

Reef life within Virgin Islands National Park



Jeff Miller

Virgin Islands National Park



South Florida/Caribbean Network I&M Program



Virgin Islands National Park



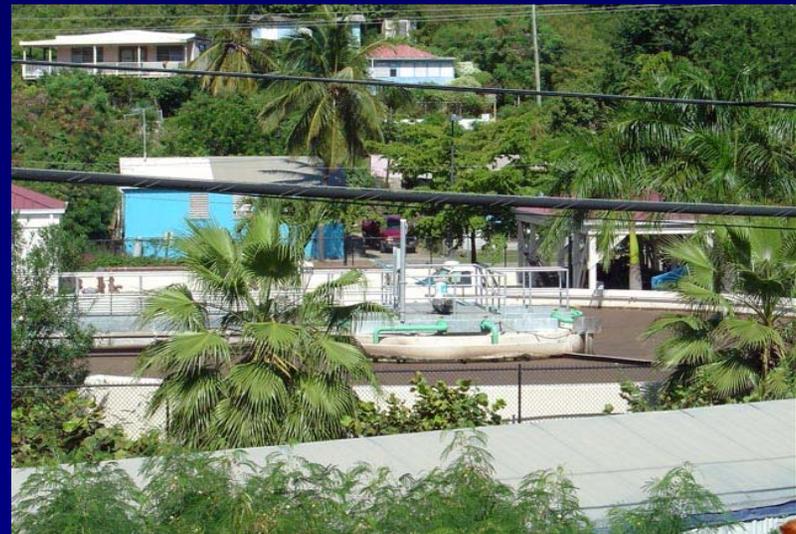
Virgin Islands National Park



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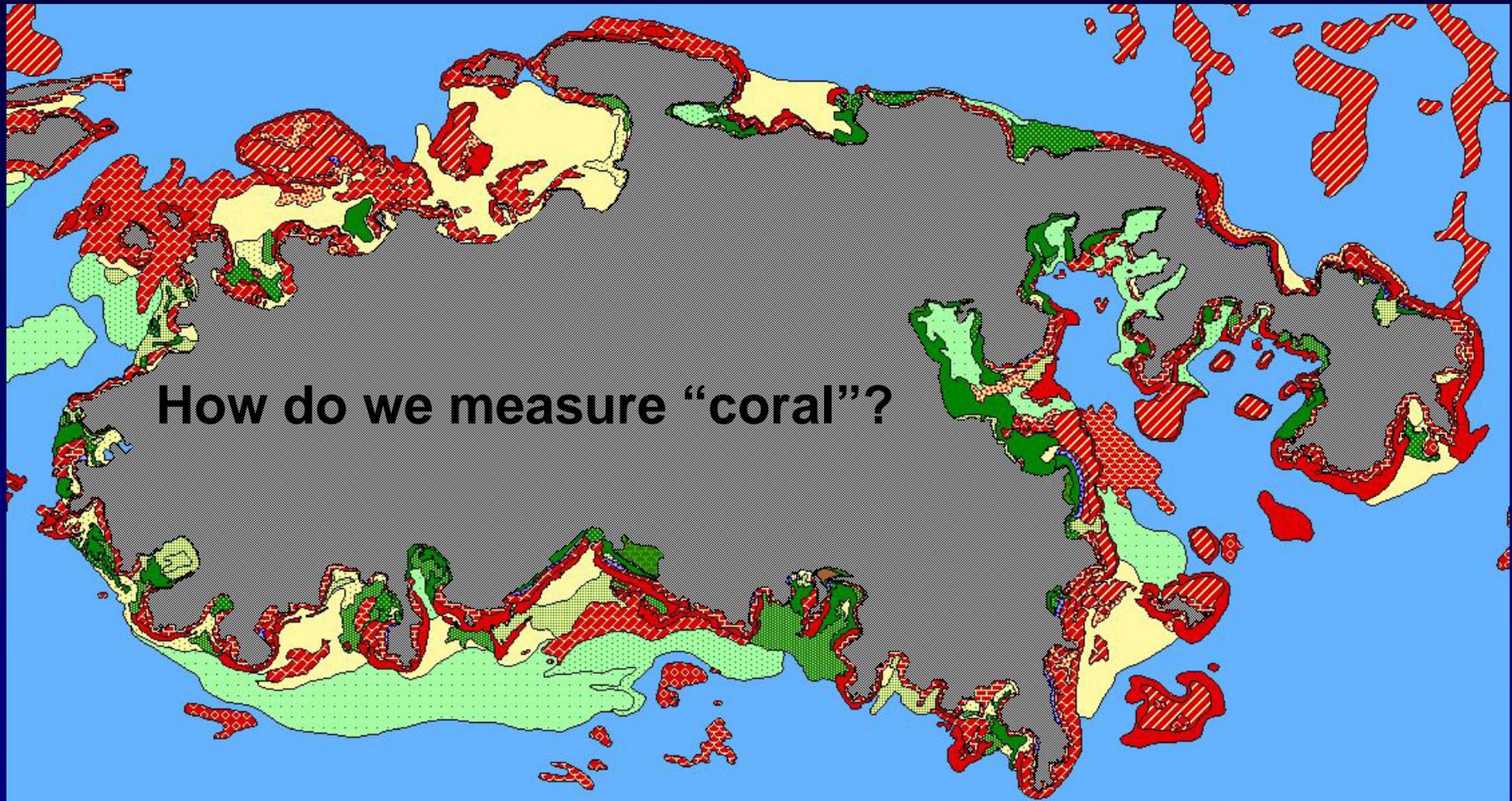
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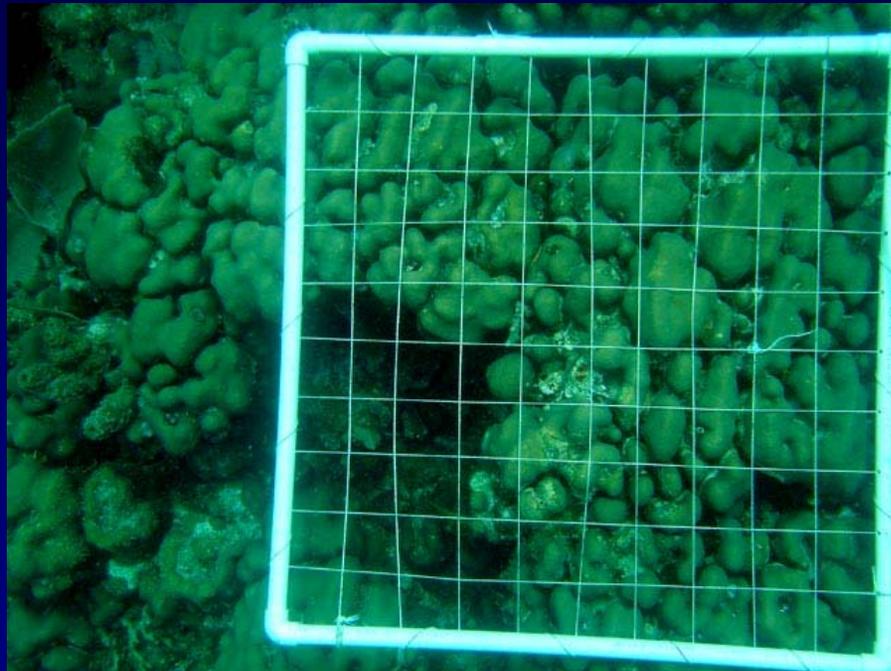
Virgin Islands National Park

Percent Cover



Virgin Islands National Park

Percent Cover by benthic organisms



Virgin Islands National Park



Buck Island Reef National Monument



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Effects of White Plague at Tektite Reef

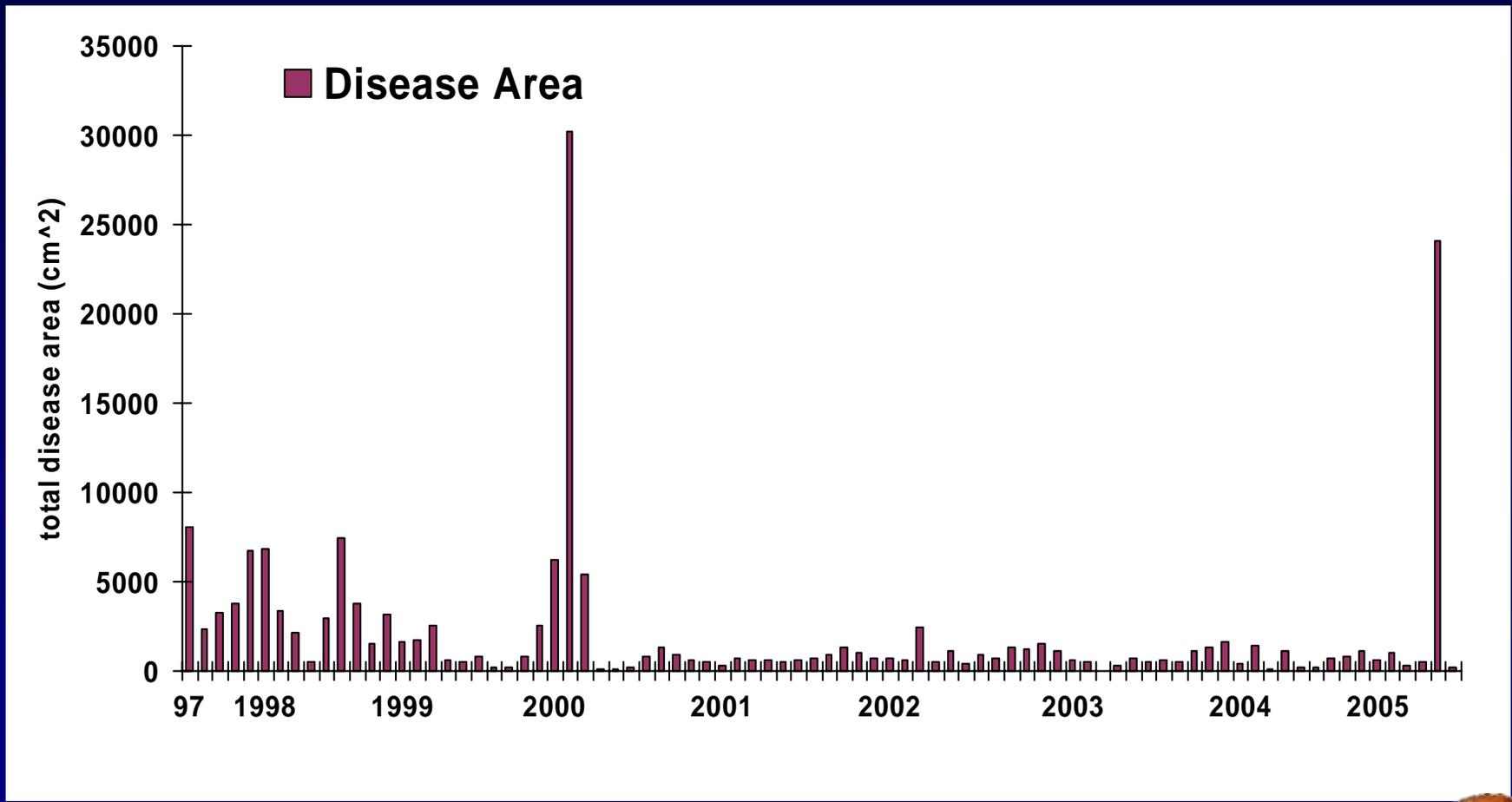
Document and evaluate prevalence and effect of White plague in selected area

