

# Stony Coral Tissue Loss Disease for Caribbean Marine Natural Resource Managers

Key West, August -2 2019



NFWF



A network for learning among Caribbean marine resource managers

Photos: E. Doyle



Share information about Stony Coral Tissue Loss Disease with coral reef managers so that you can:

- Communicate effectively with stakeholders to enhance management actions for SCTLD and build coral reef resilience
- Share accurate information about the spread of the disease with GCFI, NOAA, peers and experts



Photo: E. Doyle, Union Island, SVG







## participant introduction

### Questions:

- 1 Your name, your country
2. Is your country affected by Stony Coral Tissue Loss Disease?
3. Your organization and role



Photo: E. Doyle, Carriacou, Grenada

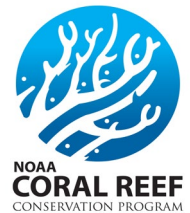




Photo: Carriacou, D. Baker



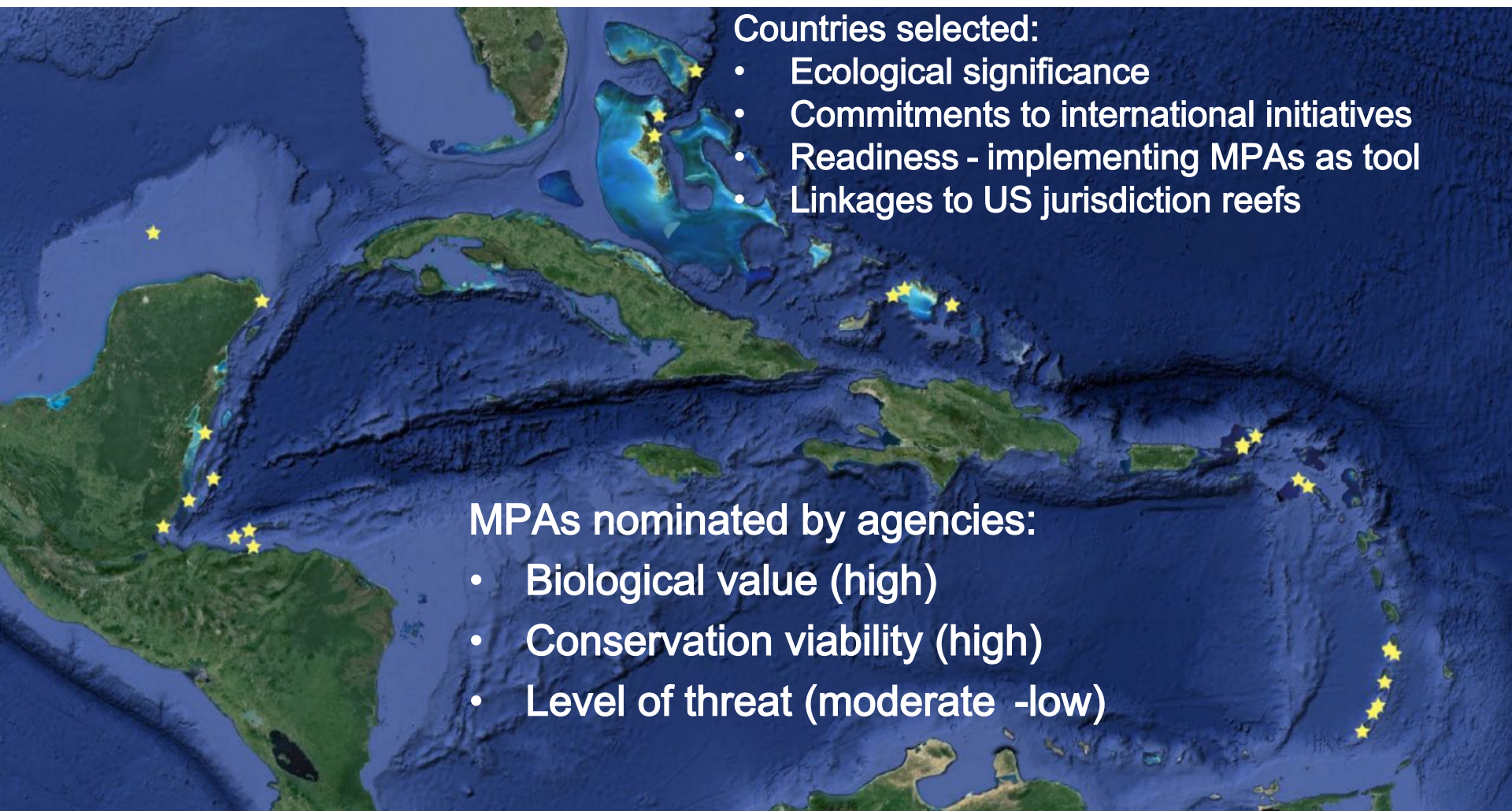
A partnership between:



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# 10 Caribbean countries/territories, 30 coral reef MPAs nominated by local agencies

