

**Agreement No. CE 18/2002 (EP)**  
**Construction of Helipads at Peng Chau and Yung Shue Wan,  
Lamma Island**



**Report for  
Coral Monitoring Surveys (September 2007)**

**12 October 2007**



**miniprojects co. Ltd.**

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**Agreement No. CE 18/2002 (EP)**  
**Construction of Helipads at Peng Chau and Yung Shue Wan,**  
**Lamma Island**

**Report for**  
**Six Coral Monitoring Surveys**  
**at Yung Shue Wan in September 2007**

**Prepared by:**  
**miniprojects co. Ltd.**  
**Cinotech Consultants Limited**

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## **1 INTRODUCTION**

### **1.1 Project Background**

- 1.1.1 Cinotech Consultants Limited has been appointed to formulate a Coral Survey Team to conduct the Marine Ecology Survey for Construction of Helipads at Yung Shue Wan, Lamma Island, Agreement No. CE 18/2002 (EP).
- 1.1.2 miniprojects Company Limited (miniprojects co. Ltd.) have been commissioned by Cinotech Consultants Limited to undertake Coral Monitoring Survey on the tagged hard coral colonies at 1 Impact Monitoring Station (IMS) and 1 Control Monitoring Station (CMS).
- 1.1.3 As required by the EM&A manual, frequency of Coral Monitoring Survey is,
- Twice a week for the first two weeks of works affecting seabed
  - Once a week for the following two weeks if no exceedance is detected
  - Once every two weeks for the 2<sup>nd</sup> and 3<sup>rd</sup> months if no exceedance is detected
  - Once a month after the 3<sup>rd</sup> until completion of the construction works if not exceedance is detected
- 1.1.4 This is the monthly report presenting the results of the first six Coral Monitoring Surveys undertaken in the first month (September 2007) of the construction works.

## **2 METHODOLOGY**

### **2.1 Impact Monitoring Surveys - Locations**

2.1.1 The Impact Monitoring Station (IMS) was located at Yung Shue Wan, close to the seabed construction area (Fig. 2.1). In order to identify background environmental perturbations that are not associated with the construction, Sham Wan, which is away from the impact area, was designated as the Control Monitoring Station (CMS; Fig. 2.1). Locations (GPS coordinates) of IMS and CMS, as well as the conditions during monitoring surveys are summarized in Table 3.1.

### **2.2 Survey Methods**

2.2.1 At each of the IMS and CMS, 10 hard coral colonies were tagged for continuous monitoring over the course of construction phase. Dive surveys were conducted to record the health status of the tagged corals, including percentage area of sedimentation, bleaching and partial mortality.

2.2.2 The condition of each tagged coral colony was recorded by taking photographs that best represents the entire colony. General physical parameters were recorded for each survey site, including visibility, weather, tidal conditions and water current.

2.2.3 The results of the impact monitoring surveys were reviewed with reference to finding of the Initial Coral Survey and the data from CMS collected during the monitoring.

### **2.3 Coral Monitoring Frequency**

2.3.1 Monitoring on the tagged corals for degree of sedimentation and area of bleaching shall be conducted at the frequencies indicated below during works affecting the seabed.

- During the first two weeks of works affecting seabed: twice a week.
- If no exceedance detected for the first 2 weeks of monitoring: once a week for the following 2 weeks.
- If no exceedance detected for the first 4 weeks of monitoring: once every two weeks for the 2nd and 3rd months.
- If no exceedance in the 3rd month of monitoring, coral monitoring shall be conducted once per month until completion of the construction works.

### **2.4 Actions on Exceedance of Action & Limit Levels**

2.4.1 Where the coral survey indicates the health conditions of the corals exceed the AL levels, the Engineer may direct more frequent monitoring to be carried out until exceedance stops. The action and limit level of coral monitoring is shown in Table 2.1.

**Table 2.1. Action and Limit Level for Coral Monitoring**

<b>Parameter</b>	<b>Action Level Definition</b>	<b>Limit Level Definition</b>
Sedimentation	If during Coral Monitoring a 15% increase in the percentage of sediment cover on hard corals occurs at more than 20% of the tagged coral at any one Coral Monitoring Site that is not recorded at the Control Site, then the Action Level is exceeded.	If during Coral Monitoring a 25% increase in the percentage of sediment cover on hard corals occurs at more than 20% of the tagged coral at any one Coral Monitoring Site that is not recorded at the Control Site, then the Limit Level is exceeded.
Bleaching	If during Coral Monitoring a 15% increase in the percentage of bleaching (bleached white) on hard corals occurs at more than 20% of the tagged coral at any one Coral Monitoring Site that is not recorded at the Control Site, then the Action Level is exceeded.	If during Coral Monitoring a 25% increase in the percentage of bleaching (bleached white) on hard corals occurs at more than 20% of the tagged coral at any one Coral Monitoring Site that is not recorded at the Control Site, then the Limit Level is exceeded.

2.4.2 The Contractor shall take all necessary steps to ensure that the actions of the Contractor are not contributing to the deterioration. These steps shall include, but not be limited to the following:

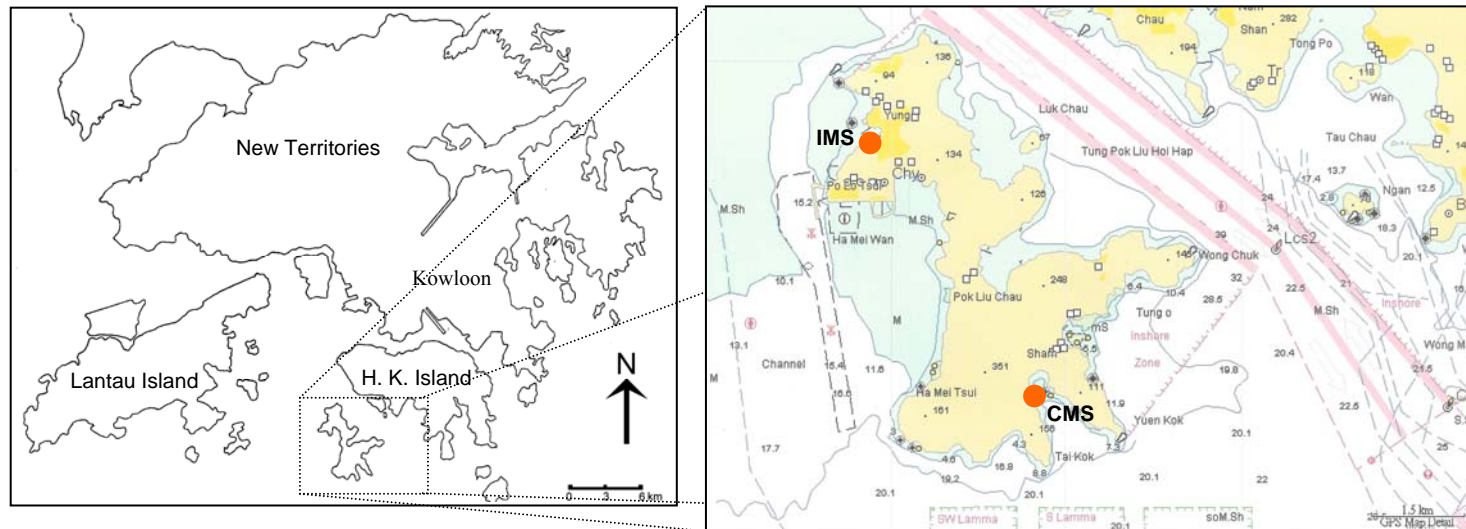
- Checking of water quality monitoring data;
- Checking of all marine plant and equipment; maintenance or replacement of any marine plant or equipment contributing to the deterioration;
- Checking and maintenance of silt curtains;
- Review of all working methods; and
- Reduced construction rate.

2.4.3 Upon action level being exceeded and after agreement from the Environmental Specialist and AFCD has been obtained regarding the most appropriate method for reducing the adverse impacts during works affecting the seabed, this mitigated method should then be enacted on the next working day.

2.4.4 Upon limit level being exceeded, the Contractor shall suspend all works affecting the seabed until an effective solution is identified. Once the solution has been identified and agreed with the Environmental Specialist and AFCD, construction works affecting seabed may recommence.

- 2.4.5 The Engineer and AFCD shall be kept informed of all steps taken; and written reports and proposals for action shall be passed to the Engineer and AFCD by the Contractor whenever the coral survey shows any adverse impact upon the corals.
- 2.4.6 After the Contractor have implemented the agreed mitigating measures, if the coral surveys indicate the coral condition is unacceptable, additional mitigation measures should be recommended by the Contractor after consulting the Environmental Specialist for the approval of the Engineer and AFCD to rectify the situation. The Engineer can temporarily suspend the site activities until the problem is under control and an acceptable coral condition is restored.
- 2.4.7 In case the Contractor fails to implement the agreed mitigation measures, the Engineer can direct the Contractor to slow down or suspend his work until the Engineer and AFCD is convinced that the mitigation measures have restored the corals to an acceptable condition.
- 2.4.8 The Environmental Specialist shall assess the effectiveness and efficiency of the proposed mitigation measures and/or remedial actions for construction activities affecting the seabed. The performance of the Environmental Monitoring and Audit Programme shall be reviewed and audited by the Environmental Specialist on a quarterly basis. The findings of this review shall be included in the quarterly EM&A summary reports, together with any recommendations to improve the performance of the Environmental Monitoring and Audit Programme.

**Fig. 2.1 Map Showing the Locations of the Impact Monitoring Station (IMS) and Control Monitoring Station (CMS)**





### 3 RESULTS

#### 3.1 Monitoring Surveys September 2007

3.1.1 A total of 6 surveys was conducted in the IMS and CMS during the first month of the construction work. The survey dates and physical conditions of each sites are summerized in Table 3.1

**Table 3.1 IMS and CMS – Physical Conditions.**

<b>IMS (Yung Shue Wan)</b>						
GPS Coordinates	N 22°13'28.4 E 114°06'30.6					
Date	05 Sept 07	08 Sept 07	11 Sept 07	15 Sept 07	23 Sept 07	29 Sept 07
Sedimentation on Rock surfaces (mm)	0 to 3	0 to 2	0 to 2	0 to 2	2 to 3	1 to 2
Visibility (m)	0.5 to 1.0	1.5 to 2	0.2 to 1	0.2 to 1	0.5	0.5-1
Weather	Rough, Sunny	Calm, Cloudy	Calm, Sunny	Calm, Sunny	Rough, Rainy	Windy, Sunny
Tide	Ebb	Flood	Flood	Flood	Ebb	Flood
Current (Knot)	2 to 2.5	0.5 to 1	0 to 0.5	0 to 0.5	2-2.5	0.5
Remark	North wind	-	-	-	Typhoon (No. 1) and northeast monsoon	East wind
<b>CMS (Sham Wan)</b>						
GPS Coordinates	N 22°11'15.0 E 114°08'04.0					
Date	05 Sept 07	08 Sept 07	11 Sept 07	15 Sept 07	23 Sept 07	29 Sept 07
Sedimentation on Rock surfaces (mm)	0-1	0-2	0-2	0-2	0.5-1	1-2
Visibility (m)	2 to 3	1 to 1.5	1 to 1.5	2 to 2.5	2	0.5-1
Weather	Calm, Sunny	Calm, Cloudy	Calm, Sunny	Calm, Sunny	Rough, Rainy	Windy, Sunny
Tide	Ebb	Flood	Flood	Flood	Ebb	Flood
Current (Knot)	0 to 0.5	0 to 0.5	0 to 0.5	0 to 0.5	2-2.5	0.5
Remark	North wind	-	-	-	Typhoon (No. 1) and northeast monsoon	East wind

3.1.2 Percentages of sedimentation, bleaching and mortality of each tagged colony are presented in Table 3.2. Photographs of each tagged coral in the six surveys are illustrated in Appendices I to VI.

#### IMS

3.1.3 Over the course of monitoring survey in September 2007, sedimentation on the tagged coral colonies varied from +5% to -2% when compared with the baseline level in July 2007. Increment was generally observed in five colonies (A02, A04, A05, A06 and A07), in which more consistent elevation occurred in colony A02 (from 0% to 5%) and A05 (from 3% to 8%) in 29 September survey, but no sign of bleaching or mortality was observed. One colony A08 we recorded with

increased bleaching (+1%) and partially mortality (+2%) from 11 September, the level remained steady in the subsequent surveys (Table 3.2).

