

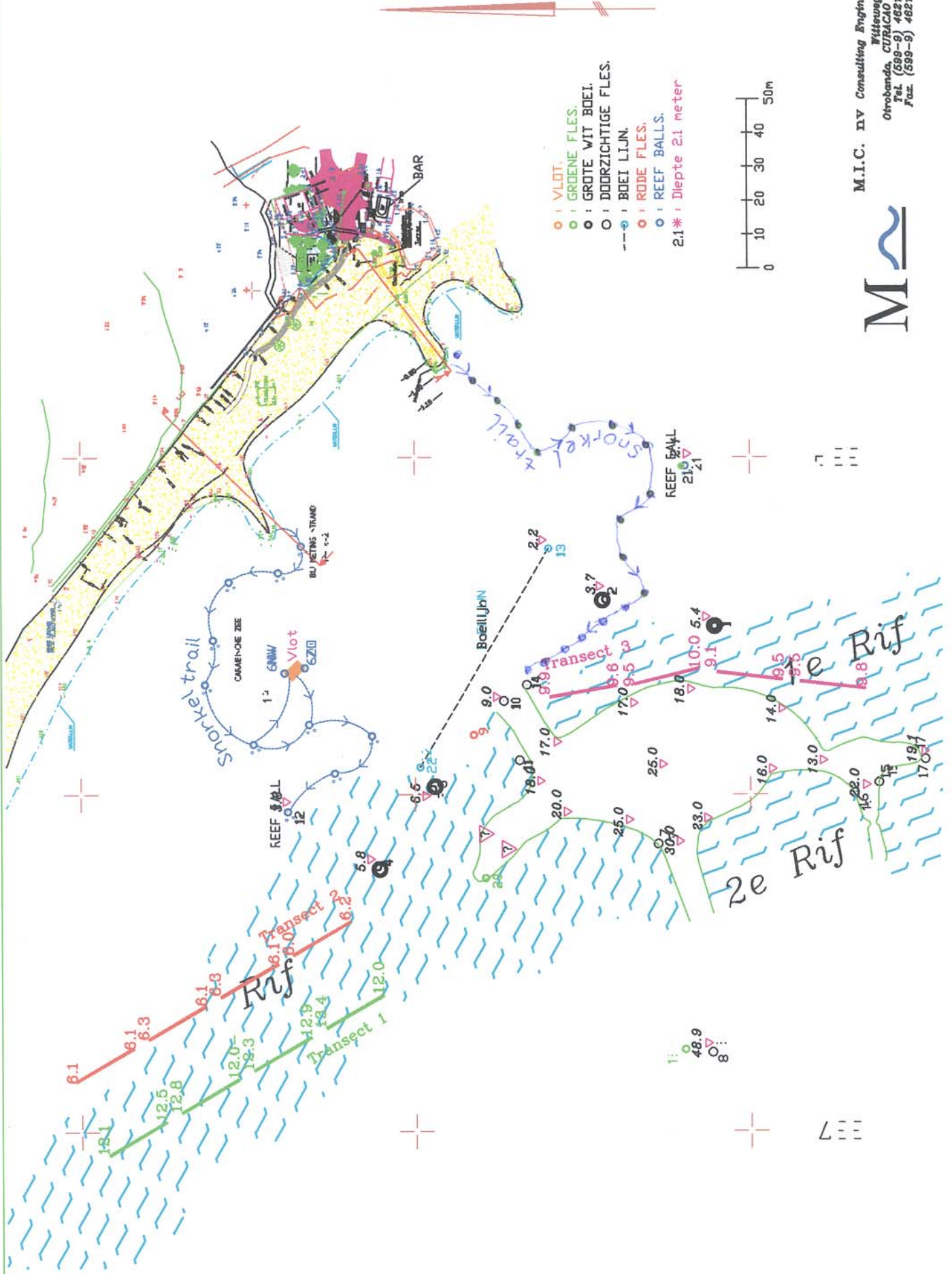
# **PORTOMAREA MARINE MONITORING**

## **CORAL AND FISH/INVERTEBRATE SURVEY**

by

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July 2002



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# PORTOMAREA MARINE MONITORING

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## PORTOMAREA MARINE MONITORING

### FISH/INVERTEBRATE AND CORAL SURVEY OVERVIEW

Survey dates: July 1 - 9, 2002

Data observed and recorded by: Marjo van den Bulck

#### WATER TEMPERATURE & VISIBILITY

One rainy day during this period. Cloud cover was moderate on most days.

Water temperature was 26C during the monitoring period, which is the same as in the April monitoring period.

Visibility varied from less than 15m to 30m. Average visibility 15m.

As compared to the April monitoring period, when a moderate to strong current running from west to east (the reverse direction the current normally runs) was recorded, this period there was hardly any current.

#### TRANSECTS

Three (3) transect lines 95m long were set up for the coral line and fish/invertebrate belt surveys. Each line was divided into four 20m sections with 5m intervals, in accordance with accepted monitoring practices. Transect numbers 1 and 2 are on the west side of the bay at depths of 12m and 6m respectively. Transect 3 is on the east side of the bay at 10m.

Coral monitoring was carried out over each 20m section with sampling points at .5m intervals.

Fish/invertebrate monitoring was done over a contiguous 5m-wide 'belt' along 20m sections of the above described transect lines.

Detailed transect setup information can be found in the PortoMarea Marine Monitoring Manual.

A lot of the rebars we used to set out our Transects were gone. We had to renew four rebars on Transect # 1, two rebars on Transect # 2 and three rebars on Transect # 3.

## **CORAL MONITORING**

### Health

The overall general condition of the reef reflects the damage sustained in 1999 from Hurricane Lenny. Large boulder corals were overturned, and the corals subsequently died off.

Transects 1 and 2, on the west side of the bay exhibit some regeneration, e.g. new maze and mustard hill corals have begun to grow on the old dead coral boulders. Transect 1 and 3 had a high Blue/Green Algae count.

Transect 2 is basically a shallow patch reef, and the high percentage of sand cover reflects between coral patches.

### Damage

Signs of recent damage, e.g. broken hard corals, were recorded along Transect 1. It is assumed that this damage is attributable to divers.

## **FISH/INVERTEBRATE SURVEY**

Fish- and invertebrate population on Transect # 1 ( 12m depth) seems to decrease compared to the April and January survey periods.

More Fish and Invertebrates were counted on Transects # 2 and 3 compared to the April survey period.

## **REEF BALL CLUSTERS**

There are 2 snorkel trails laid out, consisting of 10 reef ball clusters on the west side of the bay at depths ranging from 1.2 to 3.8m, and 12 clusters on the east side of the bay at depths from 1.5 to 4.3m.

On April 6, 2002, 6 additional reef ball clusters (approximately 100 balls) were placed on the east side of the bay along the top edge of the inner reef, at an average depth of 4.3m. This brings the total number of clusters to 18.

Most of the Reef Balls show heavy algae growth. In the case of Cluster 10R and Cluster 12L, the algae is beginning to overgrow the coral plugs.