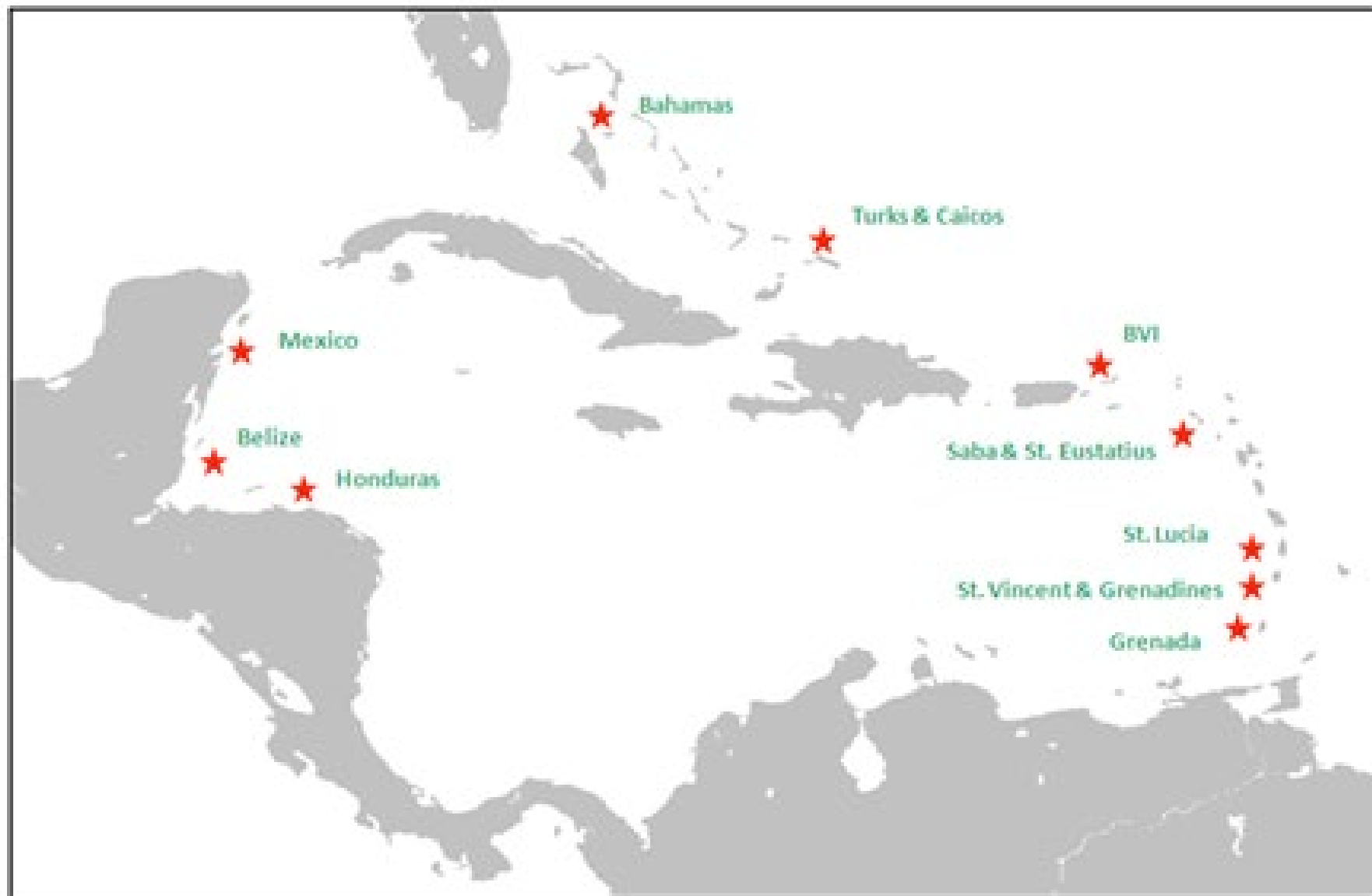


## Countries selected:

- Ecological significance
- Commitments to international initiatives
- Readiness - implementing MPAs as tool
- Linkages to US jurisdiction reefs

## MPAs nominated by agencies:

- Biological value (high)
- Conservation viability (high)
- Level of threat (moderate -low)