### **CMS**

- 3.1.4 When compared with baseline data in July 2007, sedimentation level on tagged corals in CMS varied in the range of +6% to -1%. There was no trend of sediment loading, and some colonies experienced both increase and decrease in sediment cover over the monitoring period. Bleaching and mortality was not recorded except for colony B05, in which 2% bleaching was observed in 29 September survey (Table 3.2).
- 3.1.5 One colony (B08) was found broken into few pieces during the survey on 23 September. The damage was believed to be caused physically by anchoring or fishing activity. This colony was, therefore, considered not suitable for further monitoring. A new colony was identified and tagged on 29 September for replacement. The new colony (*Leptastrea pruinosa*) belongs to the same genus as the damaged one (*Leptastrea purpurea*), and is in healthy condition for monitoring purpose (Table 3.2)

**Table 3.2 IMS and CMS – Code, Species Name, Area, Percentage of Sedimentation, Bleaching and Mortality of the Tagged Coral Colonies in Initial Coral Survey (21 July 2007) and 6 monitoring surveys (September 2007).** “▲” and “▼” indicate increased and decreased in percentage, respectively, when compared with the Initial Coral Survey.

**IMS (Yung Shue Wan)**

Code	Coral Species	Area (cm <sup>2</sup> )	Sedimentation (%)							Bleaching (%)							Mortality (%)						
			21 Jul 07 (Baseline)	05 Sept	08 Sept	11 Sept	15 Sept	23 Sept	29 Sept	21 Jul 07 (Baseline)	05 Sept	08 Sept	11 Sept	15 Sept	23 Sept	29 Sept	21 Jul 07 (Baseline)	05 Sept	08 Sept	11 Sept	15 Sept	23 Sept	29 Sept
A01	<i>Favites pentagona</i>	110	1	2 ▲	2 ▲	2 ▲	3 ▲	2 ▲	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A02	<i>Favia rotumana</i>	220	0	1 ▲	1 ▲	2 ▲	3 ▲	4 ▲	5 ▲	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A03	<i>Platygyra carnosus</i>	430	0	0	0	0	1 ▲	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A04	<i>Favia rotumana</i>	570	0	0	1 ▲	2 ▲	2 ▲	4 ▲	3 ▲	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A05	<i>Cyphastrea serailia</i>	330	3	3	4 ▲	4 ▲	5 ▲	5 ▲	8 ▲	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A06	<i>Cyphastrea serailia</i>	190	0	1 ▲	1 ▲	1 ▲	1 ▲	2 ▲	2 ▲	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A07	<i>Favites pentagona</i>	200	0	0	0	1 ▲	1 ▲	4 ▲	3 ▲	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A08	<i>Porites sp</i>	440	3	1 ▼	1 ▼	3	1 ▼	1 ▼	1 ▼	0	0	0	1 ▲	1 ▲	1 ▲	1 ▲	0	0	0	2 ▲	2 ▲	2 ▲	2 ▲
A09	<i>Favites pentagona</i>	300	0	0	0	0	0	1 ▲	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A10	<i>Porites sp.</i>	300	3	2 ▼	1 ▼	2 ▼	2 ▼	2 ▼	1 ▼	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**CMS (Sham Wan)**

Code	Coral Species	Area (cm <sup>2</sup> )	Sedimentation (%)							Bleaching (%)							Mortality (%)							
			21 Jul 07 (Baseline)	05 Sept	08 Sept	11 Sept	15 Sept	23 Sept	29 Sept	21 Jul 07 (Baseline)	05 Sept	08 Sept	11 Sept	15 Sept	23 Sept	29 Sept	21 Jul 07 (Baseline)	05 Sept	08 Sept	11 Sept	15 Sept	23 Sept	29 Sept	
B01	<i>Favia lizardensis</i>	360	1	5 ▲	2 ▲	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B02	<i>Porites sp.</i>	370	1	2 ▲	2 ▲	1	2 ▲	1	4 ▲	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B03	<i>Psammocora profundacella</i>	440	2	2	2 ▲	3 ▲	2	8 ▲	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B04	<i>Cyphastrea serailia</i>	220	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B05	<i>Favites abdita</i>	650	2	2	4 ▲	4 ▲	3 ▲	1 ▼	1 ▼	0	0	0	0	0	0	2 ▲	0	0	0	0	0	0	0	0
B06	<i>Leptastrea pruinosa</i>	450	1	3 ▲	3 ▲	2 ▲	2 ▲	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B07	<i>Platygyra acuta</i>	350	1	0 ▼	0 ▼	0 ▼	0 ▼	0 ▼	0 ▼	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B08	<i>Leptastrea purpurea</i>	470	2	2	3 ▲	3 ▲	4 ▲	-	-	0	0	0	0	0	-	-	0	0	0	0	0	-	-	
B08*	<i>Leptastrea pruinosa</i>	690	2*						2*	0*						0*	0*						0*	
B09	<i>Leptastrea pruinosa</i>	400	2	3 ▲	3 ▲	2	3 ▲	3 ▲	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B10	<i>Favites pentagona</i>	130	0	0	1 ▲	1 ▲	4 ▲	2 ▲	3 ▲	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Colony B08 (*Leptastrea purpurea*) was found physically damaged on 23 September, a new colony B08\* (*Leptastrea pruinosa*) was tagged on 29 September for subsequent monitoring survey.

## **4 SUMMARY AND CONCLUSION**

### **4.1 Summary – Monitoring Surveys**

- 4.1.1 In the monitoring surveys conducted in September 2007 in IMS, sedimentation increased in 5 of the 10 tagged coral colonies by 1 to 5%, sedimentation decreased in 2 colonies by 1 to 2%. Bleaching increased in 1 colony by 1%. Partial mortality increased in 1 colony by 2%.
- 4.1.2 Two of the colonies (A02 and A05) in IMS showed relatively stable increase in sedimentation cover by 5% over the first month of monitoring; no bleaching or mortality, however, were evidenced. Further observation in the subsequent monitoring is necessary to evaluate for any patterned increment.
- 4.1.3 In CMS, sedimentation level on the tagged corals varied in narrow range with no observable trend. Bleaching increased in 1 colony by 2%. No increase in partial mortality was observed.
- 4.1.4 In both survey sites, level of sedimentation on the tagged corals varied within a small range (<10%). The variation was believed to be contributed by combined environmental factors such as monsoonal wind, tidal current, peripheral transports, etc. The low level of increment in bleaching and partial suggested minor/no adverse effect was caused by the observed sedimentation variation.
- 4.1.5 The data from the monitoring surveys showed no significant enhancement in sedimentation, bleaching or mortality in IMS when compared with the CMS. Hence, no adverse impact by the construction activity on the coral community was evidenced. However, further observation in the subsequent survey for colonies A02 and A05 is needed to verify if sedimentation will continue.

### **4.2 Compliance / Event Action Plan**

- 4.2.1 The monitoring results were evaluated against the Action and Limit Levels as defined in the EM&A manual (Table 2.1), and is summarized in Table 4.1
- 4.2.2 Overall, the healthy status of the tagged coral colonies was normal, with low to medium levels of sedimentation. Low levels of bleaching and mortality were observed in both Monitoring and Control Sites. Neither action/limit level of sedimentation, bleaching or mortality was exceeded in monitoring surveys conducted in September 2007.

**Table 4.1 Evaluation of Monitoring Results against Action and Limit Level for Coral Monitoring Surveys.** Note Definition of Action/Limit levels are listed in Table 2.1. “No” indicates NO exceedance.

**September 2007**

Exceedance Site	Sedimentation		Bleaching		Mortality	
	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level
IMS	No	No	No	No	No	No
CMS	No	No	No	No	No	No

## **APPENDIX**

### **Appendices I a and b**

Photographs of the tagged corals at IMS and CMS (05 Sept 2007)

### **Appendices II a and b**

Photographs of the tagged corals at IMS and CMS (08 Sept 2007)

### **Appendices III a and b**

Photographs of the tagged corals at IMS and CMS (11 Sept 2007)

### **Appendices IV a and b**

Photographs of the tagged corals at IMS and CMS (15 Sept 2007)

### **Appendices V a and b**

Photographs of the tagged corals at IMS and CMS (23 Sept 2007)

### **Appendices VI a and b**

Photographs of the tagged corals at IMS and CMS (29 Sept 2007)

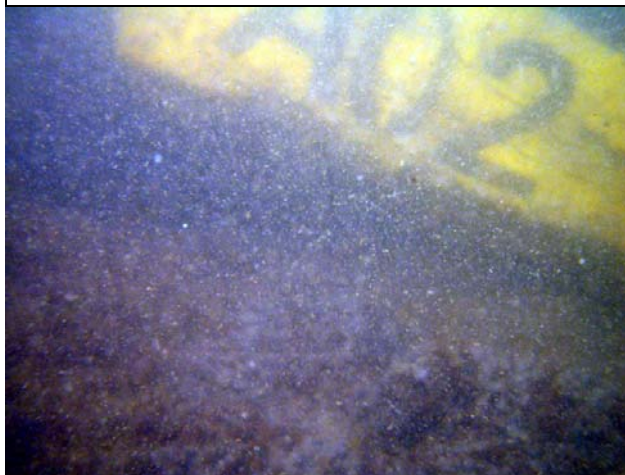
Appendix Ia Tagged Coral Colonies at the Impact Monitoring Site (IMS).



A01



*Favites pentagona*



A02



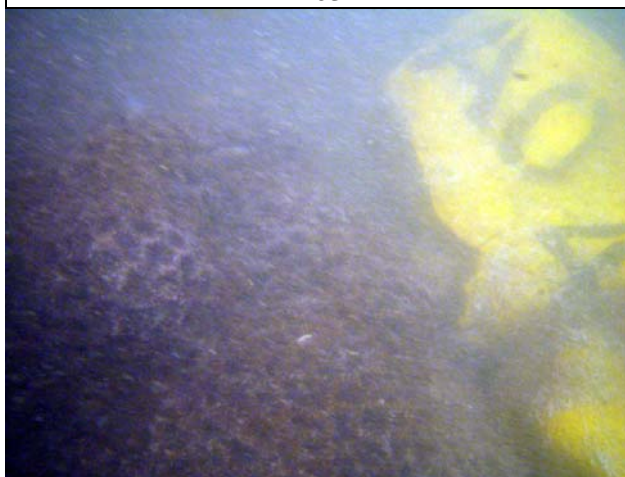
*Favia rotumana*



A03



*Platygyra carnosus*

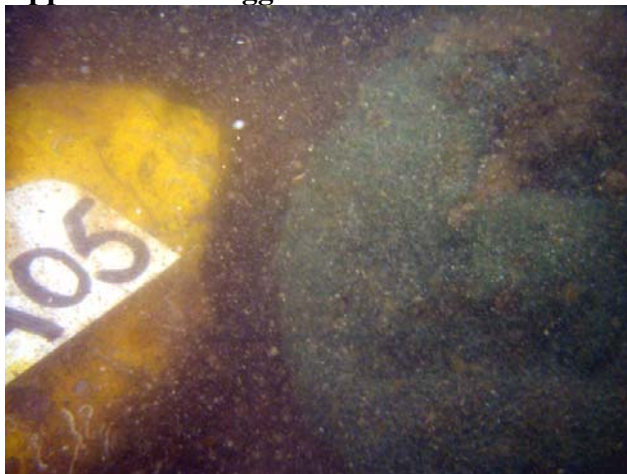


A04



*Favia rotumana*

Appendix Ia Tagged Coral Colonies at the Impact Monitoring Site (IMS).....continued.



