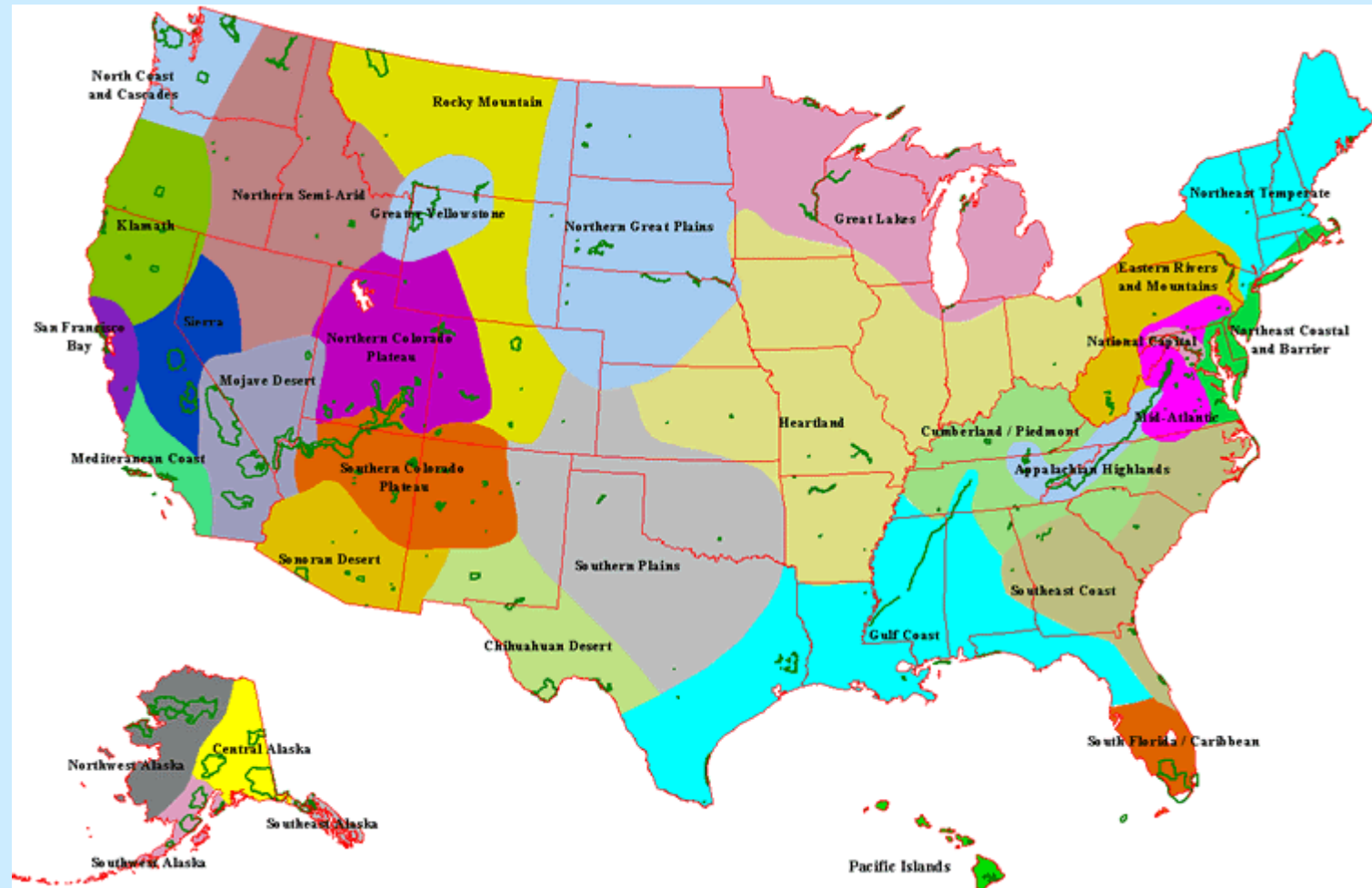