Peer-to-peer exchanges

Site support



Regional Network

Priorities analysis

Capacity assessment



# 20 elements of management capacity



On-site  
management



Management  
planning



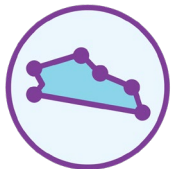
Legal  
framework



Partnerships



Stakeholder  
engagement



Boundaries



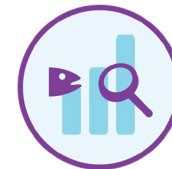
Enforcement



Bio-physical  
monitoring



SocMon



MPA  
effectiveness



Financing



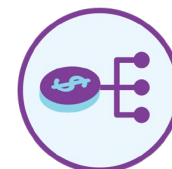
Economic  
valuation



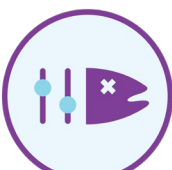
Outreach/  
education



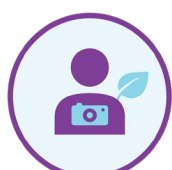
Resilience to  
climate change



Sustainable  
livelihoods



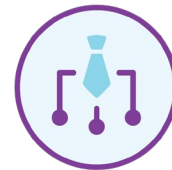
Pollution  
control



Sustainable  
tourism



Disturbances



Organizational  
management



Fisheries  
management





# Capacity Assessment Tool

## Tiered approach



Tier 3: High capacity

Tier 2: Medium capacity

Tier 1: Little to no capacity

1

2

3





# Current Capacity – response to disturbances



## Management Capacity Elements- Tier and Priority Results for 2017

MPAConnect



Welcome

On Site Management

Organizational Management

Management Planning

Legal Framework

Partnerships and Coordination

Enforcement



### RESPONSE TO DISTURBANCE EVENTS

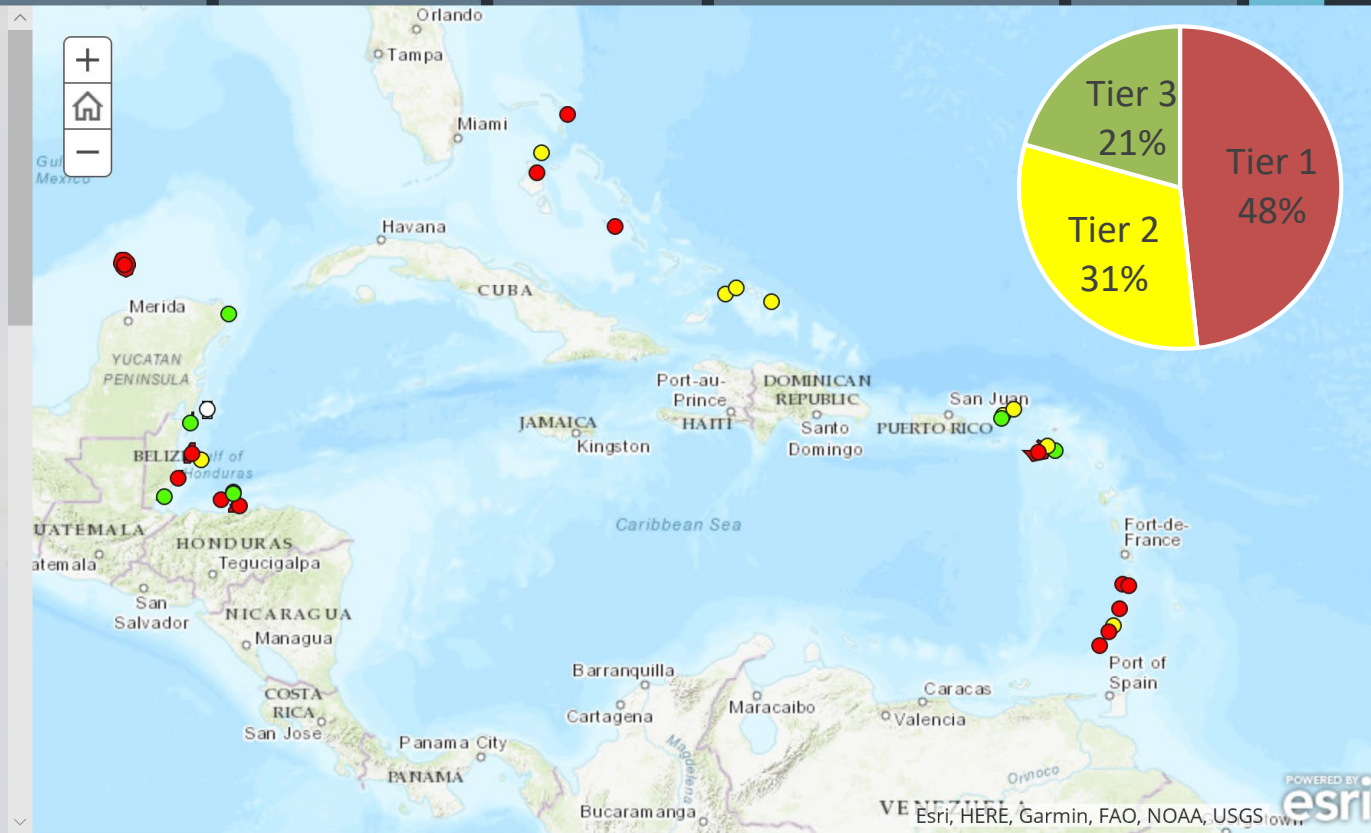
Tier 1: Little or no consideration of response to disturbance events in the management of the MPA

Tier 2: Response plan(s) developed for the MPA

Tier 3: Response plan(s) being implemented with resources, technical capacity and infrastructure available to respond

#### Tier and Priority Level of Capacity Element

- Tier 1
- Tier 2
- Tier 3
- Top 3 Priority Need and Tier 1, 2, or 3
- Not Applicable
- No Data





# Current Capacity – Biophysical Monitoring



## Management Capacity Elements- Tier and Priority Results for 2017

MPAConnect   



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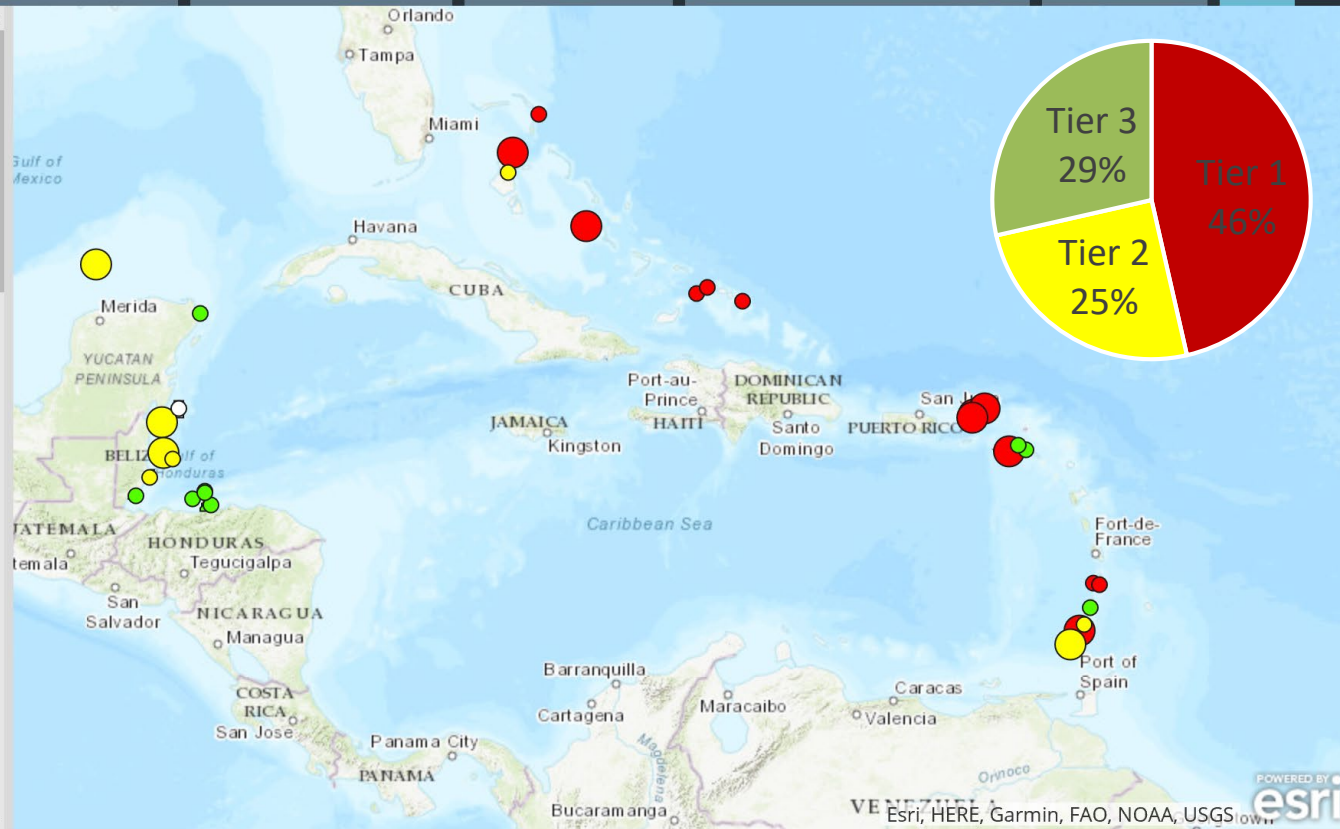