## **CORAL PLUGS**

On February 8, 2002, six (6) varied coral plugs, incorporating a new transplant method, were planted on Cluster 12L. Twenty-four (24) Staghorn coral plugs were planted on Cluster 12L on March 23, 2002. These new plugs have been included in the report.

On both sides, Cluster 10R and Cluster 12L, the coral plugs are showing signs of stress. Several are covered in heavy algae growth.

Cluster 10, right side, ten coral plugs are gone/dead of which eight are Sea Rods. Cluster 12, left side, six staghorn plugs are gone/dead.

Staghorn pieces broken off coral plugs were found at Cluster 12L and Cluster 10R.

## **FISH/INVERTEBRATE SURVEY - OBSERVATIONS**

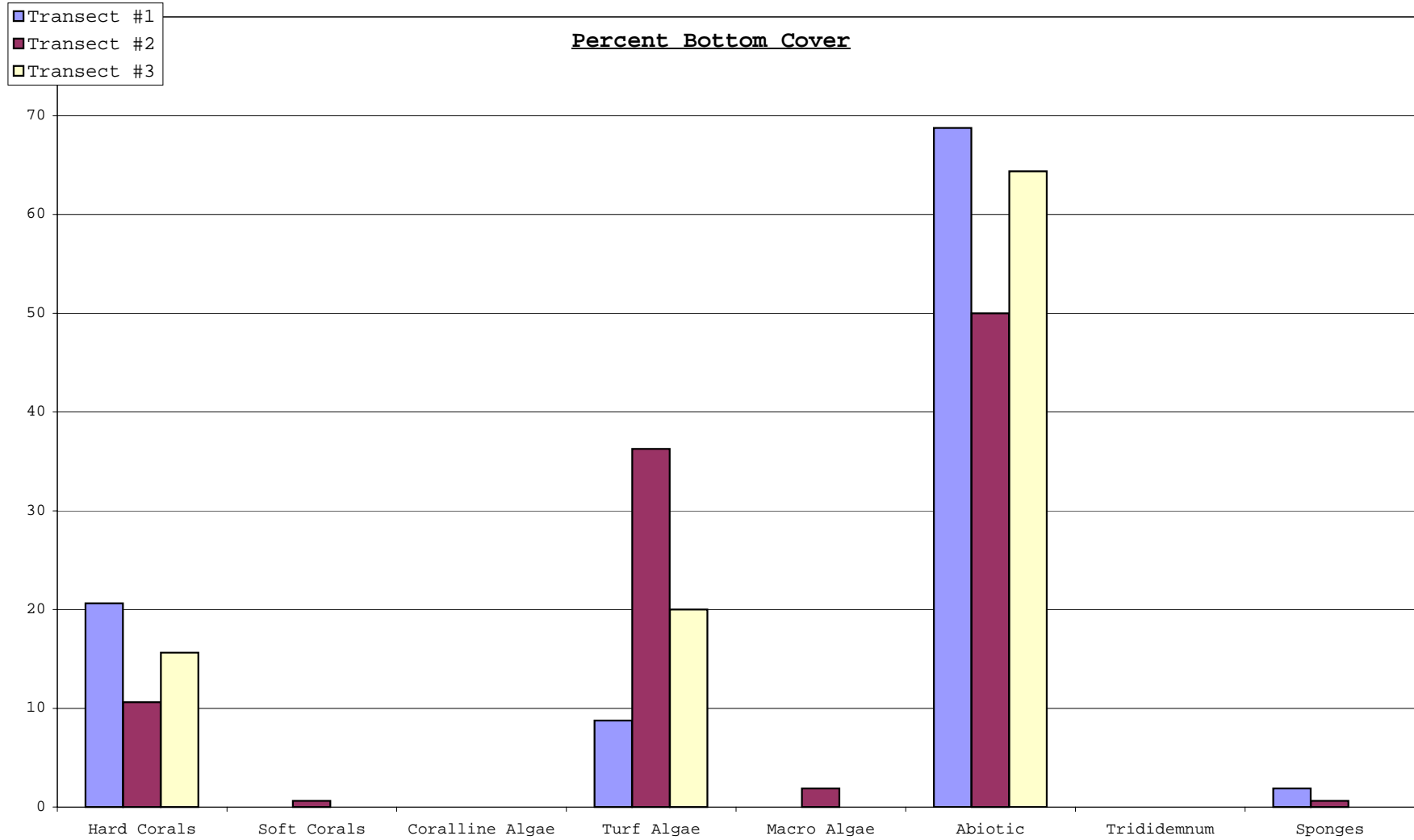
Compared to the April survey period more Fish and Invertebrates were found on Cluster 13 to 18 on the left side. These are the additional reef balls placed in April.

**PORTOMAREA MARINE MONITORING  
CORAL LINE TRANSECT SUMMARY**

Date : July 11, 2002  
Observer: Marjo van den Bulck

Transect No.	Depth	Hard Corals						Soft Corals	Coralline Algae	Turf Algae	Macro-Algae	Abiotic (Sand)	Trididem-num	Sponges	Total
		Total	Healthy	(Prt)Dead	Sick	Broken	Bleached								
<b>1</b>	<b>12m</b>														
	0-20m	13	13	0	0	0	0	0	0	0	26	0	1	40	
	25-45m	13	13	0	0	0	0	0	2	0	24	0	1	40	
	50-70m	5	5	0	0	0	0	0	5	0	30	0	0	40	
	75-95m	2	2	0	0	0	0	0	7	0	30	0	1	40	
Mean		8	8	0	0	0	0	0	4	0	28	0	1	40	
% cover		21	100	0	0	0	0	0	9	0	69	0	2	100	
standard deviation		5.62	5.62	0.00	0.00	0.00	0.00	0.00	3.11	0.00	3.00	0.00	0.50	0.00	
Transect No.	Depth	Hard Corals						Soft Corals	Coralline Algae	Turf Algae	Macro-Algae	Abiotic (Sand)	Trididem-num	Sponges	Total
		Total	Healthy	(Prt)Dead	Sick	Broken	Bleached								
<b>2</b>	<b>6m</b>														
	0-20m	2	2	0	0	0	0	0	15	0	23	0	0	40	
	25-45m	1	1	0	0	0	0	0	22	1	16	0	0	40	
	50-70m	10	9	1	0	0	0	0	11	2	17	0	0	40	
	75-95m	4	3	0	1	0	0	1	10	0	24	0	1	40	
Mean		4	4	0	0	0	0	0	15	1	20	0	0	40	
% cover		11	88	6	6	0	0	1	36	2	50	0	1	100	
standard deviation		4.03	3.59	0.50	0.50	0.00	0.00	0.50	5.45	0.96	4.08	0.00	0.50	0.00	
Transect No.	Depth	Hard Corals						Soft Corals	Coralline Algae	Turf Algae	Macro-Algae	Abiotic (Sand)	Trididem-num	Sponges	Total
		Total	Healthy	(Prt)Dead	Sick	Broken	Bleached								
<b>3</b>	<b>10m</b>														
	0-20m	11	11	0	0	0	0	0	6	0	23	0	0	40	
	25-45m	4	4	0	0	0	0	0	3	0	33	0	0	40	
	50-70m	4	3	0	1	0	0	0	13	0	23	0	0	40	
	75-95m	6	6	0	0	0	0	0	10	0	24	0	0	40	
Mean		6	6	0	0	0	0	0	8	0	26	0	0	40	
% cover		16	96	0	4	0	0	0	20	0	64	0	0	100	
standard deviation		3.30	3.56	0.00	0.50	0.00	0.00	0.00	4.40	0.00	4.86	0.00	0.00	0.00	

