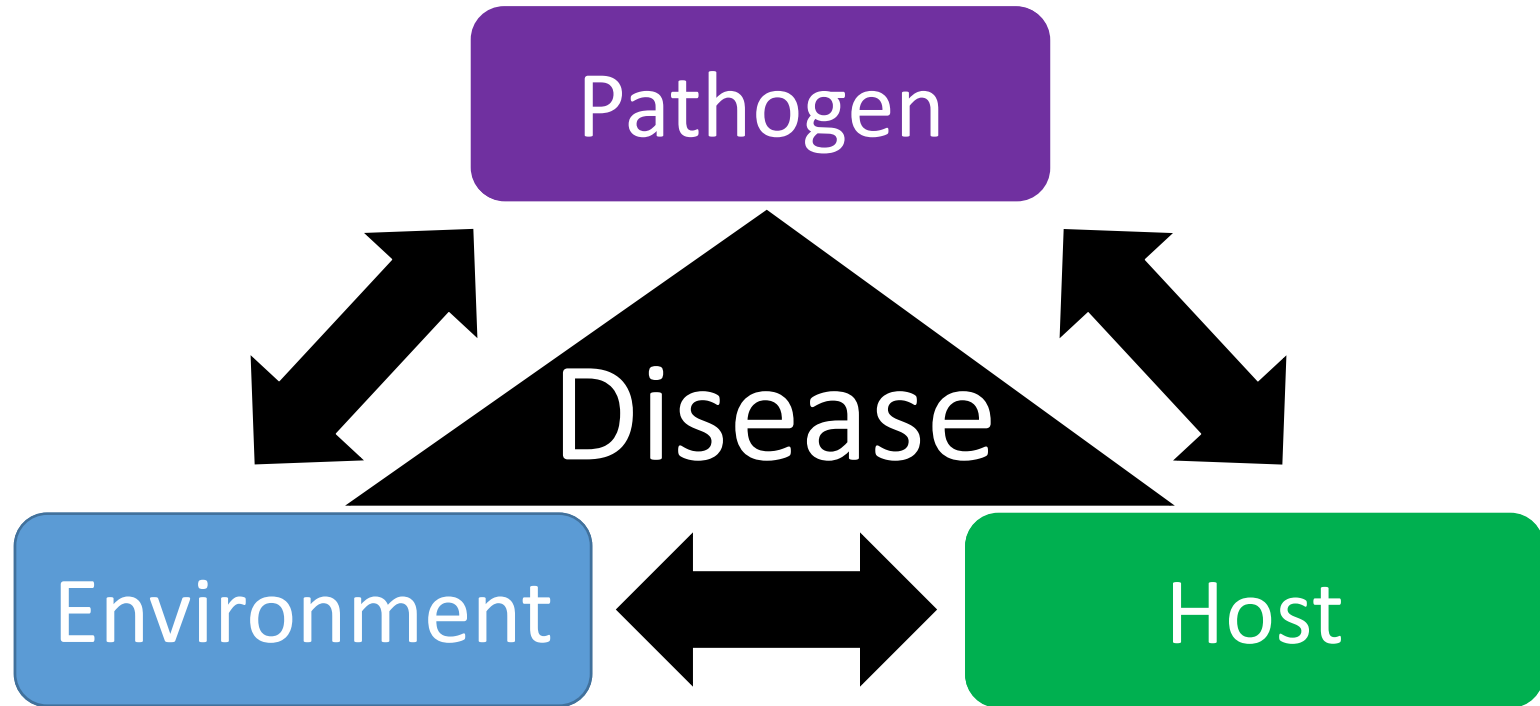
Inherent or congenital defects in the coral host

- Non-infectious
- Impair normal functions
- Increase susceptibility



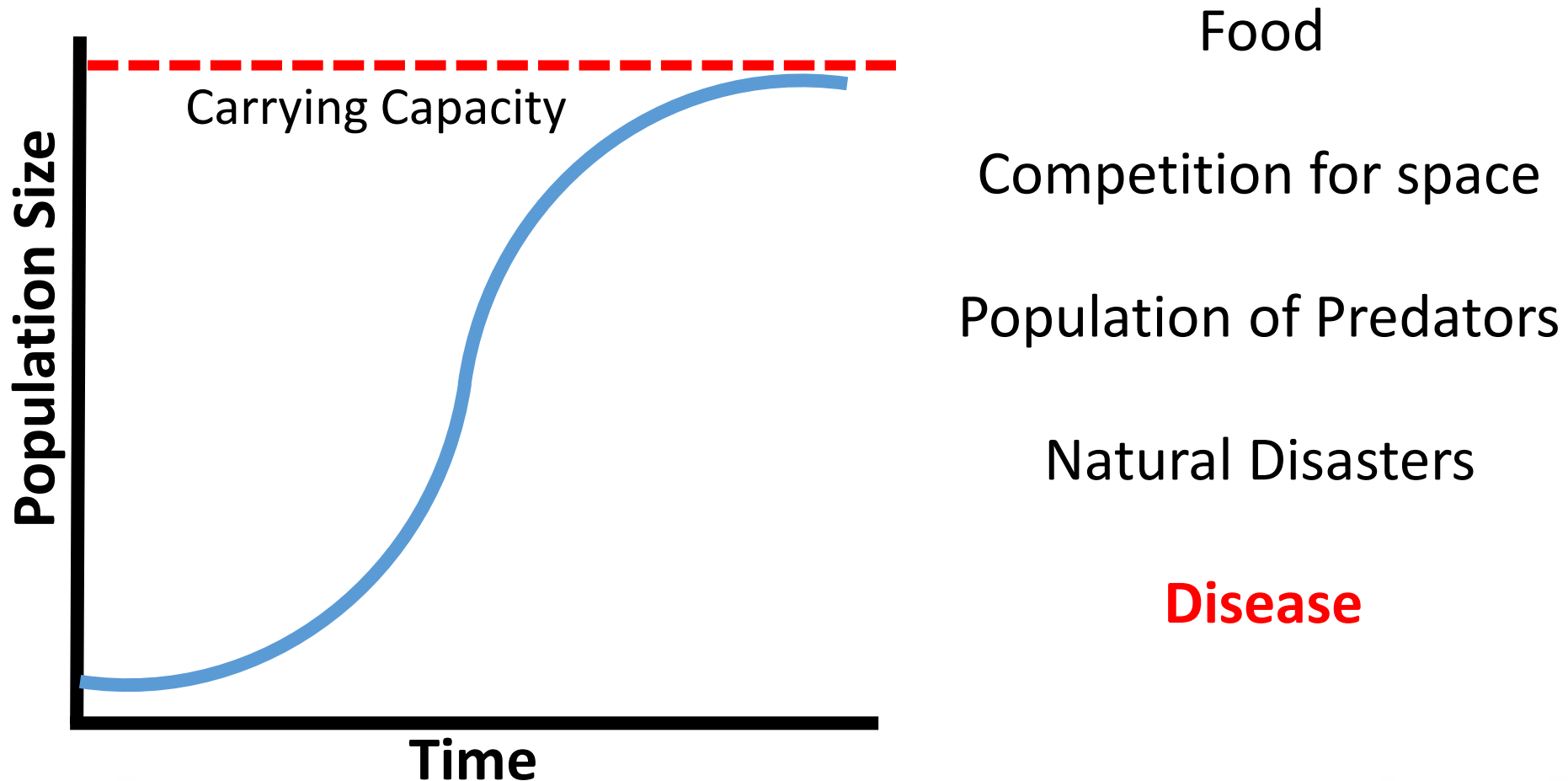
Coral Disease 101

Causes of coral disease:





Coral Disease 101





Coral Disease 101

A background level of disease is normal for coral reefs.