### BIOPHYSICAL ASSESSMENT AND MONITORING

- Tier 1: Little or no existing biophysical monitoring activity
- Tier 2: Existing biophysical monitoring program but data not being used to inform management
- Tier 3: Data produced from biophysical monitoring program being evaluated and used to inform management decisions

#### Tier and Priority Level of Capacity Element

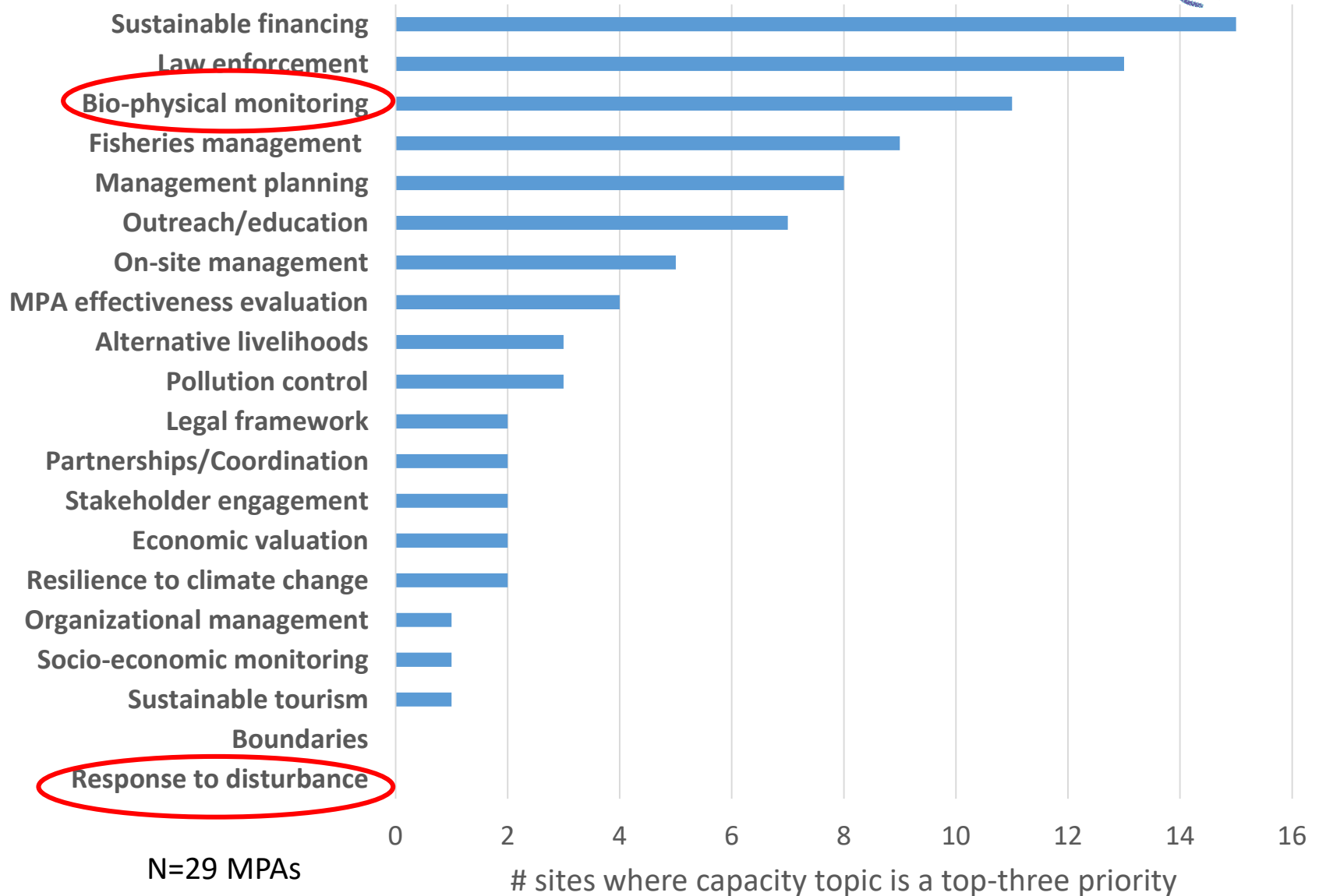
- Tier 1
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- Tier 3
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# 2017 Priority Capacity Building Needs



# SCTLD in the Caribbean:

## Date Outbreak Stage First Confirmed

2018-07-03

2019-06-21

2018-02-06

2019-05-23

2019-03-03

2019-01-01

2018-11-22

Feb. 6, 2018	White River SFS N. coast, Jamaica
July 3, 2018	Pto Morelos MP, Q Roo, Mexico
Nov. 22, 2018	widespread St. Maarten
Jan. 1, 2019	Flat Cay, St. Thomas, USVI
Mar. 3, 2019	Cayo Arena, NW Dominican Republic
May 23, 2019	Spanish Anchor-S, West Caicos
June 21, 2019	Bacalar Chico MR, Belize