- Eight 10-meter transects
- One m² quadrat on each side
- Record cover by Coral, Macroalgae and disease
- Measure disease size
- Photograph each quad



Effects of White Plague at Tektite Reef

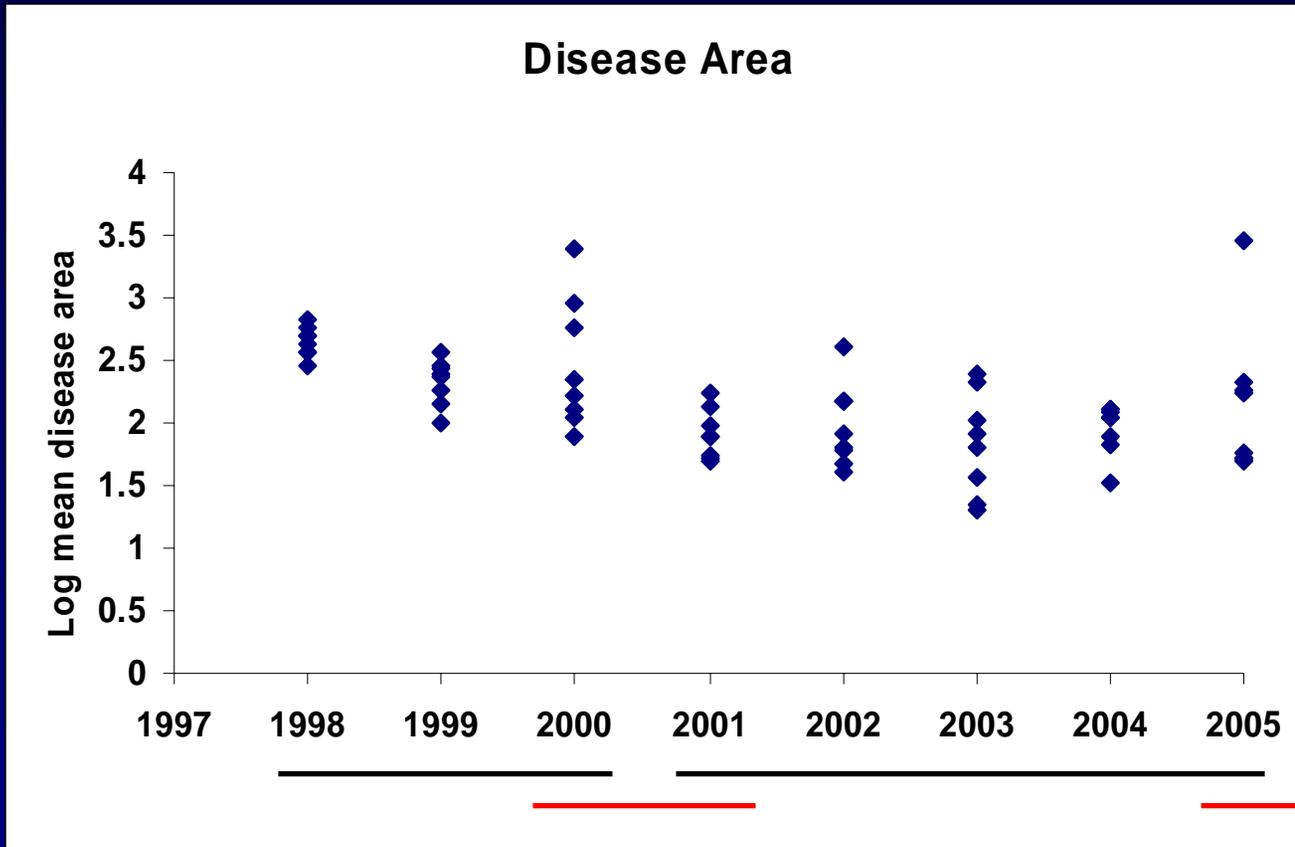
Result - disease present in every month sampled