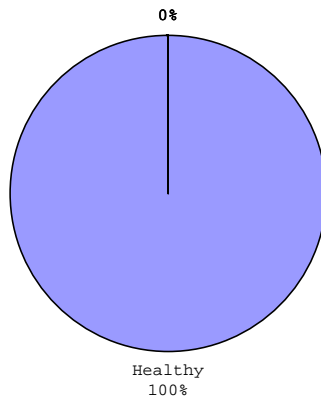
PORTOMAREA MARINE MONITORING  
CORAL LINE TRANSECT SUMMARY



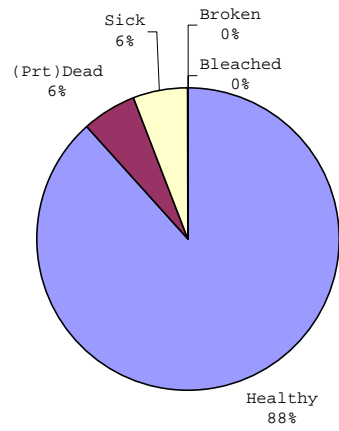


PORTOMAREA MARINE MONITORING  
CORAL LINE TRANSECTS - CORAL HEALTH CHART

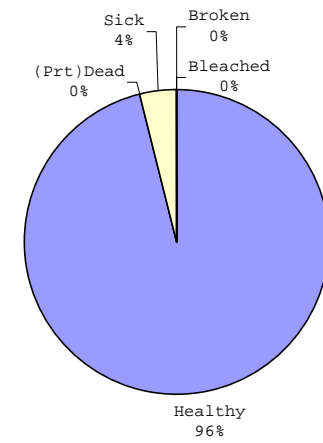
Transect 1, Depth 12m



Transect 2, Depth 6m



Transect 3, Depth 10m



**PORTOMAREA MARINE MONITORING**  
**CORAL LINE TRANSECT**

Transect No: 1, Depth 12m, Section 0-20m		Visibility: 11,5m		Observer: Marjo van den Bulck												
Date: July 1, 2002		Temperature: 26C														
M	HARD CORALS								CONDITION/REMARKS	SOFT CORALS						
	Branching	Mound	Star	Brain	Finger	Leaf	Fire Coral	Other Coral		Gorgonians	Sponges	Trididemnum	Coralline A	Macro Algae	Algae	Abiotics
0.5																RB
1																SD
1.5			Smooth						Healthy							
2									YA							RC
2.5									YA							RC
3																RC
3.5			Boulder						Healthy							
4			Boulder						Healthy							
4.5			Boulder						Healthy							
5																RB
5.5																RC
6																SD
6.5																SD
7			Boulder						Healthy							
7.5																RB
8		Mustard H							Healthy							
8.5																RC
9																RB
9.5																RC
10								Flower	Healthy							
10.5																RC
11																SD
11.5																SD
12									Touch me not		Sponge					
12.5						Lettuce			Healthy							
13																RC
13.5						Lettuce			Healthy							
14																RC
14.5																RC
15																SD
15.5																RB
16																RB
16.5				Brain					Healthy							
17				Brain					Healthy, same as 16,5							
17.5																RC
18																RC
18.5			Boulder						Healthy							
19																RB
19.5		Mustard H							Healthy							
20																SD
Total	0	2	6	2	0	2	0	1	0	13	0	0	0	0	0	26
	0	3	17	2	1	8	0	2	0	33	0	0	0	0	14	110 GRAND TOTAL

**Substrate Codes:**

PD (Partially) Dead	RC Rock	YA Y Algae	BRO Brown
H Healthy	RB Rubble	TA Turf Algae	YE Yellow
S Sick	SD Sand	BA Blue Green Algae	PU Purple
BL Bleached	MA Macro Algae	CA Coralline Algae	
		TR Trididemnum	

**PORTOMAREA MARINE MONITORING  
CORAL LINE TRANSECT**

Transect No: 1, Depth: 12m, Section 25-45m      Visibility: 11.5m      Observer: Marjo van den Bulck  
Date: July 1, 2002      Temperature: 26C

M	HARD CORALS								CONDITION/REMARKS	SOFT CORALS/OTHER						
	Branching	Mound	Star	Brain	Finger	Leaf	Fire Coral	Other Coral		Gorgonians	Sponges	Trididemnum	Coralline A	Macro Algae	Algae	Abiotics
0.5									YA							SD
1																SD
1.5																RB
2																SD
2.5																SD
3																RC
3.5									TA							RC
4																SD
4.5														BA		
5						Lettuce			Healthy							
5.5																RB
6			Boulder						Healthy							
6.5									YA							RC
7						Lettuce			Healthy							
7.5			Boulder						Healthy							
8									Brown tube sponge	BRO						
8.5																RB
9																RC
9.5						Lettuce			Healthy							
10																SD
10.5									TA							RC
11									TA							RC
11.5						Lettuce			Healthy							
12																RC
12.5																RC
13			Boulder						Healthy							
13.5			Boulder						Healthy							
14																RC
14.5									BA							RC
15									BA							RC
15.5						Lettuce			Healthy							
16														YA		
16.5																RB
17																RB
17.5			Great St						Healthy							
18			Boulder						Healthy							
18.5																RC
19			Boulder						Healthy							
19.5		Mustard H							Healthy							
20																SD
<b>Total</b>	0	1	7	0	0	5	0	0	0	0	1	0	0	0	2	24

**Substrate Codes:**

PD	(Partially) Dead	RC	Rock	YA	Y Algae	BRO	Brown
H	Healthy	RB	Rubble	TA	Turf Algae	YE	Yellow
S	Sick	SD	Sand	BA	Blue Green Algae	PU	Purple
BL	Bleached	MA	Macro Algae	CA	Coralline Algae		
				TR	Trididemnum		

**PORTOMAREA MARINE MONITORING  
CORAL LINE TRANSECT**

Transect No: 1, Depth 12m, Section 50-70m      Visibility: 11,5m      Observer: Marjo van den Bulck  
Date: July 1, 2002      Temperature: 26C