A05



*Cyphastrea serailia*



A06



*Cyphastrea serailia*



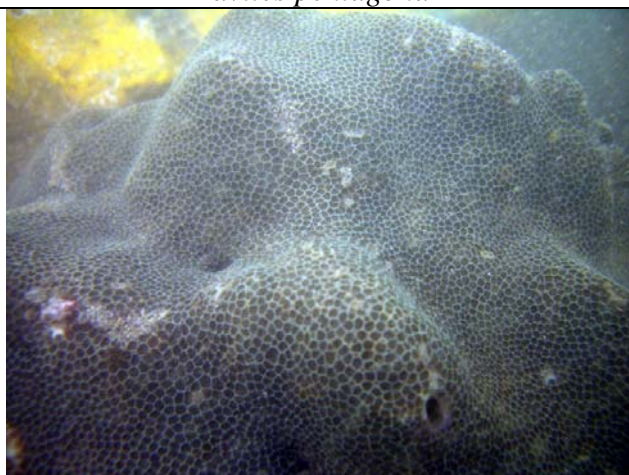
A07



*Favites pentagona*



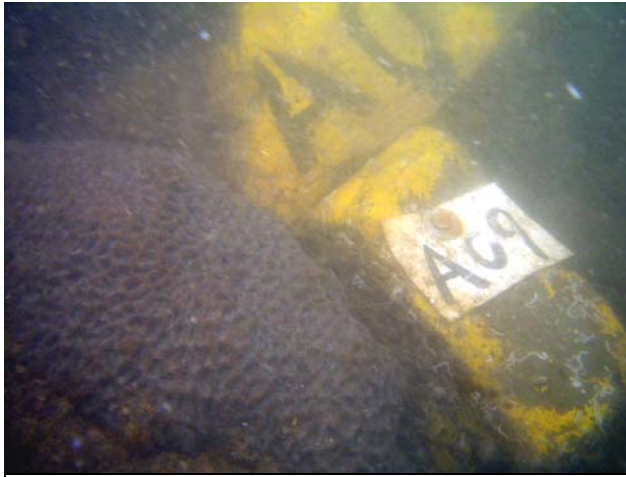
A08



*Porites* sp.



Appendix Ia Tagged coral colonies at the Impact Monitoring Site (IMS).....continued.



A09



*Favites pentagona*



A10



*Porites* sp.

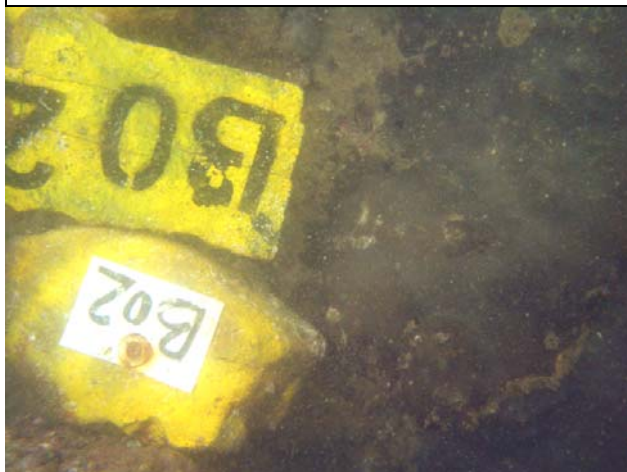
Appendix Ib Tagged Coral Colonies at the Control Monitoring Site (CMS).



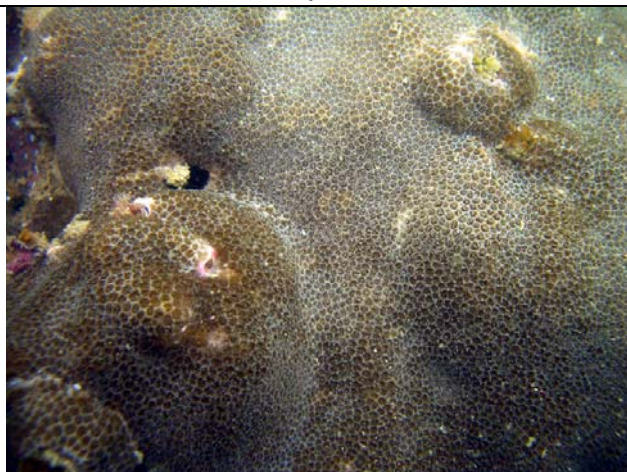
B01



*Favia lizardensis*



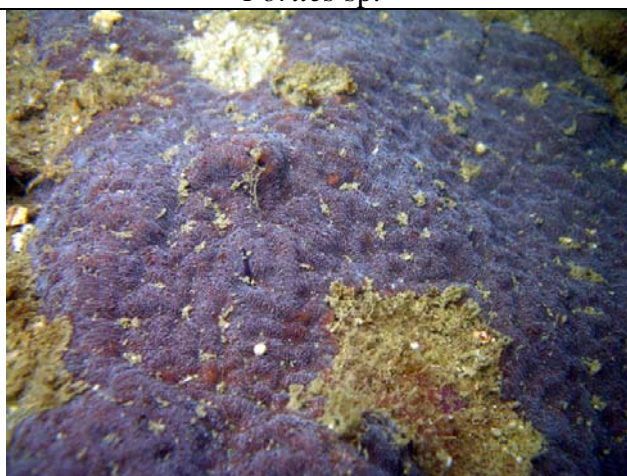
B02



*Porites* sp.



B03



*Psammocora profundacella*



B04

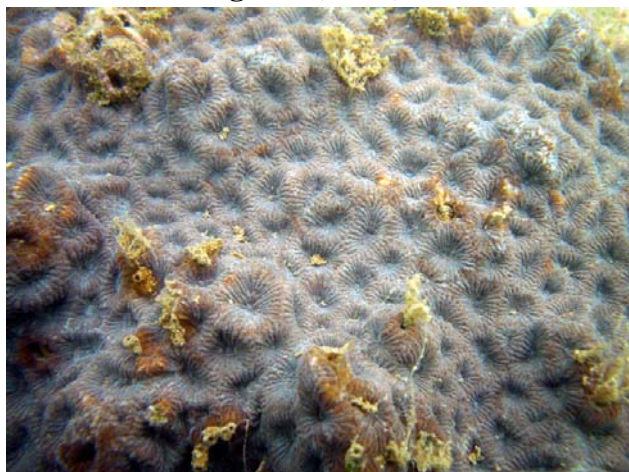


*Cyphastrea serailia*

Appendix Ib Tagged Coral Colonies at the Control Monitoring Site (CMS).....continued.



B05



*Favites abdita*



B06



*Leptastrea pruinosa*



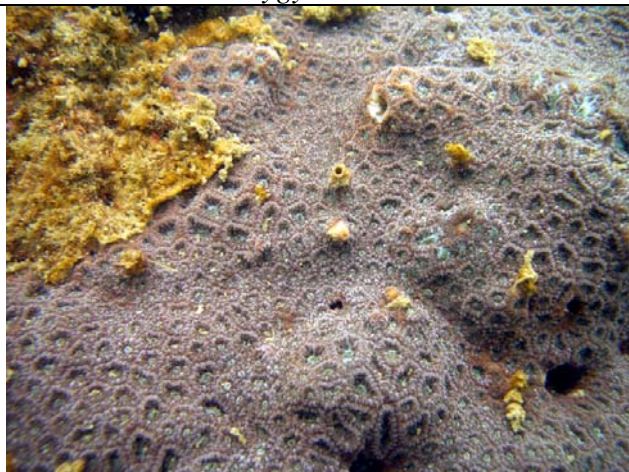
B07



*Platygyra acuta*



B08



*Leptastrea purpurea*

Appendix Ib Tagged Coral Colonies at the Control Monitoring Site (CMS).....continued.



B09



*Leptastrea pruinosa*

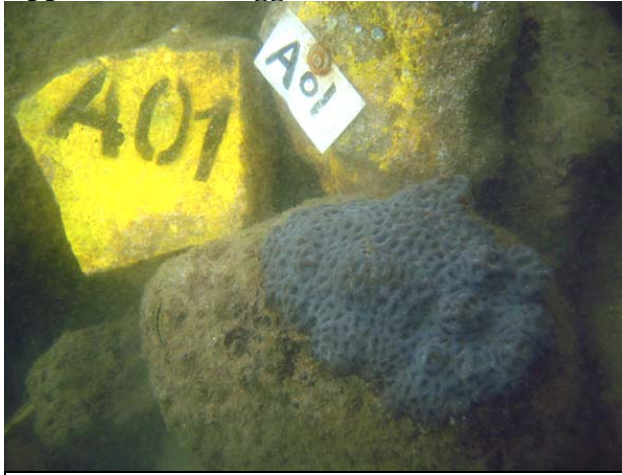


B10



*Favites pentagona*

Appendix IIa Tagged Coral Colonies at the Impact Monitoring Site (IMS).



A01



*Favites pentagona*



A02



*Favia rotumana*



A03



*Platygyra carnosus*

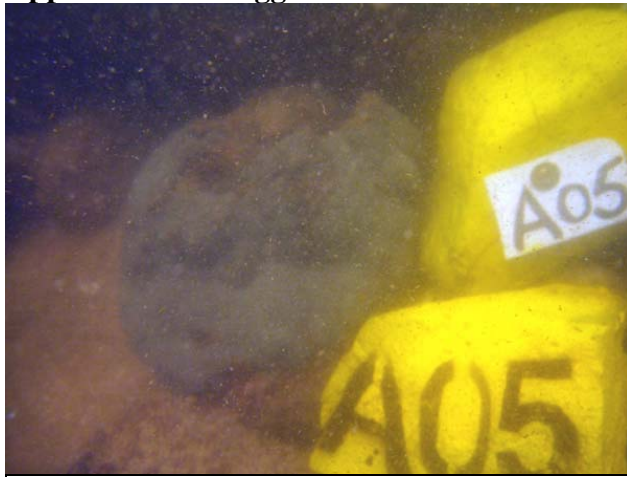


A04



*Favia rotumana*

Appendix IIa Tagged Coral Colonies at the Impact Monitoring Site (IMS).....continued.



A05



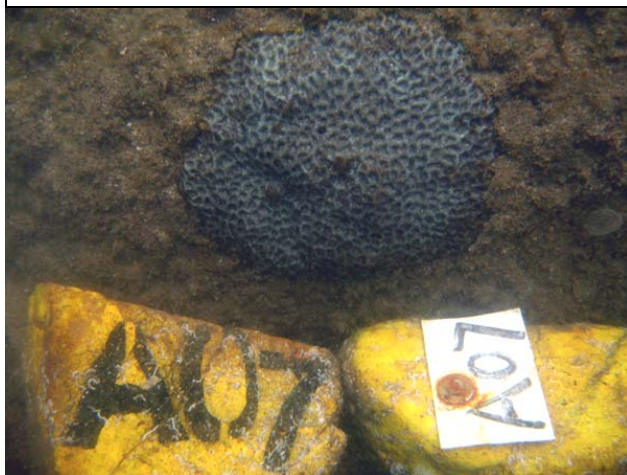
*Cyphastrea serailia*



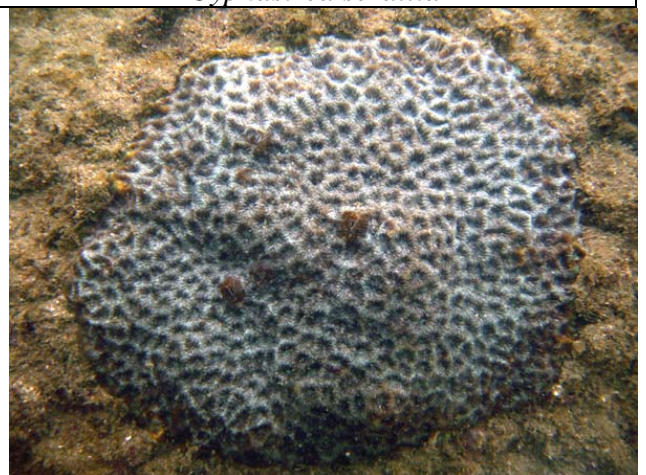
A06



*Cyphastrea serailia*



A07



*Favites pentagona*

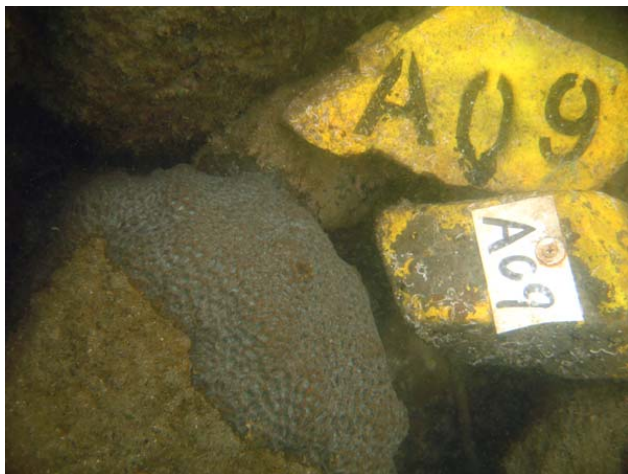


A08



*Porites* sp.