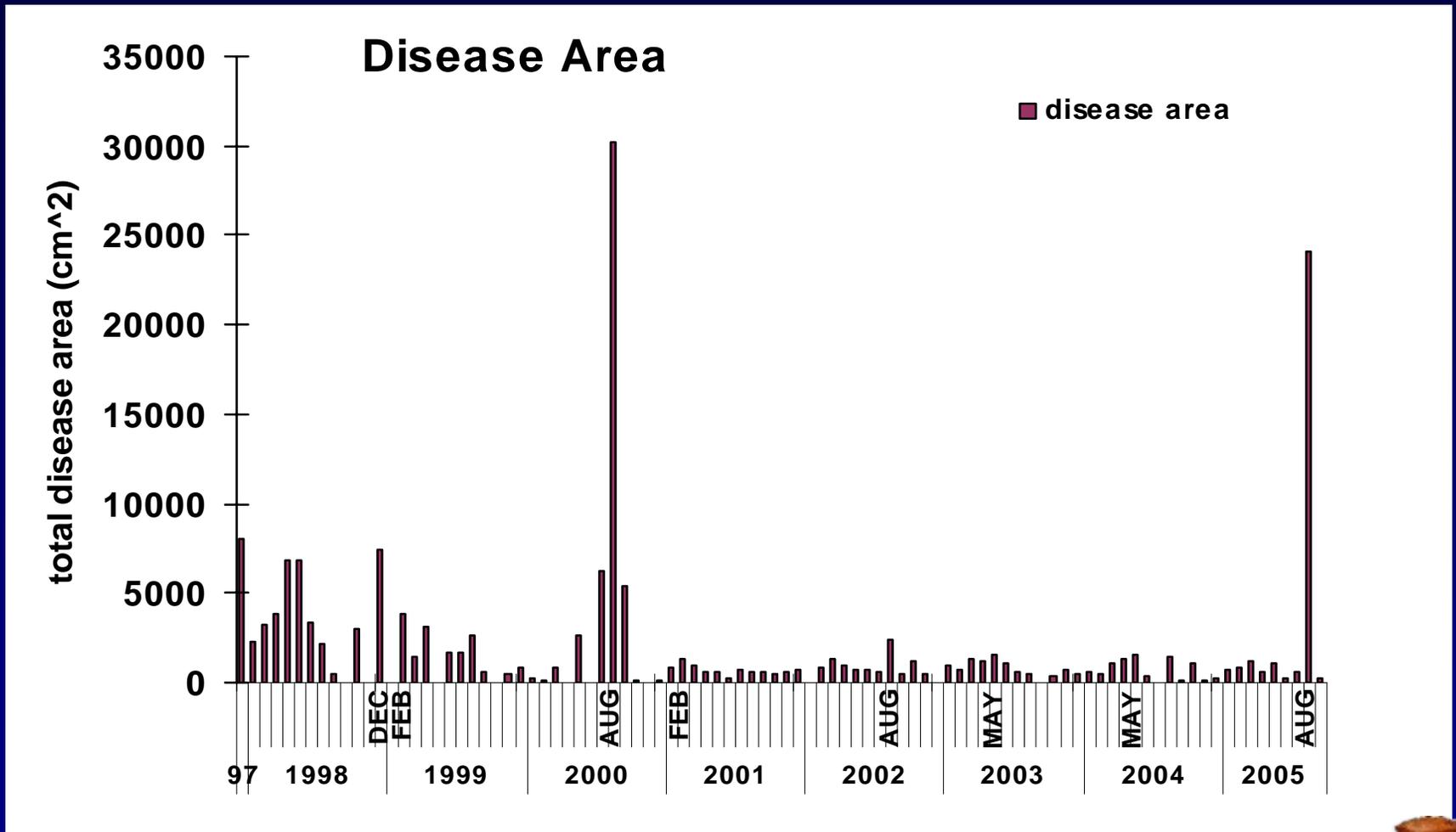
Effects of White Plague at Tektite Reef

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

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

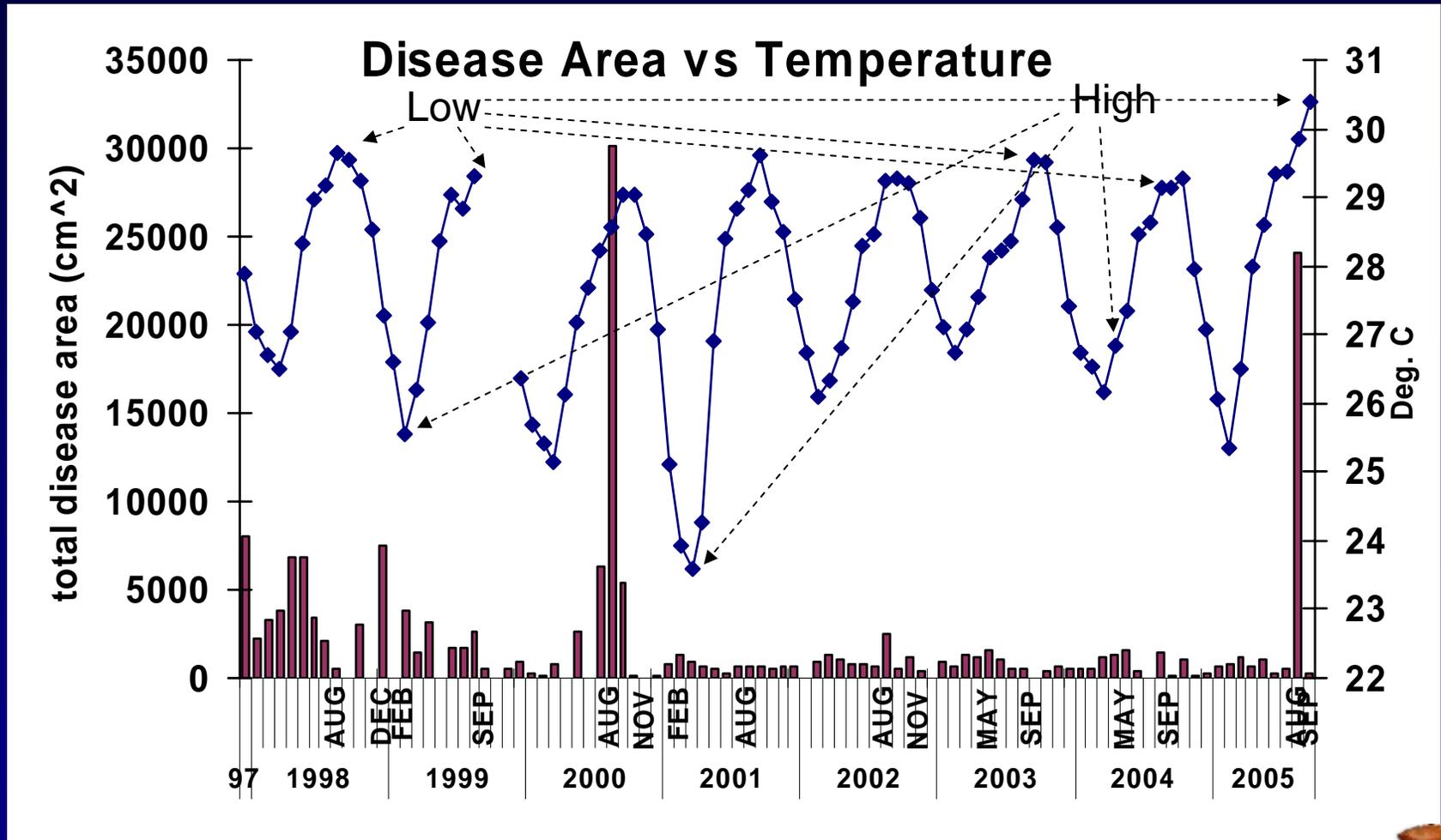


Effects of White Plague at Tektite Reef



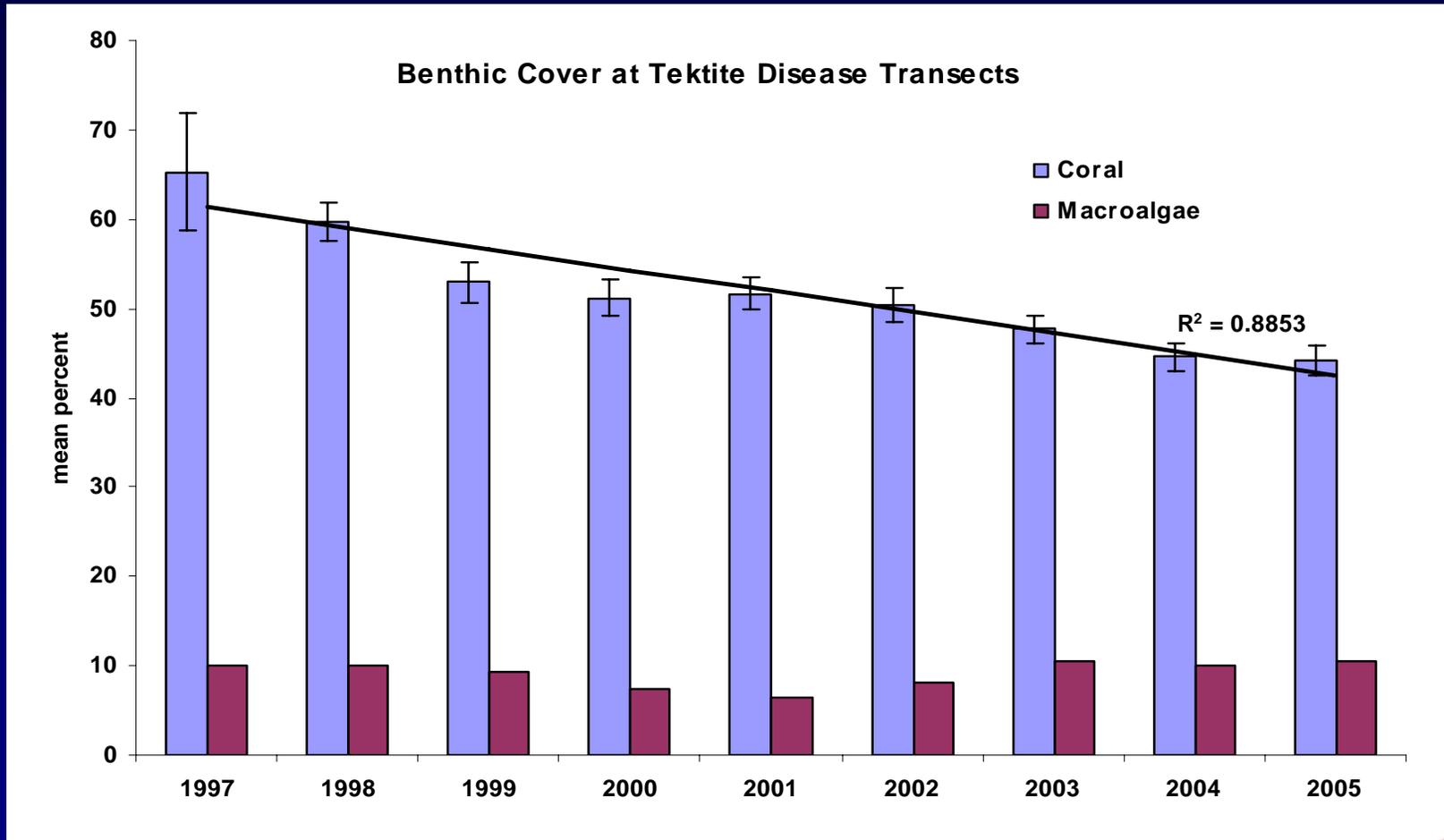
Effects of White Plague at Tektite Reef

Result – disease area not correlated to temperature



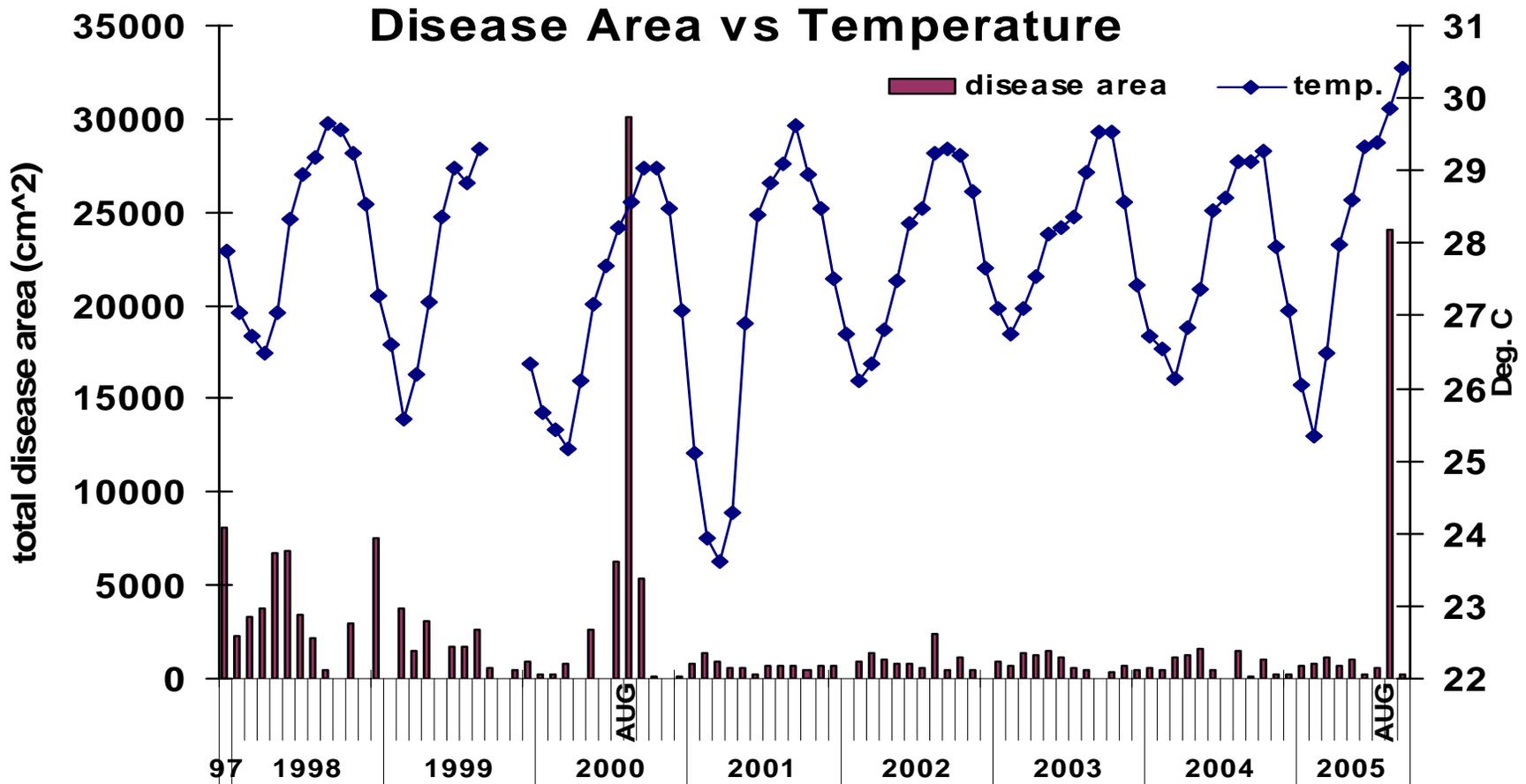
Effects of White Plague at Tektite Reef

