

# Is the coral disease White Plague killing Tekkite Reef in V.I. National Park?



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**South Florida/Caribbean Network I&M Program**



# Effects of White Plague at Tektite Reef

Brief History

Study Method and Results

Episodic Outbreaks: Past and Present

Expanding our Knowledge



# Effects of the White Plague at Tektite Reef



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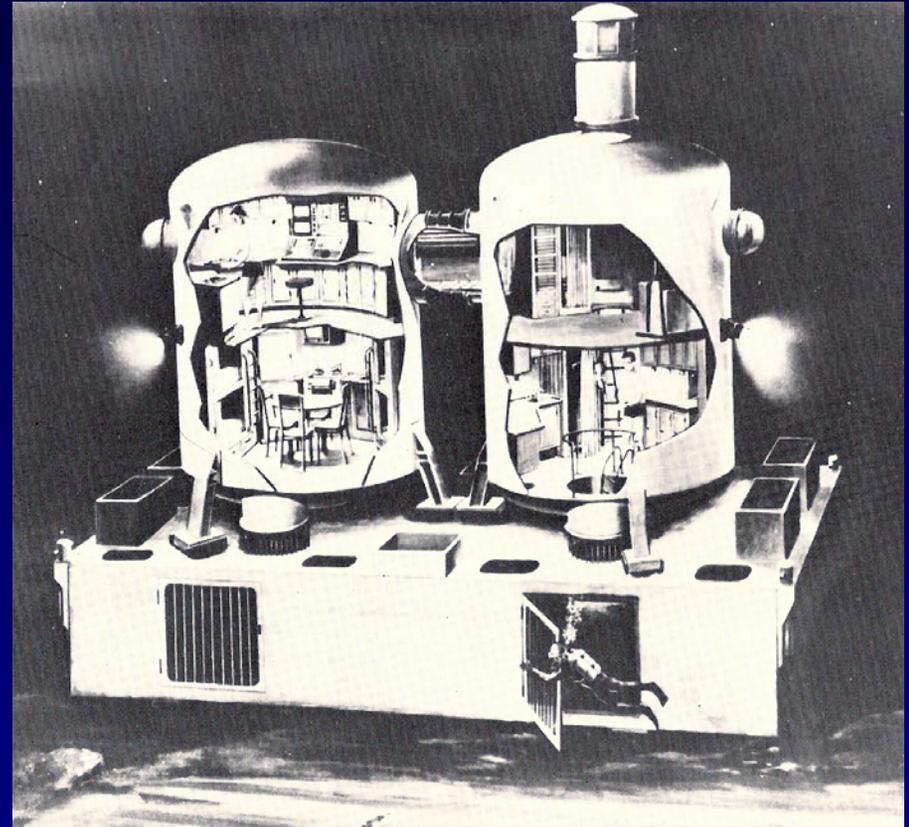
# Effects of White Plague at Tektite Reef

## Tektite I (1969)

- Four men, 60-day mission
- Study effects of saturation diving

## Tektite II (April – Nov 1970)

- Four scientists, 1 engineer
- Ten, 10-20 day missions
- Reaffirm findings of TK-I & conduct independent rsch.



# Effects of White Plague at Tektite Reef

Document and evaluate prevalence and effect of White plague in selected area

- Eight 10-meter transects
- One m<sup>2</sup> quadrat on each side
- Record cover by Coral, Macroalgae and disease
- Measure disease size
- Photograph each quad



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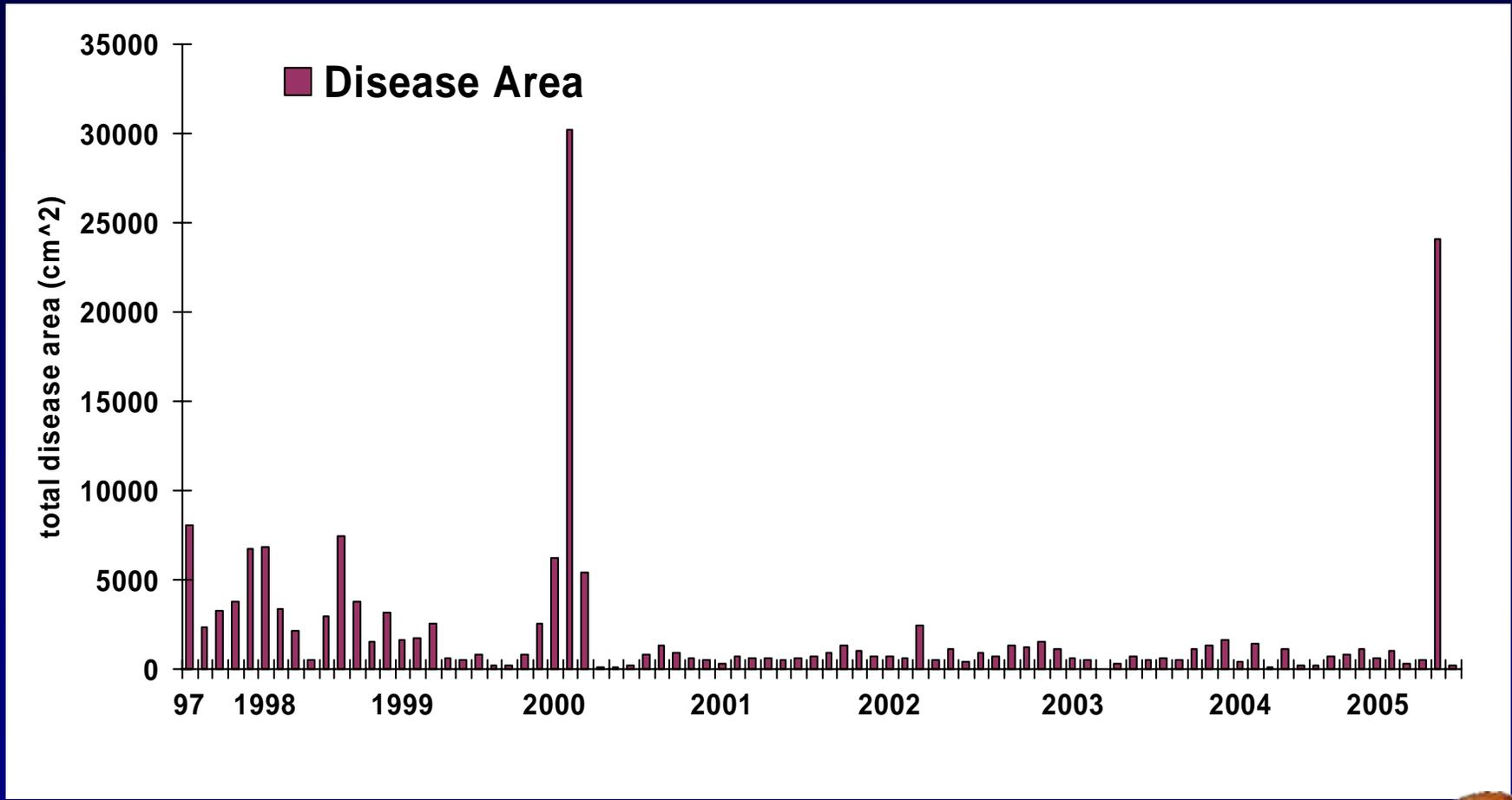
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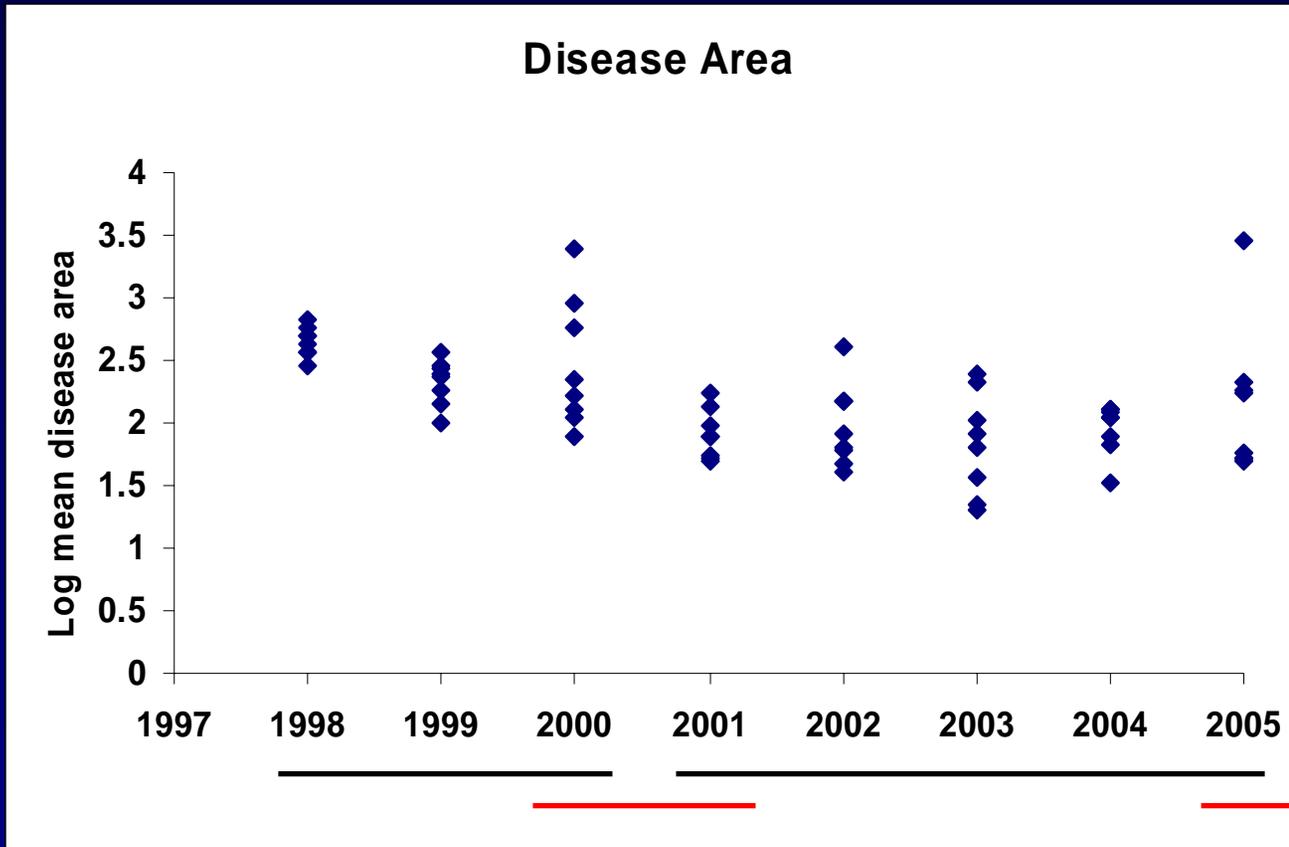
Result - disease present in every month sampled