Endemic
Disease
Prevalence:

$\leq 6\%^2$



Coral Disease Outbreak

A disease outbreak is defined as:

An unexpected increase in disease or mortality that includes:



New time or place



Greater frequency



Species of concern



Unidentified lesions



Coral Disease Outbreak

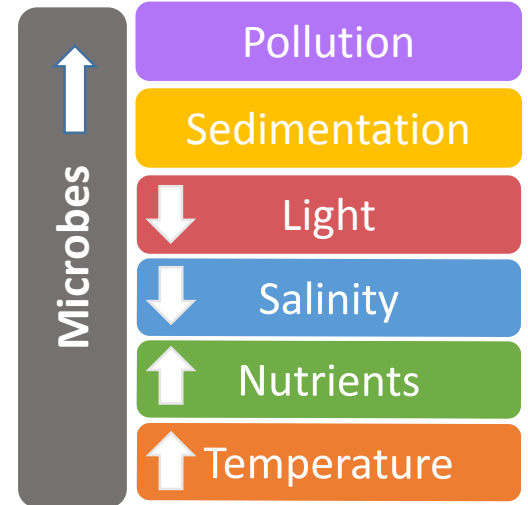
Unhealthy Reefs

Healthy Reefs

Unhealthy Reefs



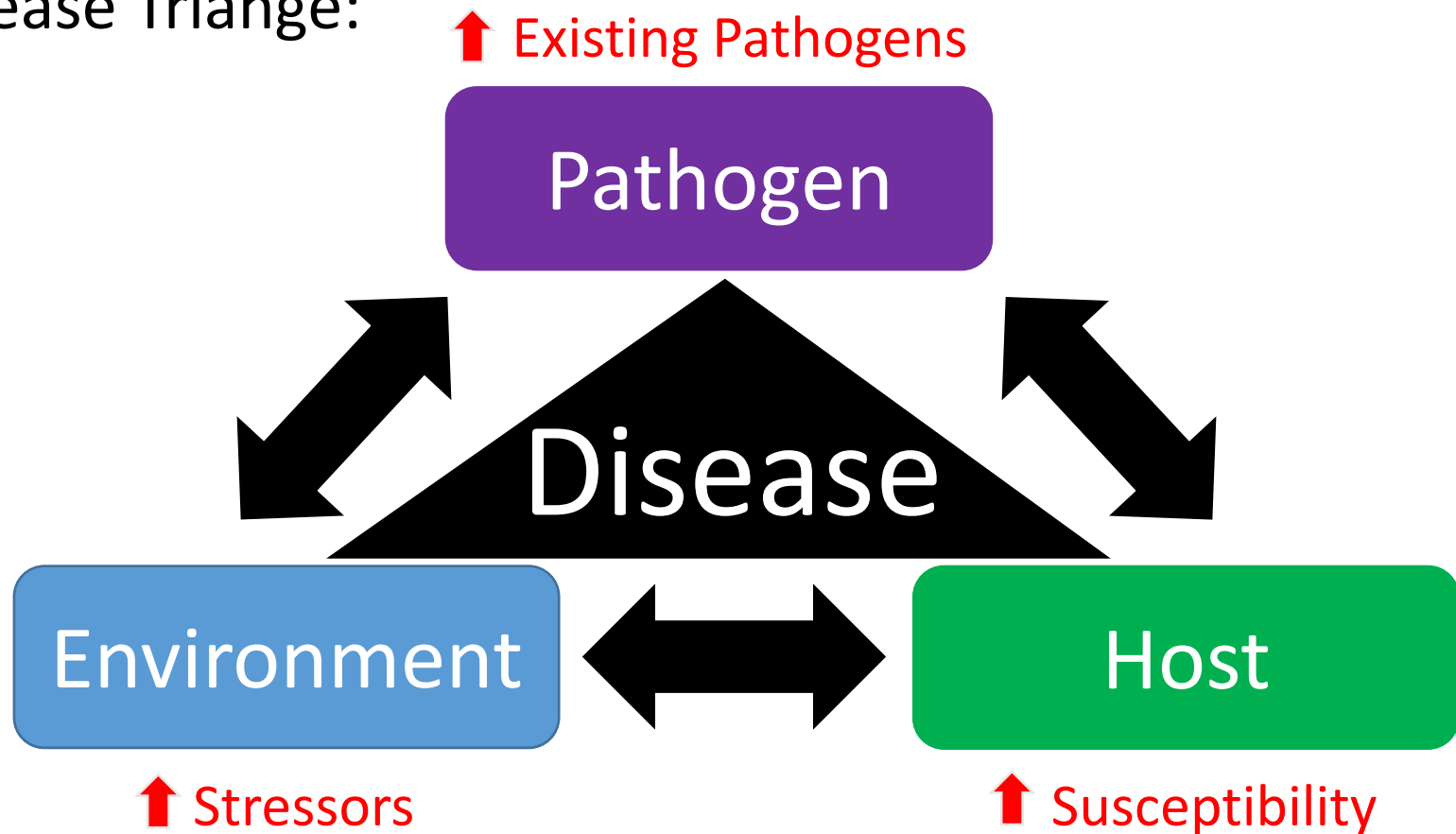
Coral Disease Outbreak





Coral Disease Outbreak

Disease Triange:





Overview

Coral Disease 101

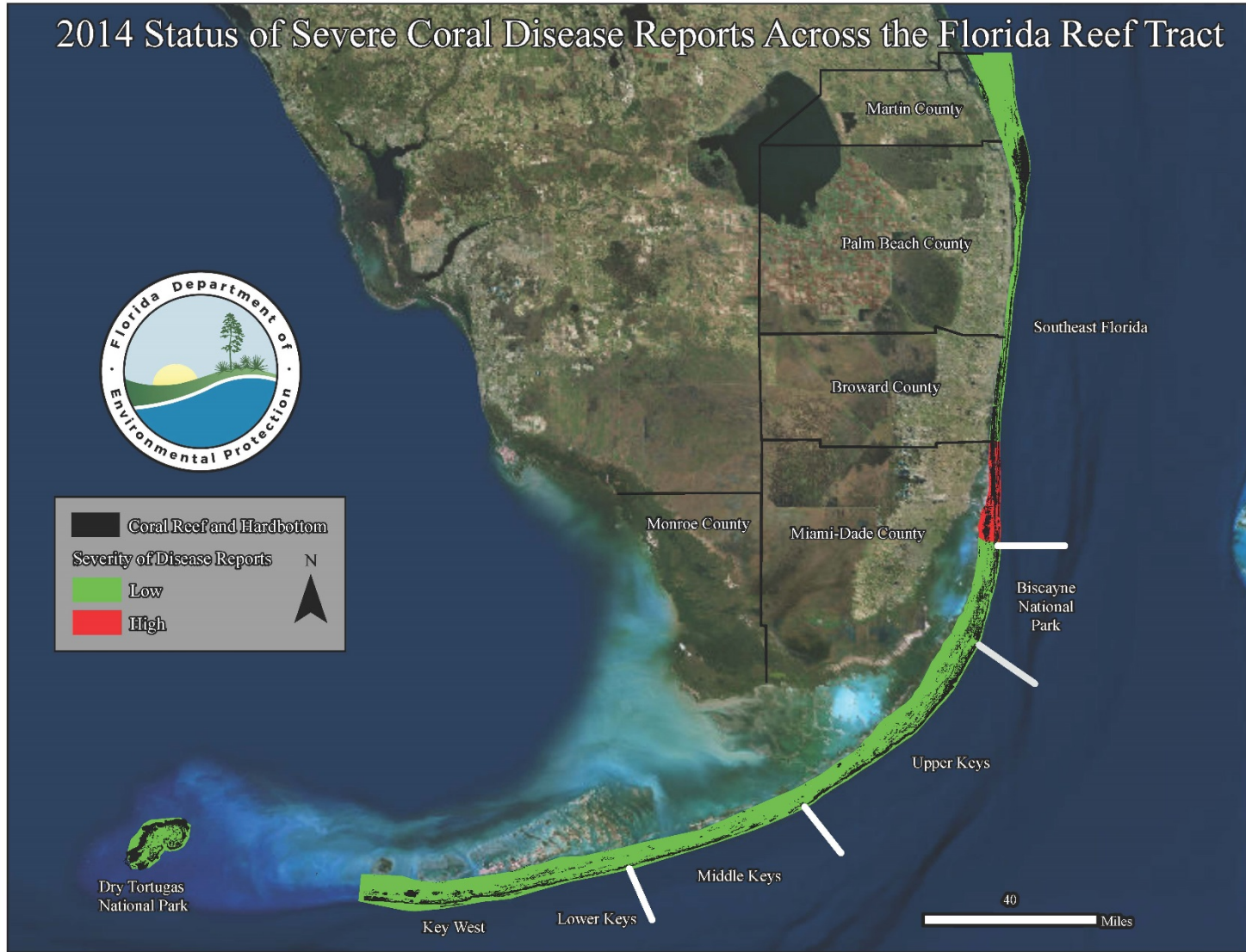
Florida Coral Disease Outbreak

Ongoing Response Efforts



2014

2014 Status of Severe Coral Disease Reports Across the Florida Reef Tract

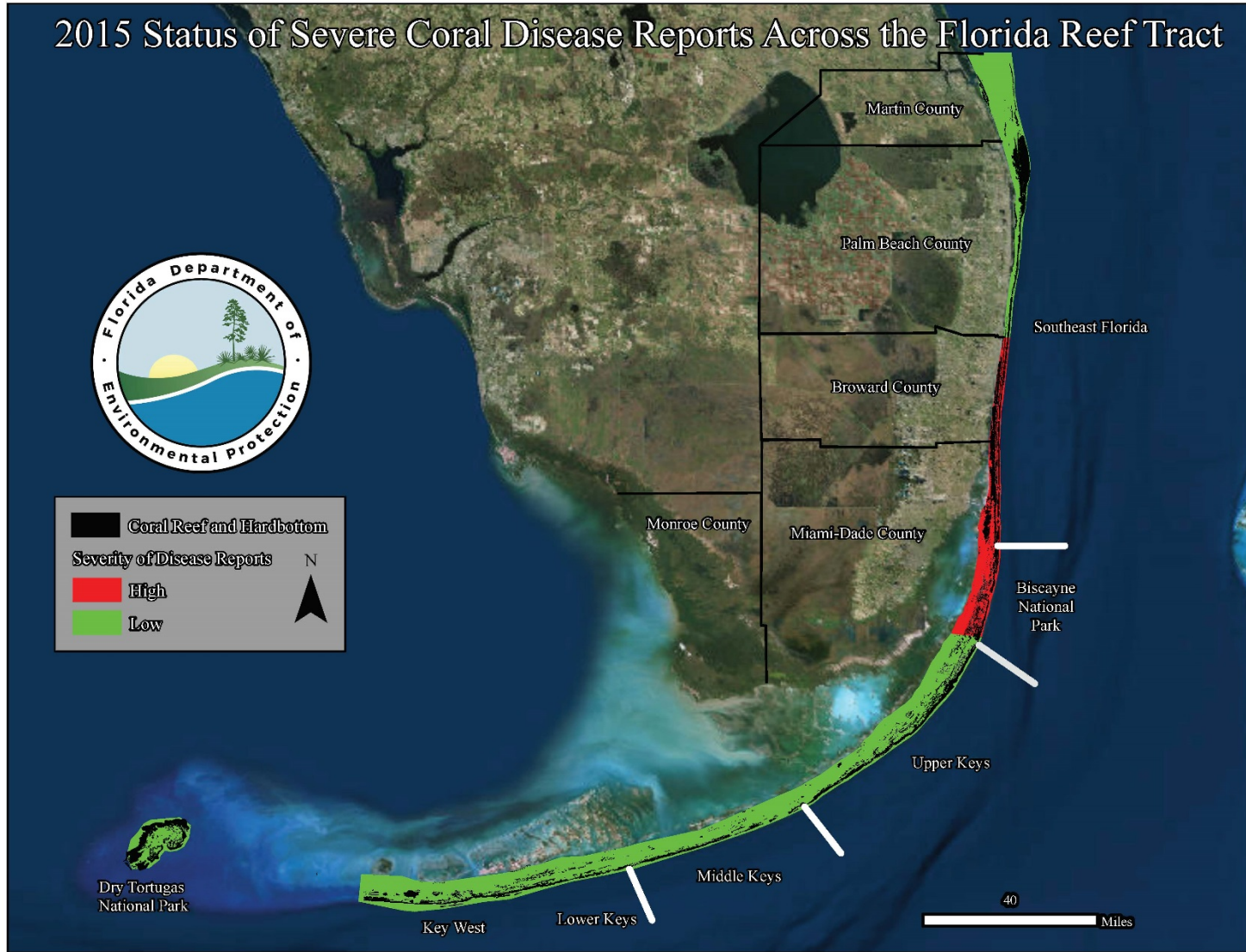


**** Note - Based on qualitative and quantitative reports ****



2015

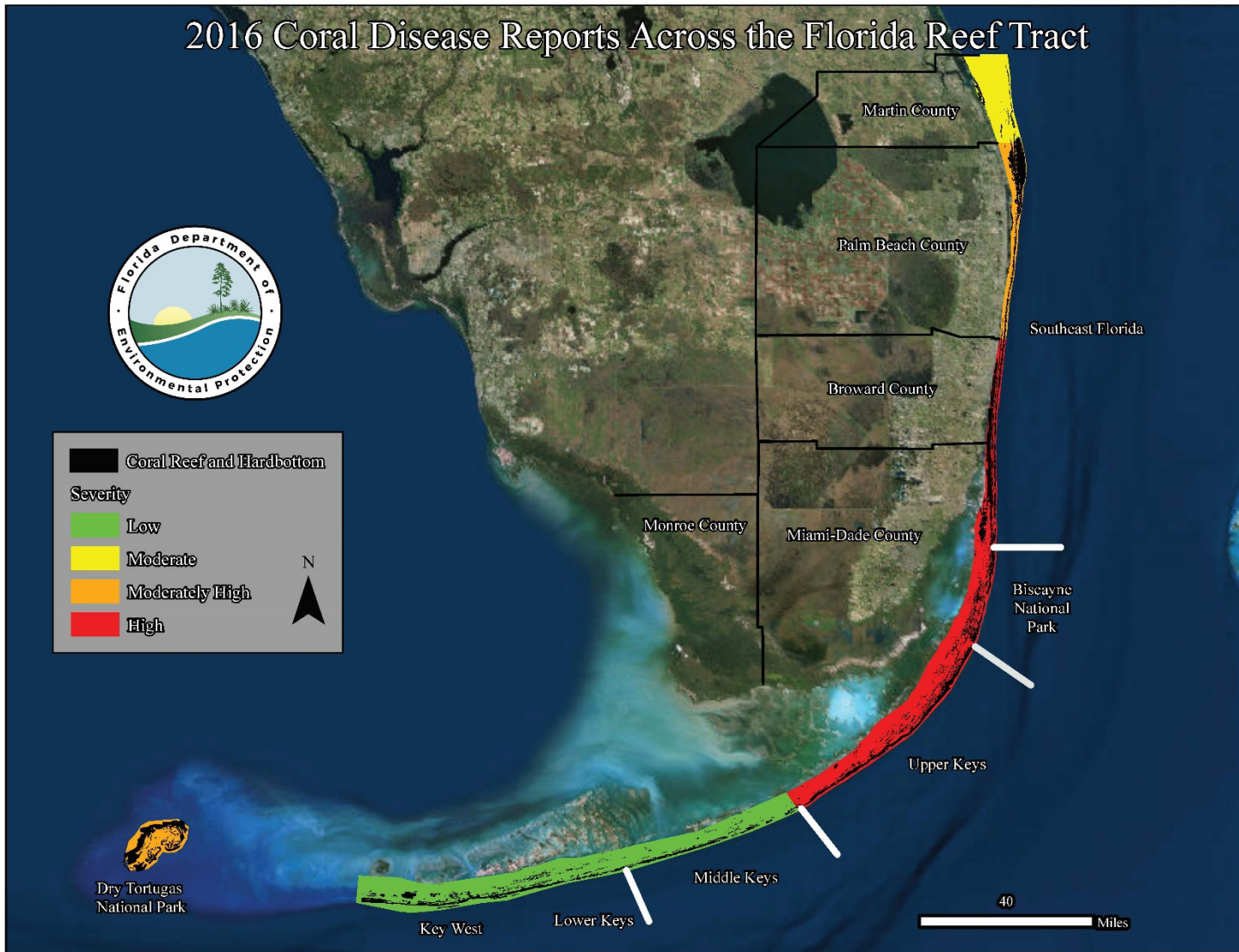
2015 Status of Severe Coral Disease Reports Across the Florida Reef Tract