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



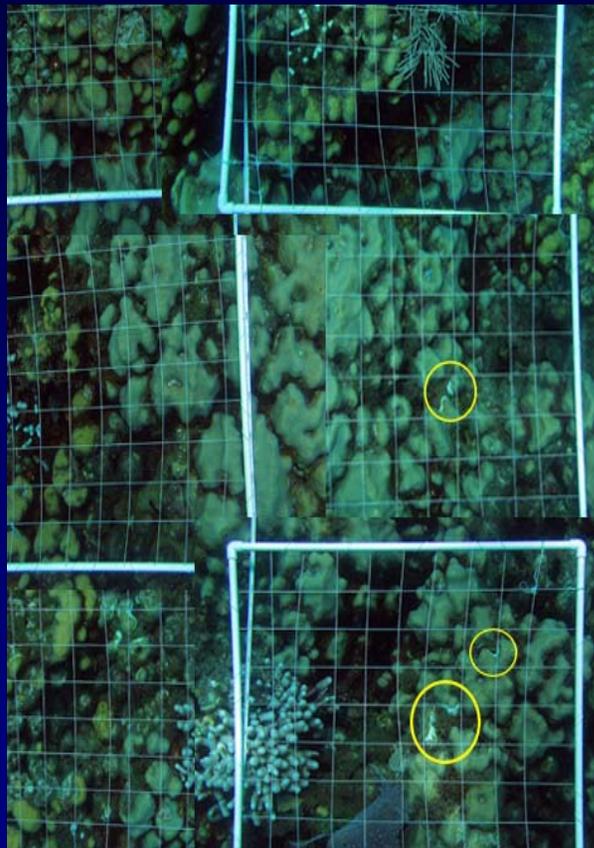
Effects of White Plague at Tektite Reef

Two "Outbreaks" on study site: Aug. 2000 & Aug. 2005



Effects of White Plague at Tektite Reef

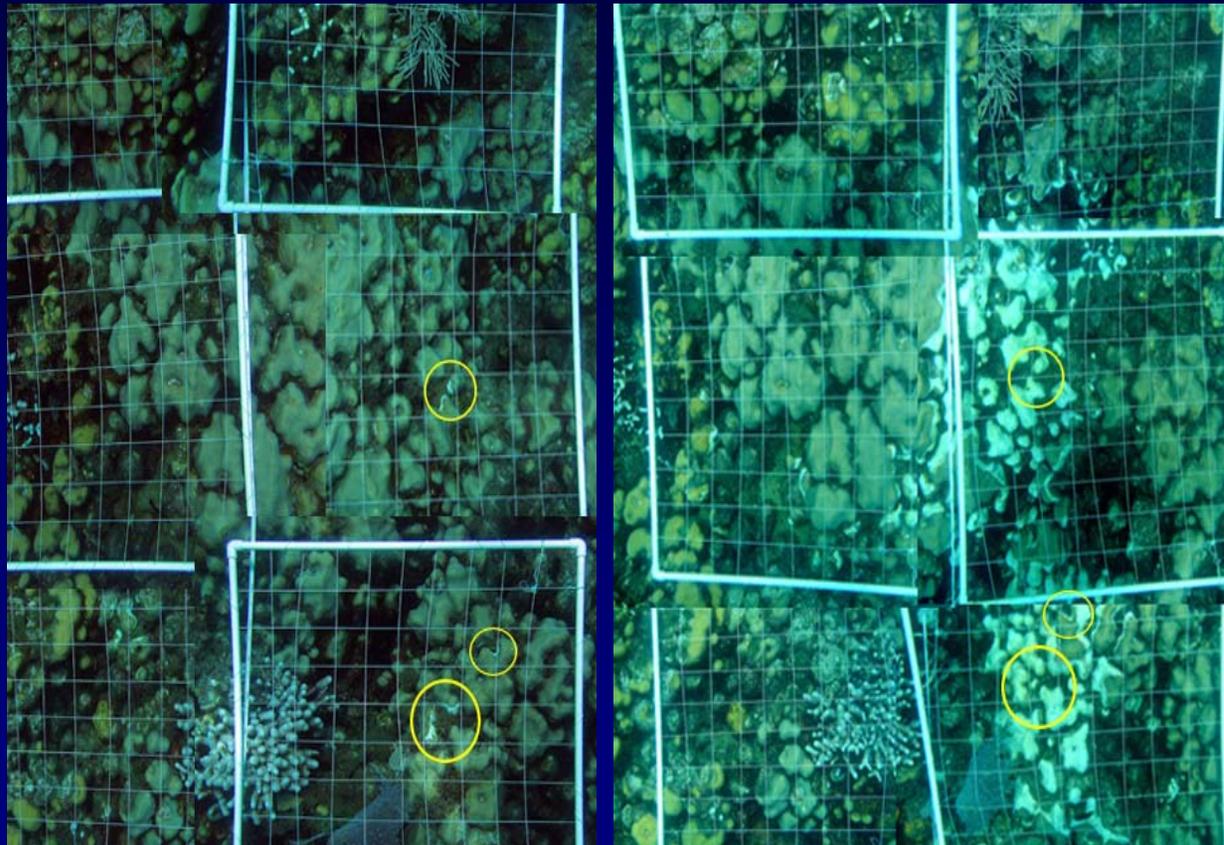
August 2005 Outbreak



August 1, 2005

Effects of White Plague at Tektite Reef

August 2005 Outbreak



August 1, 2005

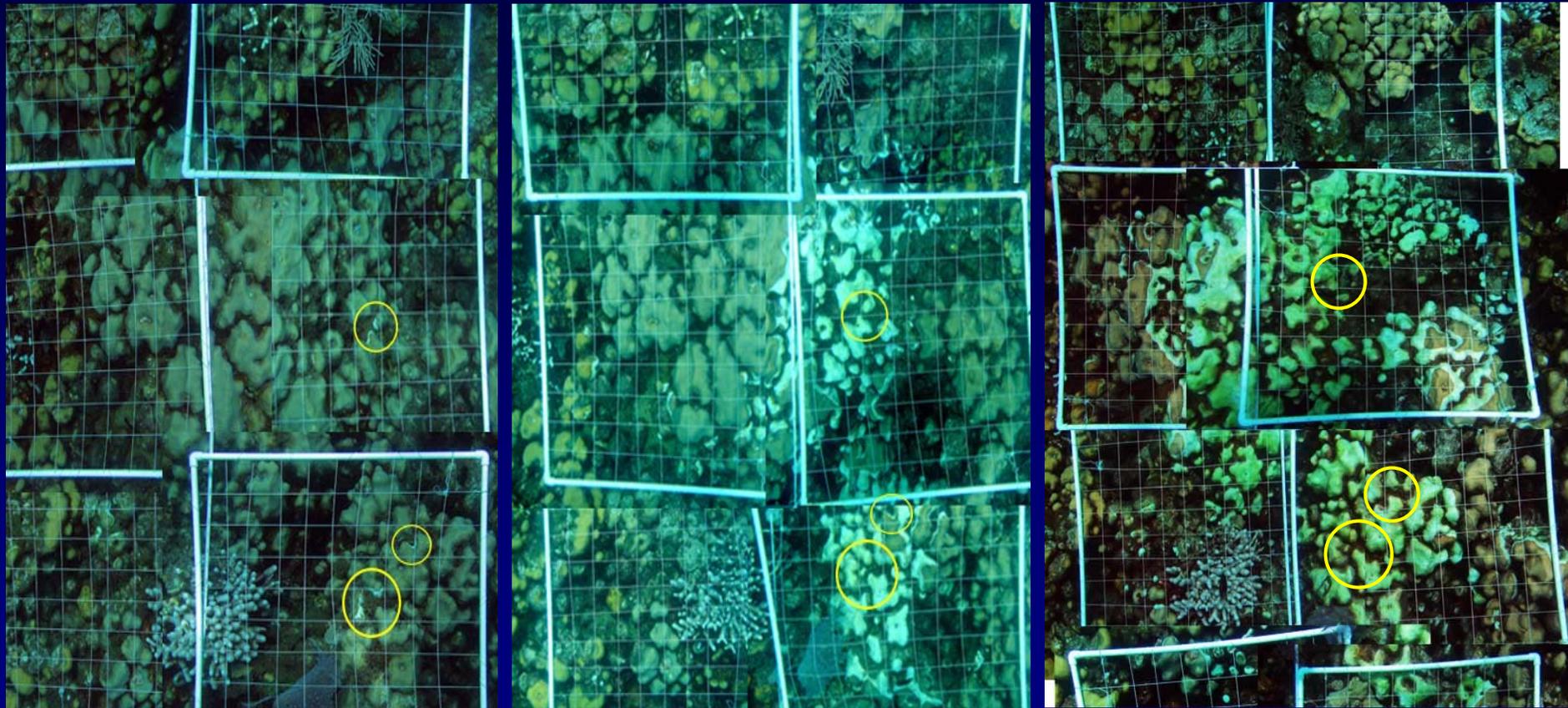
August 16, 2005

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Effects of White Plague at Tektite Reef