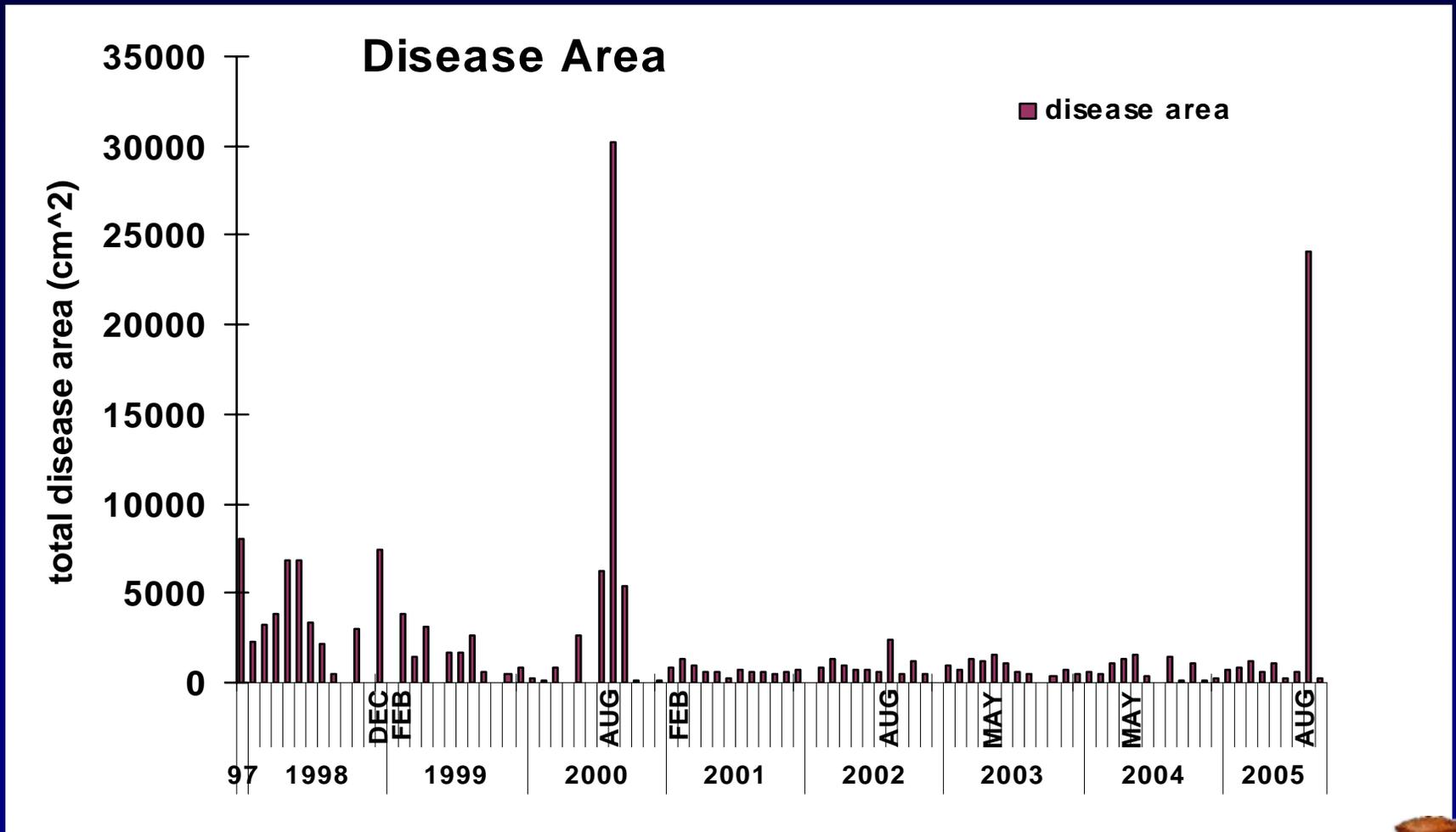
# Effects of White Plague at Tektite Reef

Result – significant negative trend in disease area ( $p < .0001$ )