Appendix IIa Tagged coral colonies at the Impact Monitoring Site (IMS).....continued.



A09



*Favites pentagona*



A10



*Porites sp.*

Appendix IIb Tagged Coral Colonies at the Control Monitoring Site (CMS).



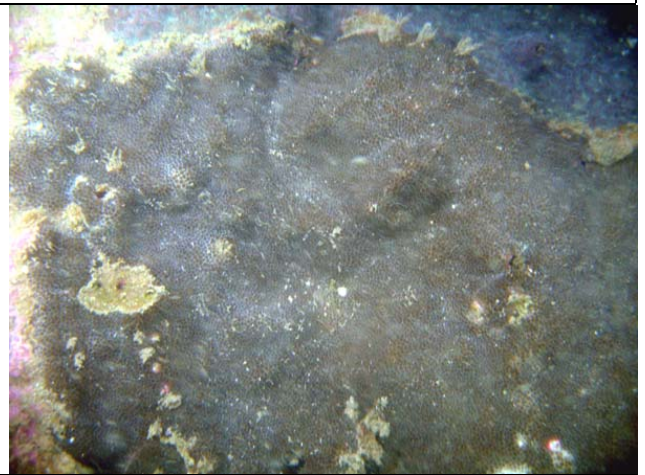
B01



*Favia lizardensis*



B02



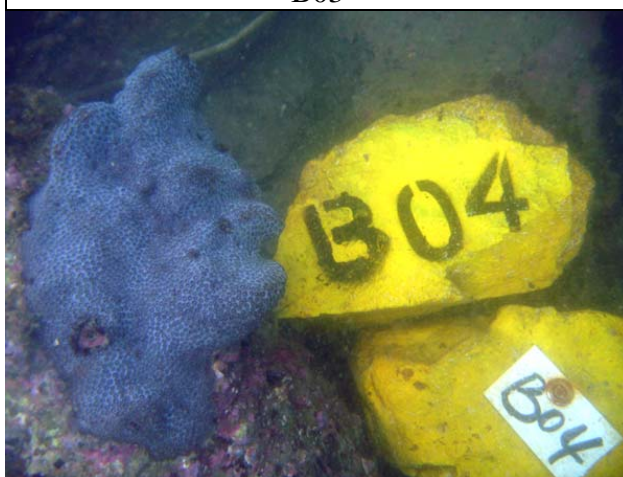
*Porites* sp.



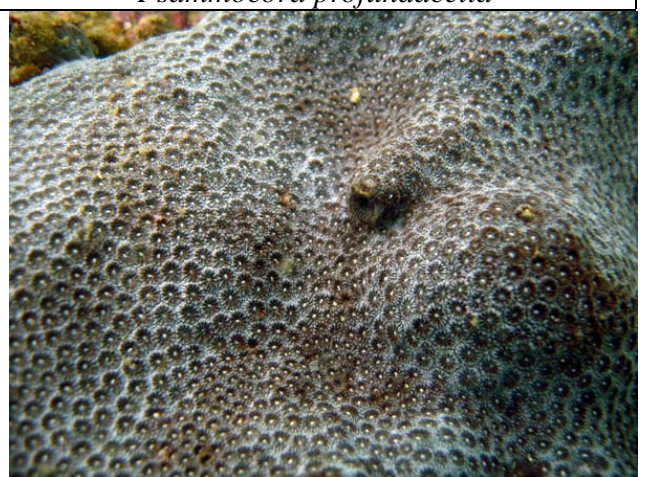
B03



*Psammocora profundacella*



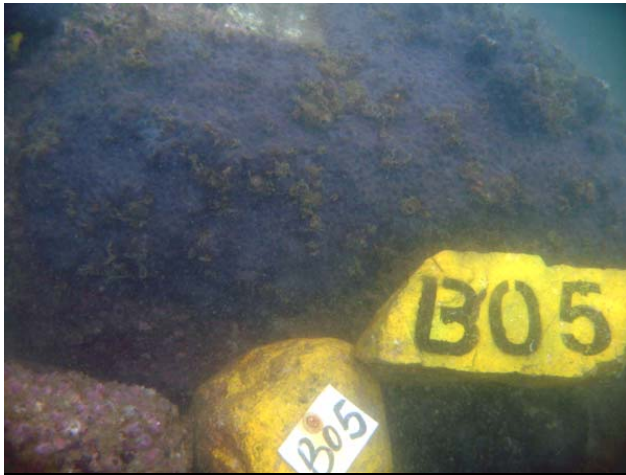
B04



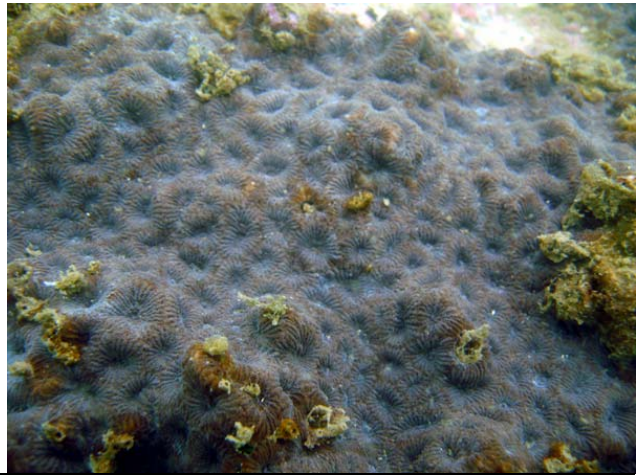
*Cyphastrea serailia*



Appendix IIb Tagged Coral Colonies at the Control Monitoring Site (CMS).....continued.



B05



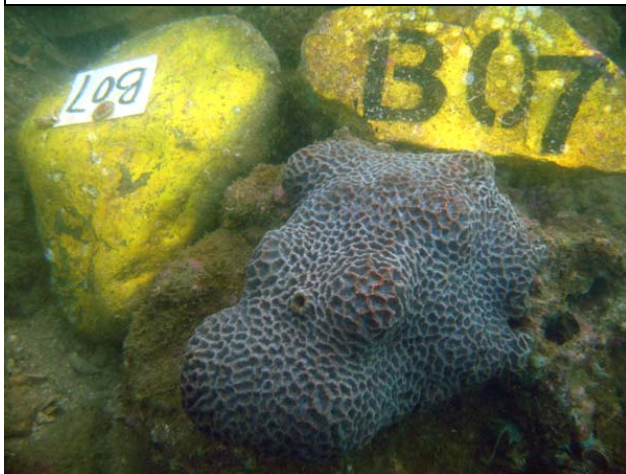
*Favites abdita*



B06



*Leptastrea pruinosa*



B07



*Platygyra acuta*



B08



*Leptastrea purpurea*

Appendix IIb Tagged Coral Colonies at the Control Monitoring Site (CMS).....continued.



B09



*Leptastrea pruinosa*



B10



*Favites pentagona*

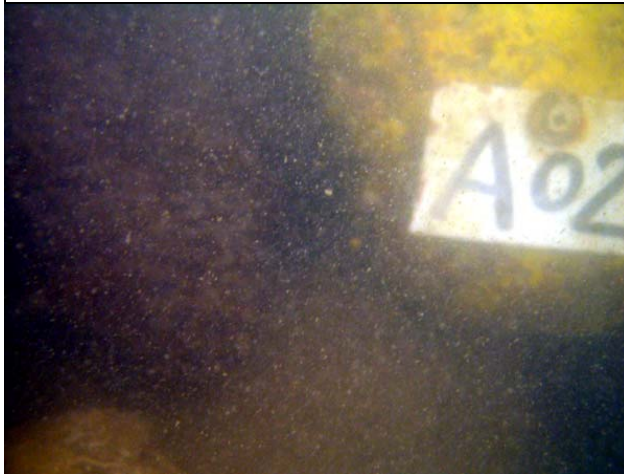
Appendix IIIa Tagged Coral Colonies at the Impact Monitoring Site (IMS).



A01



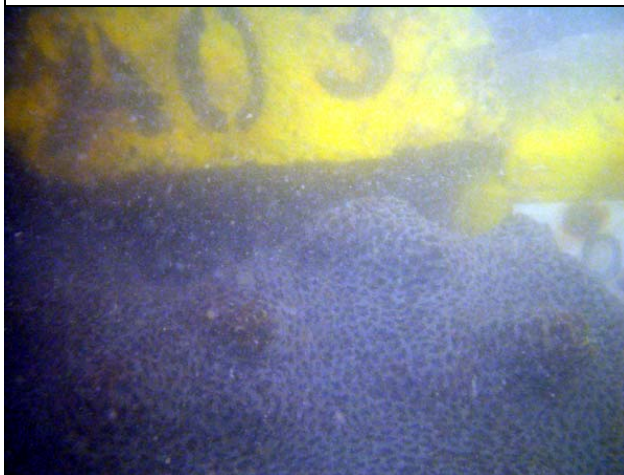
*Favites pentagona*



A02



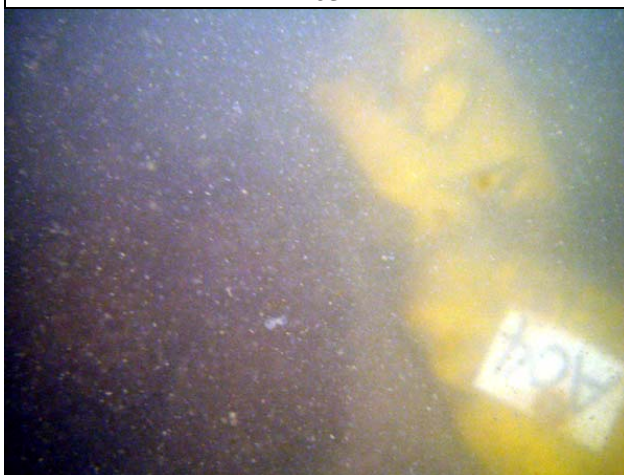
*Favia rotumana*



A03



*Platygyra carnosus*



A04



*Favia rotumana*

Appendix IIIa Tagged Coral Colonies at the Impact Monitoring Site (IMS).....continued.