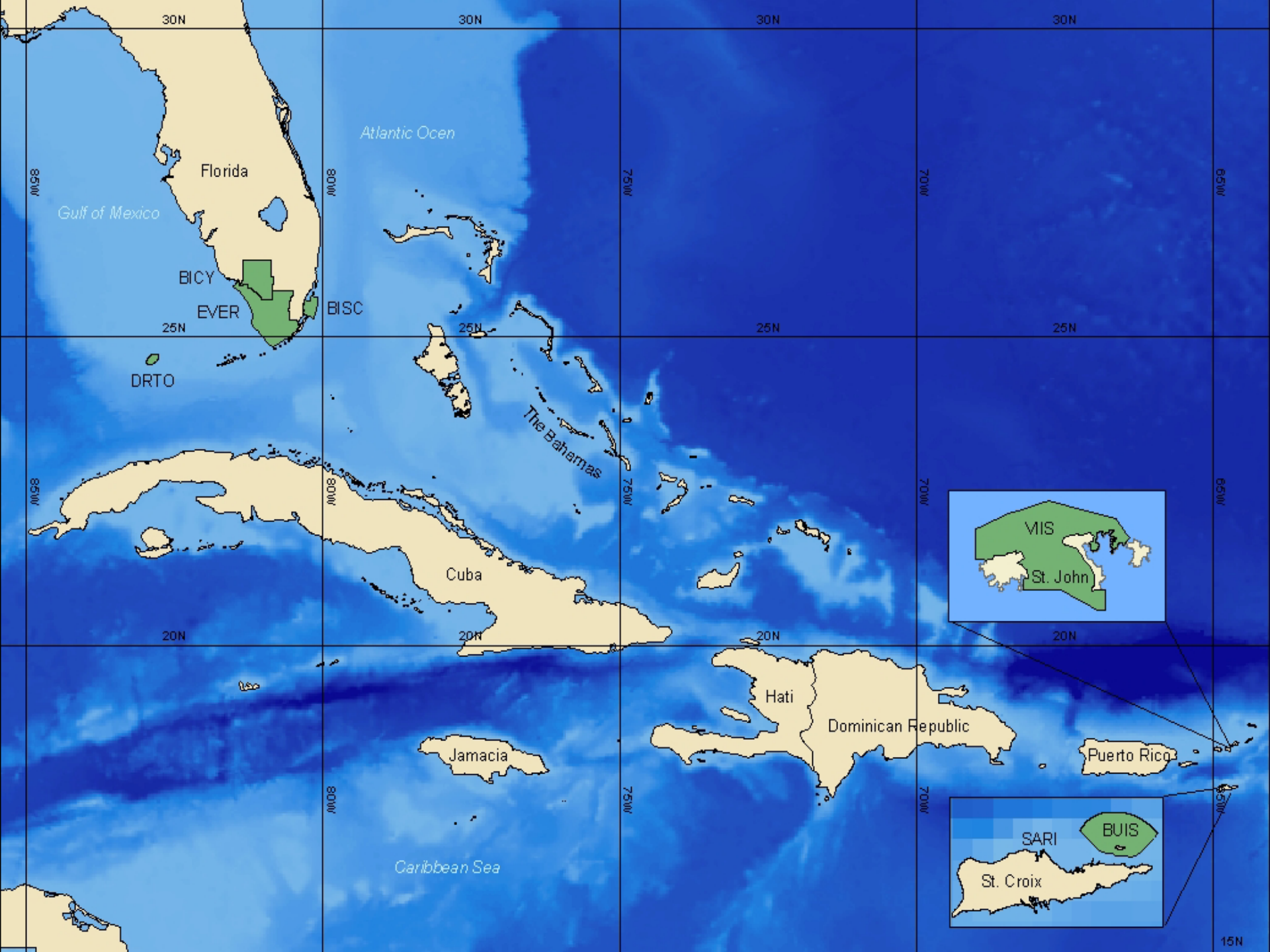