Group Years: 1998-2000    2001-2005    2000-2001, 2005

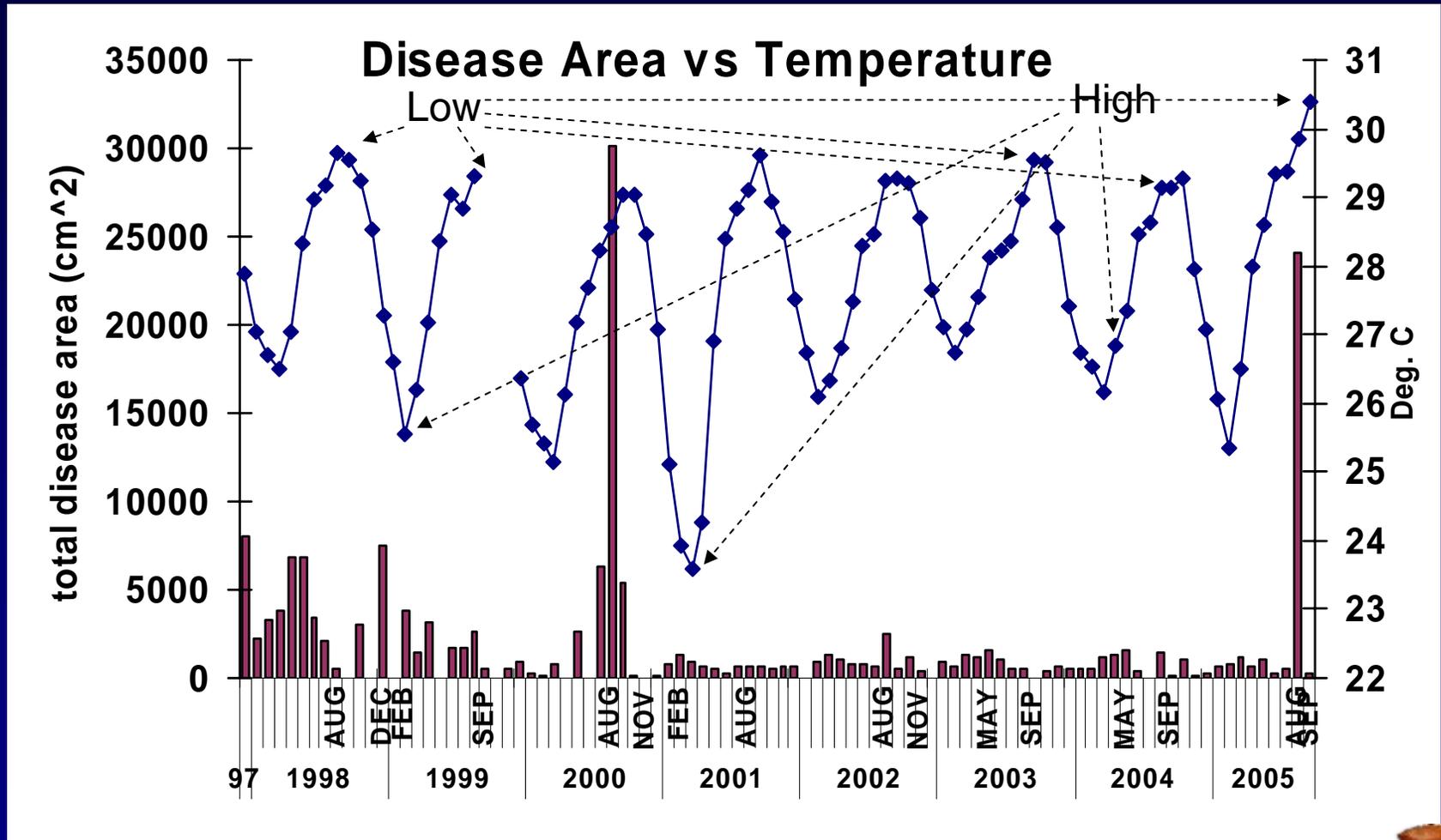


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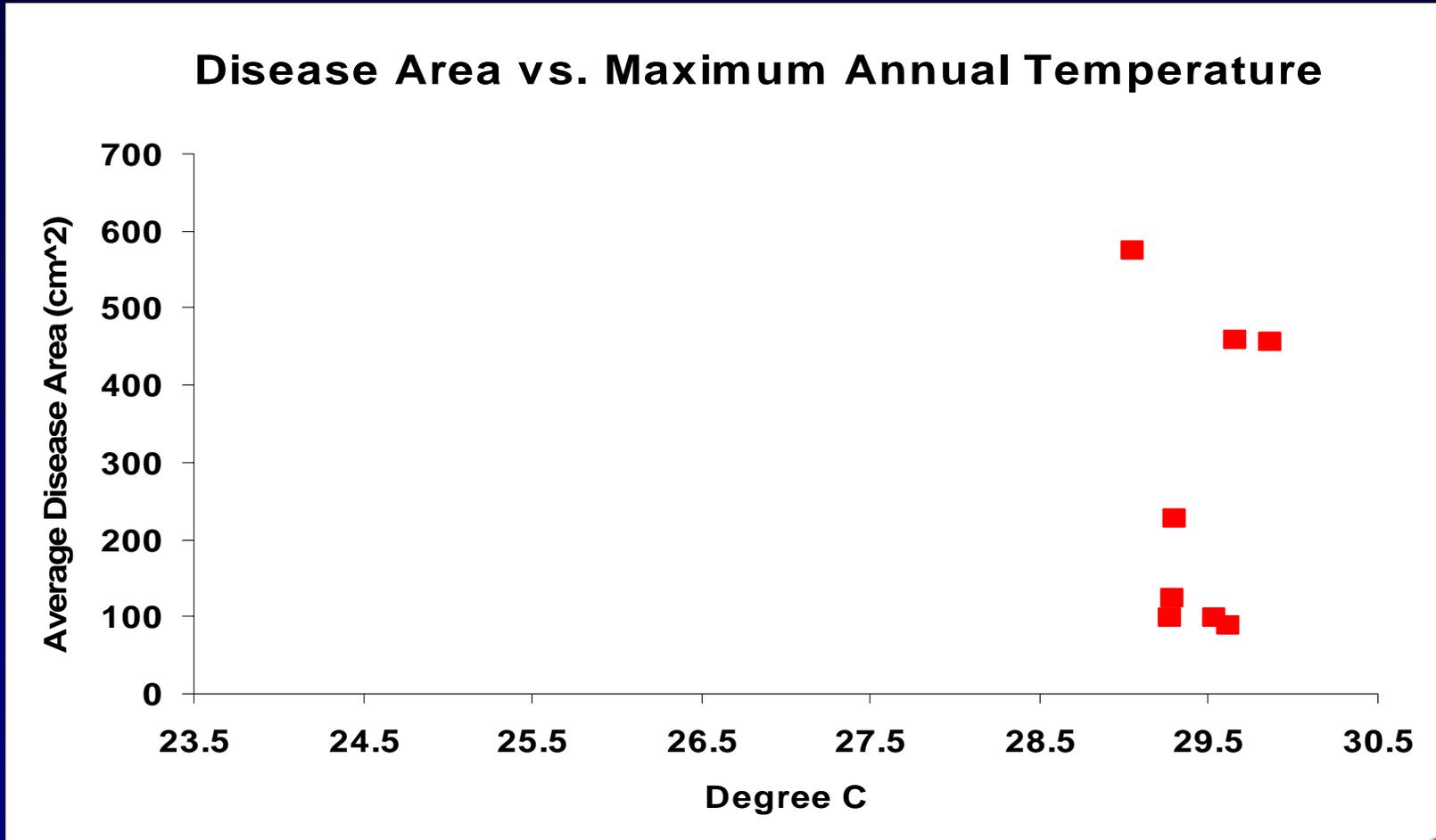
# Effects of White Plague at Tektite Reef

Result – disease area not correlated to temperature