**** Note - Based on qualitative and quantitative reports ****



2016 – April 2017



**** Note - Based on qualitative and quantitative reports ****



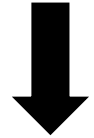
Florida Coral Disease

Black Band

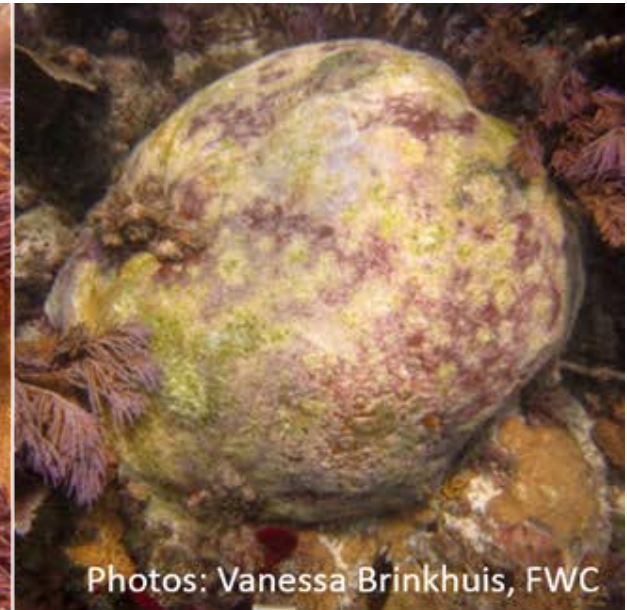
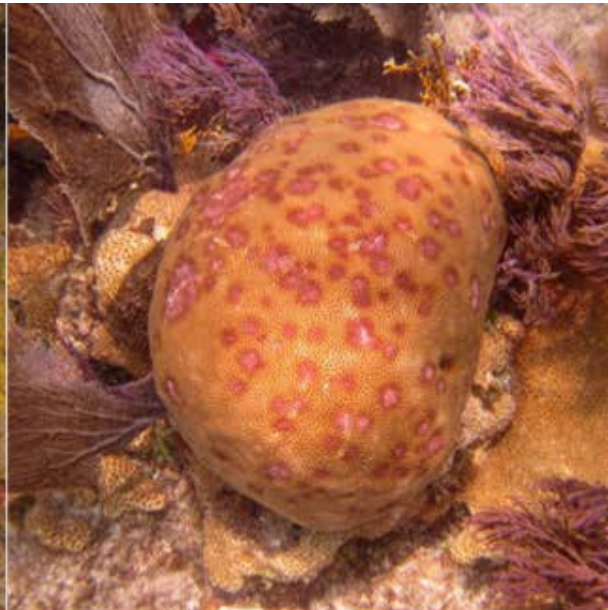
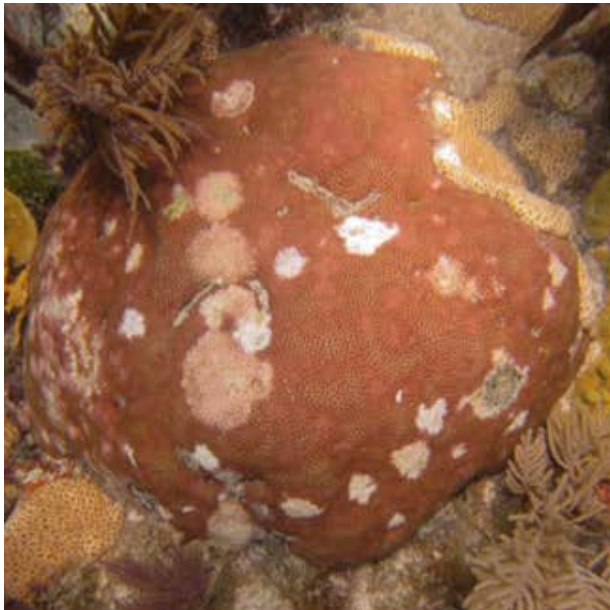
Dark Spots

White Plague

Other/Unknown



“White Blotch”



Photos: Vanessa Brinkhuis, FWC



Florida Coral Disease

Acropora cervicornis (Staghorn Coral)*
Acropora palmata (Elkhorn Coral)*
Agaricia agaricites (Lettuce Coral)
Colpophyllia natans (Boulder Brain Coral)
Dendrogyra cylindrus (Pillar Coral)*
Dichocoenia stokesii (Elliptical Star Coral)
Diploria labyrinthiformis (Grooved Brain Coral)
Eusmilia fastigiata (Smooth Flower Coral)
Meandrina meandrites (Maze Coral)
Montastraea cavernosa (Great Star Coral)
Mycetophyllia spp. (Cactus Coral)*
Orbicella annularis (Lobed Star Coral)*
Orbicella faveolata (Mountainous Star Coral)*
Orbicella franksi (Boulder Star Coral)*
Porites astreoides (Mustard Hill Coral)
Pseudodiploria strigosa (Symmetrical Brain Coral)
Pseudodiploria clivosa (Knobby Brain Coral)
Siderastrea radians (Lesser Starlet Coral)
Siderastrea siderea (Massive Starlet Coral)
Solenastrea bournoni (Smooth Star Coral)
Stephanocoenia intersepta (Blushing Star Coral)

White Plague

Other/Unknown

21 of 46 Species³



Most Impacted Species



Montastraea cavernosa
Photo: Vanessa Brinkhuis,
Upper Keys



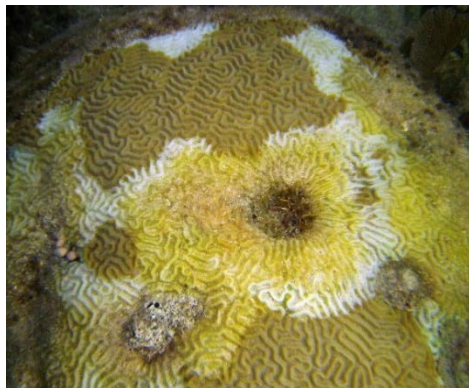
Siderastrea siderea
Photo: Sara Thanner,
Miami-Dade