Rapid response to coral disease outbreak in Dry Tortugas National Park



Vital Signs Monitoring Networks





30N

30N

30N

30N

85W

Florida

80W

Atlantic Ocean

Gulf of Mexico

BICY

EVER

BISC

25N

25N

25N

25N

DRTO

85W

80W

The Bahamas

75W

70W

65W

20N

Cuba

20N

20N

USA

80W

Jamaica

75W

20N

Haiti

Dominican Republic

70W

Puerto Rico

65W

Caribbean Sea



20N



15N

SFCN Vital Signs Monitoring Plan

National Park Service
U.S. Department of the Interior



Natural Resources Program Center

**South Florida / Caribbean Network
Vital Signs Monitoring Plan – Phase 3
DRAFT**

Natural Resource Report NPS/SER/SFCN/NRR—2007/001



Big Cypress National Preserve
Biscayne National Park
Buck Island Reef National Monument
Dry Tortugas National Park

Everglades National Park
Salt River Bay National Historical Park and
Ecological Preserve
Virgin Islands National Park

Group	SFCN Core Vital Signs
Marine	Marine Benthic Communities
	Marine Fish Communities
	Marine Exploited Invertebrates
Inter-tidal and above	Colonial Nesting Birds
	Land Use Change
	Wetland Ecotones and Community Structure
	Forest Ecotones and Community Structure
	Mangrove-Marsh Ecotone
	Freshwater fish and large macro-invertebrates
	Amphibians
Coastal Geomorphology	



How do you measure coral reefs?