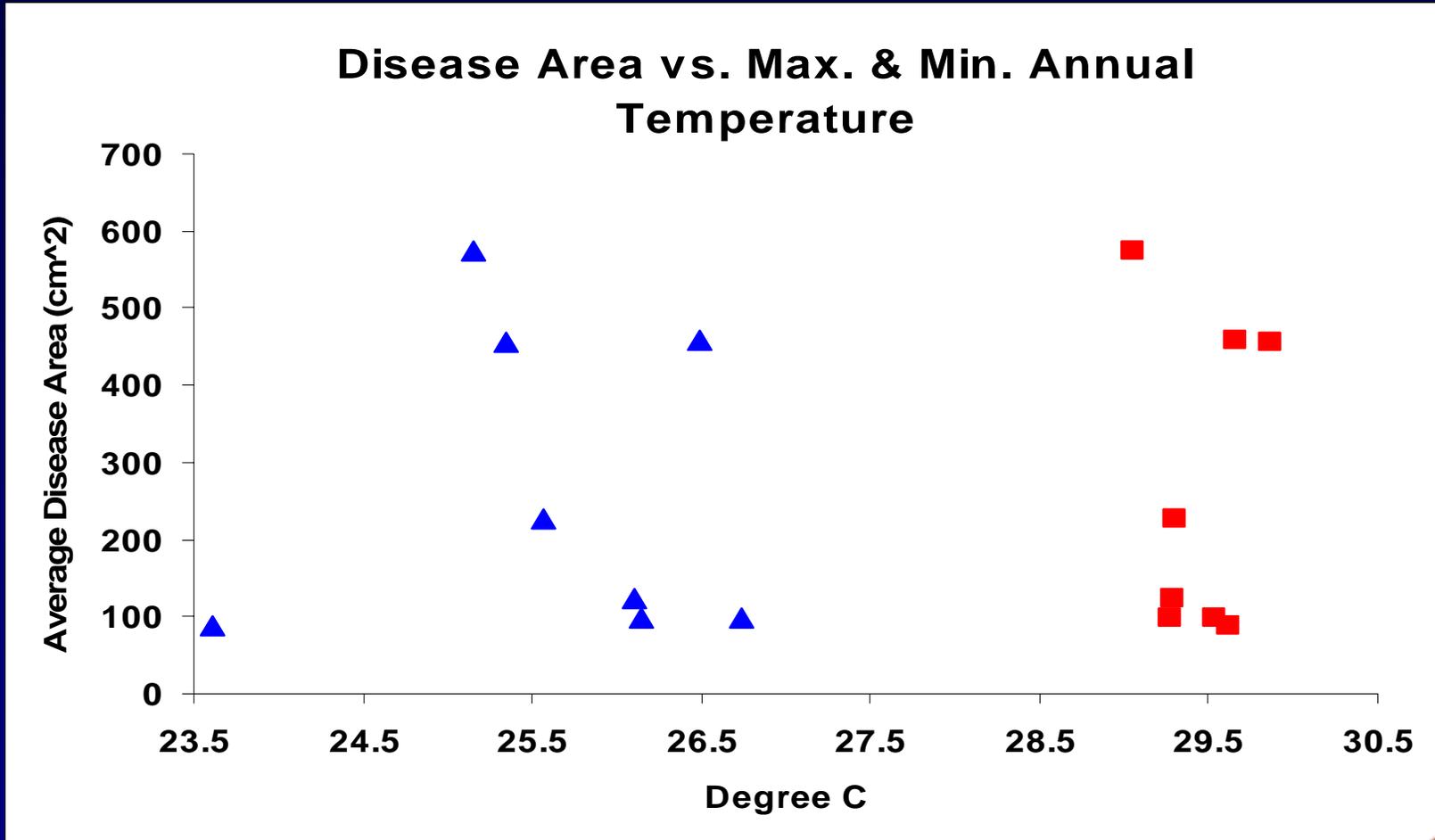
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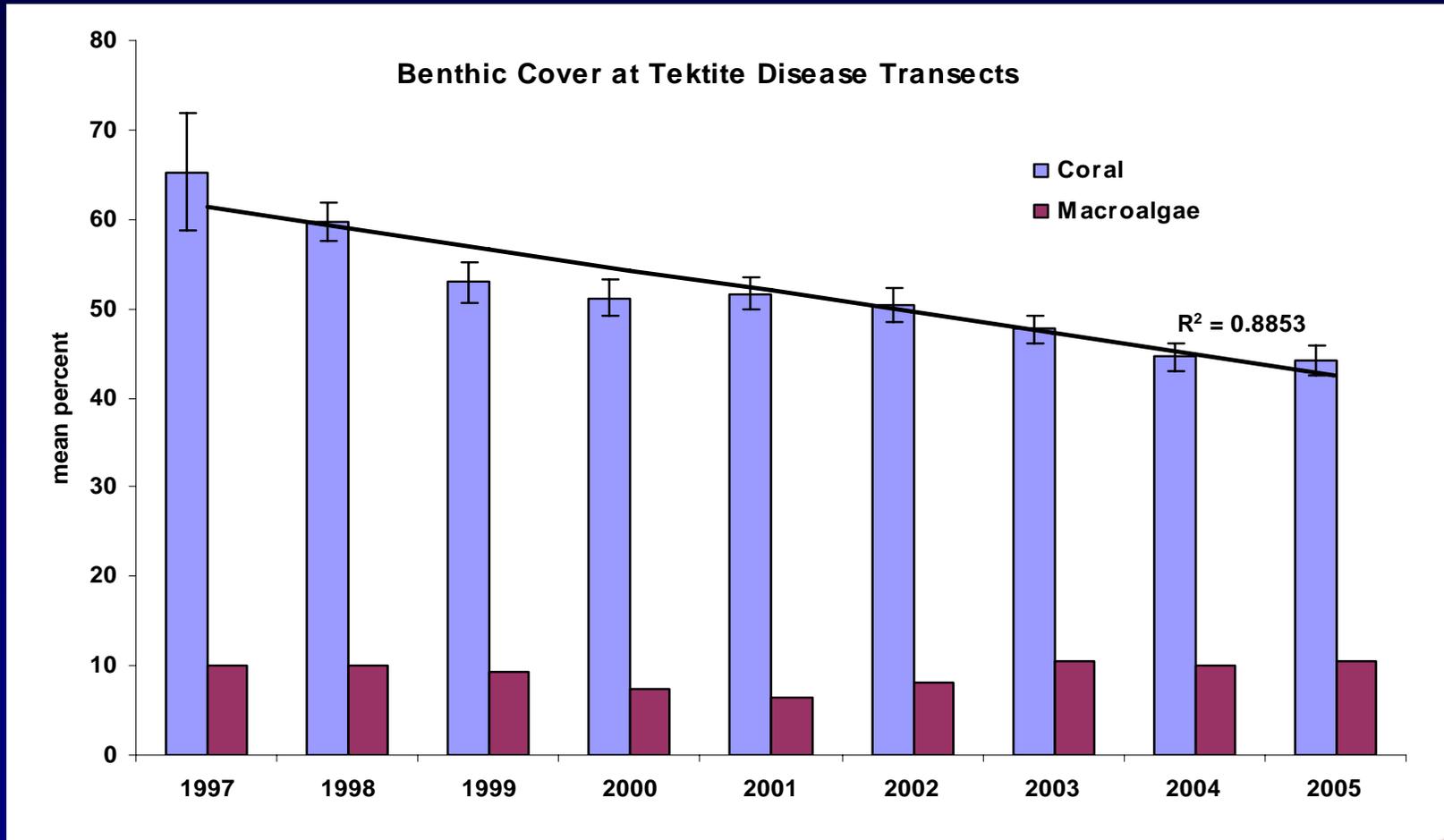
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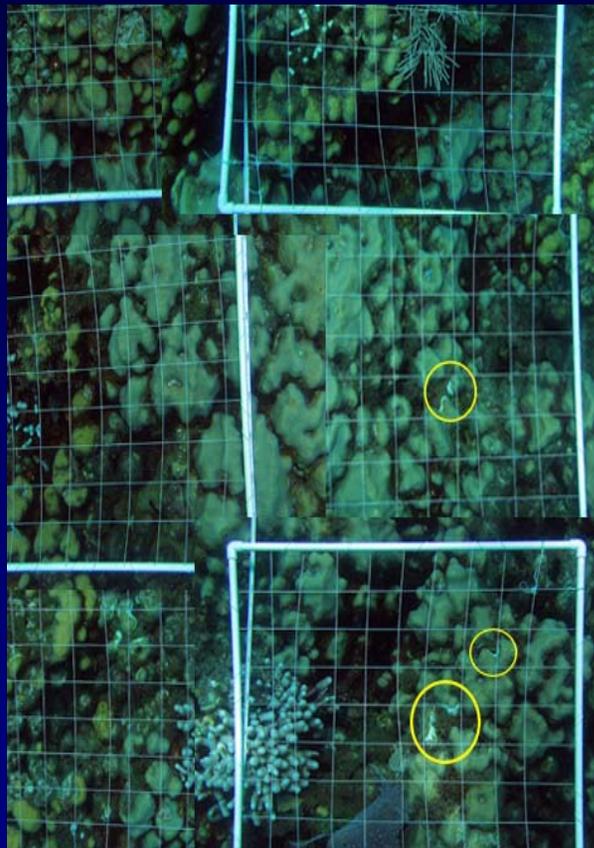
Result – decrease in mean live coral cover ( $p < 0.0001$ )