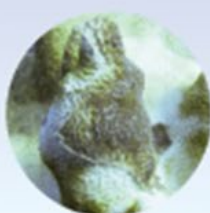




## Highly susceptible species



*Eusmilia fastigiata*



*Dendrogyra cylindrus*



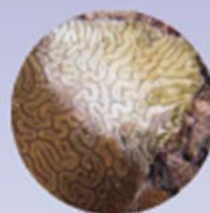
*Dichocoenia stokesii*



*Meandrina meandrites*



*Pseudodiploria clivosa*



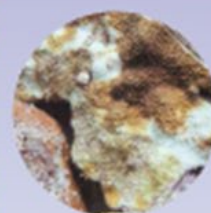
*Diploria labyrinthiformis*



*Colpophyllia natans*



*Pseudodiploria strigosa*



*Orbicella* species



*Siderastrea siderea*



*Montastrea cavernosa*

## Rapid spread

Within one week to two months

### On coral colonies

Multiple lesions

Rapid mortality

### On dive sites

Rapid spread among corals

Typical order of infection

## High prevalence and mortality

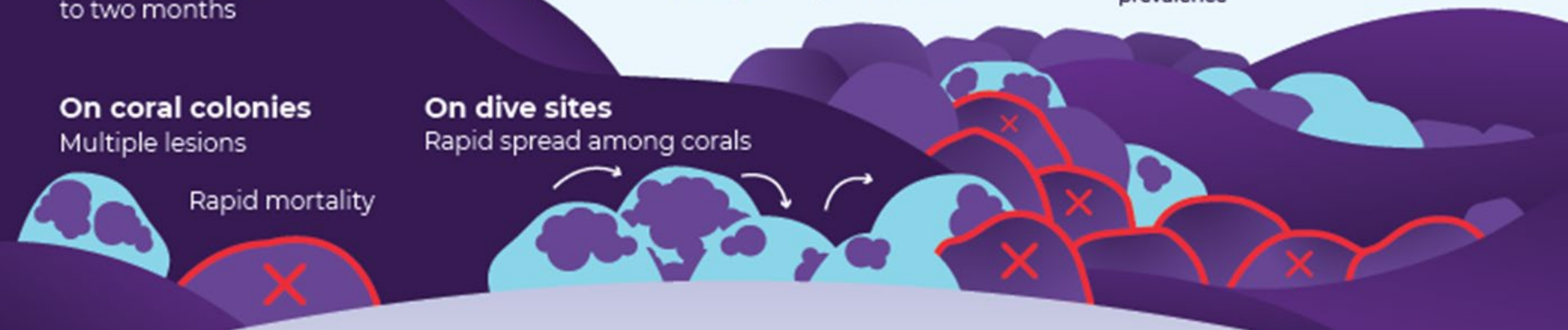
Among susceptible species

~2-3%

Normal background disease prevalence

66-100%

Species-specific Stony Coral Tissue Loss Disease prevalence





# MPA connect partnerships



Organization of American States



MPA Enforcement International



Photo: D. Baker



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# CONTACT

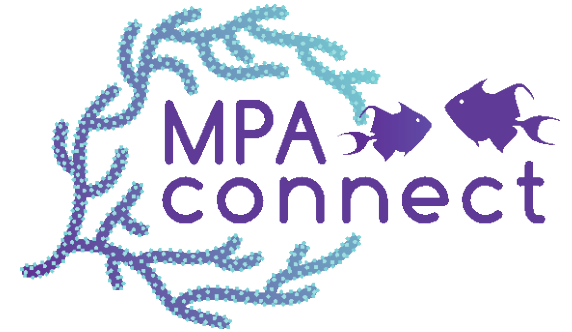
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[www.gcfi.org/initiatives/mpa-capacity-program/](http://www.gcfi.org/initiatives/mpa-capacity-program/)



A partnership between:



and



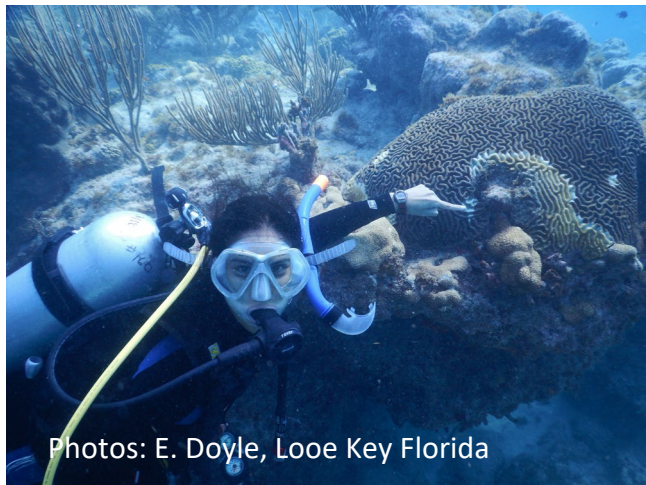
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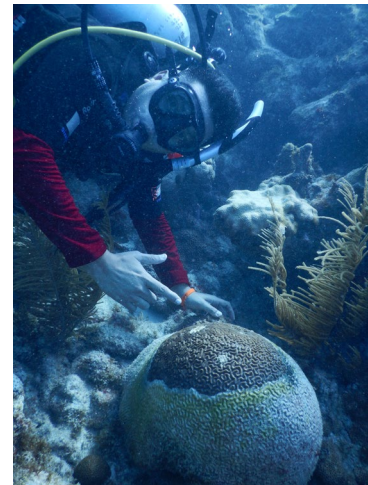
exchange by affected countries

## Questions:

- 1 What species were affected first at your site?
2. What other species have been affected?
3. What was reef health like at the affected sites?