“Percent Cover”

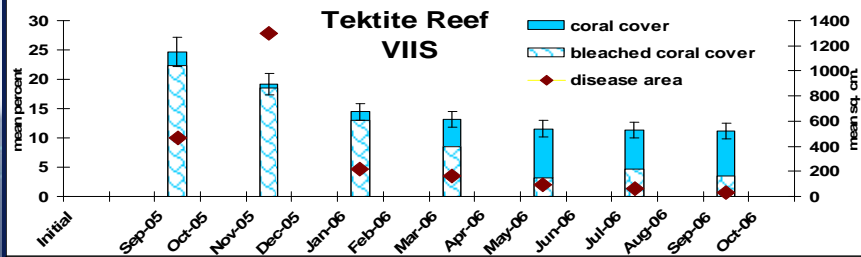


2006 DC CRTF Meeting

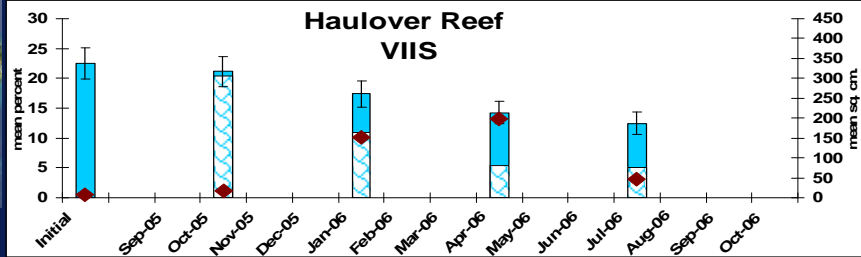




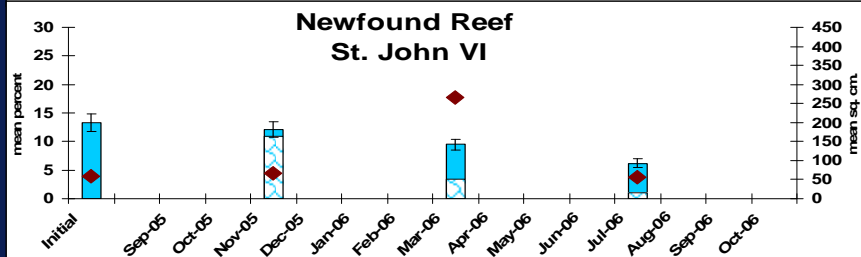
Increase mortality from disease as corals recover from bleaching **-51.5%** in a year!



