

# Belize Reef Assessments

a joint effort of  
ReefKeeper International and Green Reef  
to protect Belize's coral reefs

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## Coral Healthy at Cypress Canyon and Tres Cocos

AMBERGRIS CAYE

October 1997

In October of 1997, ReefKeeper International, in conjunction with its ReefMonitor Affiliate group Green Reef, gathered bottom survey data from Cypress Canyon Reef (35-45 feet deep) and Tres Cocos Reef (40-50 feet deep), off Ambergris Caye, off northeast Belize.

These exploratory surveys were conducted as a preliminary step to establishing a quarterly reef monitoring program at Ambergris Caye. Planning for establishment of the monitoring continues as of the writing of this report (October 1998).

Data was gathered to determine percent bottom cover occupied by corals off Ambergris Caye as well as coral health, distribution, and species abundance.

Both reefs displayed high hard coral bottom cover, a substantial number of hard coral species, and excellent hard coral health. Horizontal visibility averaged a not-so-high 20 meters, possibly indicating that turbidity from coastal development on Ambergris Caye may be starting to have an impact on these reefs.

### Bottom Cover

The predominant bottom cover at both reefs was hard coral (50% at Cypress Canyon and 43% at Tres Cocos). However, algal bottom cover was moderate to high (38% at Cypress Canyon and 33% at Tres Cocos). Soft coral bottom cover was low at both sites, but Tres Cocos (17%) showed double the soft coral bottom cover of Cypress Canyon (9%).

Other types of bottom cover were all relatively insignificant. Those included abiotic bottom (4% at Cypress Canyon and 6% at Tres Cocos), and other biotics (0% at Cypress Canyon and 1% at Tres Cocos).

False coral *Palithoa* sp., which sometimes is an indicator of stressed reef conditions, was totally absent at Cypress Canyon and covered only 1% of the bottom at Tres Cocos.

### Hard Coral Health

All the hard coral colonies included in the point-line intercept survey transects were healthy. No sick or bleached corals were observed.

### Coral Species Richness

Cypress Canyon had 13 different hard coral species identified, while there were 24 species identified at Tres Cocos. Species ranged from the common *Montastrea* species like *M. cavernosa* (Great Mound Coral) and *M. annularis* (Boulder Mound Coral), to the not-so-common *Isophyllia sinuosa* (Sinuous Cactus Coral), and *Mycetophyllia danaana* (Lowridge Cactus Coral).

The 3 most dominant hard coral species found at the somewhat shallower Cypress Canyon were *Acropora Cervicornis* (Staghorn Coral), *Agaricia Agaricites* (Lettuce Coral) and *Porites porites* (Club Finger Coral), which together accounted for 64% of the hard coral observed at Cypress Canyon.

On the other hand, at the somewhat deeper Tres Cocos, 51.7% of the hard coral observed was accounted for by the 4 sequentially dominant species *Agaricia agaricites* (Lettuce Coral), *Montastrea annularis* (Boulder Mound Coral), *Montastrea cavernosa* (Great Mound Coral), and *Siderastrea siderea* (Massive Starlet Coral).

This strong variance in coral species distribution between the two sites may be explained by the difference in depth range between the two reef sites. That difference is a relatively minor 15 feet between the shallowest part of Cypress Canyon and the deepest part of Tres Cocos. However, that is apparently enough to mark the same dividing line between the branching coral zone and fore reef buttress zone that other ReefKeeper survey volunteers have noted at comparable depths off Curacao and Bonaire.

### Conclusions

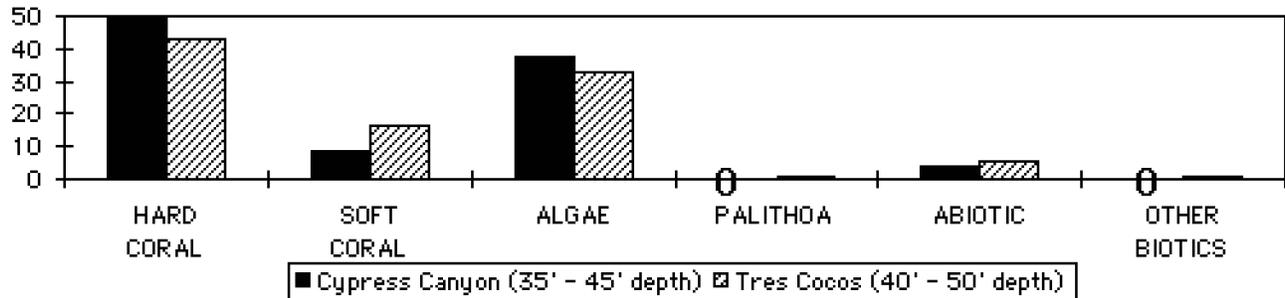
The hard coral to algae ratios on both reefs indicate still healthy reef conditions. However, any further rise in algal bottom cover should be viewed with concern. It would therefore be a wise decision to implement quarterly monitoring of these and other reefs off Ambergris Caye in anticipation of expected increased pressures to develop the island.

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Thank You, Volunteers!  
Denise Bristol  
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Boat Use  
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**Ambergris Cay-Belize  
Percent Bottom Cover  
October 1997**



**BELIZE HARD CORAL SPECIES PERCENT DISTRIBUTION  
OCTOBER 1997**

SPECIES	CYPRESS CANYON	TRES COCOS	SPECIES	CYPRESS CANYON	TRES COCOS
	(35-45') PERCENT	(40-50') PERCENT		(35-45') PERCENT	(40-50') PERCENT
<i>Acropora cervicornis</i> (Staghorn coral)	28.0	3.4	<i>Montastrea cavernosa</i> (Great star coral)	0.0	9.2
<i>Agaricia agaricites</i> (Lettuce coral)	22.0	20.7	<i>Montastrea annularis</i> (Boulder star coral)	4.0	13.8
<i>Agaricia fragilis</i> (Fragile saucer coral)	1.0	0.0	<i>Mycetophyllia danaana</i> (Lowridge cactus coral)	2.0	1.1
<i>Colpophyllia natans</i> (Boulder brain coral)	0.0	2.3	<i>Mycetophyllia ferox</i> (Rough cactus coral)	0.0	1.1
<i>Dichocoenia stokesii</i> (Elliptical star coral)	0.0	1.1	<i>Mycetophyllia lamarckiana</i> (Ridged cactus coral)	0.0	2.3
<i>Diploria divosa</i> (Knobby brain coral)	2.0	2.3	<i>Porites astreoides</i> (Mustard hill coral)	6.0	5.7
<i>Diploria labyrinthiformis</i> (Grooved brain coral)	0.0	1.1	<i>Porites porites</i> (Finger coral)	14.0	6.9
<i>Diploria strigosa</i> (Symmetrical brain coral)	0.0	1.1	<i>Scolymia cubensis</i> (Artichoke coral)	0.0	1.1
<i>Isophyllia sinuosa</i> (Sinuous cactus coral)	0.0	1.1	<i>Siderastrea radians</i> Lesser starlet coral)	8.0	4.6
<i>Madracis mirabilis</i> (Yellow pencil coral)	4.0	4.6	<i>Siderastrea siderea</i> (Massive starlet coral)	4.0	8.0
<i>Madracis pharensis</i> (Star coral)	0.0	1.1	<i>Solenastrea bournoni</i> (Smooth star coral)	0.0	1.1
<i>Meandrina meandrites</i> (Maze coral)	0.0	2.3	<i>Stephanocoenia michilini</i> (Blushing star coral)	2.0	2.3
<i>Millepora alcornonis</i> (Branching fire coral)	2.0	1.1			