M	HARD CORALS								CONDITION/REMARKS	SOFT CORALS/OTHER							
	Branching	Mound	Star	Brain	Finger	Leaf	Fire Coral	Other Coral		Gorgonians	Sponges	Trididemnum	Coralline A	Macro Algae	Algae	Abiotics	
0.5																RB	
1			Boulder						Healthy								
1.5			Boulder						Healthy, same as 1								
2																RC	
2.5																RC	
3															YA		
3.5																RB	
4															BA		
4.5						Lettuce			Healthy								
5																RC	
5.5															BA		
6																RB	
6.5					Finger				Healthy								
7																SD	
7.5																SD	
8																SD	
8.5																SD	
9																SD	
9.5																SD	
10																SD	
10.5																SD	
11																SD	
11.5			Boulder						Healthy								
12																RC	
12.5																RC	
13																RC	
13.5																RC	
14															YA		
14.5																SD	
15																RB	
15.5															BA		
16																SD	
16.5																SD	
17																SD	
17.5																SD	
18																SD	
18.5																SD	
19																SD	
19.5																SD	
20																SD	
<b>Total</b>	0	0	3	0	1	1	0	0	0	0	0	0	0	0	0	5	30

**Substrate Codes:**

PD (Partially) Dead	RC Rock	YA Y Algae	BRO Brown
H Healthy	RB Rubble	TA Turf Algae	YE Yellow
S Sick	SD Sand	BA Blue Green Algae	PU Purple
BL Bleached	MA Macro Algae	CA Coralline Algae	
	TR Trididemnum		

**PORTOMAREA MARINE MONITORING  
CORAL LINE TRANSECT**

Transect No: 1, Depth 12m, Section 75-95m      Visibility: 11,5m      Observer: Marjo van den Bulck  
Date: July 1, 2002      Temperature: 26C

M	HARD CORALS								CONDITION/REMARKS	SOFT CORALS/OTHER							
	Branching	Mound	Star	Brain	Finger	Leaf	Fire Coral	Other Coral		Gorgonians	Sponges	Trididemnum	Coralline A	Macro Algae	Algae	Abiotics	
0.5																SD	
1																SD	
1.5																SD	
2																SD	
2.5																RB	
3																BA	
3.5																BA	
4																BA	
4.5																BA	
5																SD	
5.5																RB	
6																RC	
6.5																RC	
7																SD	
7.5																RB	
8																RB	
8.5																SD	
9									Brown tube sponge		BRO					SD	
9.5																RC	
10																RC	
10.5								Flower	Healthy								
11																RC	
11.5																RB	
12																RB	
12.5									YA							RC	
13															YA		
13.5																RB	
14																SD	
14.5									TA							RB	
15															BA		
15.5																RC	
16																SD	
16.5																SD	
17																SD	
17.5			Boulder						Healthy								
18															TA		
18.5																RC	
19																SD	
19.5																SD	
20																SD	
<b>Total</b>	0	0	1	0	0	0	0	1			0	1	0	0	0	7	30

**Substrate Codes:**

PD (Partially) Dead	RC Rock	YA Y Algae	BRO Brown
H Healthy	RB Rubble	TA Turf Algae	YE Yellow
S Sick	SD Sand	BA Blue Green Algae	PU Purple
BL Bleached	MA Macro Algae	CA Coralline Algae	
		TR Trididemnum	

**PORTOMAREA MARINE MONITORING  
CORAL LINE TRANSECT**

Transect No: 2, Depth 6m, Section 0-20m  
Date: July 4, 2002

Visibility: 15m  
Temperature: 26C

Observer: Marjo van den Bulck

M	HARD CORALS								CONDITION/REMARKS	SOFT CORALS/OTHER									
	Branching	Mound	Star	Brain	Finger	Leaf	Fire Coral	Other Coral		Gorgonians	Sponges	Trididemnum	Coralline A	Macro Algae	Algae	Abiotics			
0.5															TA				
1																RB			
1.5																SD			
2															TA				
2.5															TA				
3									BA						YA				
3.5															YA				
4																SD			
4.5																SD			
5																SD			
5.5																SD			
6																RB			
6.5															TA				
7															TA				
7.5															TA				
8																SD			
8.5																RB			
9																RB			
9.5																SD			
10		Maze							Healthy, diameter 7 cm										
10.5																RB			
11																RB			
11.5															TA				
12															TA				
12.5																RB			
13			Smooth						Healthy										
13.5															TA				
14																RB			
14.5																SD			
15																RB			
15.5																RB			
16																RB			
16.5																SD			
17															TA				
17.5																RB			
18																RB			
18.5															TA				
19															TA				
19.5															BA				
20																RB			
										PD	H	S	BL						
<b>Total</b>	0	1	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	15	23
	0	4	11	1	0	1	0	0	1	15	1	0	0	3	58	80	<b>GRAND TOTAL</b>		

**Substrate Codes:**

PD (Partially) Dead	RC Rock	YA Y Algae	BRO Brown
H Healthy	RB Rubble	TA Turf Algae	YE Yellow
S Sick	SD Sand	BA Blue Green Algae	PU Purple
BL Bleached	MA Macro Algae	CA Coralline Algae	
		TR Trididemnum	

**PORTOMAREA MARINE MONITORING  
CORAL LINE TRANSECT**

Transect No: 2, Depth 6m, Section 25-45m      Visibility: 15m      Observer: Marjo van den Bulck  
Date: July 4, 2002      Temperature: 26C

M	HARD CORALS								CONDITION/REMARKS	SOFT CORALS/OTHER							
	Branching	Mound	Star	Brain	Finger	Leaf	Fire Coral	Other Coral		Gorgonians	Sponges	Trididemnum	Coralline A	Macro Algae	Algae	Abiotics	
0.5																SD	
1																RB	
1.5																TA	
2																TA	
2.5																RB	
3																TA	
3.5																TA	
4									TA				MA				
4.5																RB	
5		Maze							Healthy, diameter 11 cm								
5.5																TA	
6																TA	
6.5																TA	
7																TA	
7.5																TA	
8																RB	
8.5																RB	
9																RB	
9.5																RB	
10																RB	
10.5																TA	
11																TA	
11.5																TA	
12																SD	
12.5																TA	
13																RB	
13.5																BA	
14																TA	
14.5																TA	
15																RB	
15.5																TA	
16																SD	
16.5																TA	
17																SD	
17.5																TA	
18																SD	
18.5																TA	
19																TA	
19.5																TA	
20																RB	
<b>Total</b>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	22	16

**Substrate Codes:**

PD	(Partially) Dead	RC	Rock	YA	Y Algae	BRO	Brown
H	Healthy	RB	Rubble	TA	Turf Algae	YE	Yellow
S	Sick	SD	Sand	BA	Blue Green Algae	PU	Purple
BL	Bleached	MA	Macro Algae	CA	Coralline Algae		
				TR	Trididemnum		

**PORTOMAREA MARINE MONITORING**  
**CORAL LINE TRANSECT**

Transect No: 2, Depth 6m, Section 50-70m      Visibility: 15m      Observer: Marjo van den Bulck  
Date: July 4, 2002      Temperature: 26C