Diploria labyrinthiformis
Photo: Lindsay Huebner,
Upper Keys



Colpophyllia natans
Photo: Dan Clark,
Broward



Pseudodiploria strigosa
Photo: Vanessa McDonough,
Biscayne NP



Dichocoenia stokesii
Photo: Vanessa Brinkhuis,
Upper Keys



Meandrina Meandrites
Photo: Meghan Balling,
Broward

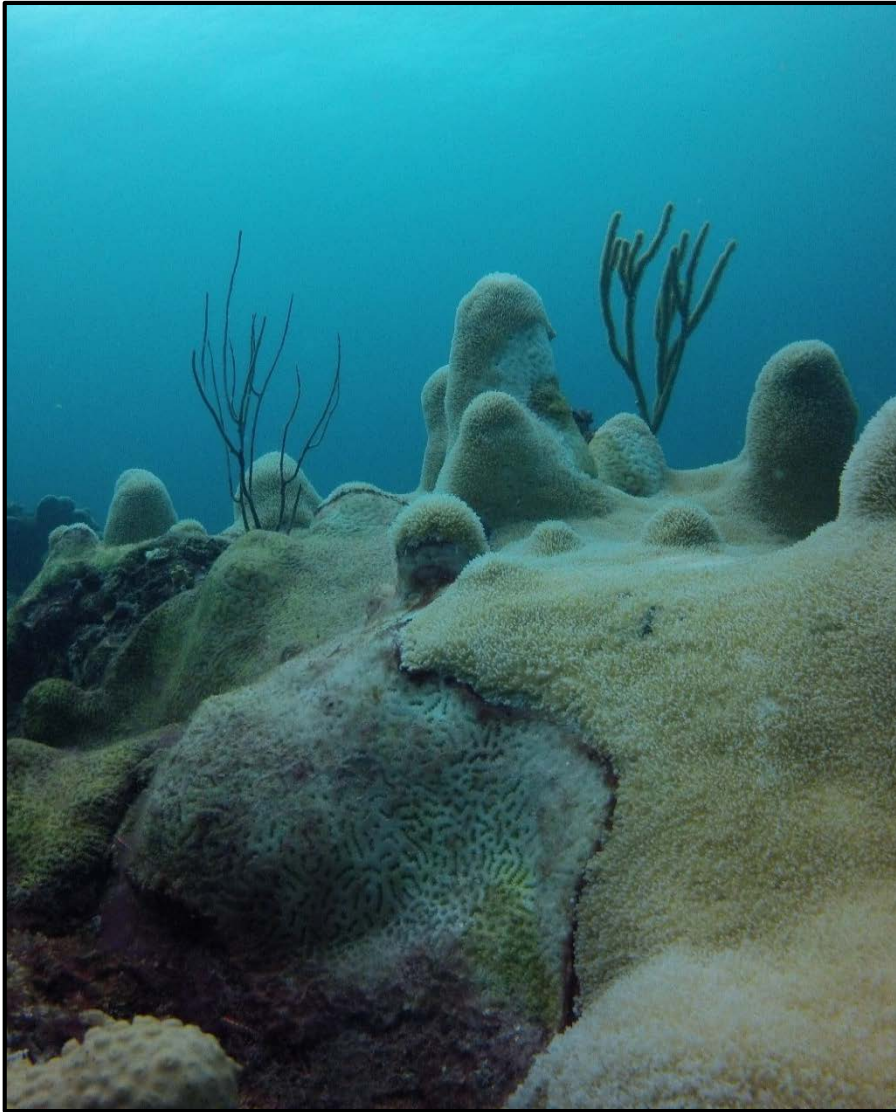


Eusmilia fastigiata
Photo: Vanessa Brinkhuis,
Upper Keys



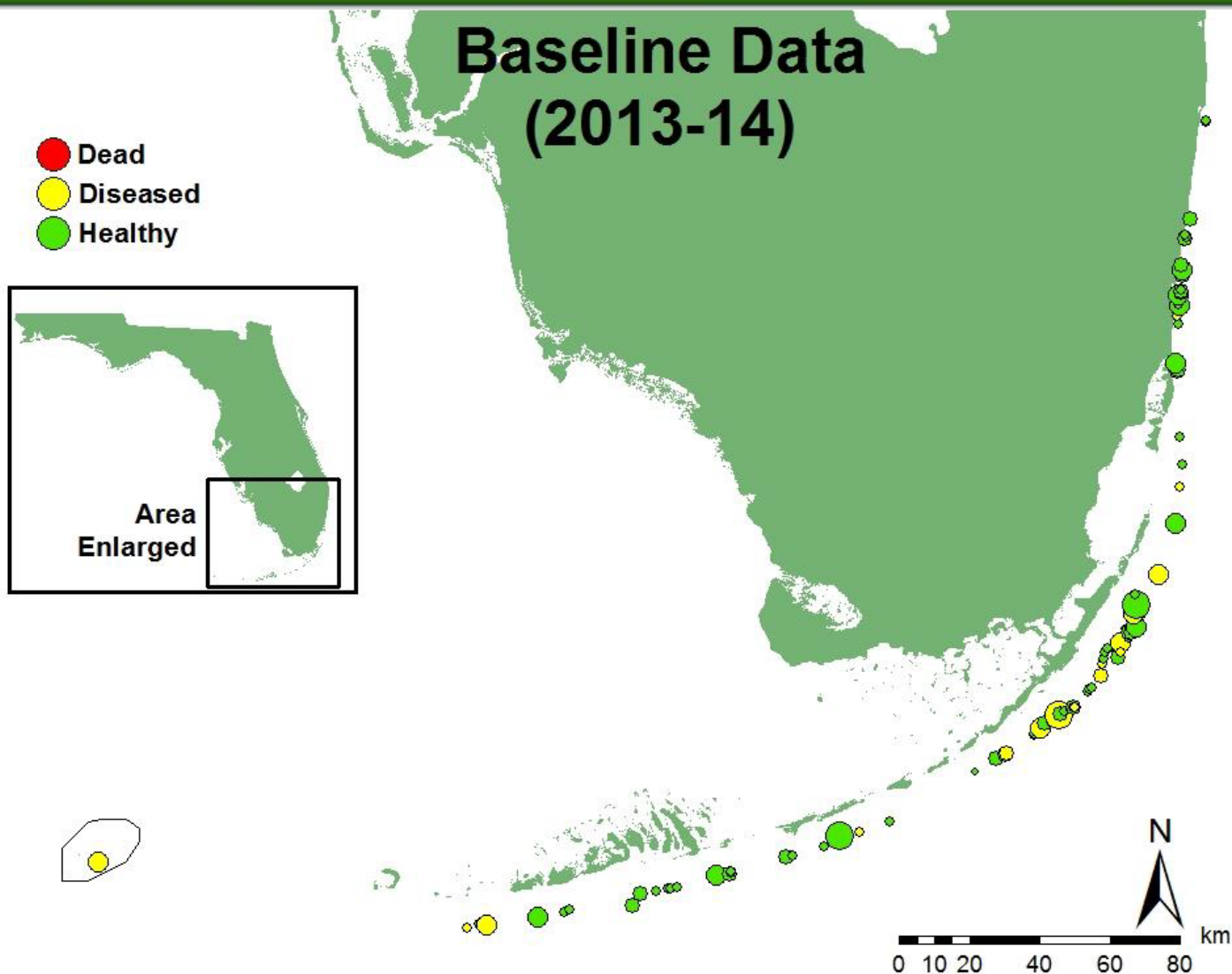
Most Impacted Species

Pillar Coral (*Dendrogyra cylindrus*)