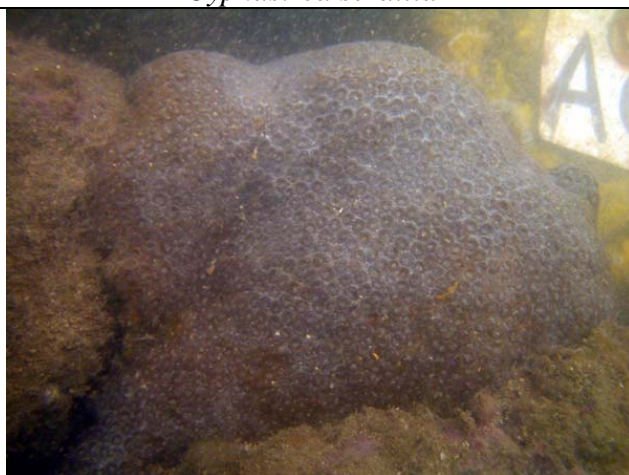
A05



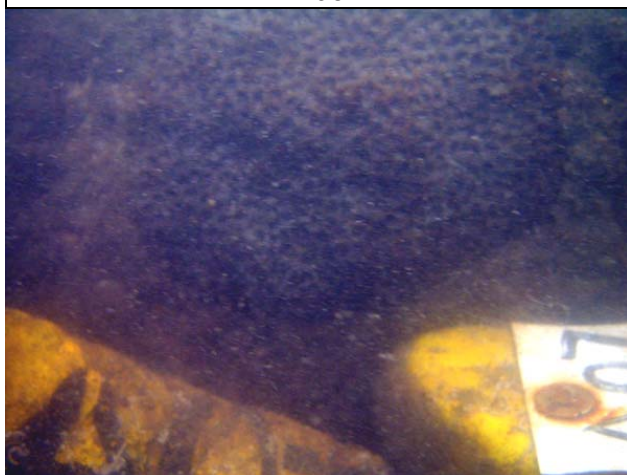
*Cyphastrea serailia*



A06



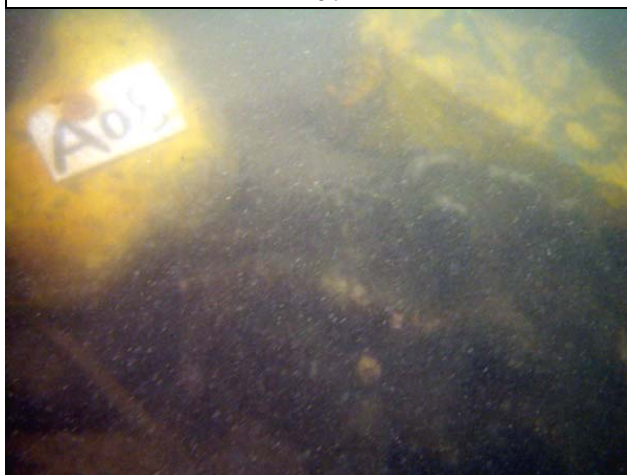
*Cyphastrea serailia*



A07



*Favites pentagona*

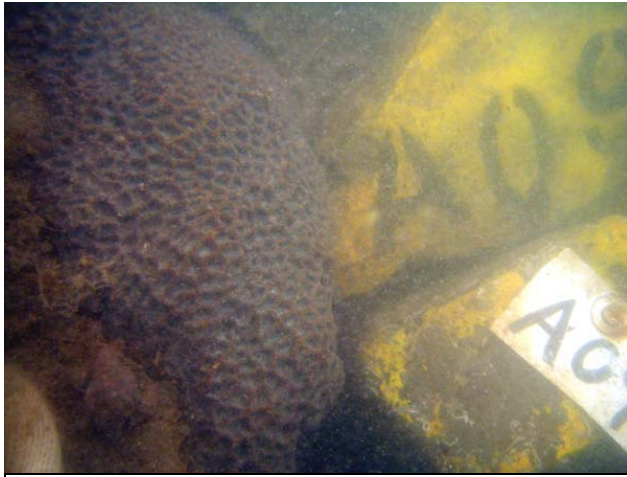


A08

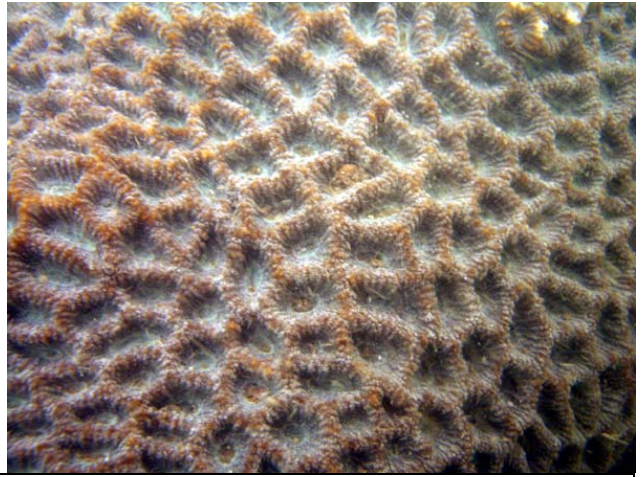


*Porites sp.*

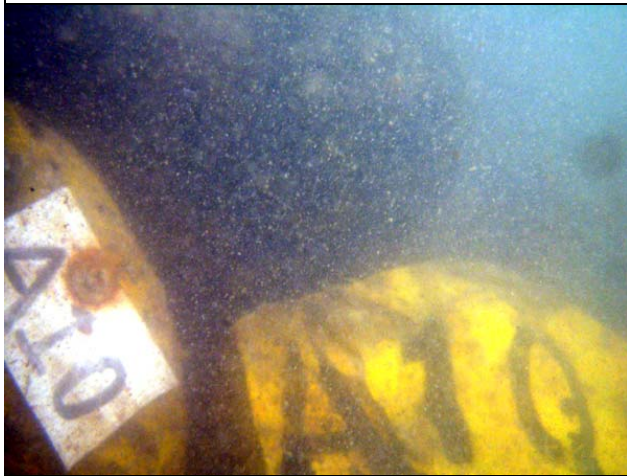
Appendix IIIa Tagged coral colonies at the Impact Monitoring Site (IMS).....continued.



A09



*Favites pentagona*



A10



*Porites* sp.

Appendix IIIb Tagged Coral Colonies at the Control Monitoring Site (CMS).



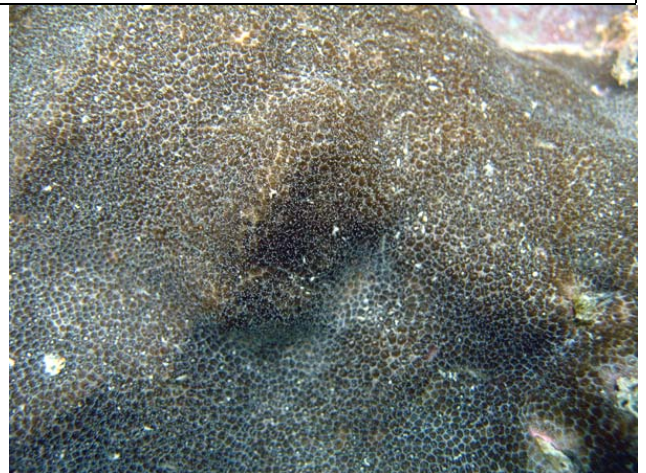
B01



*Favia lizardensis*



B02



*Porites* sp.



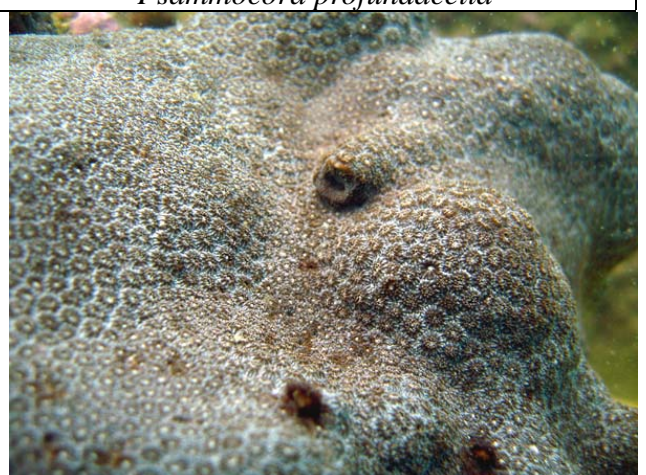
B03



*Psammocora profundacella*



B04



*Cyphastrea serailia*

Appendix IIIb Tagged Coral Colonies at the Control Monitoring Site (CMS)...continued.



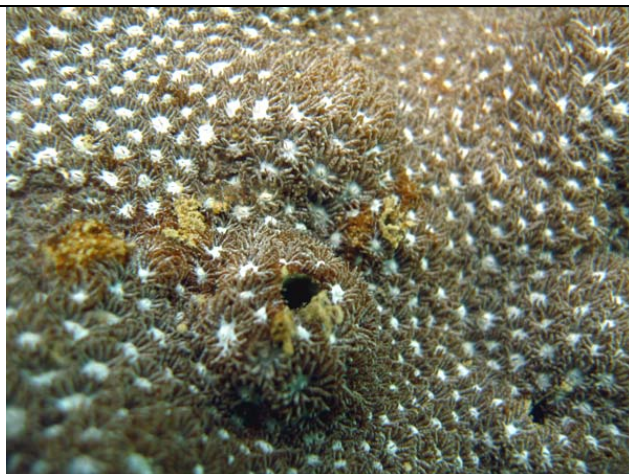
B05



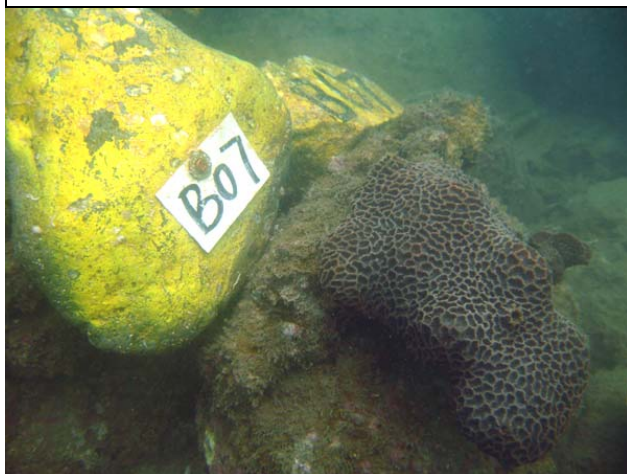
*Favites abdita*



B06



*Leptastrea pruinosa*



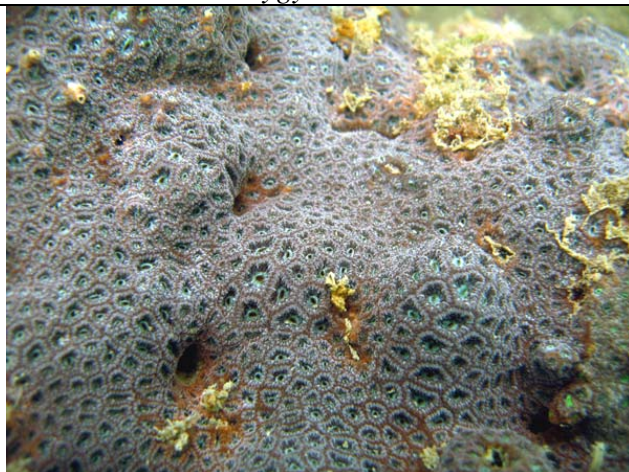
B07



*Platygyra acuta*



B08



*Leptastrea purpurea*

Appendix IIIb Tagged Coral Colonies at the Control Monitoring Site (CMS)...continued.



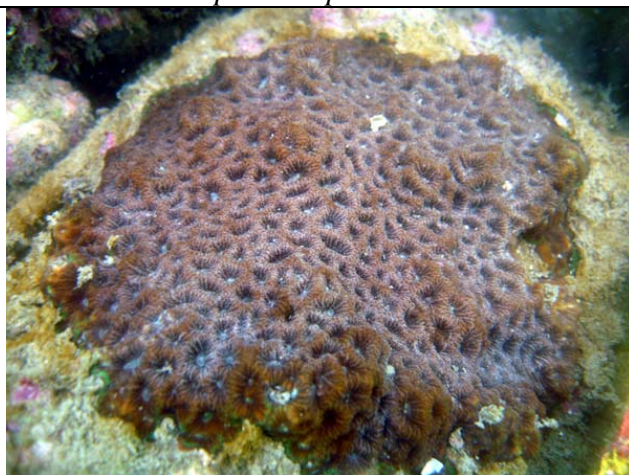
B09



*Leptastrea pruinosa*



B10



*Favites pentagona*



Appendix IVa Tagged Coral Colonies at the Impact Monitoring Site (IMS).



A01



*Favites pentagona*



A02



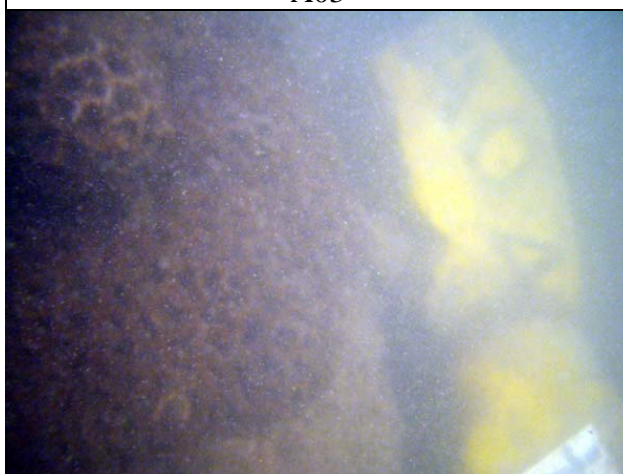
*Favia rotumana*



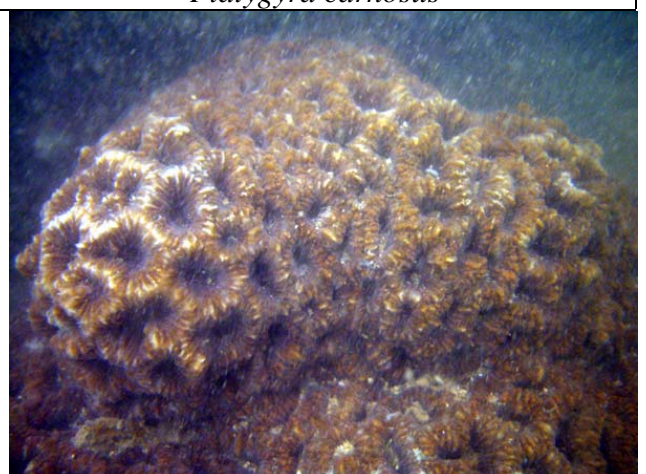
A03



*Platygyra carnosus*



A04



*Favia rotumana*

Appendix IVa Tagged Coral Colonies at the Impact Monitoring Site (IMS).....continued.