M	HARD CORALS								CONDITION/REMARKS	SOFT CORALS/OTHER									
	Mound	Star	Brain	Finger	Leaf	Fire Coral	Other Coral	Gorgonians		Sponges	Trididemnum	Coralline A	Macro Algae	Algae	Abiotics				
0.5																	SD		
1																	SD		
1.5	Mustard H								Healthy										
2																	SD		
2.5																	RC		
3																	RB		
3.5																	SD		
4		Boulder							Healthy										
4.5																	RC		
5																	SD		
5.5		Boulder							Dead, recently killed										
6		Boulder							Healthy										
6.5																	TA		
7																	TA		
7.5		Boulder							Healthy										
8		Boulder							Healthy										
8.5		Boulder							Healthy, diameter 8 cm										
9																	RB		
9.5																	RB		
10																	TA		
10.5																	TA		
11																	YA		
11.5																	YA		
12																	TA		
12.5																	SD		
13																	SD		
13.5																	TA		
14		Boulder							Healthy										
14.5																	RB		
15	Mustard H								Healthy										
15.5									TA				MA						
16									TA				MA						
16.5																	TA		
17		Boulder							Healthy										
17.5																	TA		
18																	TA		
18.5																	RB		
19																	RB		
19.5																	RB		
20																	SD		
<b>Total</b>	0	2	8	0	0	0	0	0					0	0	0	0	2	11	17

**Substrate Codes:**

PD (Partially) Dead	RC	Rock	YA	Y Algae	BRO	Brown
H Healthy	RB	Rubble	TA	Turf Algae	YE	Yellow
S Sick	SD	Sand	BA	Blue Green Algae	PU	Purple
BL Bleached	MA	Macro Algae	CA	Coralline Algae		
			TR	Trididemnum		





**PORTOMAREA MARINE MONITORING  
CORAL LINE TRANSECT**

Transect No: 3, Depth 10m, Section 0-20m  
Date: July 3, 2002

Visibility: 15m  
Temperature: 26C

Observer: Marjo van den Bulck

M	HARD CORALS								CONDITION/REMARKS	SOFT CORALS/OTHER							
	Branching	Mound	Star	Brain	Finger	Leaf	Fire Coral	Other Coral		Gorgonians	Sponges	Trididemnum	Coralline A	Macro Algae	Algae	Abiotics	
0.5															RB		
1														TA			
1.5					Pencil				Healthy								
2							Encrusting		Healthy								
2.5															RC		
3															RB		
3.5															RB		
4															RB		
4.5														BA			
5														BA			
5.5															SD		
6															RB		
6.5															RC		
7															SD		
7.5														BA			
8						Lettuce			Healthy								
8.5						Lettuce			Healthy								
9															RC		
9.5			Boulder						Healthy								
10						Lettuce			Healthy								
10.5						Lettuce			Healthy								
11															RC		
11.5				Grooved					Healthy								
12				Grooved					Healthy								
12.5															SD		
13															RB		
13.5															RB		
14															RB		
14.5															RB		
15															SD		
15.5															RB		
16															SD		
16.5			Boulder						Healthy								
17			Boulder						Healthy								
17.5															SD		
18															SD		
18.5														BA			
19															RC		
19.5														TA			
20															SD		
									PD	H	S	BL					
<b>Total</b>	0	0	3	2	1	4	1	0	0	11	0	0	0	0	0	6	23
	0	2	10	2	1	7	1	2	0	24	1	0	0	0	0	32	103

Substrate Codes:									
PD	(Partially) Dead	RC	Rock	YA	Y Algae	BRO	Brown		
H	Healthy	RB	Rubble	TA	Turf Algae	YE	Yellow		
S	Sick	SD	Sand	BA	Blue Green Algae	PU	Purple		
BL	Bleached	MA	Macro Algae	CA	Coralline Algae				
				TR	Trididemnum				

**PORTOMAREA MARINE MONITORING  
CORAL LINE TRANSECT**

Transect No: 3, Depth 10m, Section 25-45m      Visibility: 15m      Observer: Marjo van den Bulck  
Date: July 3, 2002      Temperature: 26C

M	HARD CORALS								CONDITION/REMARKS	SOFT CORALS/OTHER							
	Branching	Mound	Star	Brain	Finger	Leaf	Fire Coral	Other Coral		Gorgonians	Sponges	Trididemnum	Coralline A	Macro Algae	Algae	Abiotics	
0.5																RB	
1																RC	
1.5																SD	
2																SD	
2.5																RB	
3																RB	
3.5																	
4														BA			
4.5																RB	
5																SD	
5.5																SD	
6															BA		
6.5																RB	
7						Lettuce			Healthy								
7.5																SD	
8																SD	
8.5															TA		
9																RB	
9.5																SD	
10																RB	
10.5																SD	
11																SD	
11.5								flower	Healthy								
12																RC	
12.5			Smooth						Healthy								
13																RB	
13.5																SD	
14																SD	
14.5																RB	
15																RB	
15.5																RB	
16																RB	
16.5																RB	
17																RB	
17.5								Starlet	Healthy, Massive starlet								
18																RB	
18.5																RB	
19																RB	
19.5																SD	
20																RC	
<b>Total</b>	0	0	1	0	0	1	0	2								3	33

**Substrate Codes:**

PD	(Partially) Dead	RC	Rock	YA	Y Algae	BRO	Brown
H	Healthy	RB	Rubble	TA	Turf Algae	YE	Yellow
S	Sick	SD	Sand	BA	Blue Green Algae	PU	Purple
BL	Bleached	MA	Macro Algae	CA	Coralline Algae		
				TR	Trididemnum		

**PORTOMAREA MARINE MONITORING  
CORAL LINE TRANSECT**

Transect No: 3, Depth 10m, Section 50-70m      Visibility: 15m      Observer: Marjo van den Bulck  
Date: July 3, 2002      Temperature: 26C

M	HARD CORALS								CONDITION/REMARKS	SOFT CORALS/OTHER							
	Branching	Mound	Star	Brain	Finger	Leaf	Fire Coral	Other Coral		Gorgonians	Sponges	Trididemnum	Coralline A	Macro Algae	Algae	Abiotics	
0.5																RB	
1			Boulder						Healthy								
1.5																BA	
2																BA	
2.5																TA	
3																BA	
3.5																TA	
4																	
4.5																	RB
5																	SD
5.5																BA	
6																BA	
6.5																TA	
7																BA	
7.5																	SD
8																TA	
8.5																	RB
9																	SD
9.5																	SD
10																	SD
10.5																	RB
11																	SD
11.5																	RC
12																	SD
12.5																	RC
13																	RC
13.5																BA	
14																	SD
14.5			Smooth						Healthy								
15																	RC
15.5			Boulder						Sick, Damsel damage								
16									RC							TA	
16.5									RC							TA	
17			Boulder						Healthy, near rock								
17.5																	SD
18																	SD
18.5																	RC
19																	RB
19.5																	RC
20																	RC
<b>Total</b>	0	0	4	0	0	0	0	0								13	23