August 2005 Outbreak



August 1, 2005

August 16, 2005

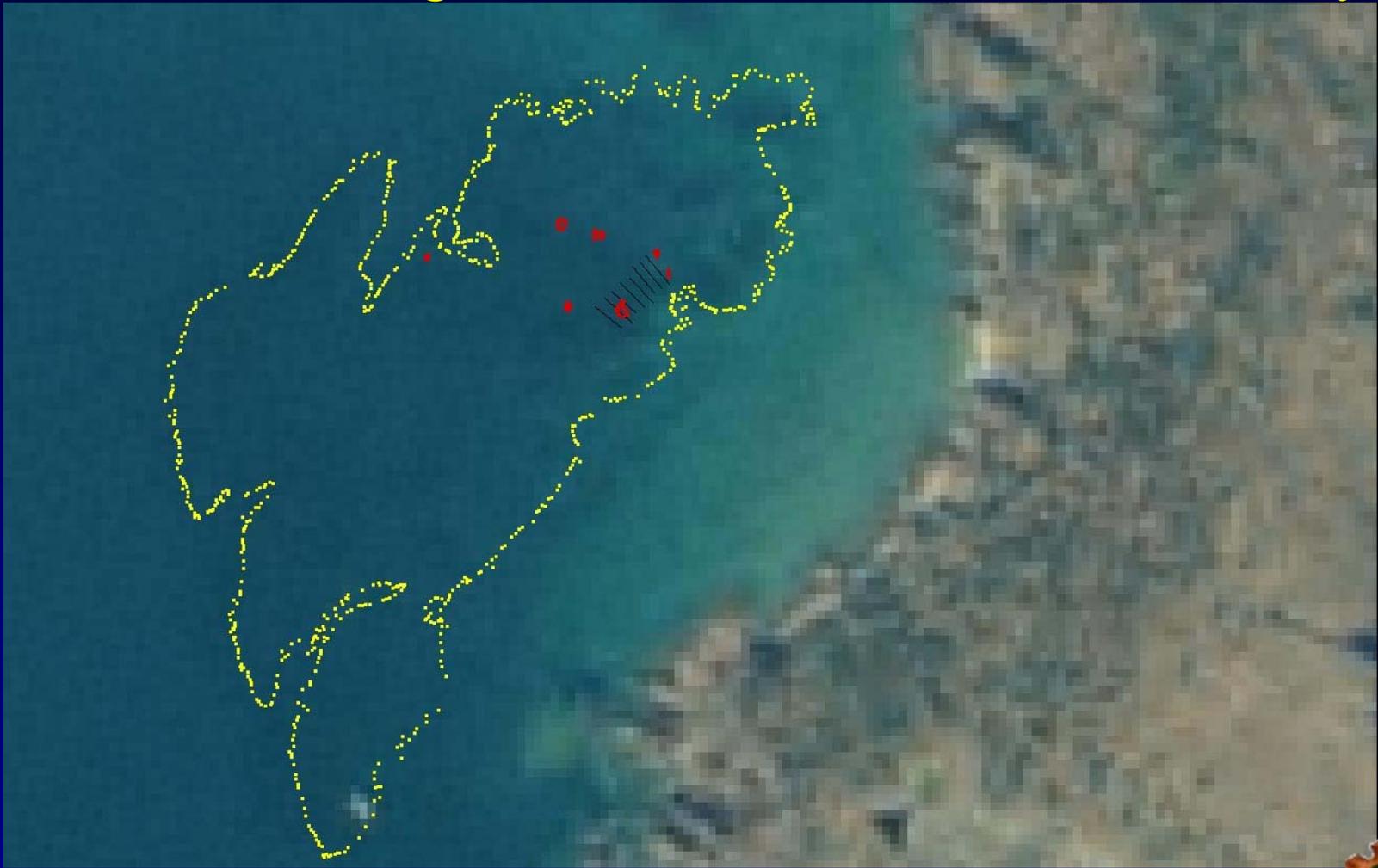
August 29, 2005

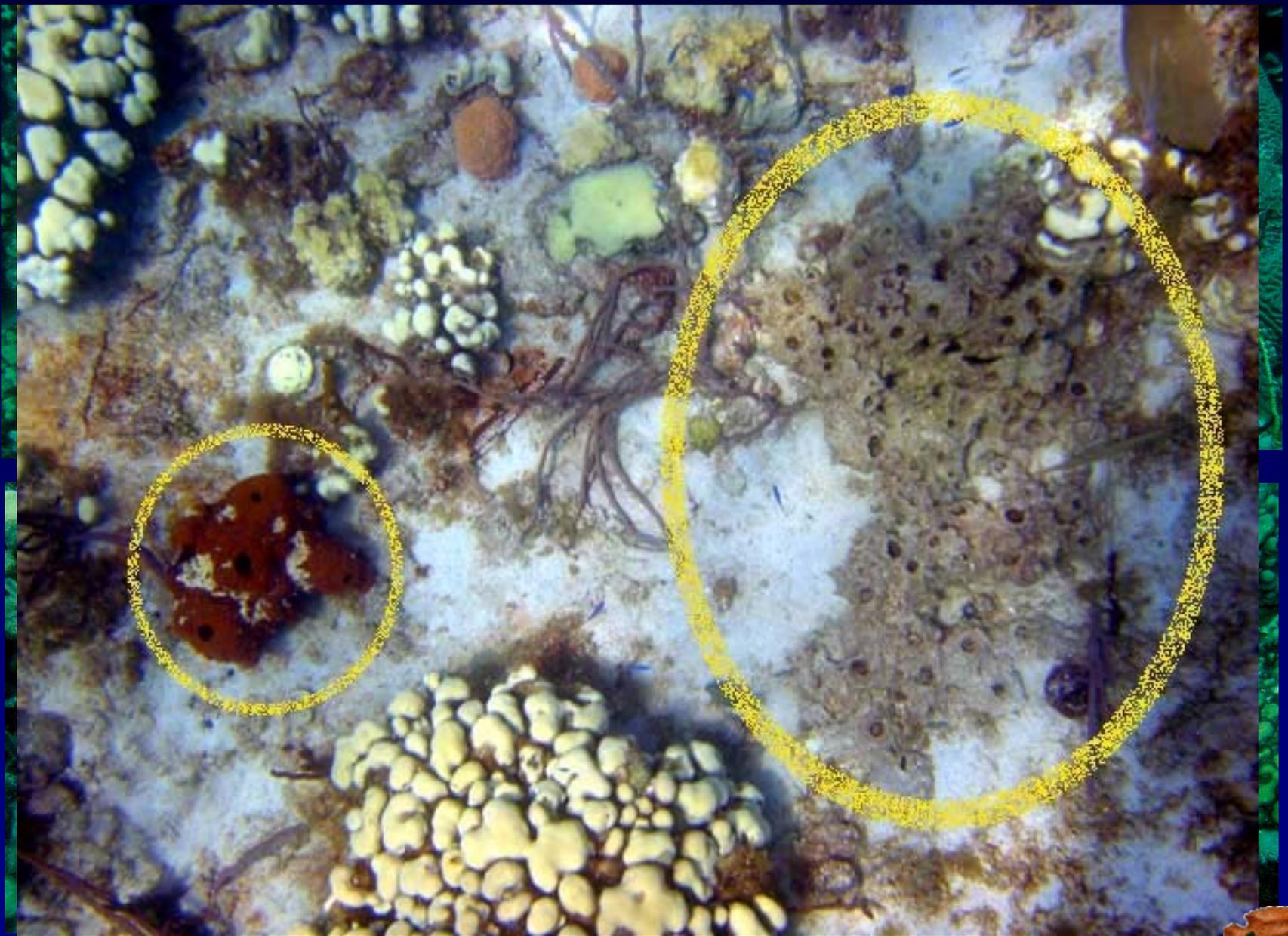
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Effects of White Plague at Tektite Reef

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



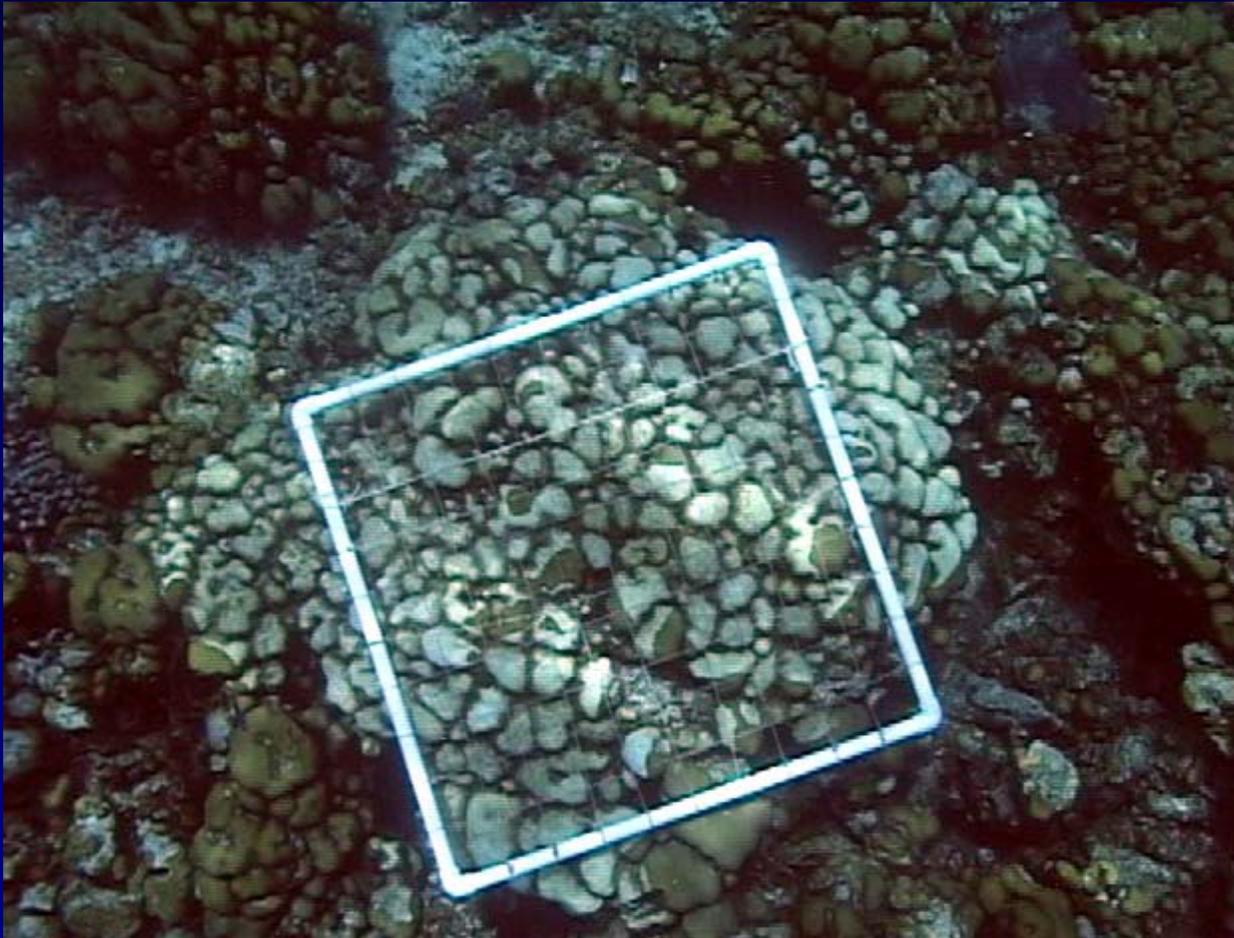


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Effects of White Plague at Tektite Reef