A05



*Cyphastrea serailia*



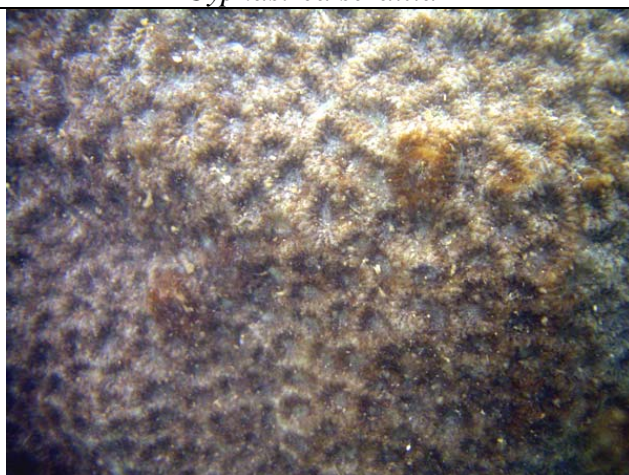
A06



*Cyphastrea serailia*



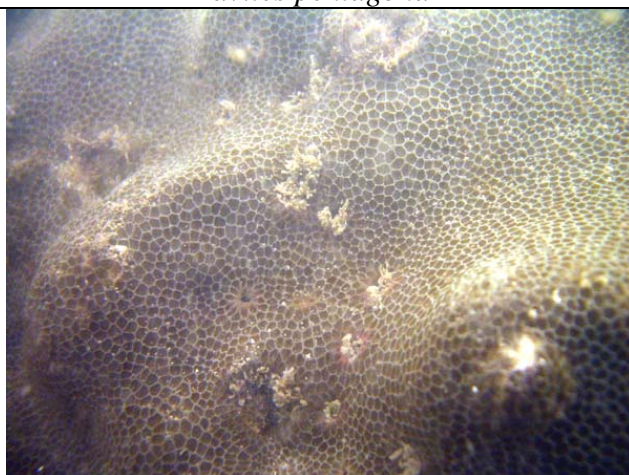
A07



*Favites pentagona*



A08

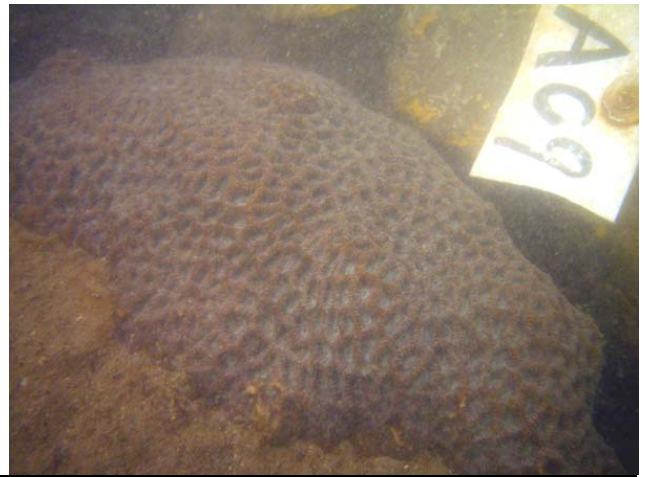


*Porites* sp.

Appendix IVa Tagged coral colonies at the Impact Monitoring Site (IMS).....continued.



A09



*Favites pentagona*



A10

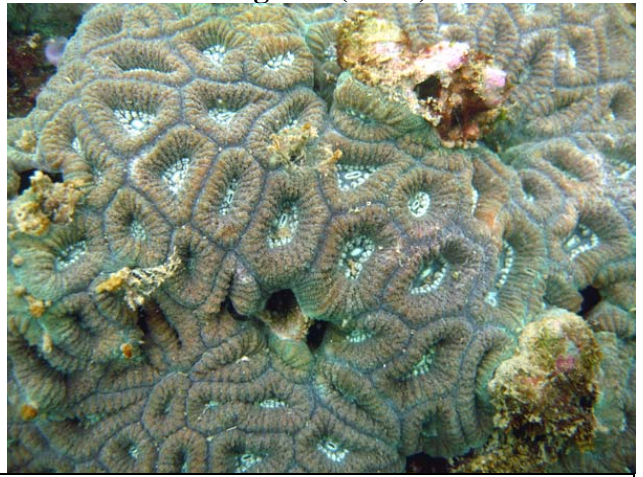


*Porites* sp.

Appendix IVb Tagged Coral Colonies at the Control Monitoring Site (CMS).



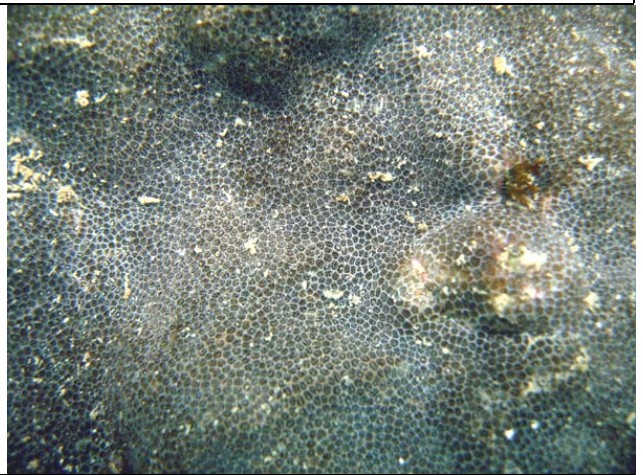
B01



*Favia lizardensis*



B02



*Porites* sp.



B03



*Psammocora profundacella*



B04



*Cyphastrea serailia*

Appendix IVb Tagged Coral Colonies at the Control Monitoring Site (CMS)...continued.



B05



*Favites abdita*



B06



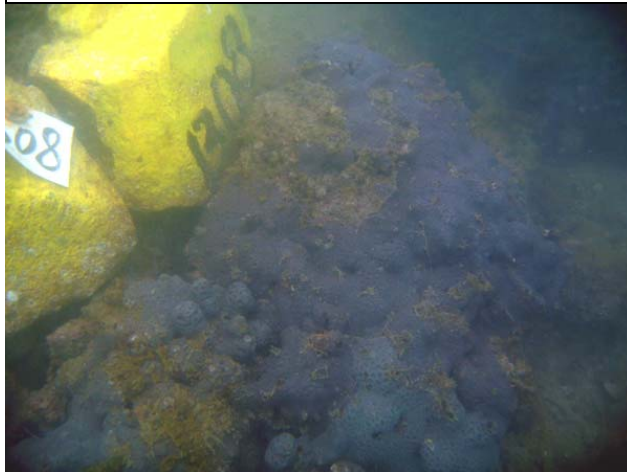
*Leptastrea pruinosa*



B07



*Platygyra acuta*



B08



*Leptastrea purpurea*

Appendix IVb Tagged Coral Colonies at the Control Monitoring Site (CMS)...continued.



B09



*Leptastrea pruinosa*



B10



*Favites pentagona*

Appendix Va Tagged Coral Colonies at the Impact Monitoring Site (IMS).



A01



*Favites pentagona*



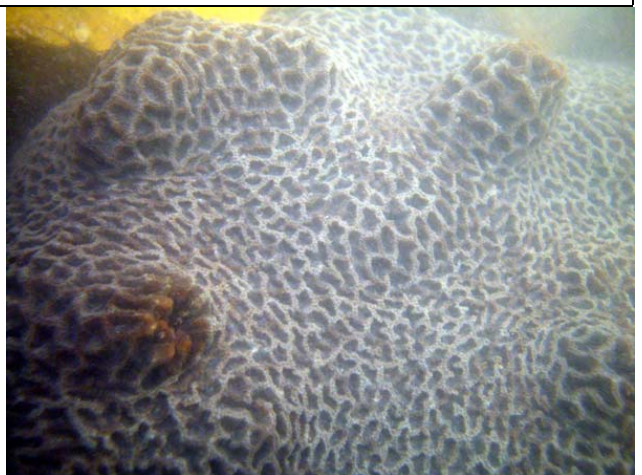
A02



*Favia rotumana*



A03



*Platygyra carnosus*



A04

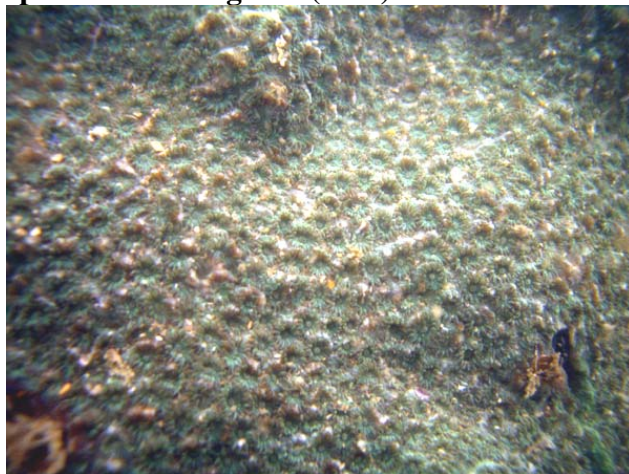


*Favia rotumana*

Appendix Va Tagged Coral Colonies at the Impact Monitoring Site (IMS).....continued.



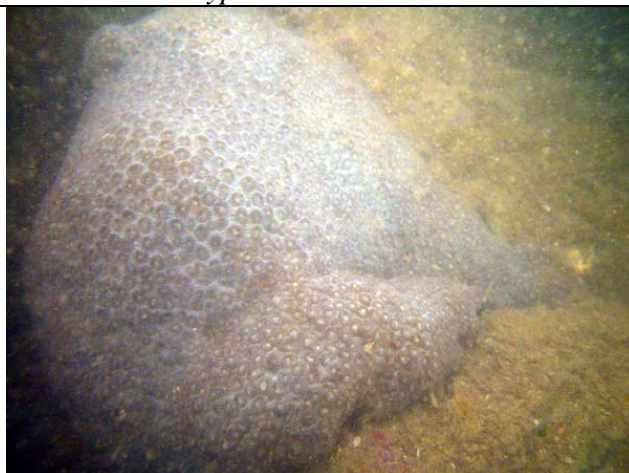
A05



*Cyphastrea serailia*



A06



*Cyphastrea serailia*



A07



*Favites pentagona*



A08



*Porites sp.*



Appendix Va Tagged coral colonies at the Impact Monitoring Site (IMS).....continued.



A09



*Favites pentagona*

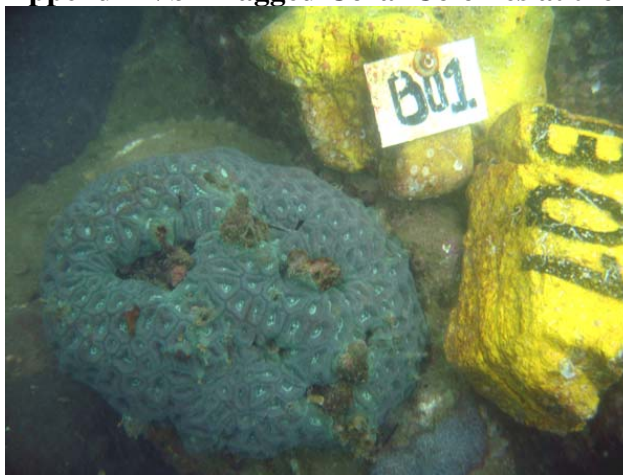


A10



*Porites* sp.