**Substrate Codes:**

PD (Partially) Dead	RC	Rock	YA	Y Algae	BRO	Brown
H Healthy	RB	Rubble	TA	Turf Algae	YE	Yellow
S Sick	SD	Sand	BA	Blue Green Algae	PU	Purple
BL Bleached	MA	Macro Algae	CA	Coralline Algae		
			TR	Trididemnum		

**PORTOMAREA MARINE MONITORING  
CORAL LINE TRANSECT**

Transect No: 3, Depth 10m, Section 75-95m      Visibility: 15m      Observer: Marjo van den Bulck  
Date: July 3, 2002      Temperature: 26C

M	HARD CORALS								CONDITION/REMARKS	SOFT CORALS/OTHER						
	Branching	Mound	Star	Brain	Finger	Leaf	Fire Coral	Other Coral		Gorgonians	Sponges	Trididemnum	Coralline A	Macro Algae	Algae	Abiotics
0.5																RB
1																RB
1.5																TA
2																RB
2.5																BA
3																SD
3.5																BA
4		Mustard H							Healthy							
4.5		Maze							Healthy							
5																BA
5.5																BA
6																BA
6.5						Lettuce			Healthy							
7																RC
7.5																RB
8																RB
8.5																SD
9									Naast blushing star coral							RB
9.5																BA
10																TA
10.5																TA
11																RB
11.5																RB
12																RB
12.5																RB
13			Boulder						Healthy							
13.5																TA
14																RC
14.5																RC
15						Lettuce			Healthy							
15.5			Boulder						Healthy							
16																RC
16.5																RC
17																RC
17.5																RB
18																SD
18.5																RB
19																SD
19.5																SD
20																RC
<b>Total</b>	0	2	2	0	0	2	0	0	0	0	0	0	0	0	10	24

**Substrate Codes:**

PD (Partially) Dead	RC	Rock	YA	Y Algae	BRO	Brown
H Healthy	RB	Rubble	TA	Turf Algae	YE	Yellow
S Sick	SD	Sand	BA	Blue Green Algae	PU	Purple
BL Bleached	MA	Macro Algae	CA	Coralline Algae		
			TR	Trididemnum		

PORTOMAREA MARINE MONITORING

ATLANTIC BELT TRANSECT SUMMARY: FISH and INVERTEBRATES

July 2002

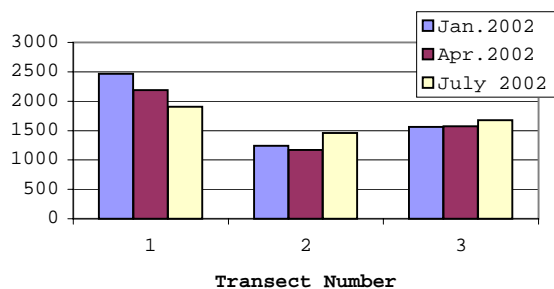
Data collected by: Marjo van den Bulck

PORTOMARI Atlantic Belt Transects		West side of Bay		East side	Total	Mean	St.Dev.
		Transect 1 Depth:12m	Transect 2 Depth: 6m	Transect 3 Depth:10m			
ANGELFISH	Cherubfish		23	9	32	16.00	9.90
	French Angelfish		1	4	5	2.50	2.12
	Queen Angelfish						
	Rock Beauty	1			1	1.00	
BASSLET	Fairy Basslet	12		4	16	8.00	5.66
BOXFISH	Honeycomb Cowfish						
	Smooth Trunkfish		1	2	3	1.50	0.71
BUTTERFLYFISH	Foureye Butterflyfish	4	4	5	13	4.33	0.58
	Longsnout Butterflyfish	1			1	1.00	
CHROMIS	Blue Chromis	89	5	36	130	43.33	42.48
	Brown Chromis	1060	680	790	2530	843.33	195.53
	Sunshinefish			3	3	3.00	
DAMSELFISH	Bicolor Damselfish	222	328	278	828	276.00	53.03
	Cocoa Damselfish		4	1	5	2.50	2.12
	Dusky Damselfish		18	27	45	22.50	6.36
	Sergeant Major		3	4	7	3.50	0.71
	Threespot Damselfish	79	23	20	122	40.67	33.23
	Yellowtail Damselfish		1		1	1.00	
DRUM	Spotted Drum	2			2	2.00	
EEL	Green Moray	1			1	1.00	
	Spotted Moray	2	1	1	4	1.33	0.58
FILEFISH	Orangespotted Filefish	1	1		2	1.00	
FLOUNDER	Peacock Flounder						
GOATFISH	Spotted Goatfish						
	Yellow Goatfish	51	17	10	78	26.00	21.93
GOBY	Bridled Goby	92	54	125	271	90.33	35.53
	Neon Goby		2	4	6	3.00	1.41
	Peppermint Goby	4	19	23	46	15.33	10.02
GROUPEL	Coney			3	3	3.00	
	Graysby	9	4	6	19	6.33	2.52
	Rock Hind	1	5		6	3.00	2.83
	Tiger Grouper						
GRUNT	Bluestriped Grunt	4		3	7	3.50	0.71
	French Grunt	5	6	12	23	7.67	3.79
	Striped Grunt	15	3	3	21	7.00	6.93
HAMLET	Barred Hamlet	3	1	2	6	2.00	1.00
	Black Hamlet		2		2	2.00	
	Butter Hamlet	2			2	2.00	
	Yellowtail Hamlet	7		6	13	6.50	0.71
HOGFISH	Spanish Hogfish	3		1	4	2.00	1.41
JACK	Bar Jack	1		1	2	1.00	
PARROTFISH	Blue Parrotfish	2			2	2.00	
	Princess Parrotfish	63	16	43	122	40.67	23.59
	Queen Parrotfish	8	2	7	17	5.67	3.21
	Redband Parrotfish	11	10	9	30	10.00	1.00
	Stoplight Parrotfish	13	15	20	48	16.00	3.61
	Striped Parrotfish	2		10	12	6.00	5.66
PUFFER	Balloonfish	1			1	1.00	
	Sharpnose Puffer	7	15	7	29	9.67	4.62
SCORPIONFISH	Spotted Scorpionfish	1			1	1.00	
SEABASS	Creolefish	1		2	3	1.50	0.71
	Harlequin Bass	7	13	8	28	9.33	3.21
SNAPPER	Mahogany Snapper						
	Schoolmaster	4	3	1	8	2.67	1.53
	Yellowtail Snapper						
SQUIRRELFISH	Blackbar Soldierfish	6	3	10	19	6.33	3.51
	Squirrelfish	7	1	5	13	4.33	3.06
SURGEONFISH	Blue Tang	5	5	4	14	4.67	0.58
	Doctorfish			1	1	1.00	
	Ocean Surgeon		5		5	5.00	
WRASSE	Bluehead Wrasse	62	133	126	321	107.00	39.13
	Clown Wrasse	2	13	8	23	7.67	5.51
	Creole Wrasse	15		5	20	10.00	7.07
	Puddingwife		1		1	1.00	
	Slippery Dick						
	Yellowhead Wrasse	14	38	25	77	25.67	12.01
OTHERS	Cornetfish						
	Hawkfish, Redspotted						
	Lizardfish						
	Sand Diver		1		1	1.00	
	Soapfish, Greater	2	1	1	4	1.33	0.58
	Trumpetfish	4	1	2	7	2.33	1.53
<b>TOTAL</b>		<b>1908</b>	<b>1459</b>	<b>1677</b>	<b>5044</b>	<b>1681.33</b>	
Invertebrates		Transect 1 Depth:12m	Transect 2 Depth: 6m	Transect 3 Depth:10m	Total	Mean	St.Dev.
ANEMONE	Carpet Anemone			1	2	1.00	
	Corkscrew Anemone			1	1	1.00	
	Giant Anemone	4	32	8	44	14.67	15.14
	Knobby Anemone	28	22	9	59	19.67	9.71
TUBE WORMS	Christmas tree Worms	232	581	300	1113	371.00	185.02
	Ghost Feather Duster	4	10	14	28	9.33	5.03
	Magnificent Feather Duster	3	1	3	7	2.33	1.15
	Split Crown Feather Duster	23	26	32	81	27.00	4.58
	Variegated Feather Duster	8	24	13	45	15.00	8.19
CRUSTACEANS	Banded Coral Shrimp	2	9	7	18	6.00	3.61
	Pederson Cleaner Shrimp	9	9	13	31	10.33	2.31
	Spotted Cleaner Shrimp						
	Red Snapping Shrimp						
	Yellowline Arrow Crab	1		2	3	1.50	0.71
MOLLUSKS	Amber Pen Shell						
	Rough File Clam		2		2	2.00	
	Sea Slug, Lettuce		7		7	7.00	
	Spiny File Clam						
ECHINODERMS	Queen Conch						
	Pencil Urchin			1	1	1.00	
	Tigertail Sea Cucumber						
<b>TOTAL</b>		<b>314</b>	<b>724</b>	<b>403</b>	<b>1441.00</b>	<b>480.33</b>	