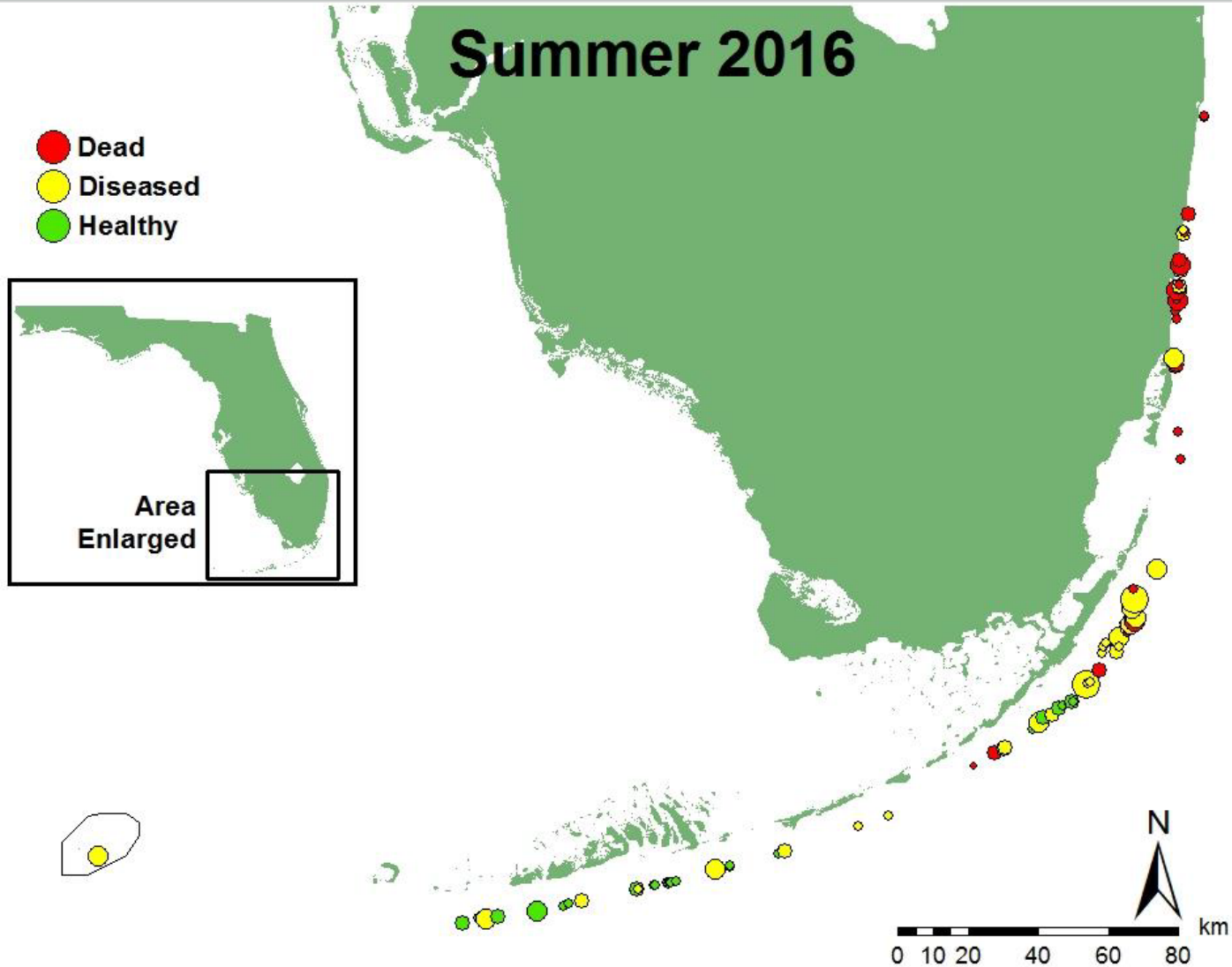


Dendrogyra cylindrus



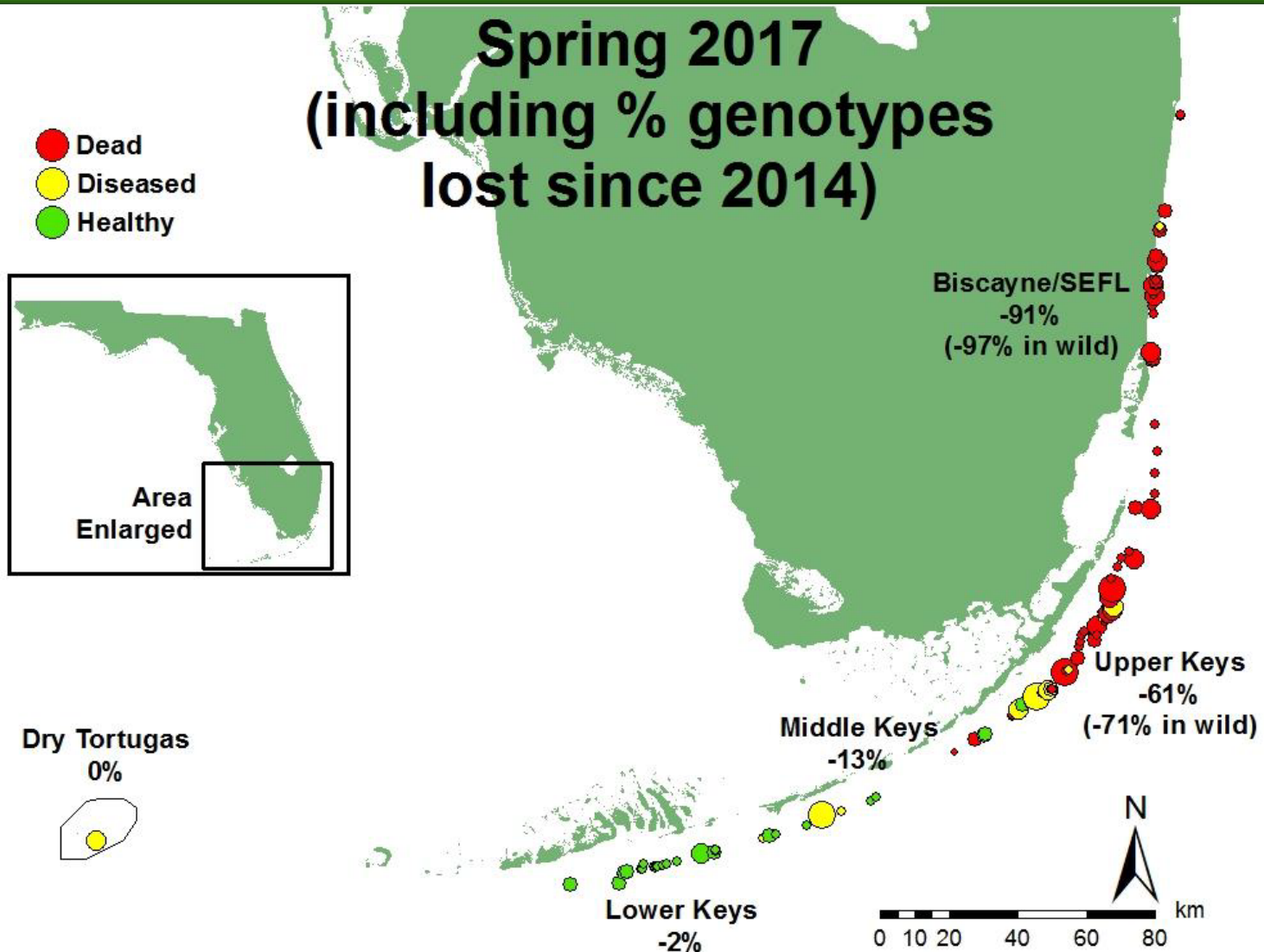


Dendrogyra cylindrus





Dendrogyra cylindrus





Oldest Living Corals

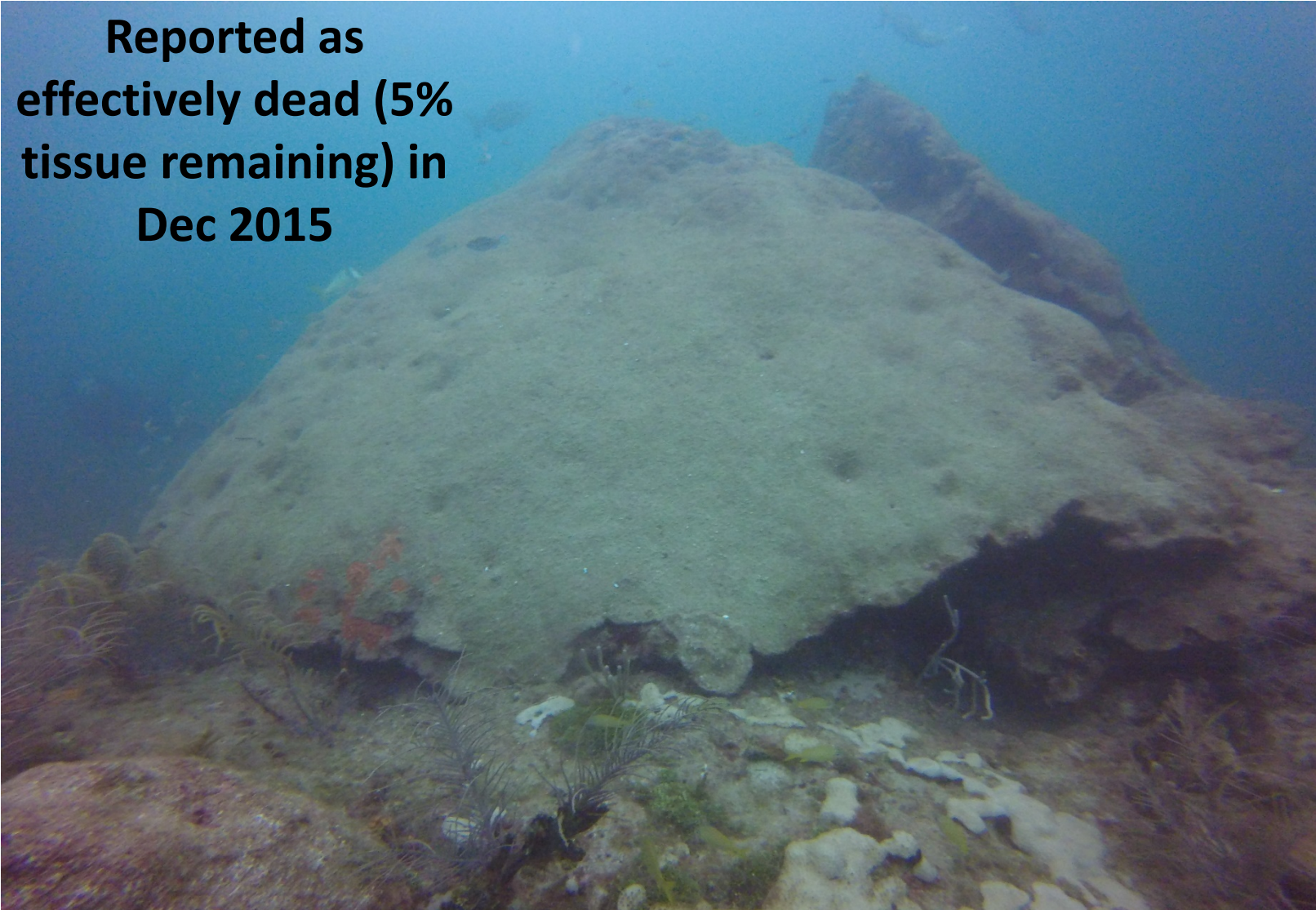


330+ years old



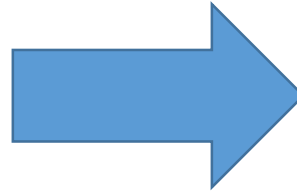
Oldest living corals

**Reported as
effectively dead (5%
tissue remaining) in