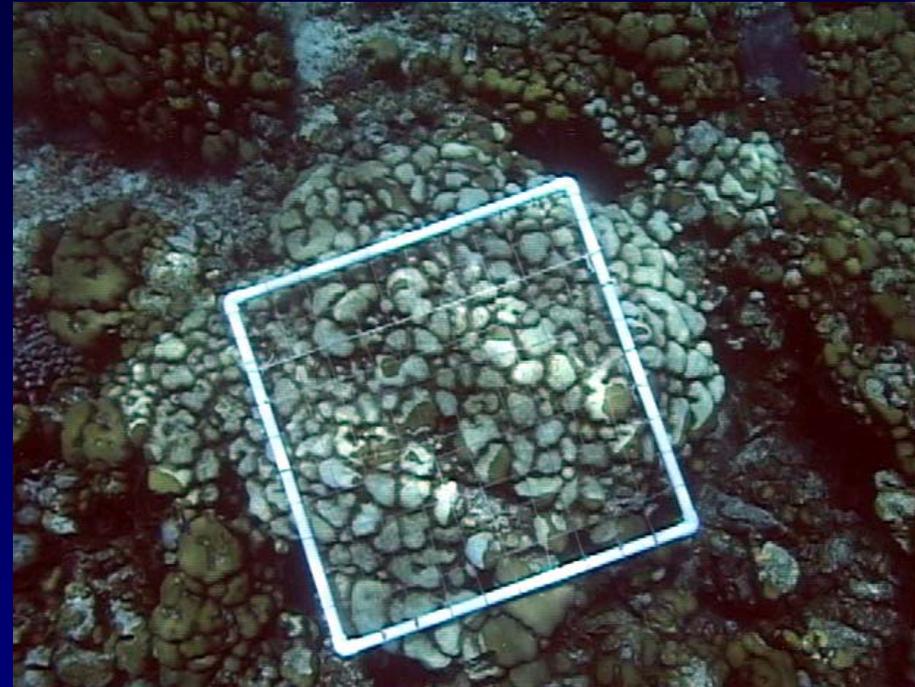
August 2000



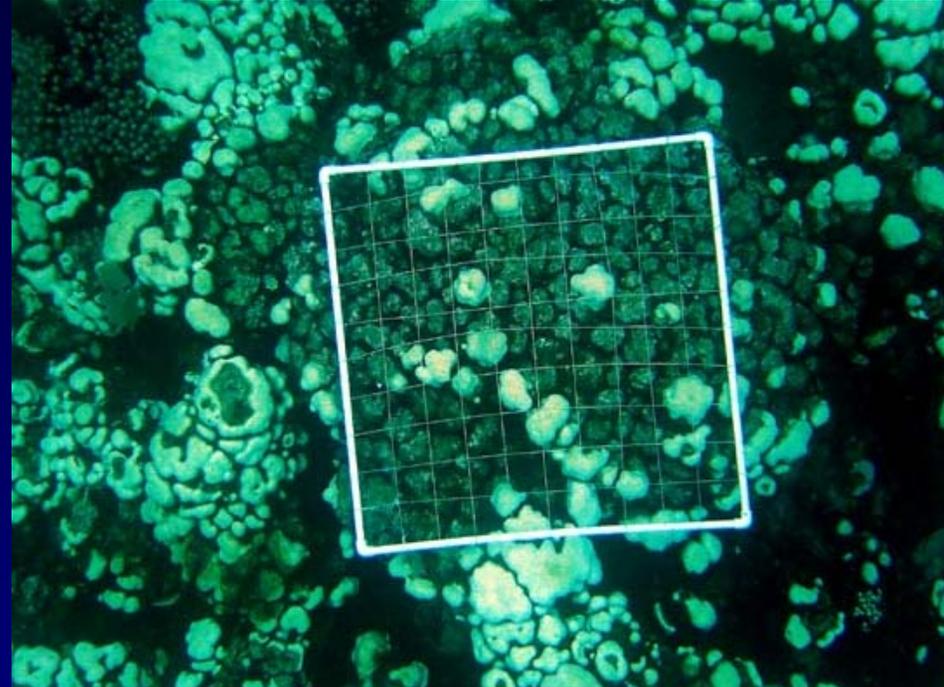
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Effects of White Plague at Tektite Reef



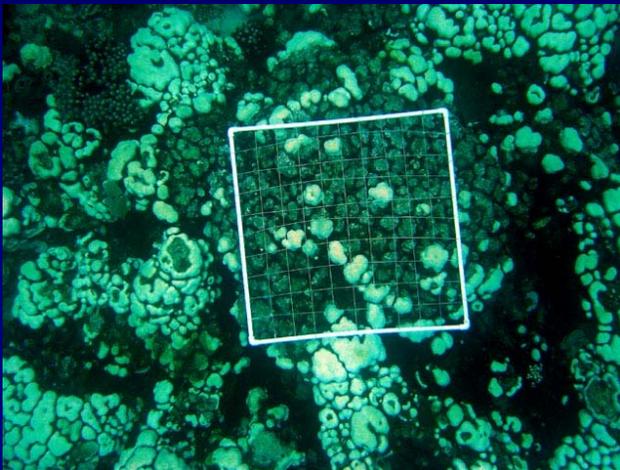
August 2000



September 2005
(during bleaching event)

Effects of White Plague at Tektite Reef

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

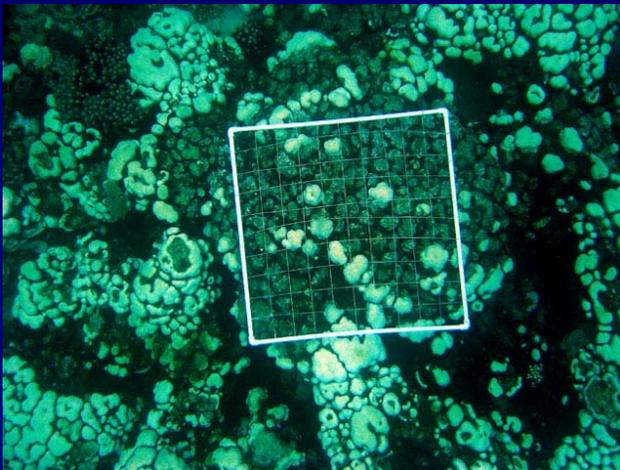


Effects of White Plague at Tektite Reef

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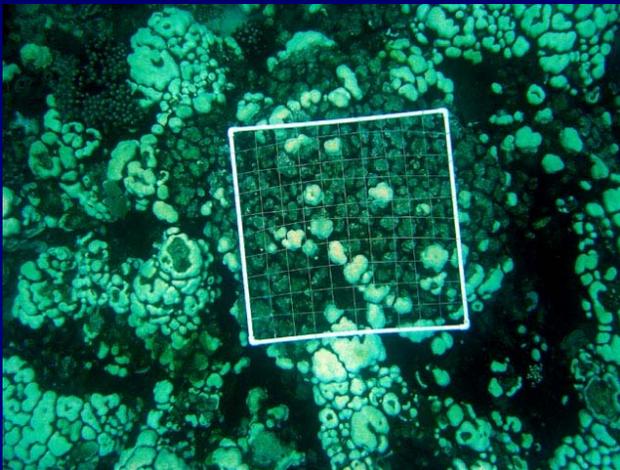


* Colonized by turf and macroalgae



Effects of White Plague at Tektite Reef

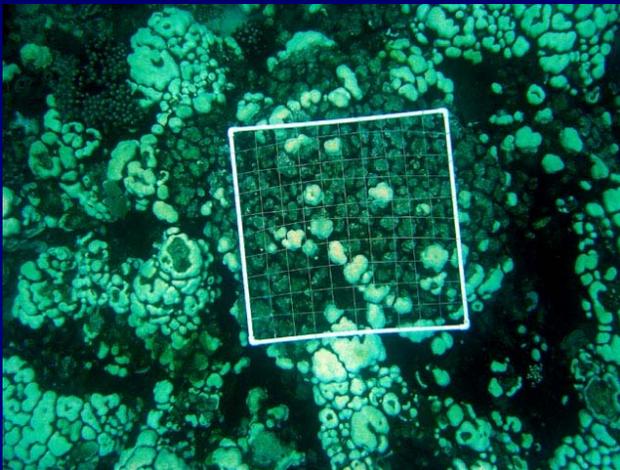
What is the “long-term” effect of disease mortality?



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

Effects of White Plague at Tektite Reef

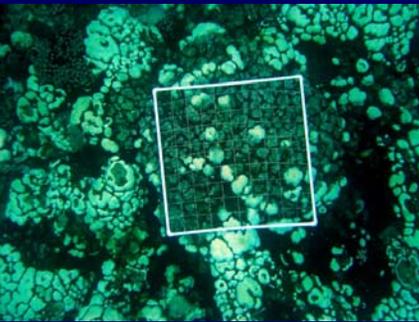
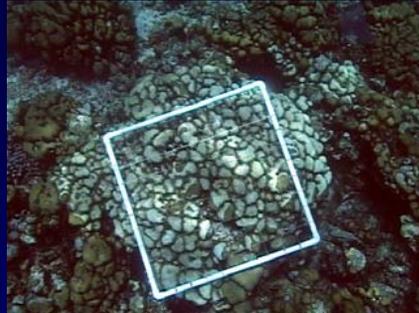
What is the “long-term” effect of disease mortality?



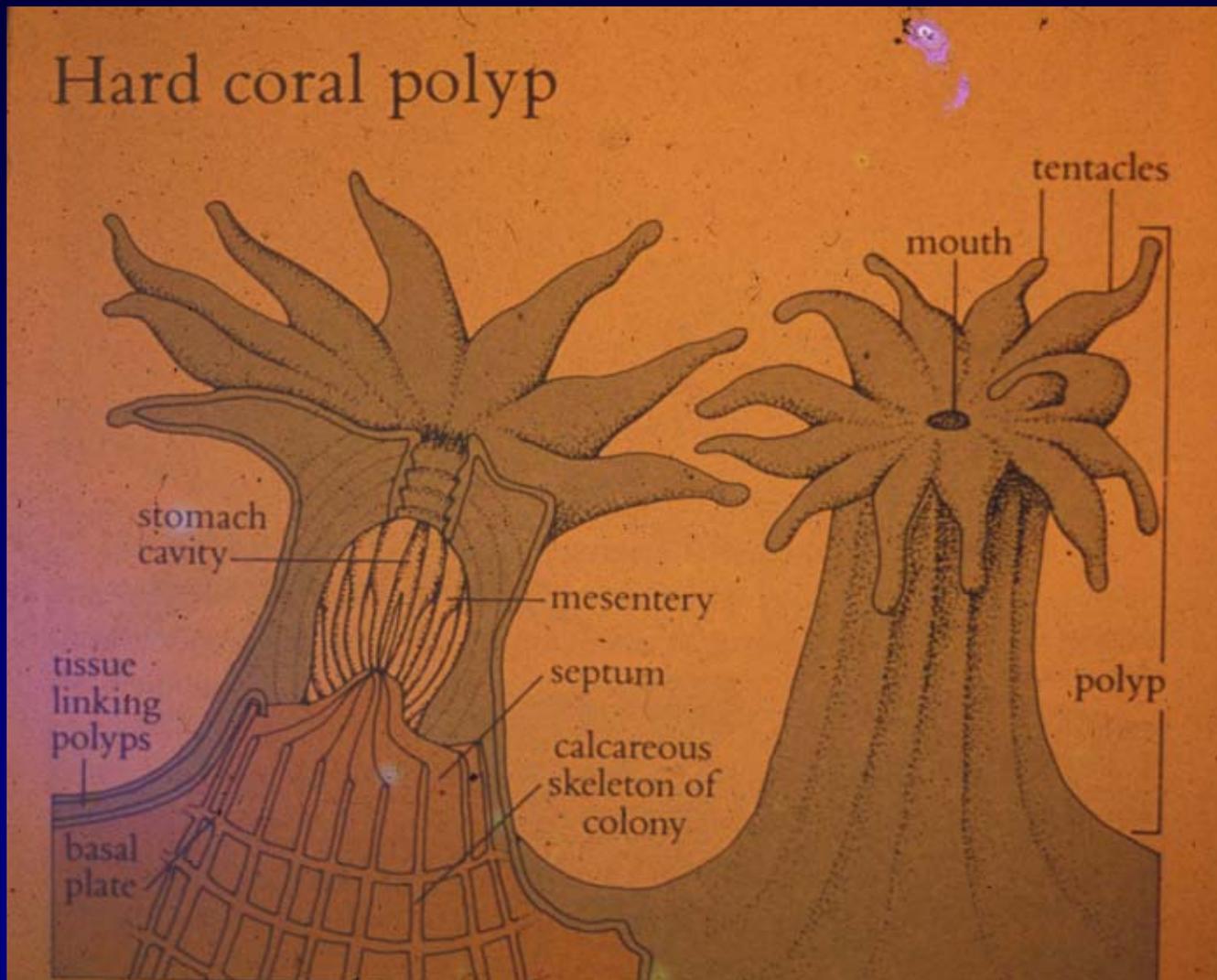
- Colonized by turf and macroalgae
- Some corals (*Agaricia*, *Porites*) and sponges
- Coral growth - Skeleton erosion