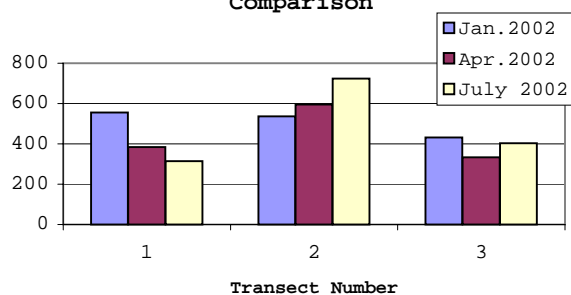
**PORTOMAREA MARINE MONITORING  
FISH AND INVERTEBRATE QUARTERLY COMPARISON**

	Transect 1 - Depth 12m			Transect 2 - Depth 6m			Transect 3 - Depth 10m		
	Jan.2002	Apr. 2002	July 2002	Jan.2002	Apr. 2002	July 2002	Jan. 2002	Apr. 2002	July 2002
<b>Fish</b>	2466	2187	1908	1241	1173	1459	1562	1576	1677
<b>Invertebrates</b>	556	384	314	537	596	724	432	334	403

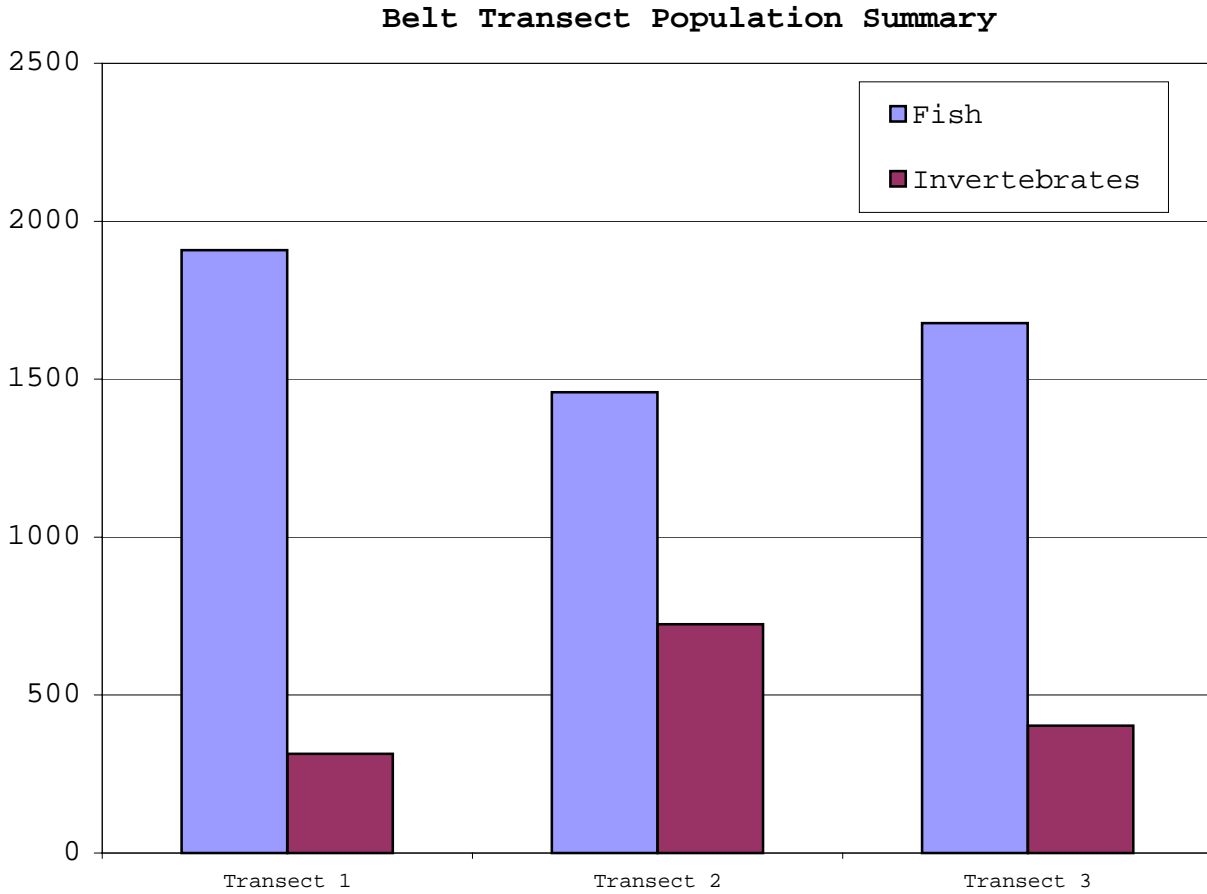
**Fish Population Quarterly Comparison**



**Invertebrate Population Quarterly Comparison**



**PORTOMAREA MARINE MONITORING**  
**ATLANTIC BELT TRANSECT FISH AND INVERTEBRATE SUMMARY**





PORTOMAREA MARINE MONITORING

ATLANTIC BELT TRANSECT: FISH and INVERTEBRATES

Transect #1, Depth: 12m

Date: July 2 , 2002Time: 8:41 a.m.