# Effects of White Plague at Tektite Reef

August 2005 Outbreak



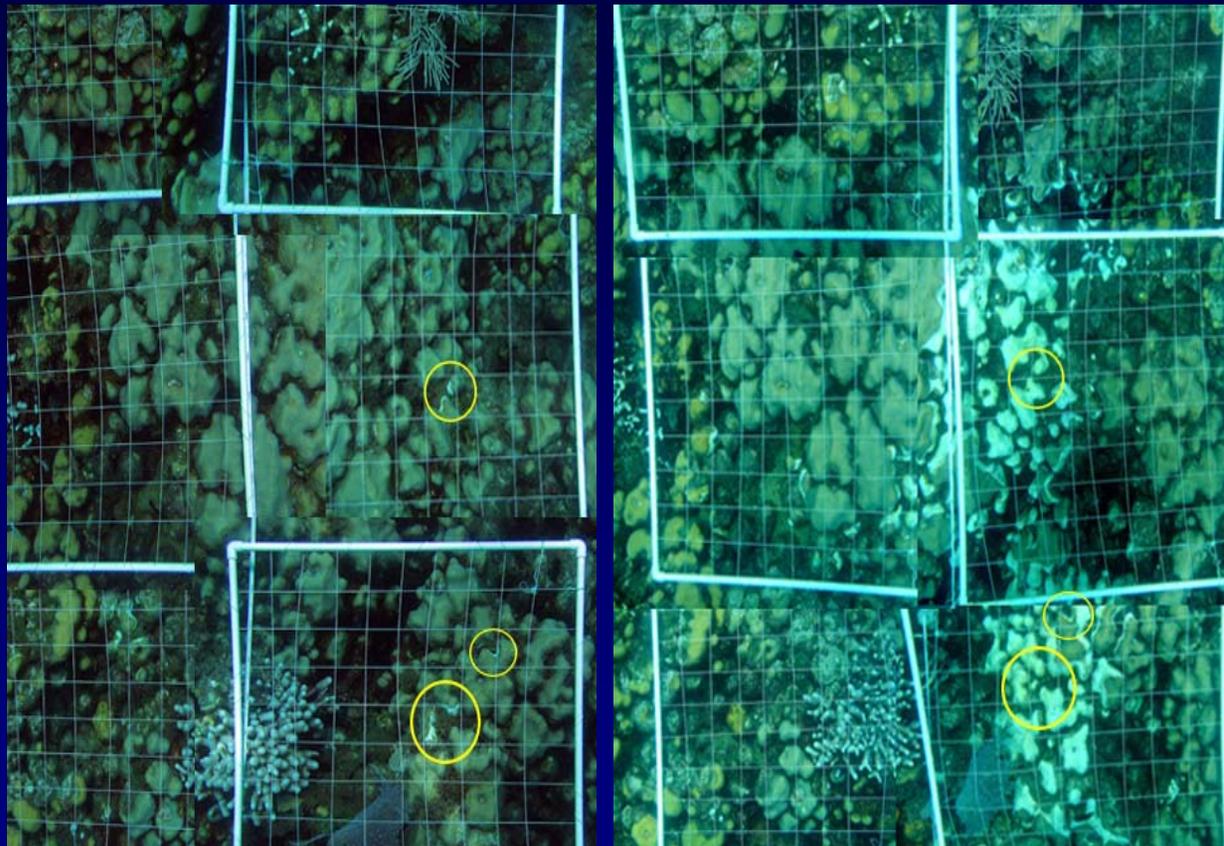
August 1, 2005

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August 2005 Outbreak



August 1, 2005

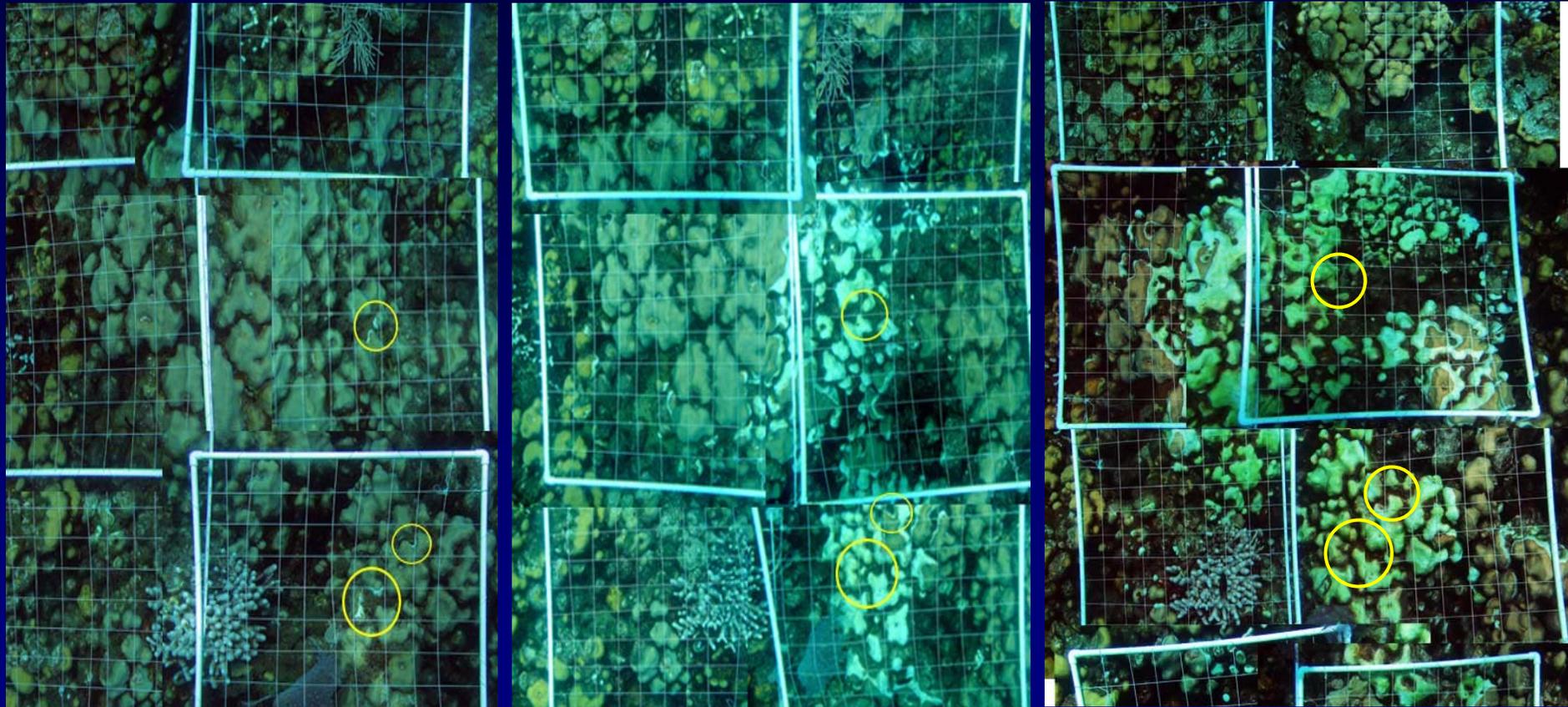
August 16, 2005

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## August 2005 Outbreak



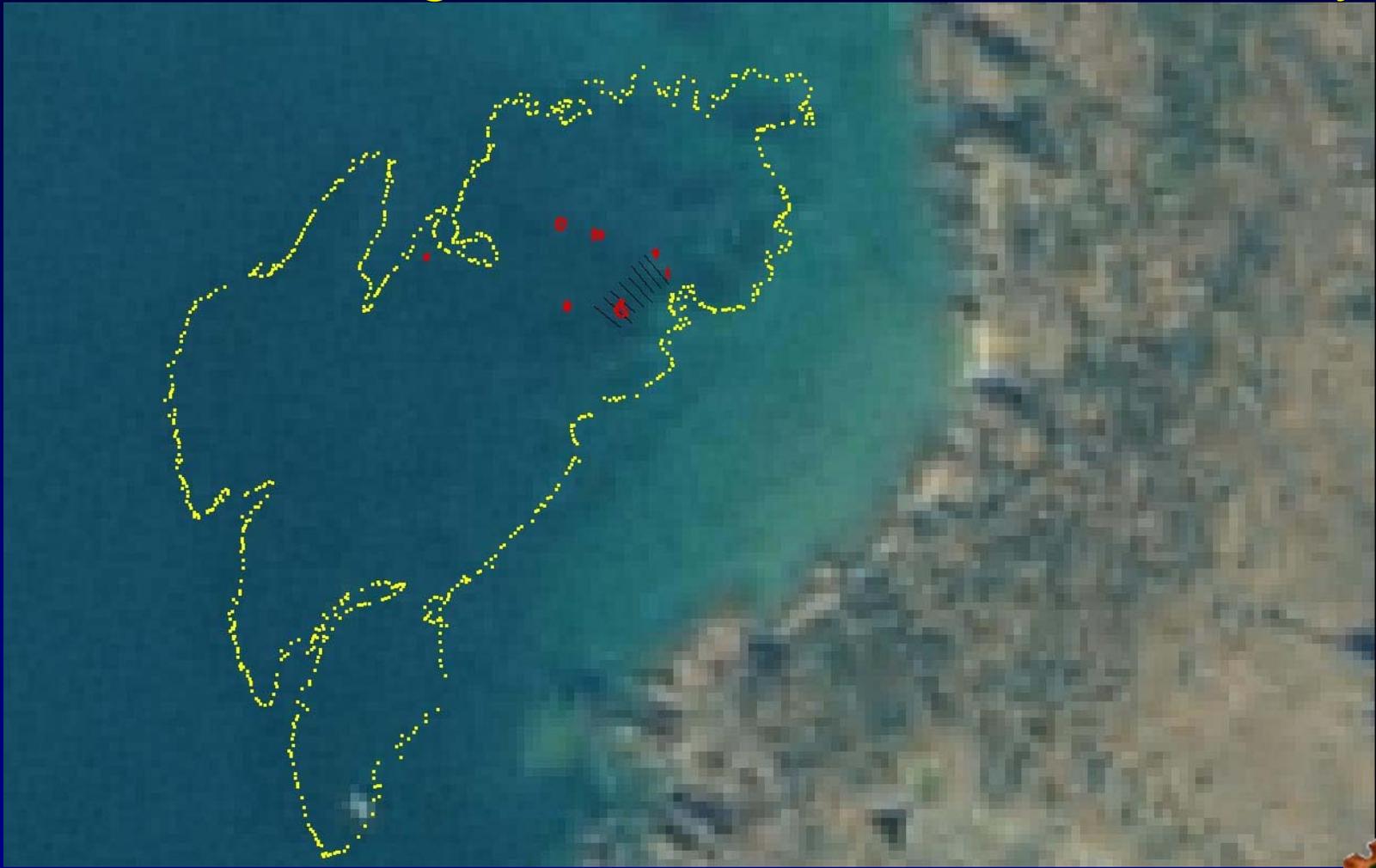
August 1, 2005

August 16, 2005

August 29, 2005

# Effects of White Plague at Tektite Reef

What is the “long-term” effect of disease mortality?



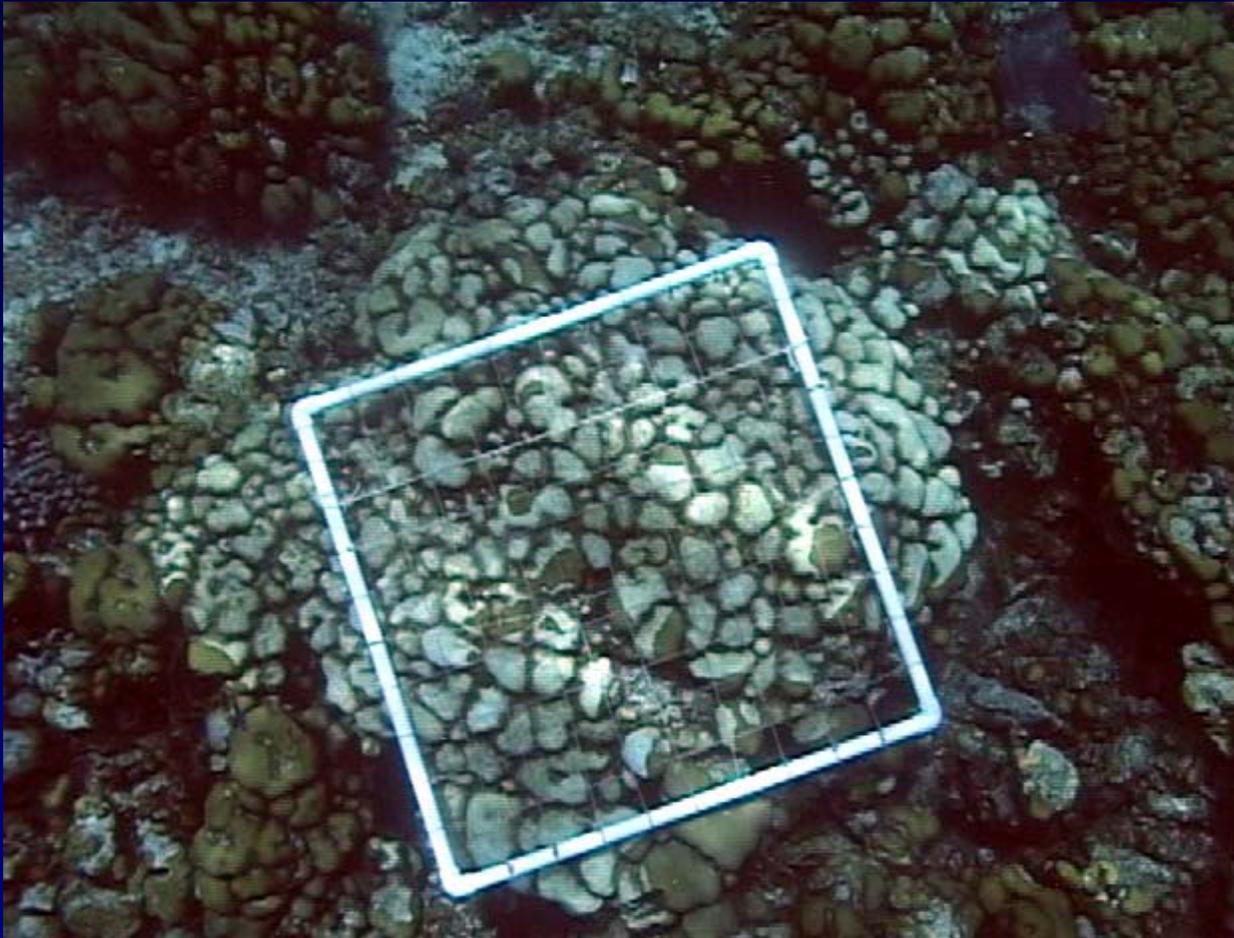


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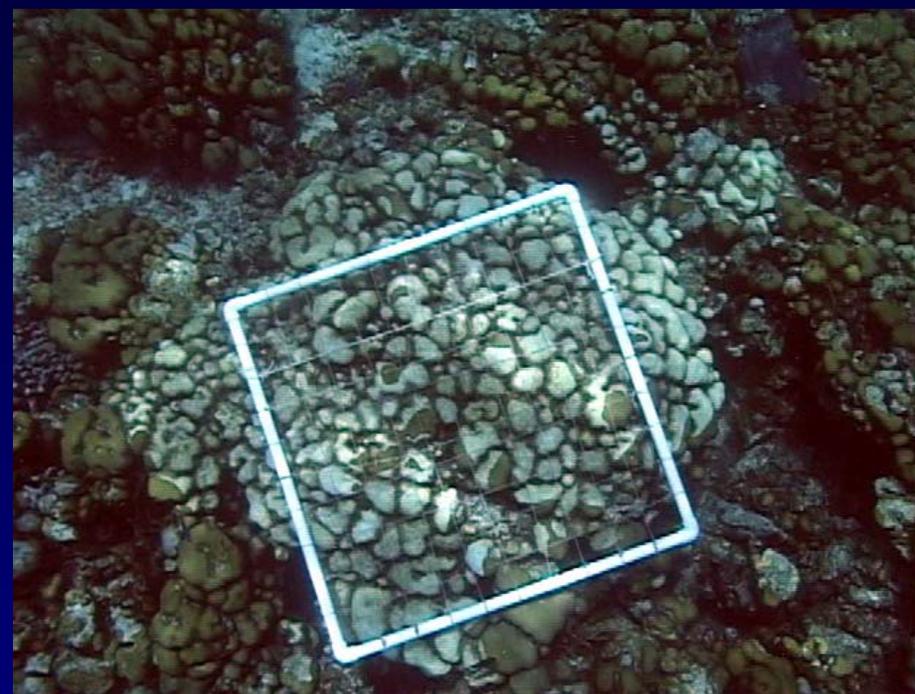
August 2000