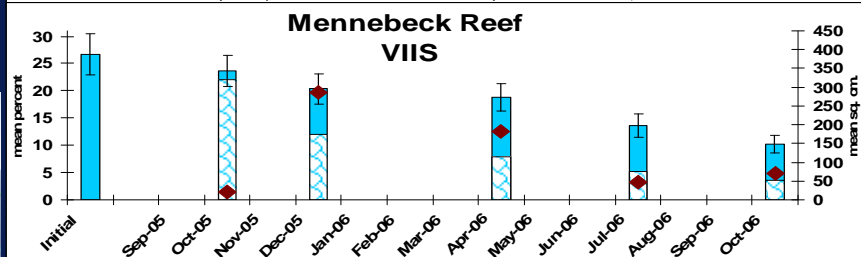
24.7%
to **-55%**
11.1%



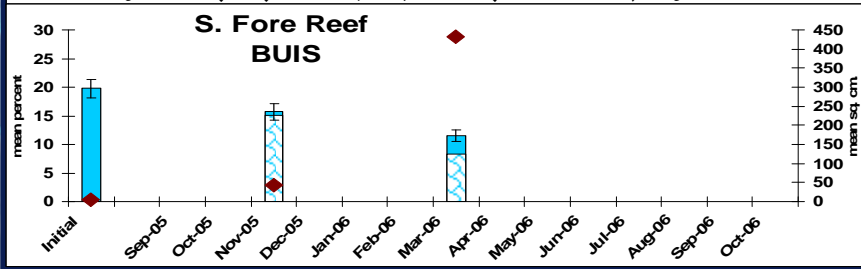
22.5%
to **-45%**
12.4%



13.3%
to **-53%**
6.2%



26.7%
to **-62%**
10.2%

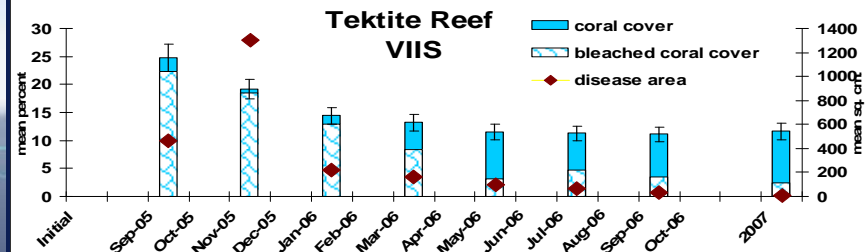
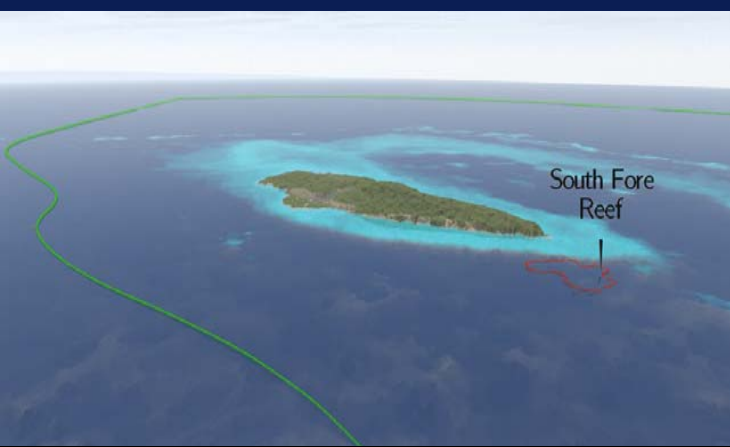