Effects of White Plague at Tektite Reef

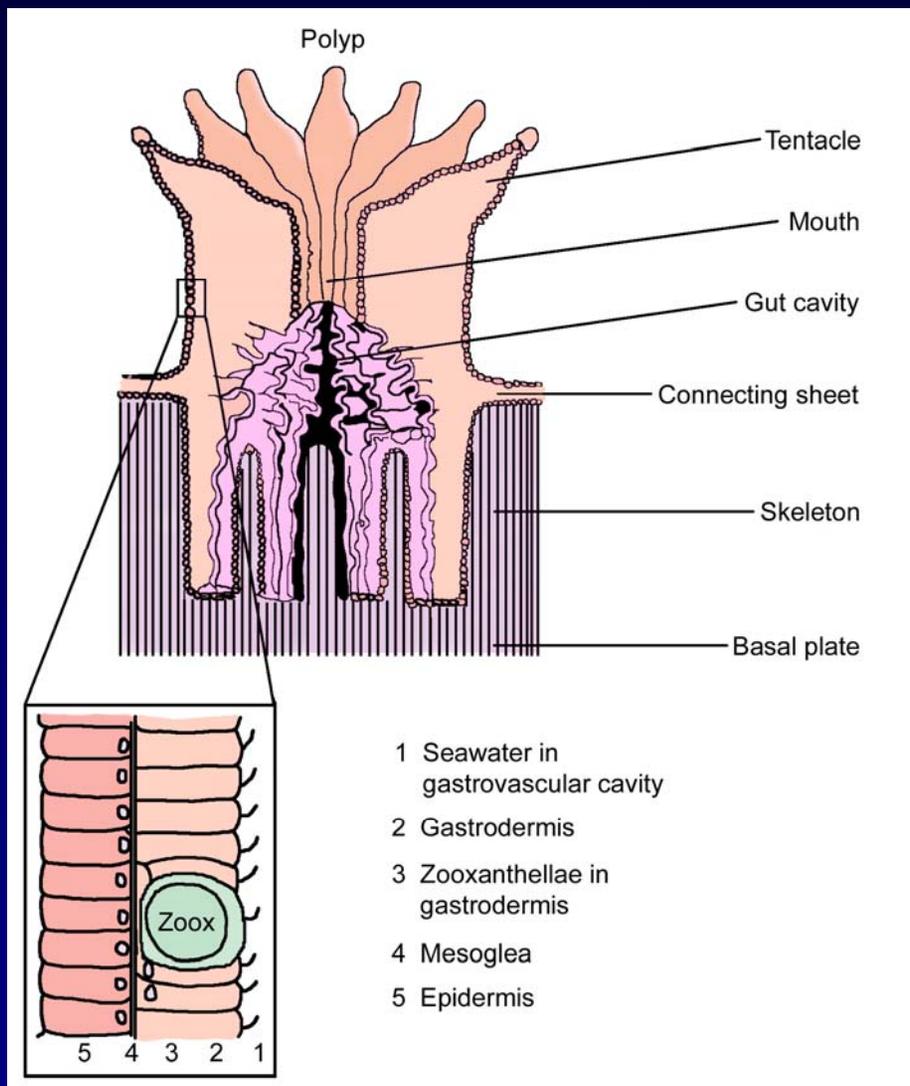
What is the “long-term” effect of disease mortality?



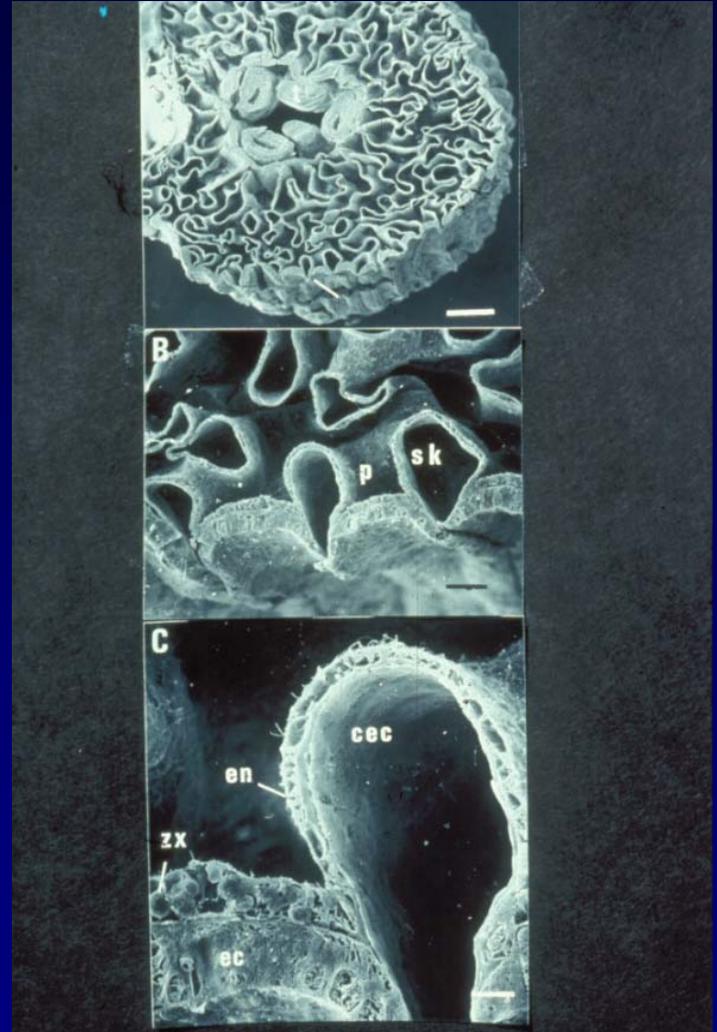
Coral Anatomy 101



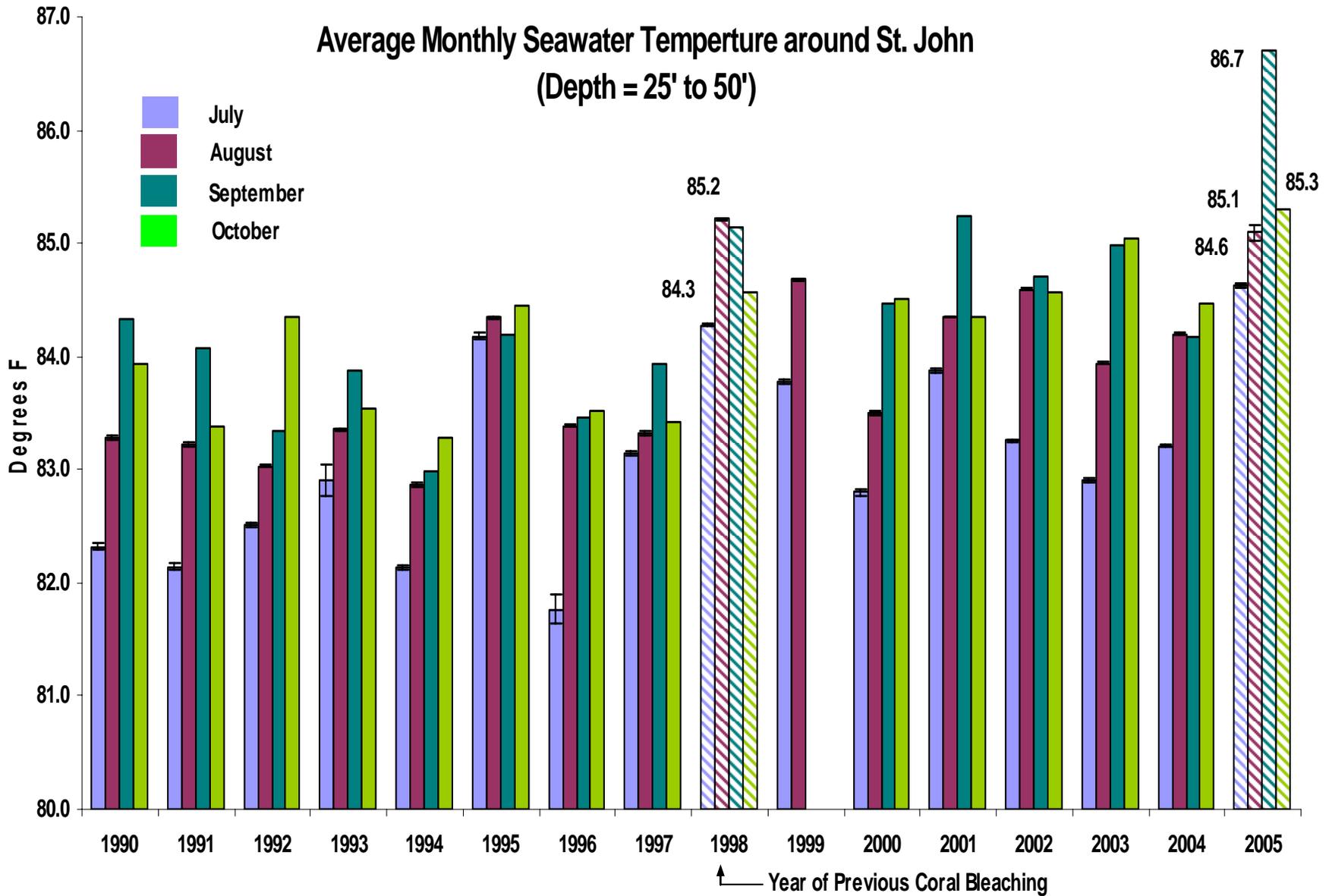
Coral Anatomy 201



Coral Anatomy 401



Average Monthly Seawater Temperature around St. John (Depth = 25' to 50')