Dec 2015**

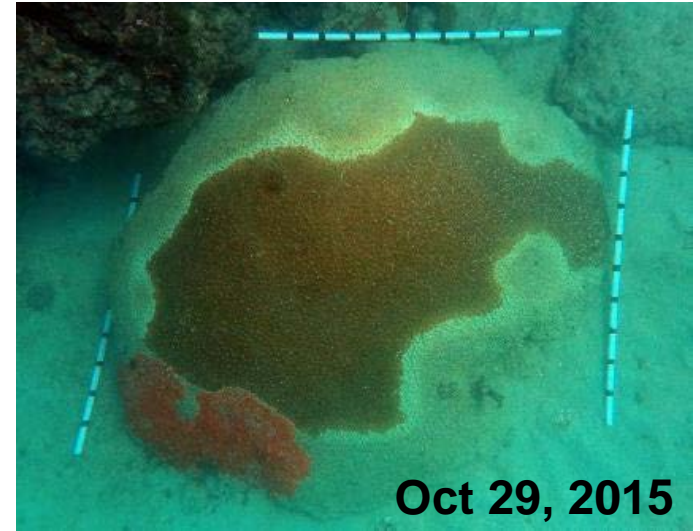




Progression



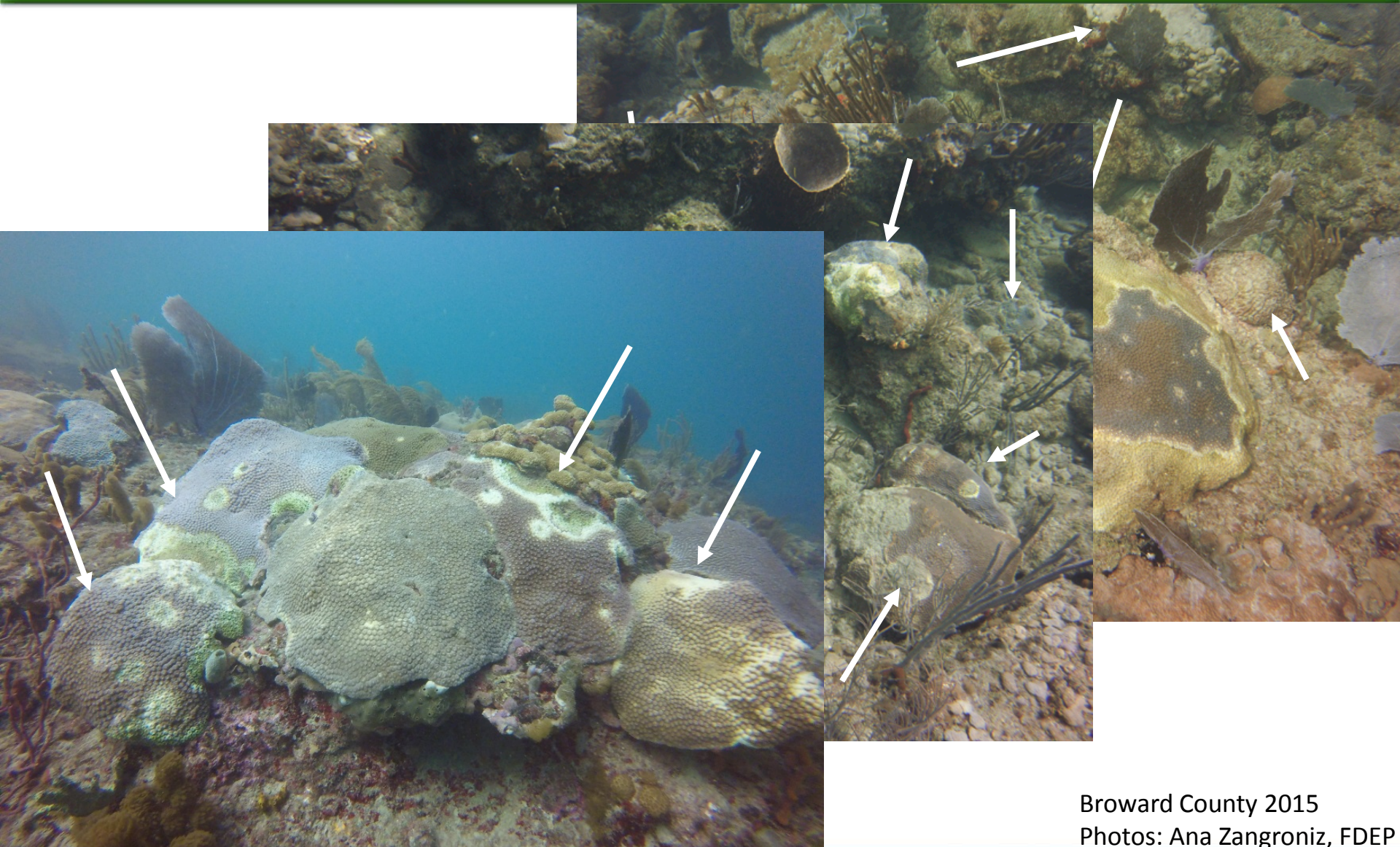
Walker and Klug,
2015



Brian Reckenbeil, FWC, Upper Keys



Landscape Photos



Broward County 2015
Photos: Ana Zangroniz, FDEP



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Partners



Cry of the Water



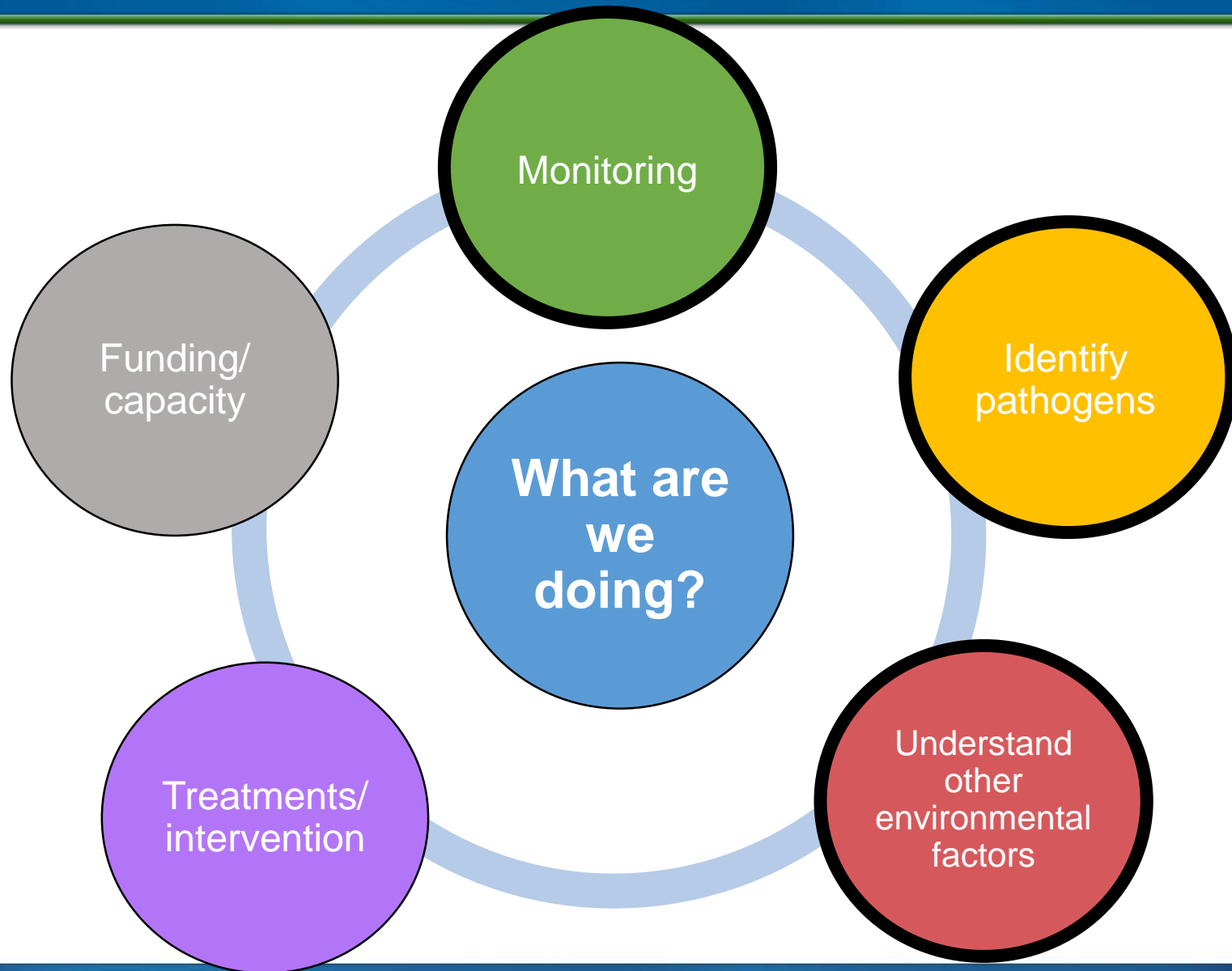