Photos: E. Doyle, Looe Key Florida







# Current Capacity – response to disturbances



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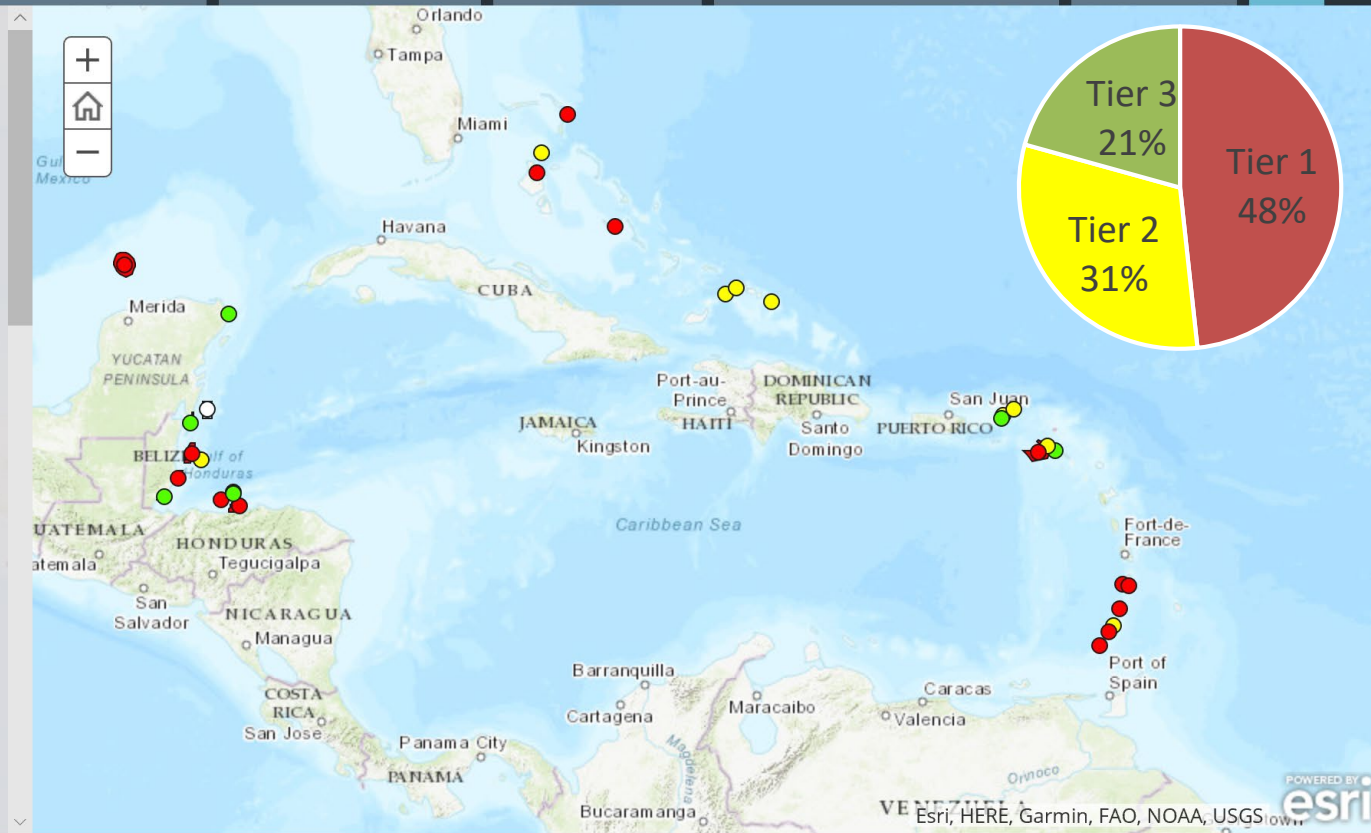
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# Stony Coral Tissue Loss management considerations



Financing

What are the funding needs for SCTLD?

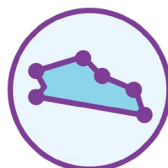
Where and how are you raising the necessary funding?



Enforcement

Has enforcement effort changed with SCTLD?

If so, how?



e.g. Zoning?



Bio-physical  
monitoring

Has your long-term MPA monitoring program changed?



# Stony Coral Tissue Loss management considerations



How do we manage impacts of SCTLD on fisheries?

Fisheries  
management



Advice for Caribbean managers about communications?

Outreach/  
education

How important is unified messaging?

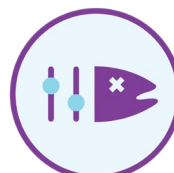


Have stakeholder relations changed in the face of SCTLD?

Stakeholder  
engagement



Sustainable  
tourism  
e.g. MUSA



Pollution  
control



Legal  
framework





# Stony Coral Tissue Loss management considerations



**Can managers alone address SCTLD?**



Partnerships

**What lessons have been learned about coral restoration in the context of SCTLD?**

**What is needed to make rescue via ex-situ conservation/bio -banking feasible?**



Legal  
framework

**Advice on research links, permitting, CITES?**

**Treatment and drug approvals?**





## management considerations

What management actions can you consider to address SCTLD at your site? eg.

- Seek contingency funding for SCTLD response
- Conduct enforcement blitz, establish new zones
- Document SCTLD coral monitoring and reporting
- Prioritize reefs and corals for treatment
- Communicate with stakeholders for detection, prevention and to reduce local stressors
- Build strategic partnerships for intervention, research, restoration, rescue
- Investigate supplies and approvals for treatment