19.8%
to **-42%**
11.4%

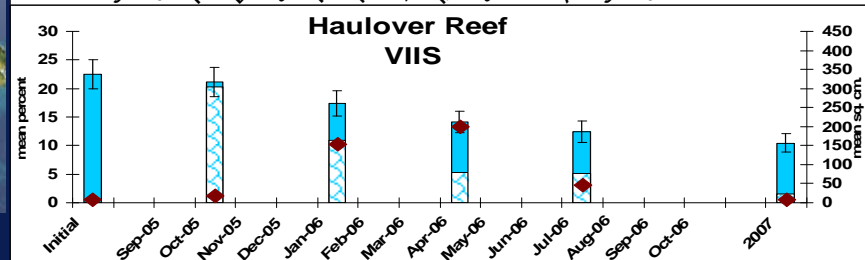




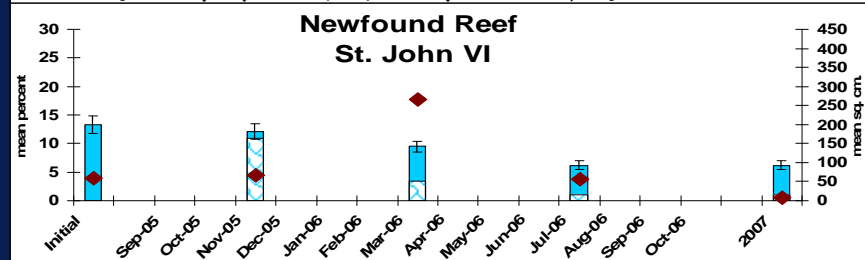
**-61.1%
in 2 years!**



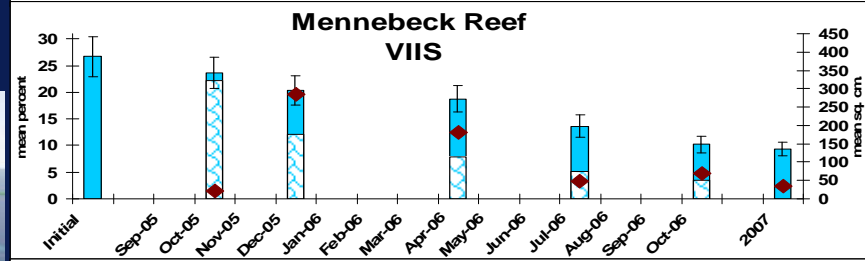
**24.7%
to -53%
11.6%**



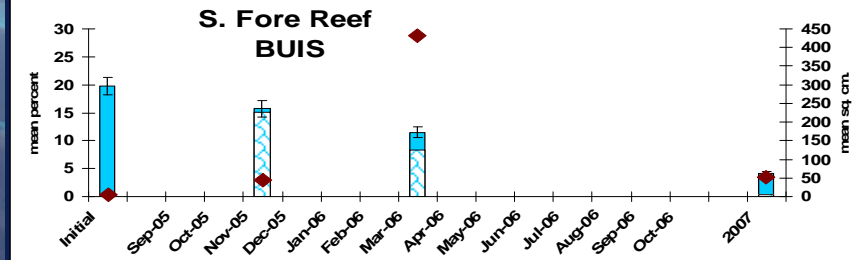
**22.5%
to -53%
10.5%**



**13.3%
to -55%
6.2%**

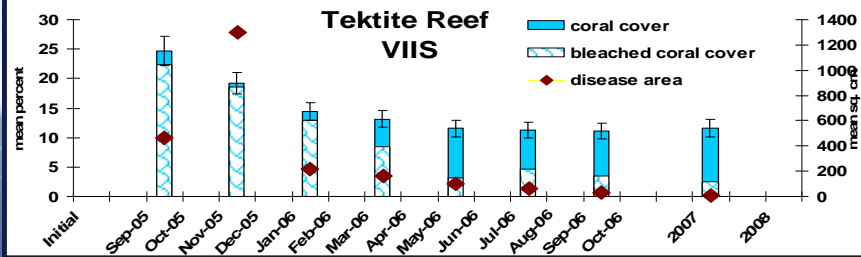


**26.7%
to -65%
9.3%**

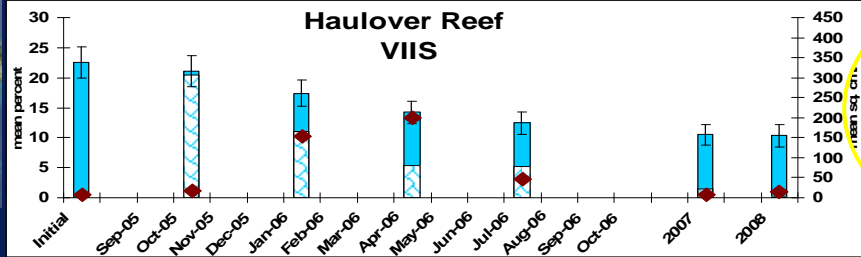


**19.8%
to -79%
4.1%**

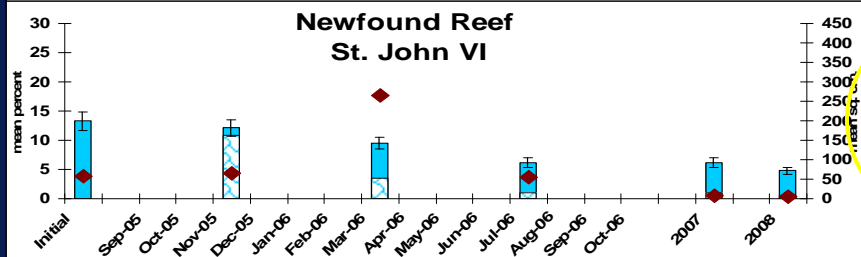




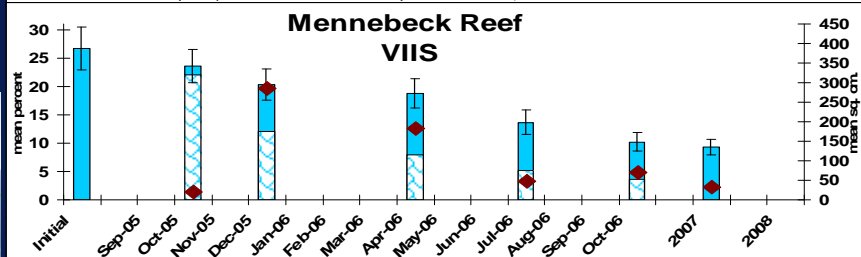
24.7%
to -53%
11.6%



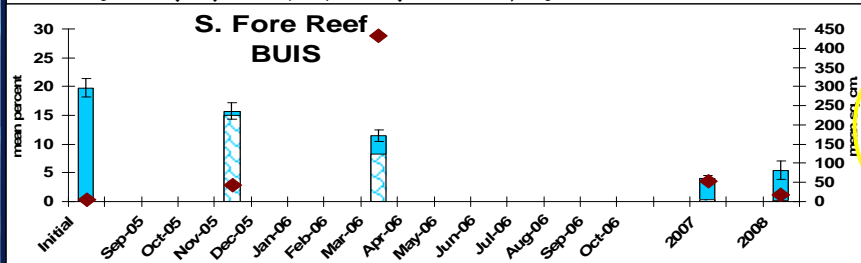
22.5%
to -54%
10.3%



13.3%