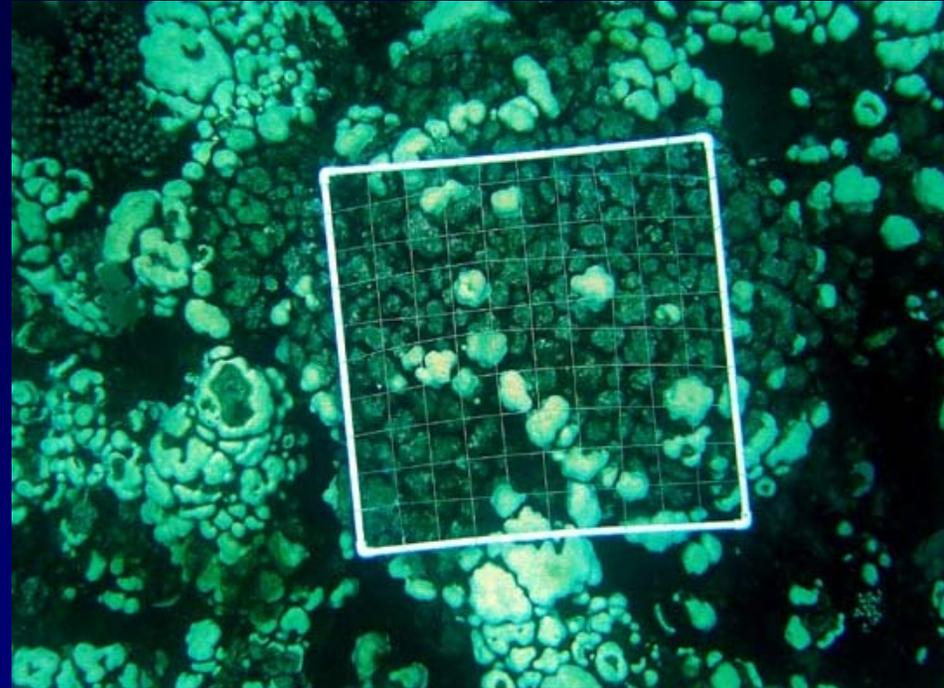
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# Effects of White Plague at Tektite Reef



August 2000



September 2005  
(during bleaching event)

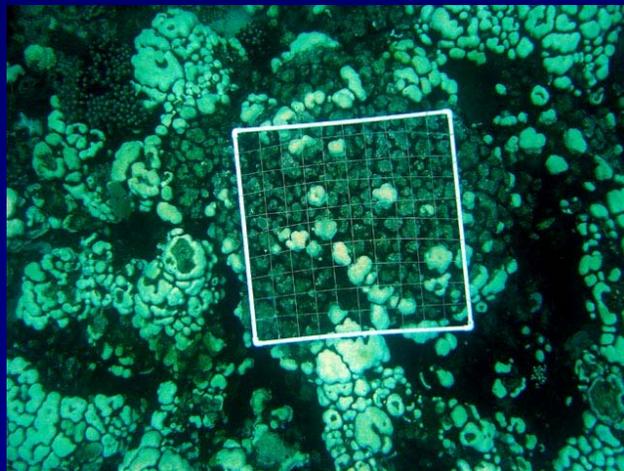
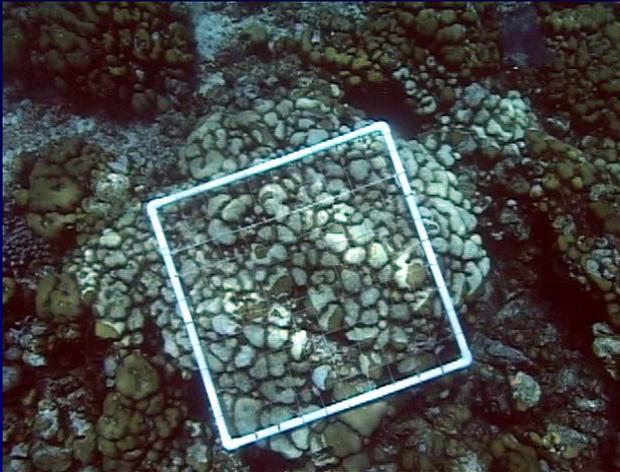
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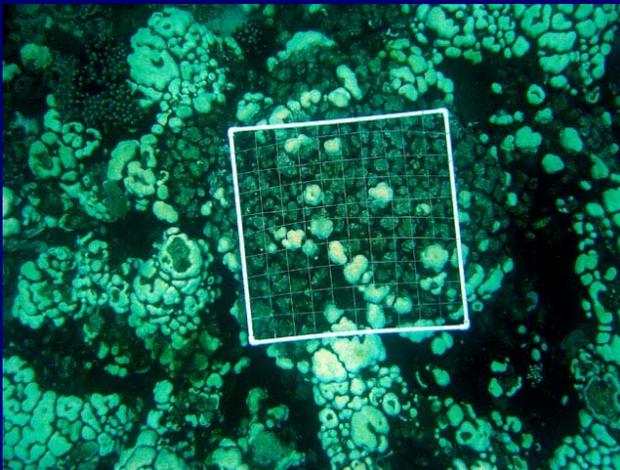
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\* Colonized by turf and macroalgae

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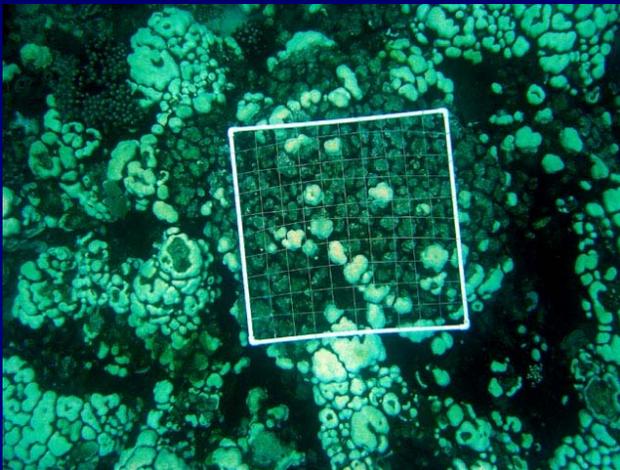
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- \* Colonized by turf and macroalgae
- \* Some corals (*Agaricia*, *Porites*) and sponges

# Effects of White Plague at Tektite Reef

What is the “long-term” effect of disease mortality?



- \* Colonized by turf and macroalgae
- \* Some corals (*Agaricia*, *Porites*) and sponges
- \* Coral growth - Skeleton erosion