## Stakeholder mapping



## Messaging for target audience

## Desired outputs



Photos: E. Doyle, P. Etienne



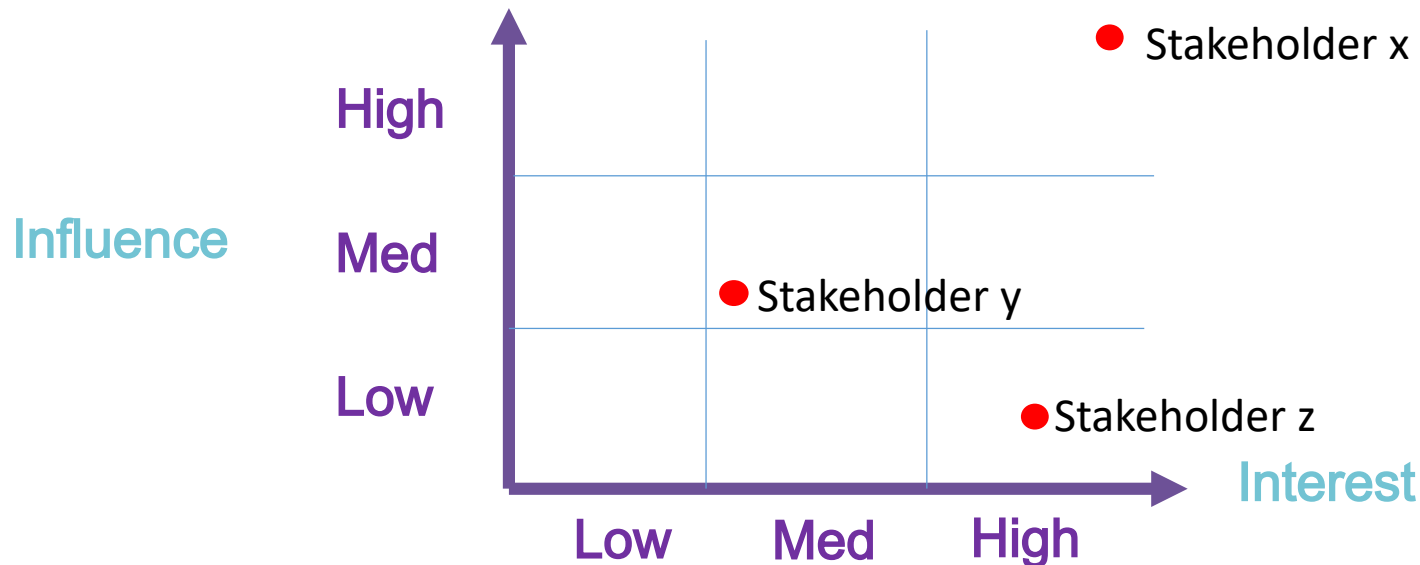




## stakeholder mapping



1. **List** - Who is interested in SCTLD?  
- Who can assist or influence your ability to address SCTLD?
2. **Map** - How interested are they in addressing SCTLD?  
- How influential can they be in addressing SCTLD?