UNIVERSITY OF MIAMI
ROSENSTIEL
SCHOOL of MARINE &
ATMOSPHERIC SCIENCE



NOVA SOUTHEASTERN
UNIVERSITY

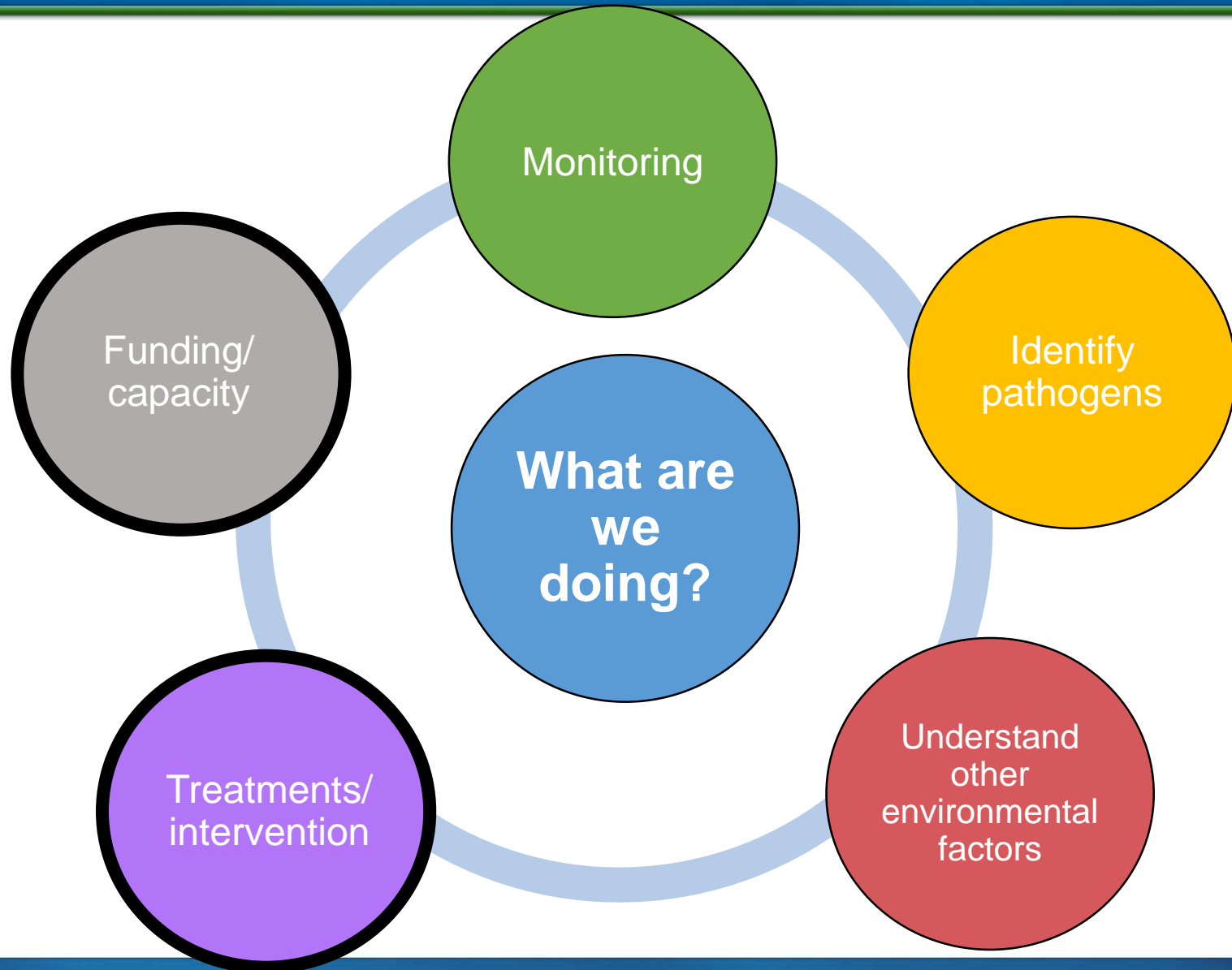


Response Efforts





Response Efforts





Questions?

Save the Date

38th US Coral Reef Task Force Meeting

Aug. 7 – 11, 2017

Ft. Lauderdale, Florida

www.coralreef.gov

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