Appendix Vb Tagged Coral Colonies at the Control Monitoring Site (CMS).



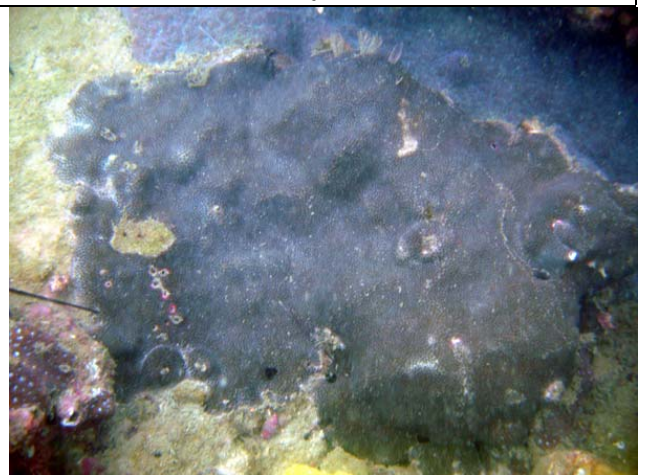
B01



*Favia lizardensis*



B02



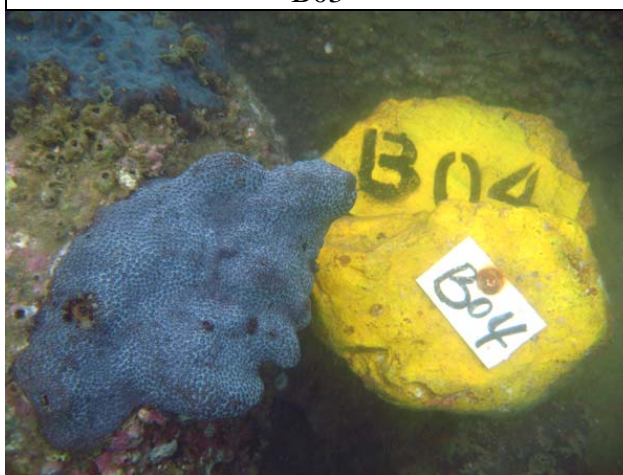
*Porites* sp.



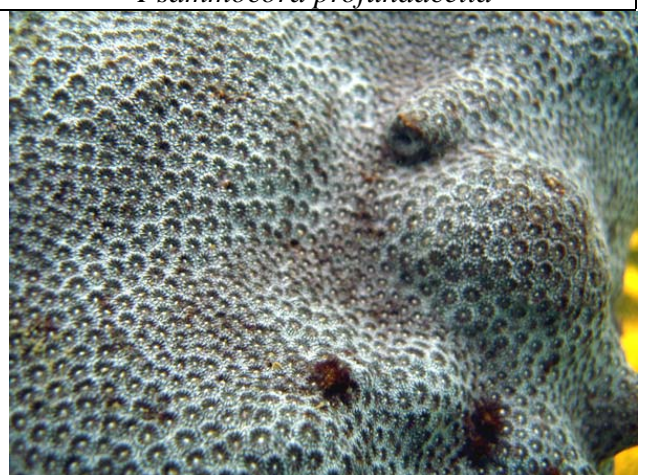
B03



*Psammocora profundacella*



B04

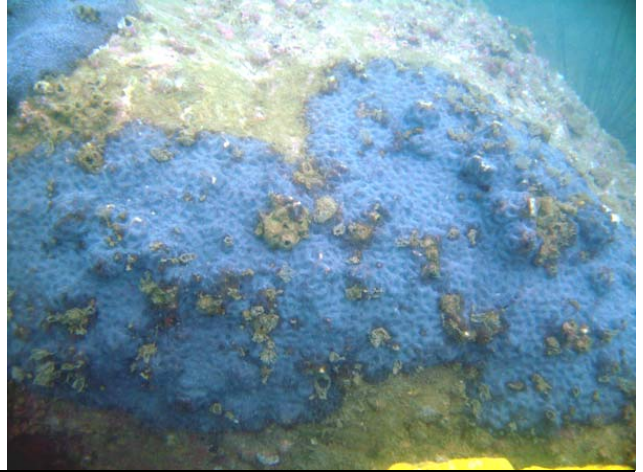


*Cyphastrea serailia*

Appendix Vb Tagged Coral Colonies at the Control Monitoring Site (CMS)...continued.



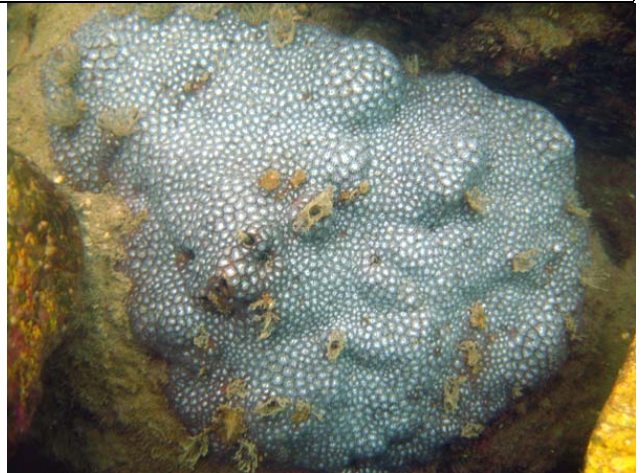
B05



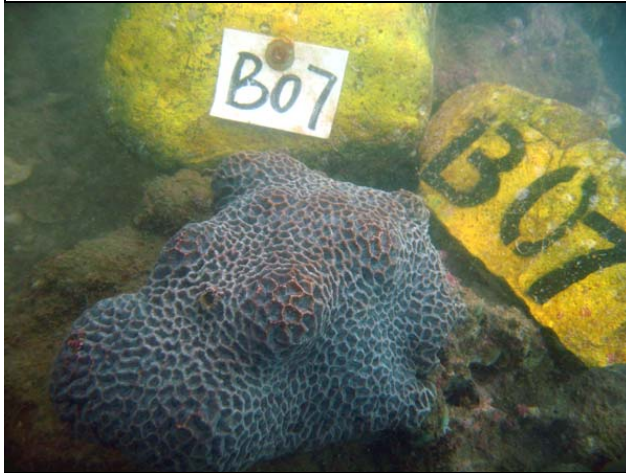
*Favites abdita*



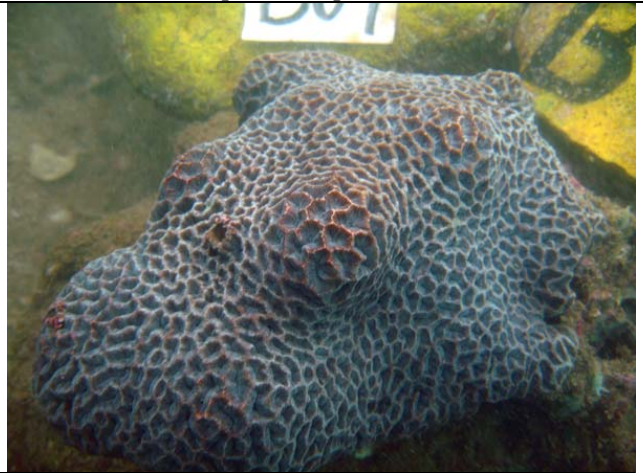
B06



*Leptastrea pruinosa*



B07



*Platygyra acuta*



B08



*Leptastrea purpurea*

Appendix Vb Tagged Coral Colonies at the Control Monitoring Site (CMS)...continued.



B09



*Leptastrea pruinosa*



B10



*Favites pentagona*

Appendix VIa Tagged Coral Colonies at the Impact Monitoring Site (IMS).



A01



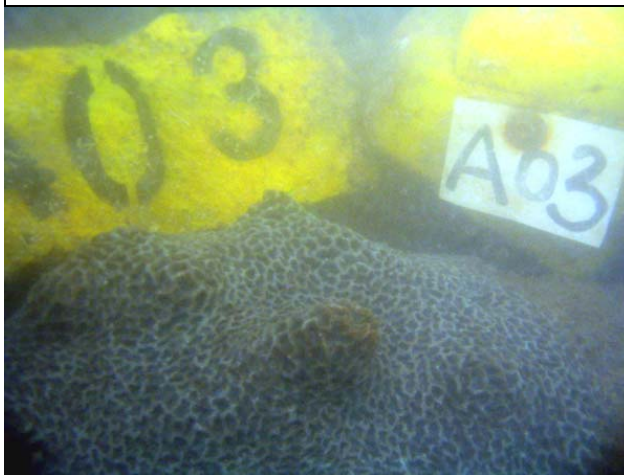
*Favites pentagona*



A02



*Favia rotumana*



A03



*Platygyra carnosus*



A04



*Favia rotumana*

Appendix VIa Tagged Coral Colonies at the Impact Monitoring Site (IMS).....continued.



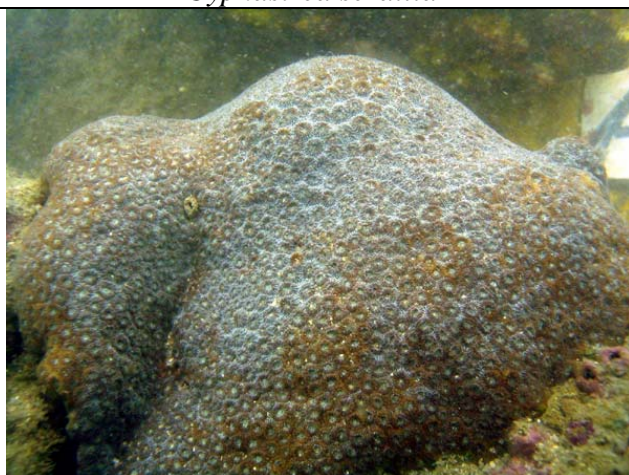
A05



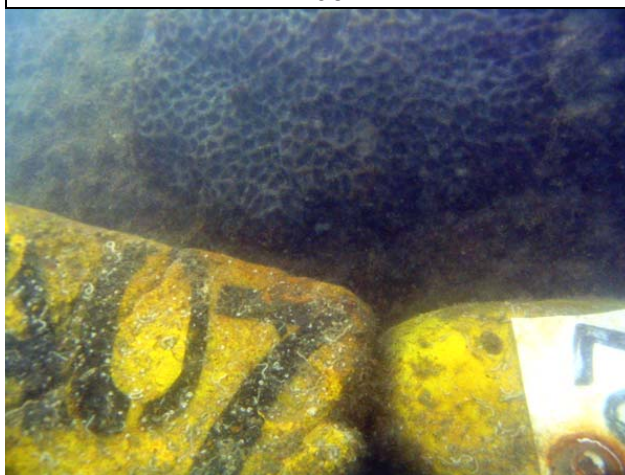
*Cyphastrea serailia*



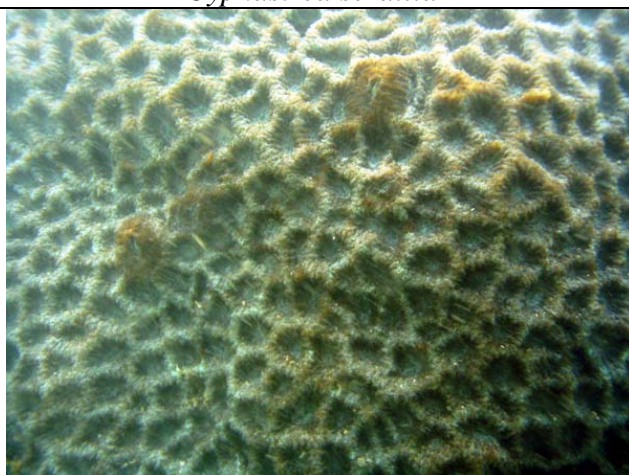
A06



*Cyphastrea serailia*



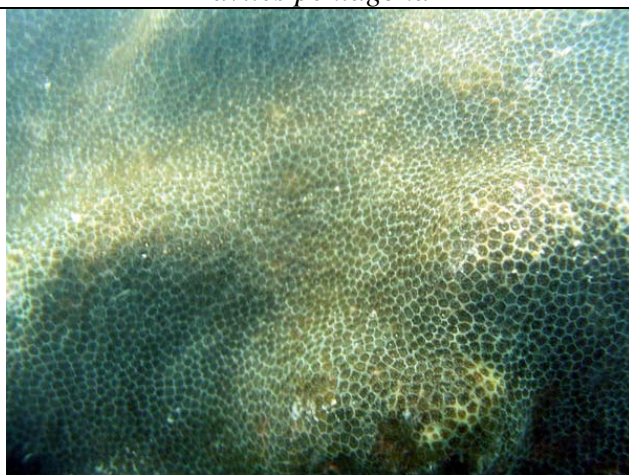
A07



*Favites pentagona*



A08



*Porites* sp.