# MPA connect prioritize stakeholders

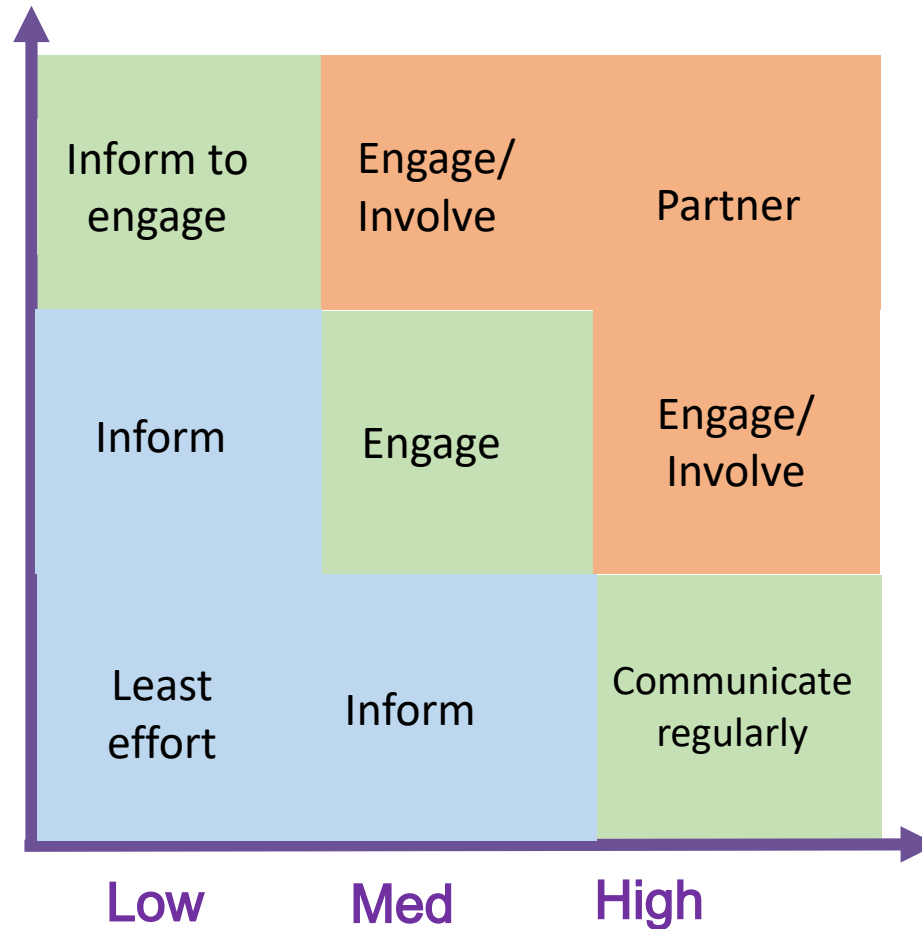


Influence

High

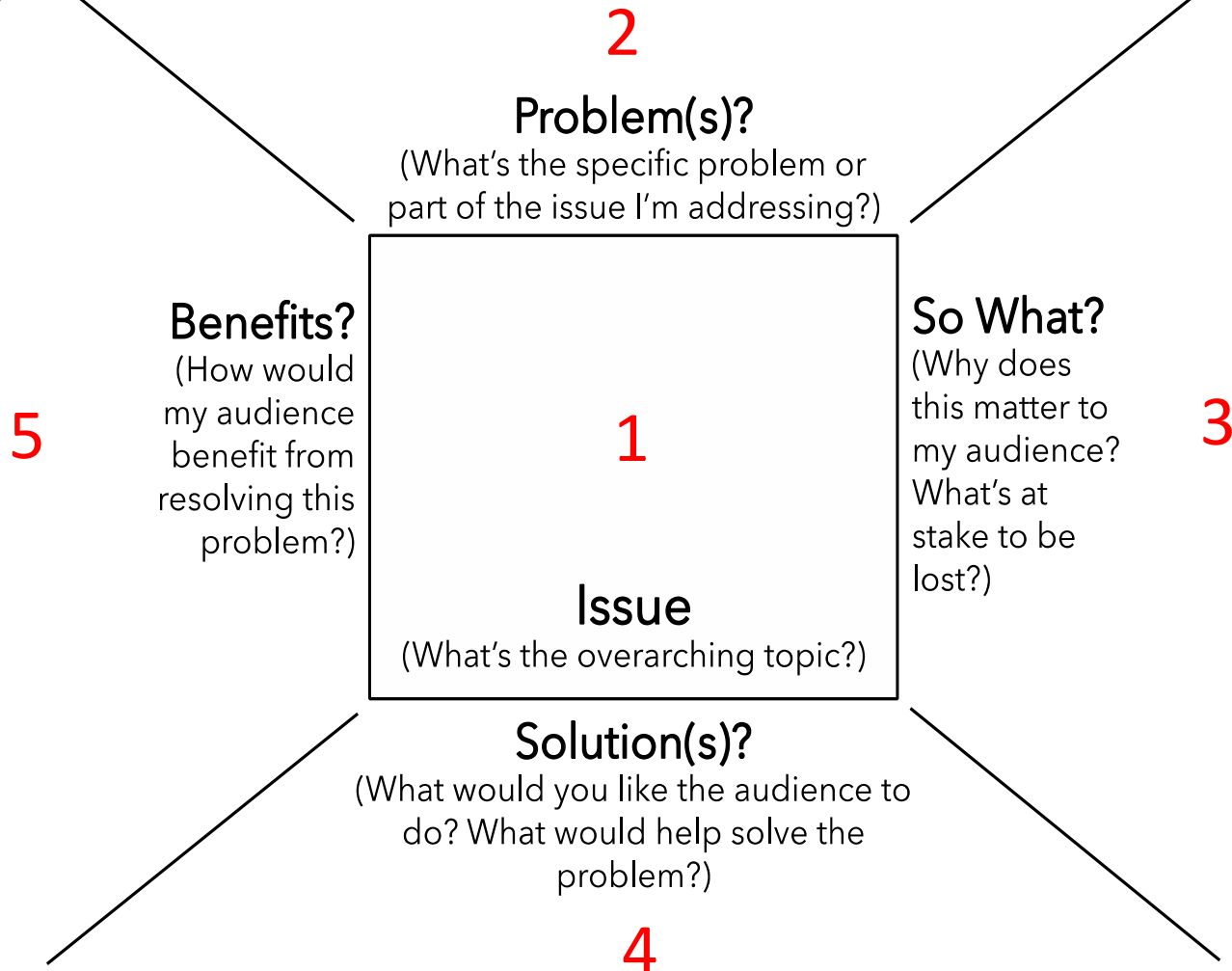
Med

Low



Interest









# desired outputs?

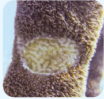


## MPAConnect guide to detect Stony Coral Tissue Loss Disease on Caribbean coral reefs

Total  
loss of  
affected  
tissue



Bare skeleton  
with no tissue



Sloughing away  
of tissue

### Be Alert!

A new coral disease is causing  
high mortality of stony corals

Cause is unknown but it is  
water-borne and may spread  
via direct contact

Take care not to confuse with  
other coral diseases, bleaching  
or fish bites

Correct field diagnosis depends  
on multiple factors

### General Guidelines for Disinfection



- ✓ Inspect dive gear and equipment and remove debris
- ✓ Move from "cleanest" site first to "dirtiest" last
- ✓ Decontaminate dive gear at end of day
- ✓ Decontaminate dive gear between sites, countries, & sensitive areas
- ✓ Properly dispose of disinfectant & rinse waste into sink, tub, or shower

DO

- ✗ Don't leave debris on dive gear
- ✗ Don't move from a diseased to a healthy site
- ✗ Don't forget to disinfect gear between sites, countries, sensitive areas, & end of day
- ✗ Don't dispose of disinfectant & rinse waste into ocean or storm drain



## CORAL DISEASE INTERVENTION ACTION PLAN



Florida Department of Environmental Protection  
Coral Reef Conservation Program



### Highly susceptible species



### Rapid spread

Within one week  
to two months

### On coral colonies

Multiple lesions

Rapid mortality

On dive sites

Rapid spread among corals

High prevalence and mortality

What can managers do?

1. Monitor highly susceptible species via roving diver surveys

2. Monitor sentinel sites weekly - old, large, healthy, spawning colonies

3. Monitor suspected cases every three days to weekly, take photos, note date and location

4. Inform your agency about new threat, seek contingency support, investigate supplies for treatment

5. Inform stakeholders and report

6. Prevent wash of fresh disinfectant, or before infected sites

### WHAT IS HAPPENING TO CORALS?

#### Overview

#### NUMEROUS CORALS ARE GETTING SICK AND QUICKLY DYING

- The disease is affecting 20 of the approximately 65 coral species, including the emblematic and massive brain, pillar and star corals.
- Infected corals die in days or weeks depending on their size.
- The disease outbreak began in Florida 4 years ago and is still spreading.
- The disease has been reported along the coast of Quintana Roo and could extend to the whole Mesoamerican Reef.

#### CAUSES

Efforts are still under way to identify the cause of this epidemic. However, a strong contributing factor is the water quality degradation due to island pressures such as poor waste water treatment and mangrove loss

#### THE MesoAMERICAN REEF (MAR)

The MAR spreads along more than 1000 km and provides numerous benefits to the whole region:

- Tourism attraction that generates millions of dollars
- Coastal protection against storms and hurricanes
- Habitat for economically important species

4 COUNTRIES | 2.2 MILLION PEOPLE | 500 FISH SPECIES | 65 CORAL SPECIES

CORAL REEFS | MANGROVES | SEAGRASS

Prevent wash of fresh disinfectant, or before infected sites

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## AGRRRA Atlantic and Gulf Rapid Reef Assessment

ABOUT US

WHERE WE WORK

CORAL REEF MONITORING

DATA EXPLORER

TRA

## Coral Disease Resources



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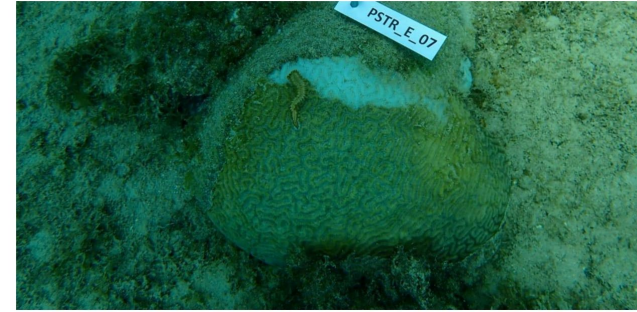




next steps

Follow-up actions

Management capacity needed



Photos: FUNDEMAR



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