# Effects of White Plague at Haulover Reef

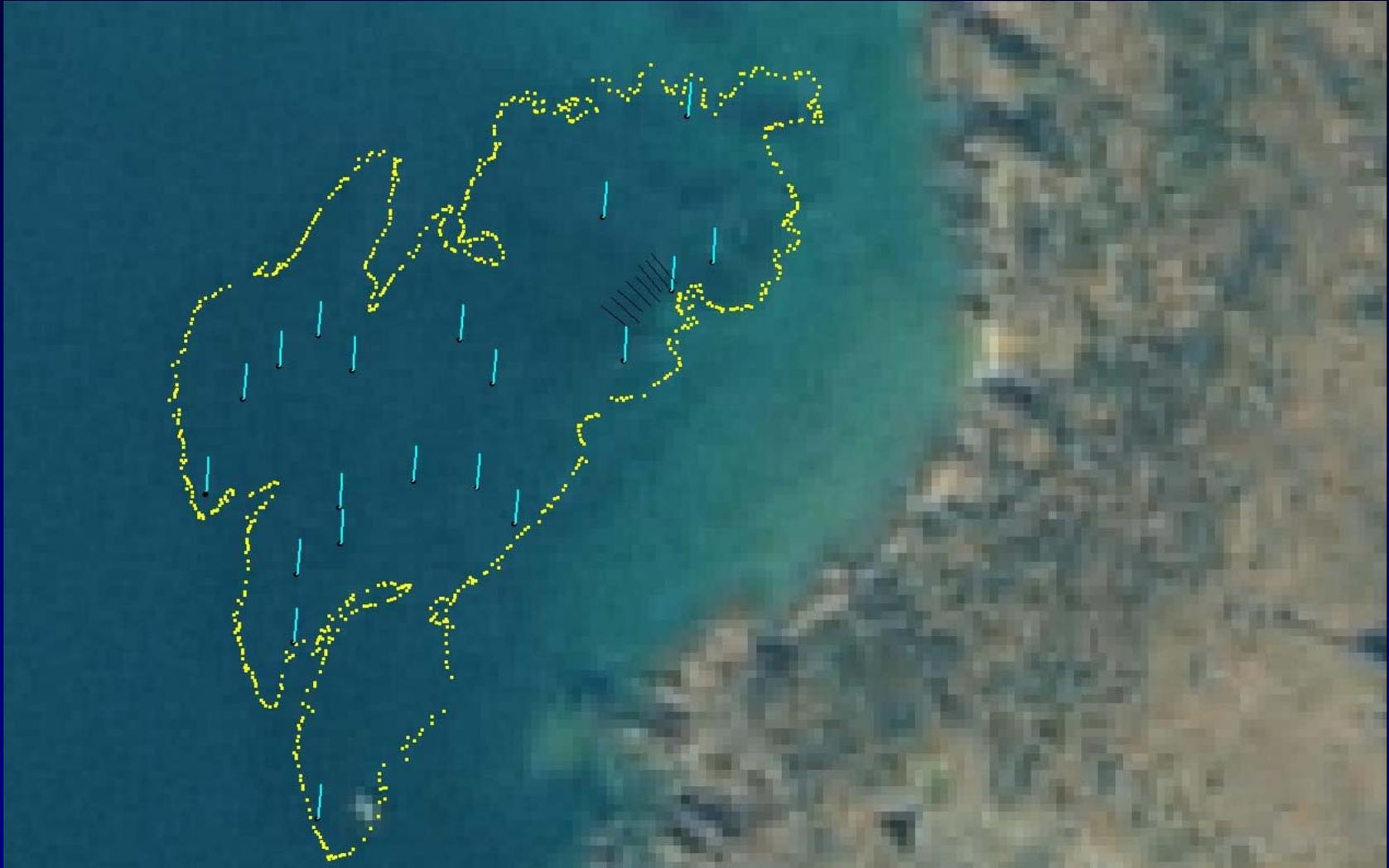


October 1997

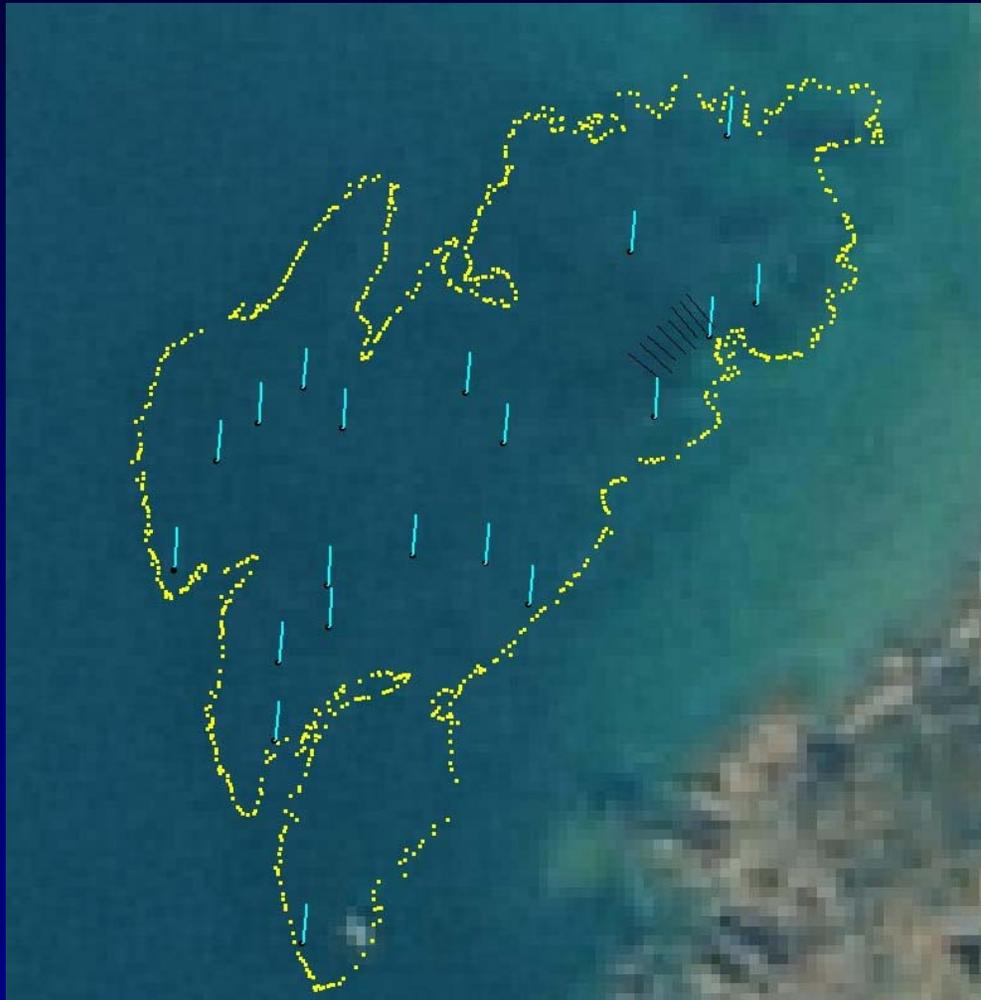


September 2005  
(during bleaching event)

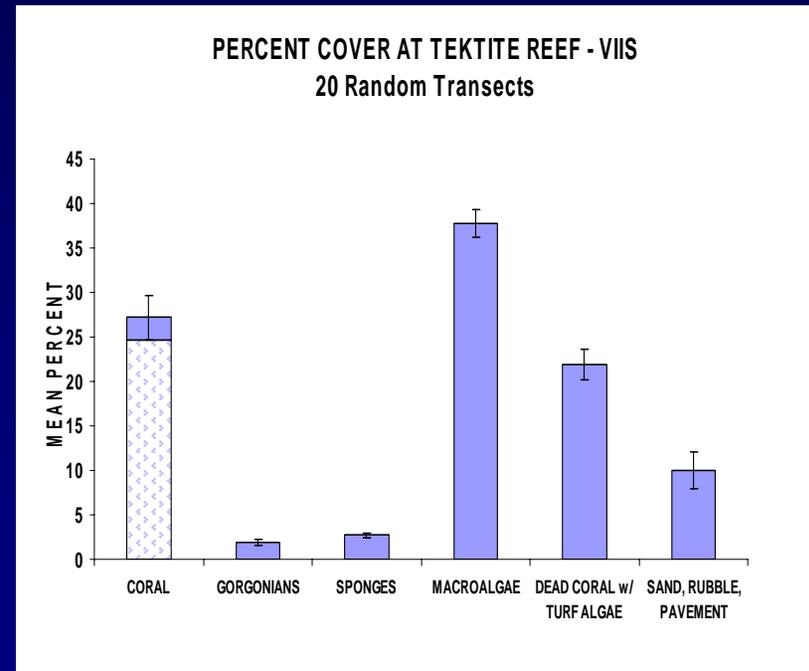
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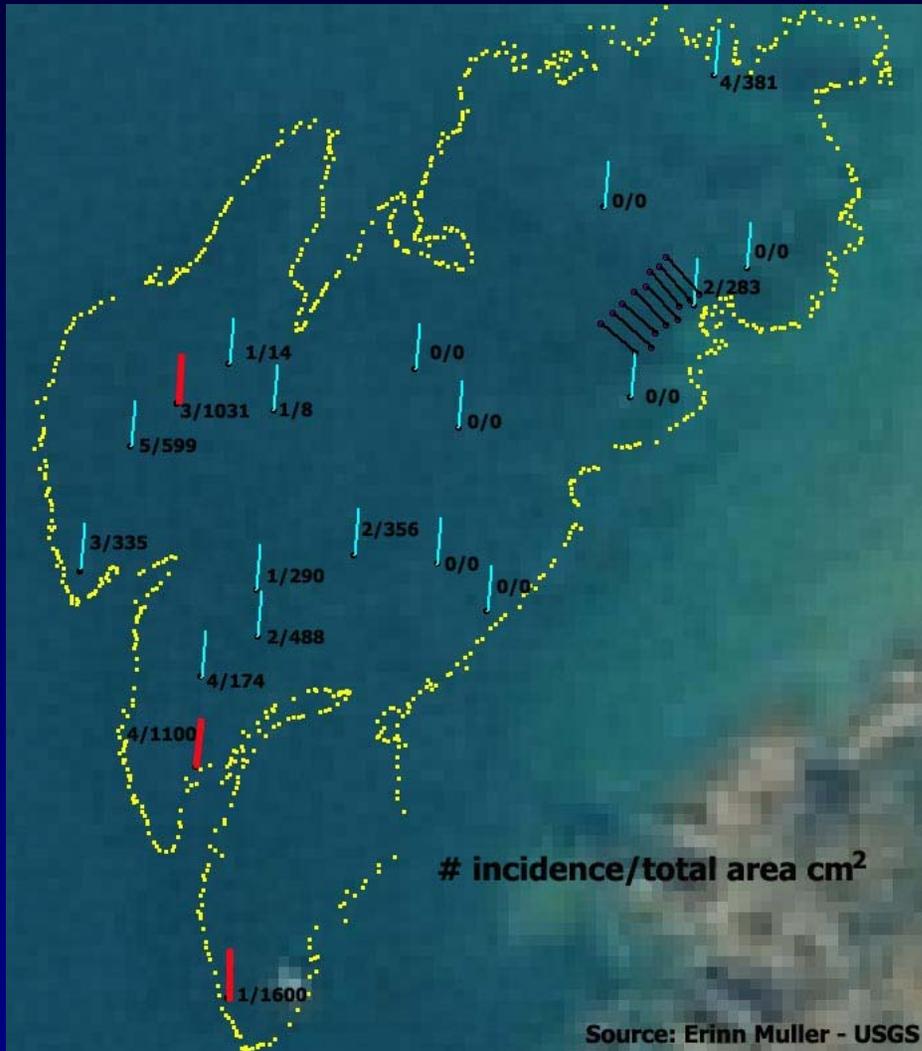
# Effects of White Plague at Tektite Reef