Appendix VIa Tagged coral colonies at the Impact Monitoring Site (IMS).....continued.



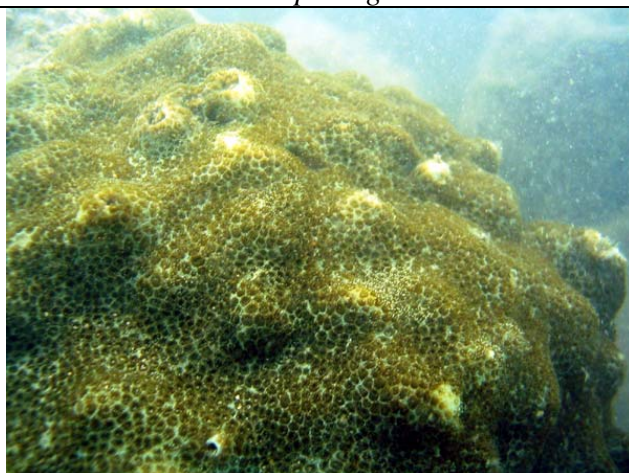
A09



*Favites pentagona*



A10



*Porites* sp.

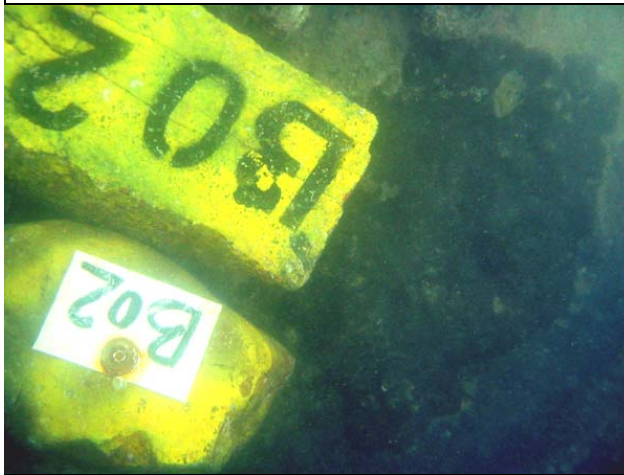
Appendix VIb Tagged Coral Colonies at the Control Monitoring Site (CMS).



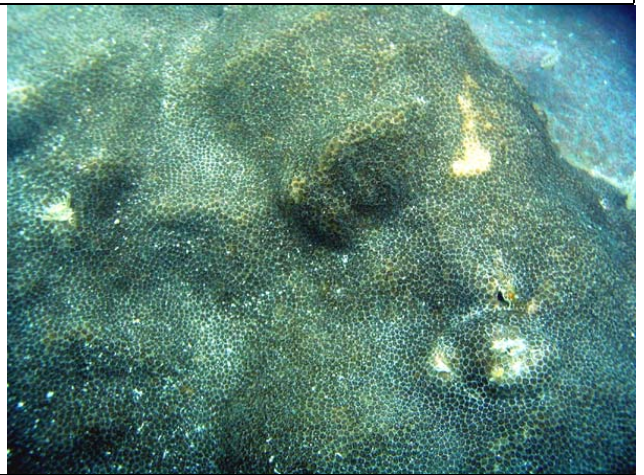
B01



*Favia lizardensis*



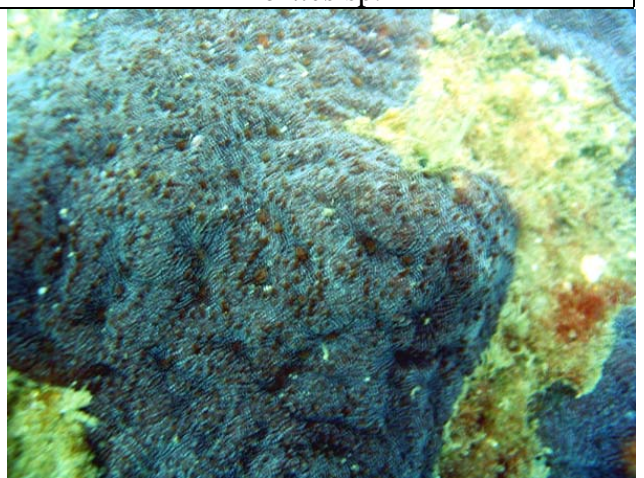
B02



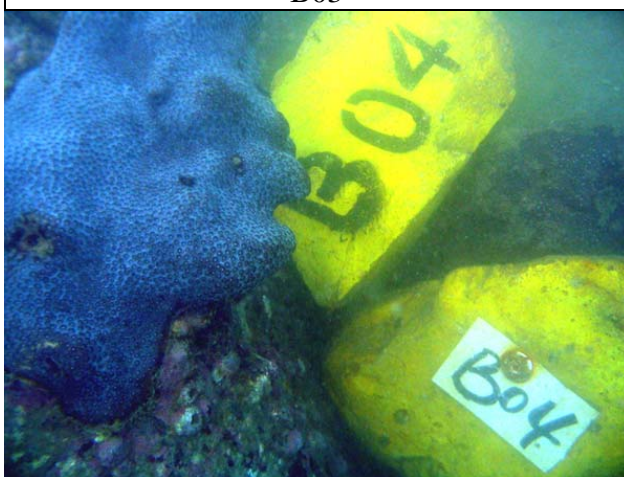
*Porites* sp.



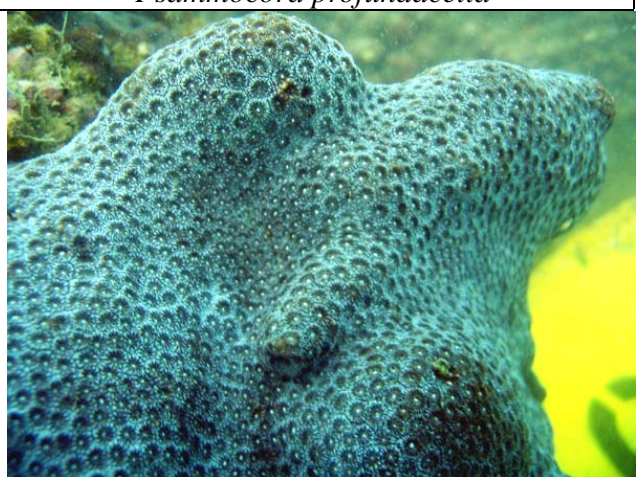
B03



*Psammocora profundacella*



B04



*Cyphastrea serailia*



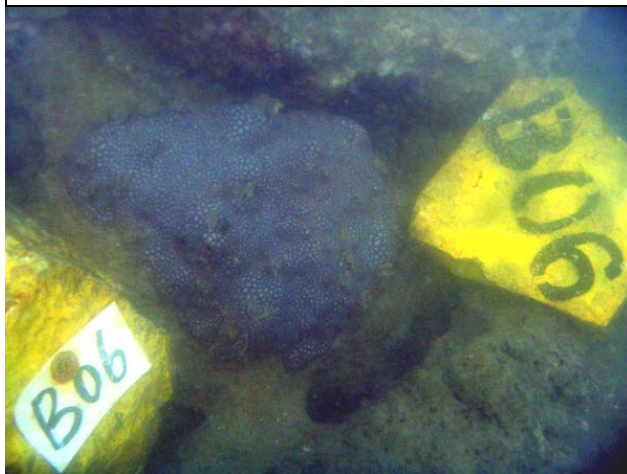
Appendix VIb Tagged Coral Colonies at the Control Monitoring Site (CMS)...continued.



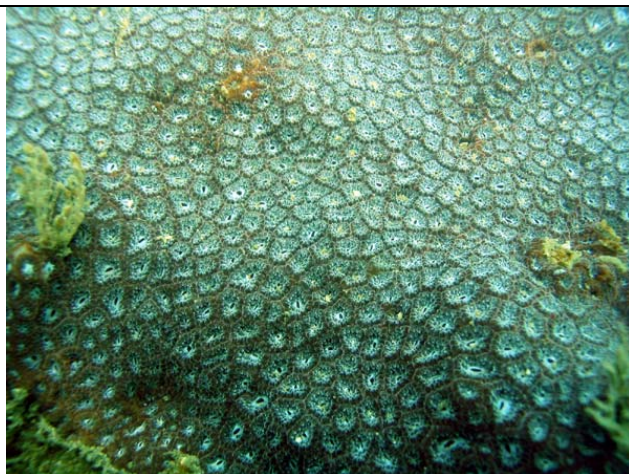
B05



*Favites abdita*



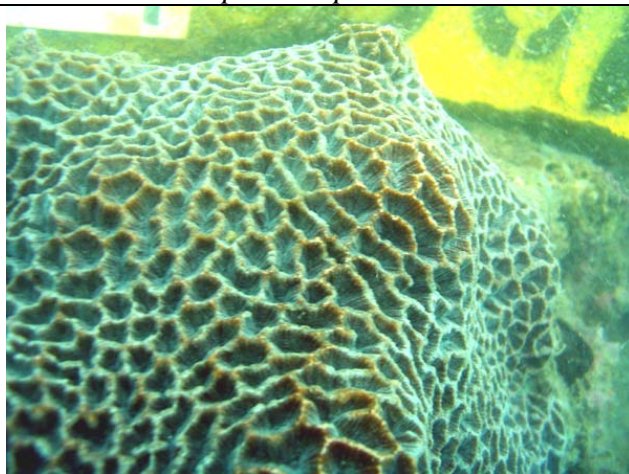
B06



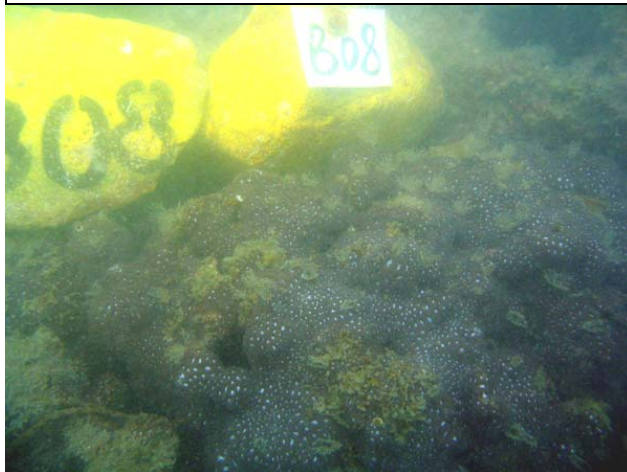
*Leptastrea pruinosa*



B07



*Platygyra acuta*



B08

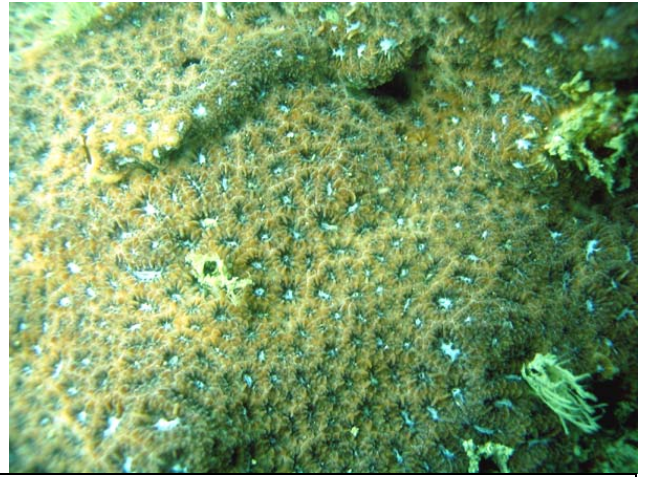


*Leptastrea pruinosa*

Appendix VIb Tagged Coral Colonies at the Control Monitoring Site (CMS)...continued.



B09



*Leptastrea pruinosa*



B10



*Favites pentagona*