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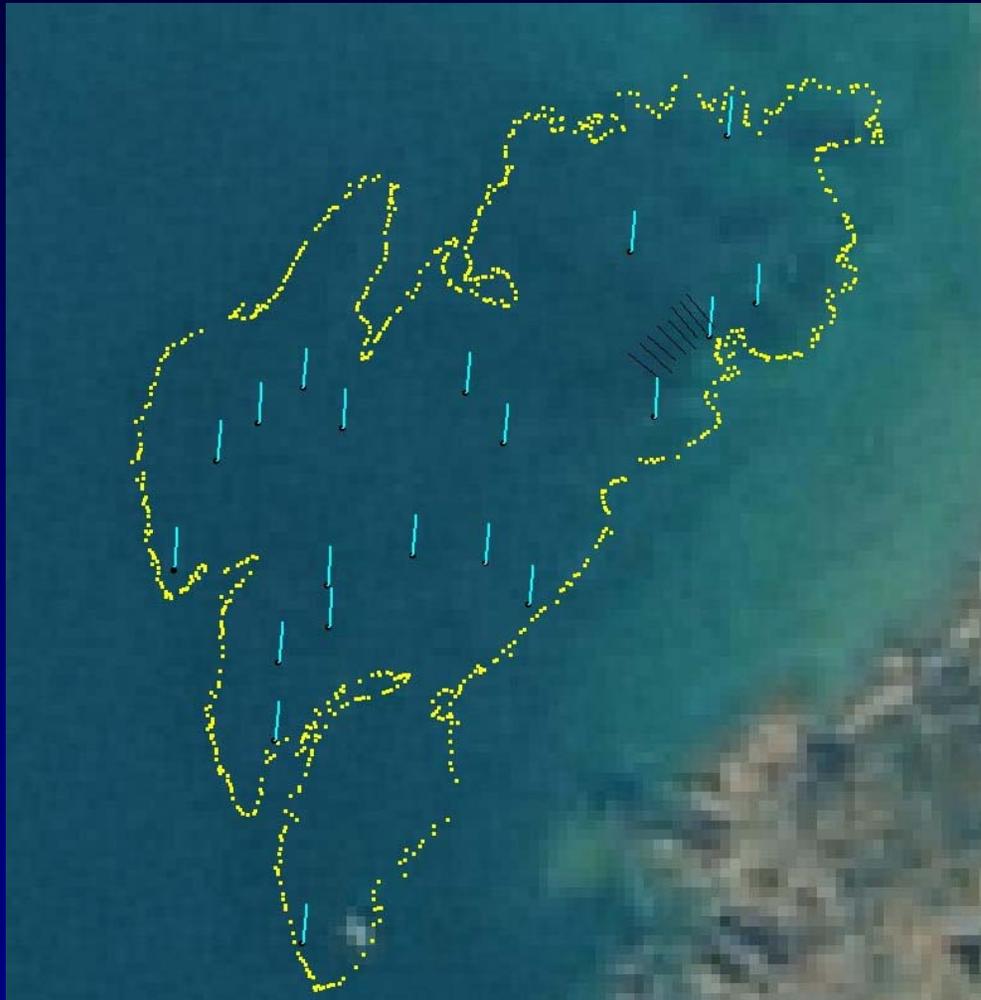




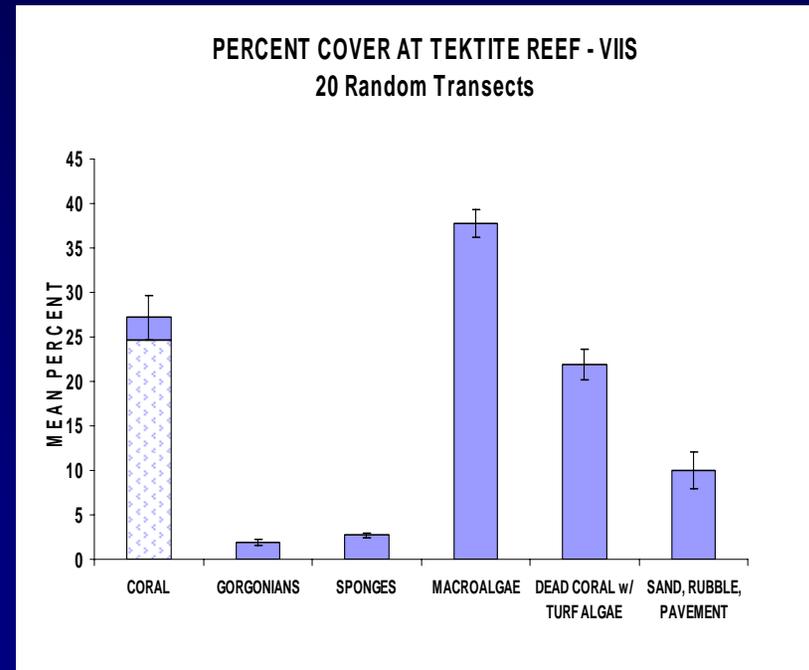
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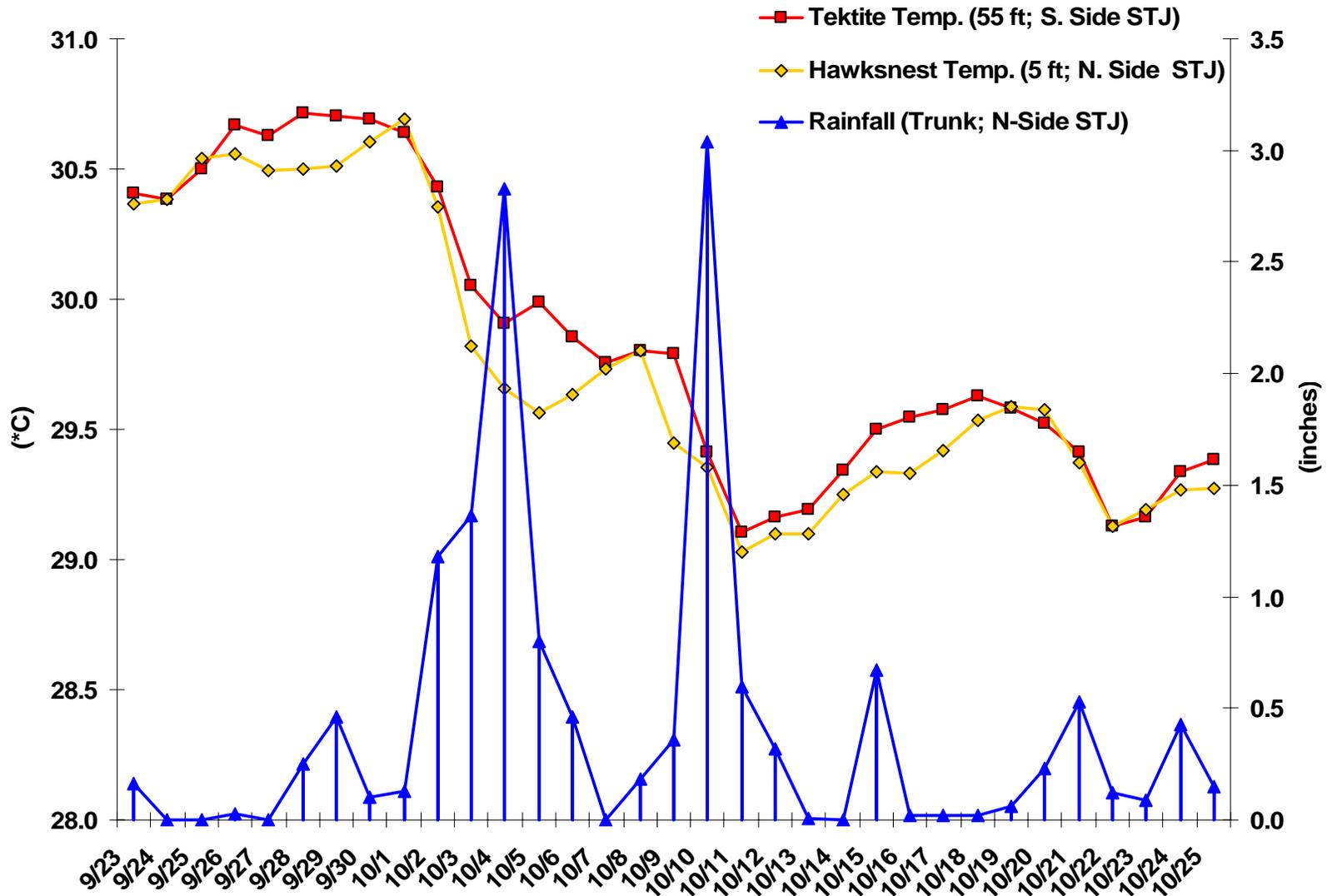
Coral Bleaching at Tektite Reef



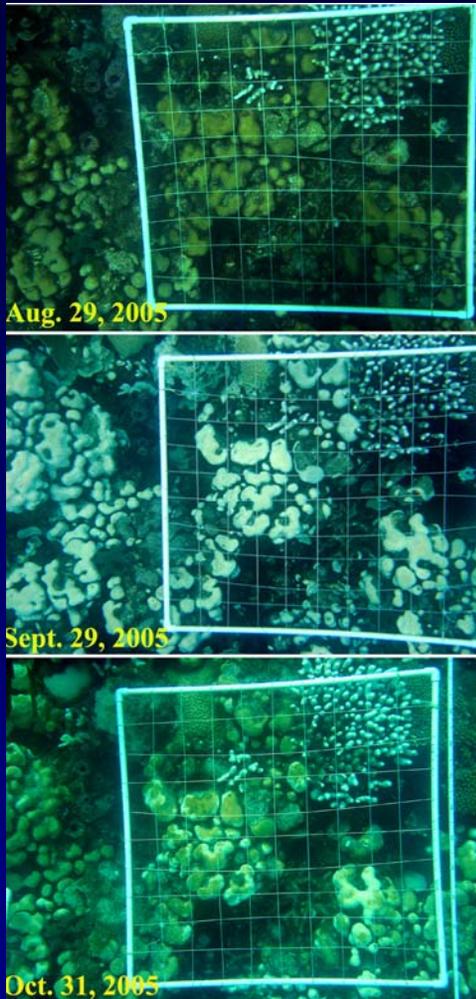
- 20 random transects
- 24.7 % live coral cover
- 90.2 % coral bleached



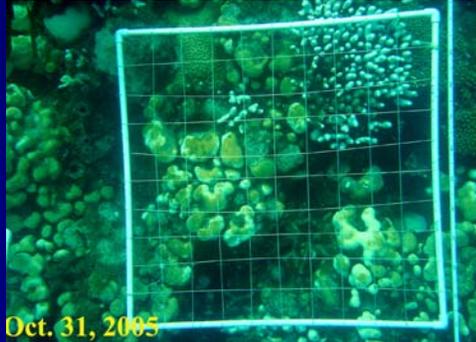
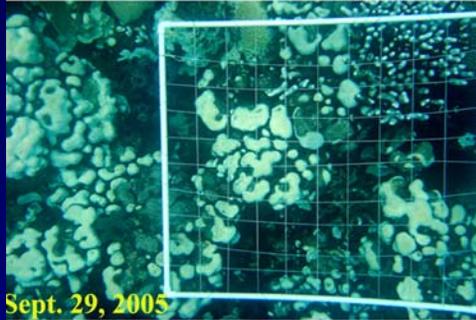
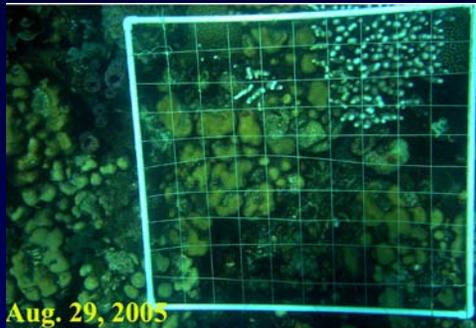
Temperature(s) vs. Rainfall



Coral Bleaching Recovery



Coral Bleaching Recovery or Not



Coral Recovery or Not



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Coral Recovery or Not



Coral Recovery or Not



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Is it hopeless?

The big finish.....