- 20 random transects
- 24.7 % live coral cover
- 90.2 % coral bleached



# Effects of White Plague at Tektite Reef





# Effects of White Plague at Tektite Reef

## Summary:

Mortality from disease occurs every month of study

Possible decrease in new diseased area

Disease area not correlated to temperature

Significant decrease in coral cover at study site

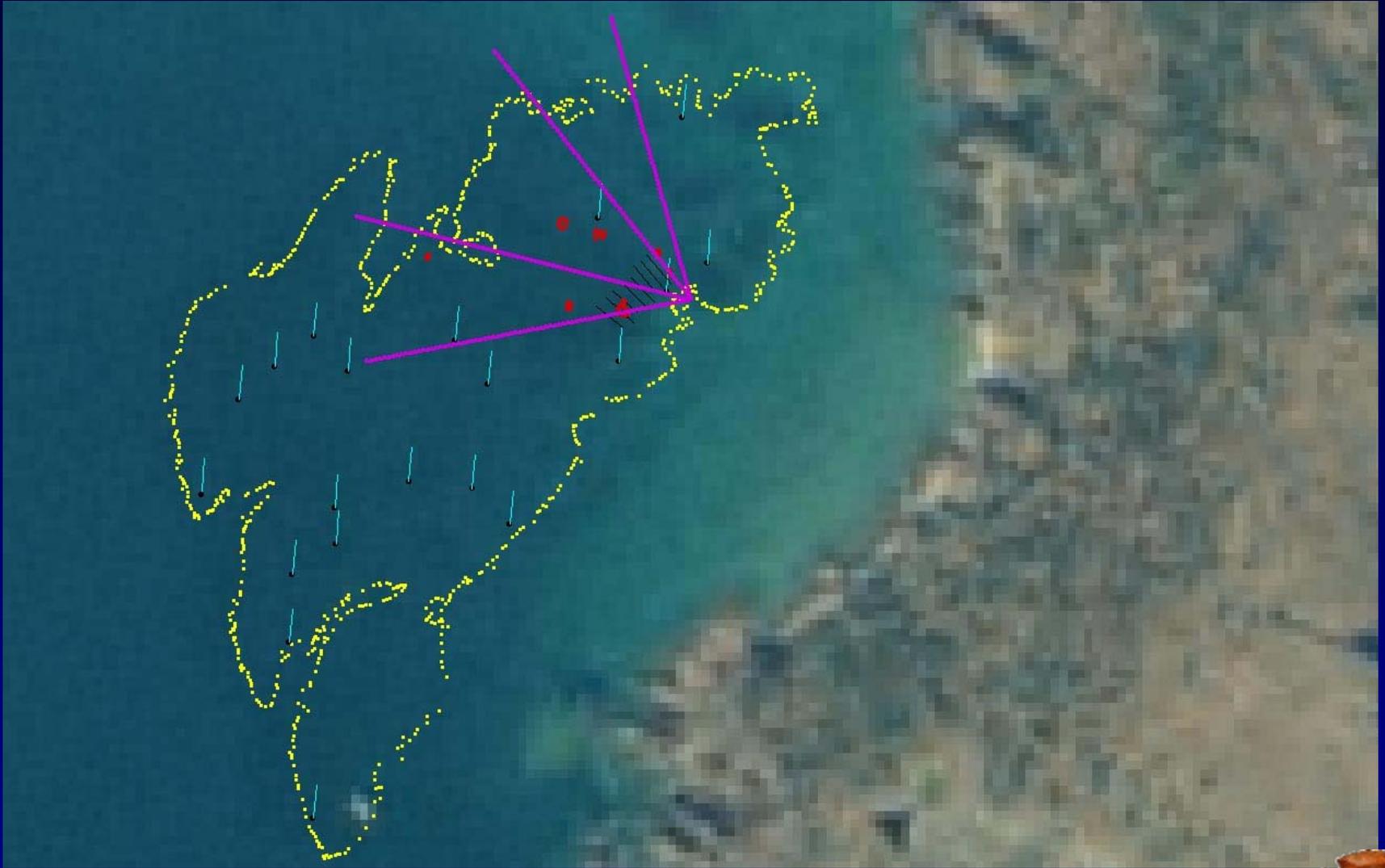
Disease mortality abundant throughout study area

No re-growth of original species over diseased area

**WE ARE WAVING THE FLAG FOR HELP!!!!**



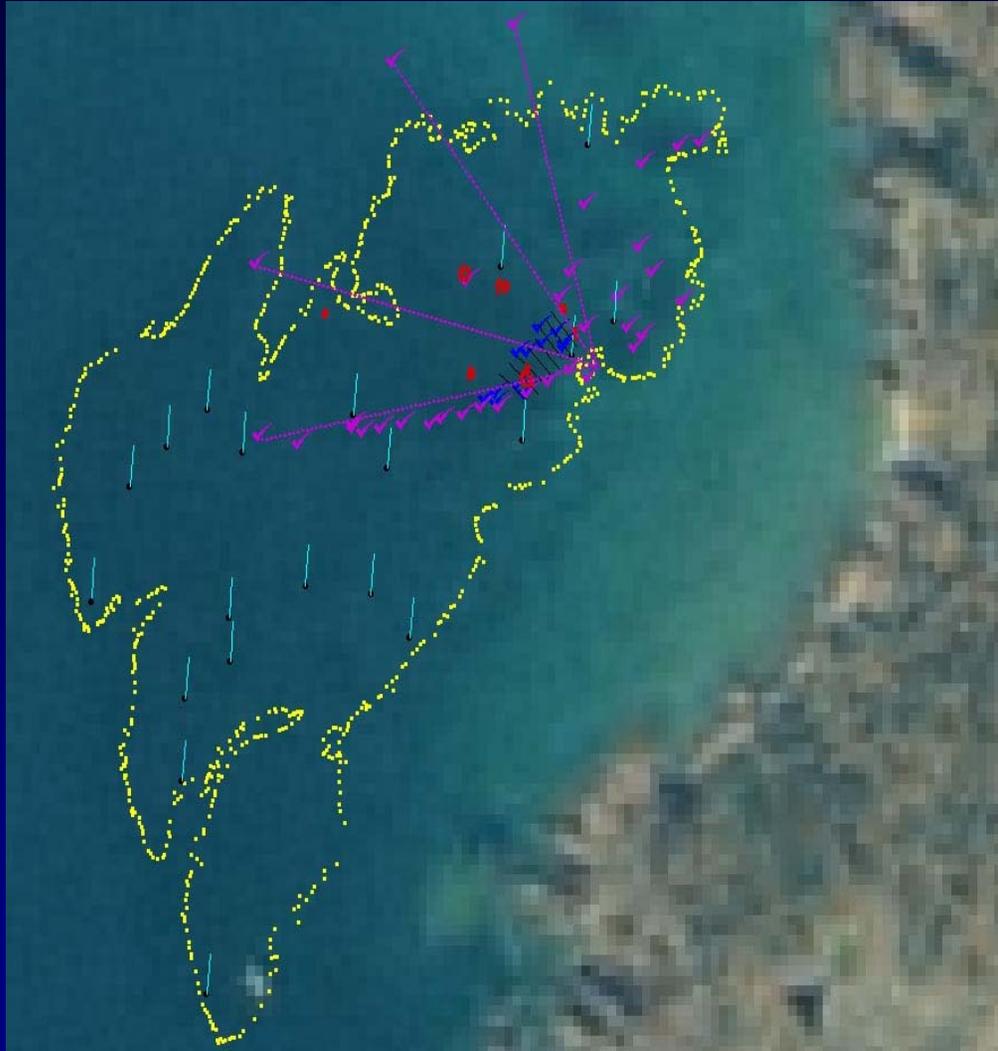
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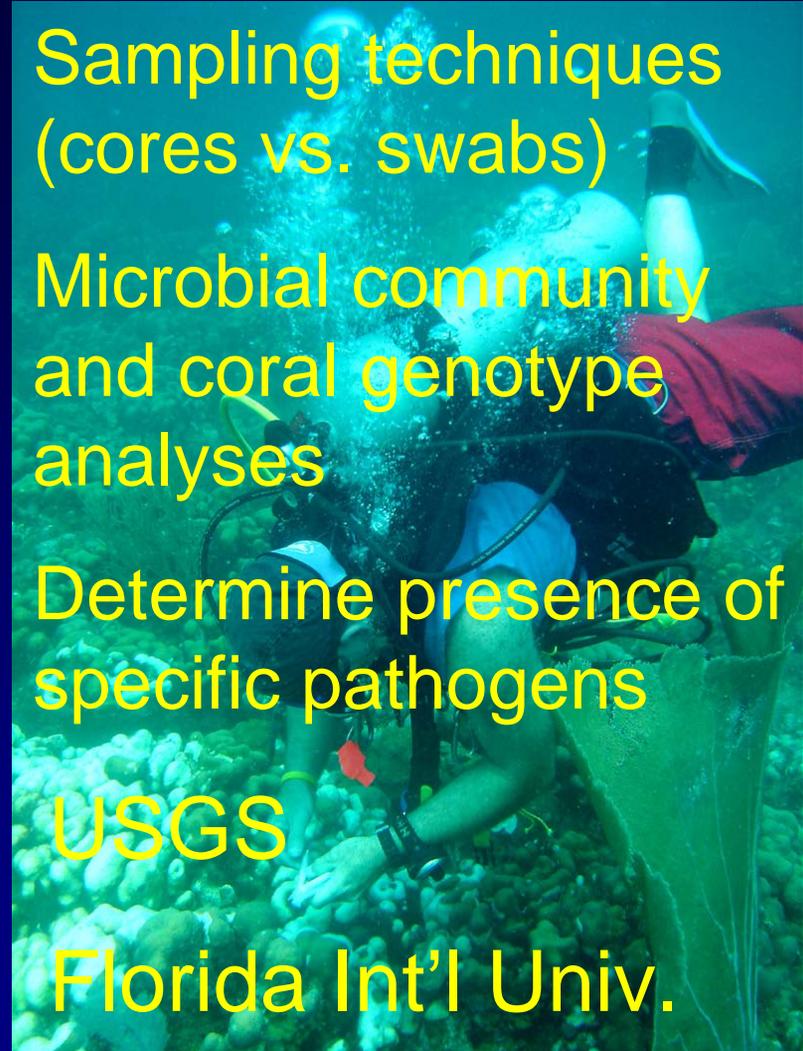
Sampling techniques  
(cores vs. swabs)

Microbial community  
and coral genotype  
analyses

Determine presence of  
specific pathogens

USGS

Florida Int'l Univ.



# We wish to thank:

Christy Loomis  
Erinn Muller  
Jim Murray

Elizabeth Remily

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Dr. Caroline Rogers  
Bane Schill



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