to -64%
4.8%



26.7%
to -65%
9.3%



19.8%
to -73%
5.4%

Mid- 2008



South Florida/Caribbean Network I&M Program





Photo by NPS

SFCN has now formally incorporated coral disease monitoring as part of annual monitoring efforts



Coral Disease has been around Dry Tortugas for decades...

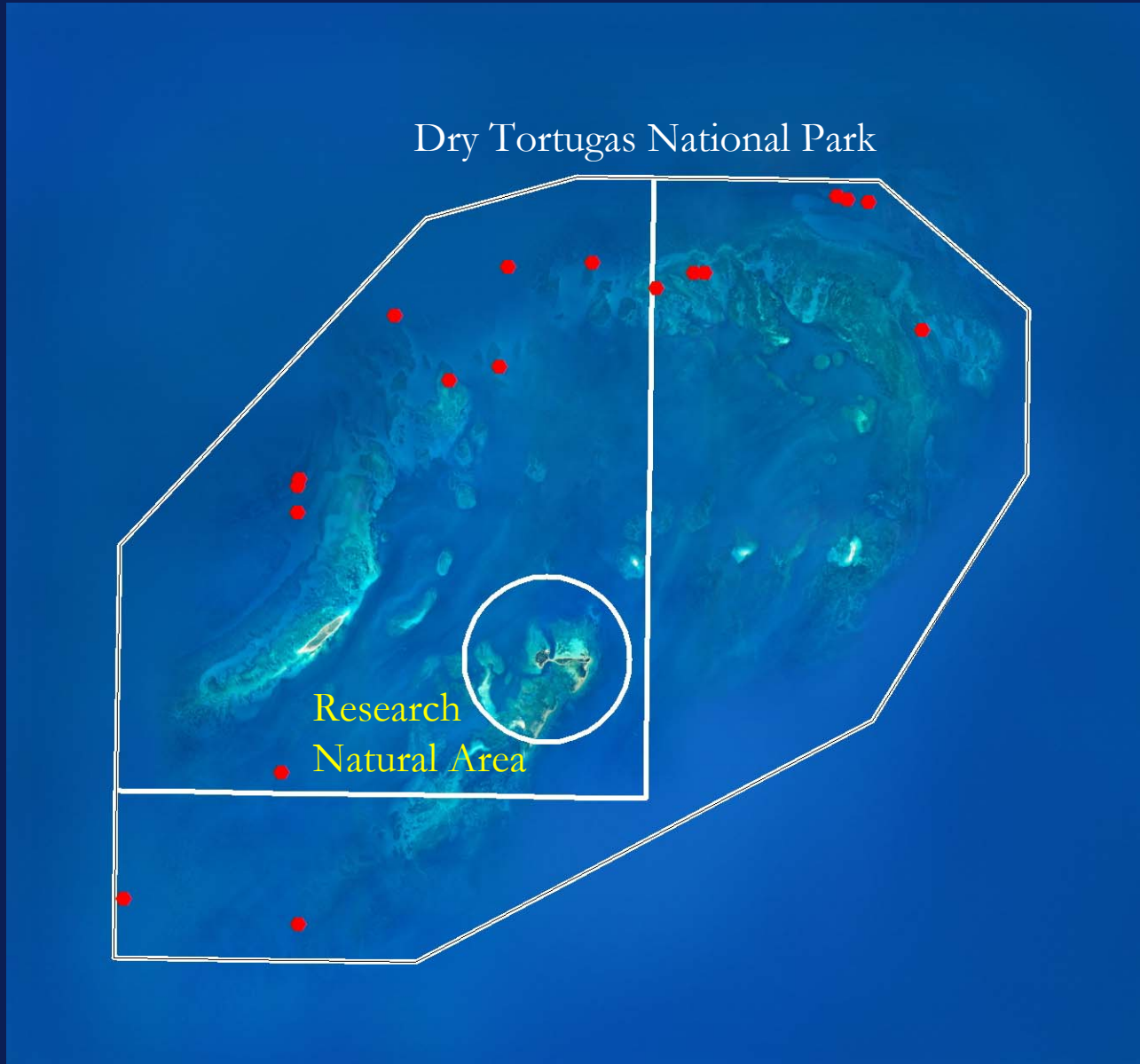
- 1983: Major staghorn coral (*Acropora cervicornis*) die-off.
- 1998: 23% corals at White Shoal diseased.
- 2001-2002: >33% decline of total stony coral percent cover on Bird Key Reef due to a major disease occurrence.
- 2003: Major disease outbreak on *Acropora* spp.

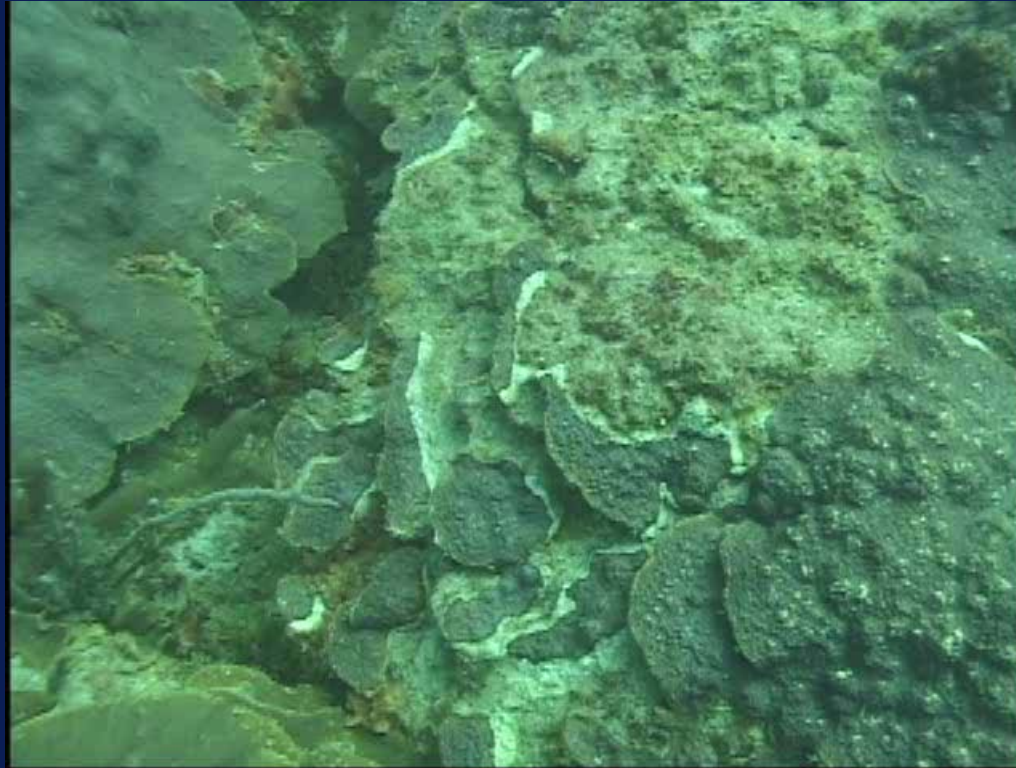
Extensive Coral Monitoring Sites



Dry Tortugas National Park

Coral Reef Monitoring Extensive Sites





South Florida/Caribbean Network I&M Program

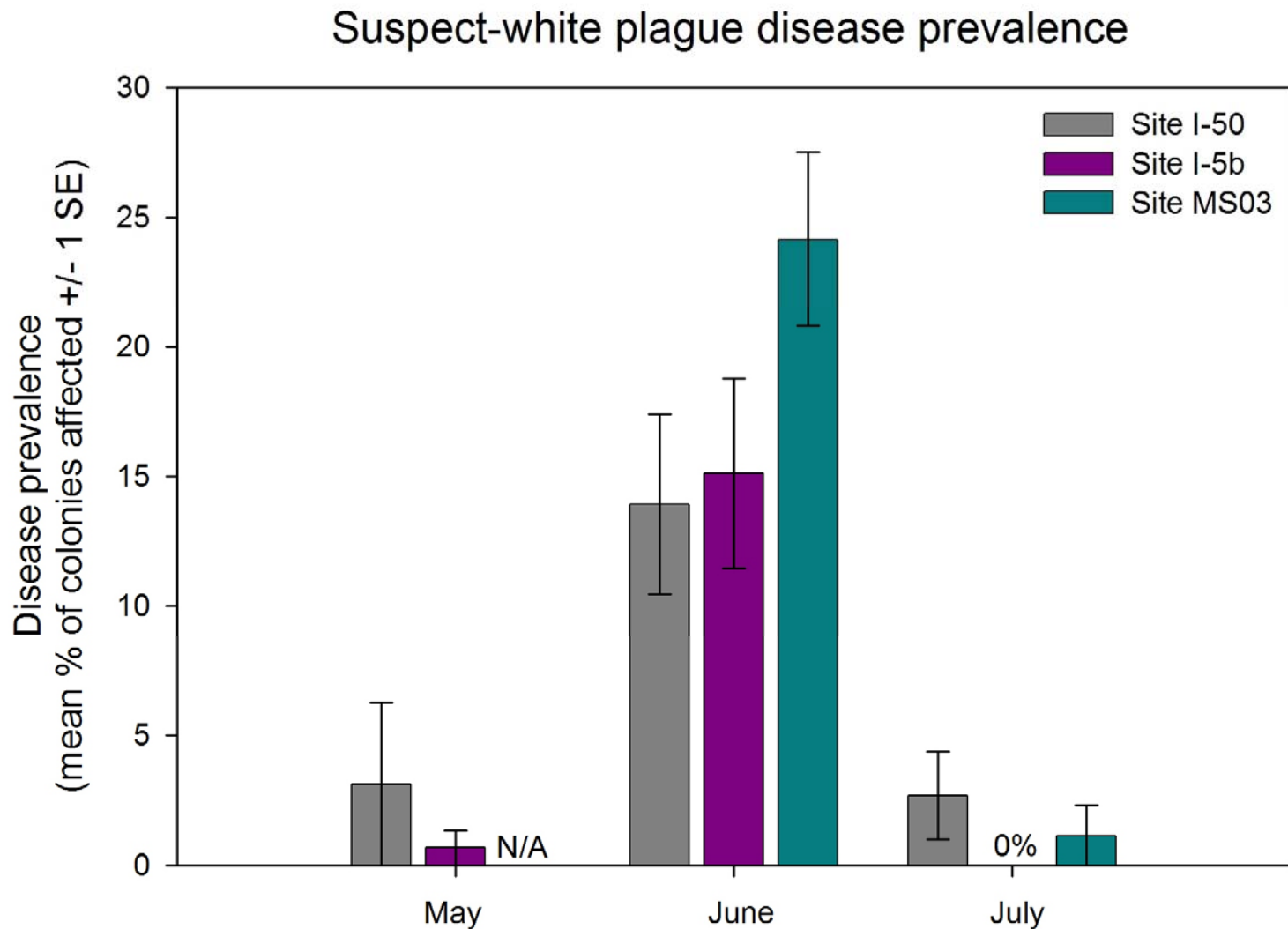


Rapid Response to Disease Event

1. June 19, 2008 - Contact CDHC (Cheryl Woodley) describing the outbreak
2. June 20-22 – Initial Response: photos, prevalence and spatial extent of outbreak.
3. July 10, 2008 - International Coral Reef Symposium meeting to plan for a rapid response cruise to DORTO the following week
4. July 16-18, 2008 - NPS provided logistical support to George Mason Univ. (Drs. Bob Jonas, Geoff Cook). Collected samples of diseased corals. CDHC provides support for analysis of samples collected (biomarkers, histology, and bacteria culture).



The GOOD NEWS!!!!



CRTF Future Recommendations

- Continue support for Coral Disease and Health Consortium
- Continue research for Coral Disease
 - Pathogen Identification
 - Initiation Trigger
 - Treatment
- Continue support for interagency collaboration to reduce duplication and increase efficiency