Data collected by: Marjo van den Bulck

Atlantic Belt Transect: Fish		0-20m	25-45m	50-70m	75-100m	Total	Mean	St.Dev.
ANGELFISH	Cherubfish							
	Queen Angelfish							
	Rock Beauty	1				1	1.00	
BASSLET	Fairy Basslet	7	3		2	12	4.00	2.65
BLENNY								
BOXFISH	Smooth Trunkfish							
	Spotted Trunkfish							
BUTTERFLYFISH	Banded Butterflyfish							
	Poureye Butterflyfish			4		4	4	
	Longsnout Butterflyfish		1			1	1.00	
CHROMIS	Blue Chromis	2	13	33	41	89	22.25	17.91
	Brown Chromis	600	300	60	100	1060	265.00	246.78
DAMSELFISH	Bicolor	66	61	40	55	222	55.50	11.27
	Dusky Damselfish							
	Threespot	27	17	20	15	79	19.75	5.25
DRUM	Spotted Drum		1	1		2	1	
	Green Moray		1			1	1.00	
EEL	Spotted Moray	1	1			2	1	
	Orangespotted Filefish	1				1	1.00	
FILEFISH								
FLOUNDER								
GOATFISH	Yellow Goatfish	9	2	5	35	51	12.75	15.11
	Spotted Goatfish							
GOBY	Bridled Goby	20	27	25	20	92	23.00	3.56
	Neon Goby							
	Peppermint Goby	2	2			4	2	
GROUPER	Graysby	3	2	3	1	9	2.25	0.96
	Rock Hind		1			1	1	
GRUNT	Bluestriped Grunt		2	1	1	4	1.333333	0.58
	French Grunt	1	1		3	5	1.666667	1.15
	Striped Grunt		3		12	15	7.50	6.36
HAMLET	Barred Hamlet			2	1	3	1.5	0.71
	Butter Hamlet	1		1		2	1	
	Yellowtail Hamlet	2	1	1	3	7	1.75	0.96
HOGFISH	Spanish Hogfish	2			1	3	1.50	0.71
JACK	Bar Jack		1			1	1	
PARROTFISH	Blue Parrotfish		1	1		2	1	
	Princess Parrotfish	24	17	6	16	63	15.75	7.41
	Queen Parrotfish		2	3	3	8	2.666667	0.58
	Redband Parrotfish	4	4	1	2	11	2.75	1.50
	Stoplight Parrotfish	5	5	2	1	13	3.25	2.06
	Striped Parrotfish		1	1		2	1.00	
PUFFER	Balloonfish		1			1	1.00	
	Sharpnose Puffer	2	5			7	3.5	2.12
SCORPIONFISH	Spotted Scorpionfish		1			1	1	
SEABASS	Creole Fish		1			1	1	
	Harlequin Bass	2	2	1	2	7	1.75	0.50
SNAPPER	Schoolmaster	4				4	4.00	
	Yellowtail Snapper							
SQUIRRELFISH	Blackbar Soldierfish	1		4	1	6	2.00	1.73
	Squirrelfish	5		2		7	3.5	2.12
SURGEONFISH	Blue Tang	3	1	1		5	1.666667	1.15
	Doctorfish							
	Ocean Surgeon							
WRASSE	Bluehead Wrasse	21	7	24	10	62	15.5	8.27
	Clown Wrasse	2				2	2	
	Creole Wrasse	2	6	4	3	15	3.75	1.71
	Slippery Dick							
	Yellowhead Wrasse	6	3	3	2	14	3.50	1.73
OTHERS	Sand Diver							
	Soapfish,greater	1	1			2	1.00	
	Trumpetfish		1	3		4	2	1.41
<b>TOTAL</b>		<b>827</b>	<b>499</b>	<b>252</b>	<b>330</b>	<b>1908</b>	<b>477.00</b>	
<b>Atlantic Belt Transect: Invertebrates</b>		<b>0-20m</b>	<b>25-45m</b>	<b>50-70m</b>	<b>75-100m</b>	<b>Total</b>	<b>Mean</b>	<b>St.Dev.</b>
ANEMONE	Corkscrew Anemone			2	2	4	2.00	
	Giant Anemone			5	5	10	2	
	Knobby Anemone	8	10	5	5	28	7	2.45
TUBE WORMS	Christmas tree Worms	70	67	40	55	232	58.00	13.64
	Ghost Feather Duster	1		3		4	2	1.41
	Magnificent Feather Duster	2			1	3	1.50	0.71
	Split Crown Feather Duster	5	14		4	23	7.666667	5.51
	Variagated Feather Duster	4	3	1		8	2.666667	1.53
CRUSTACEANS	Banded Coral Shrimp		2			2	2.00	
	Pederson Cleaner Shrimp	2	3	4		9	3	1.00
	Spotted Cleaner Shrimp							
	Yellowline Arrow Crab			1		1	1	
MOLLUSKS	Rough File Clam							
	Queen Conch							
ECHINODERMS	Reef Urchin							
<b>TOTAL</b>		<b>92</b>	<b>99</b>	<b>56</b>	<b>67</b>	<b>314</b>	<b>78.5</b>	

Note: Previous observations (jan and april 2002) of Beaded Anemone are in fact Knobby Anemone.

PORTOMAREA MARINE MONITORING

ATLANTIC BELT TRANSECT: FISH and INVERTEBRATES

Transect #2, Depth: 6m

Date: July 4, 2002 Time: 8:26 a.m.

Data collected by: Marjo van den Bulck

Atlantic Belt Transect: Fish		0-20m	25-45m	50-70m	75-100m	Total	Mean	St.Dev.
ANGELFISH	Cherubfish	1	14	6	2	23	5.75	5.91
	French Angelfish				1	1	1.00	
BARRACUDA								
BASSLET								
BIGEYE								
BLENNY								
BOXFISH	Honeycomb Cowfish							
	Smooth Trunkfish		1			1	1.00	
BUTTERFLYFISH	Banded Butterflyfish							
	Foureye Butterflyfish	2		1	1	4	1.33	0.58
	Longsnout Butterflyfish							
CARDINALFISH								
	Blue Chromis			3	2	5	2.50	0.71
CHROMIS	Brown Chromis	80		100	500	680	226.67	236.92
DAMSELFISH	Bicolor Damselfish	67	145	61	55	328	82.00	42.28
	Cocoa Damselfish	1		2	1	4	1.33	0.58
	Dusky Damselfish	6	2	8	2	18	4.50	3.00
	Sergeant Major		3			3	3.00	
	Threespot Damselfish		5	10	8	23	7.67	2.52
	Yellowtail Damselfish			1		1	1.00	
DRUM								
EEL	Goldentail Moray							
	Spotted Moray		1			1	1.00	
FILEFISH	Orangespotted Filefish			1		1	1.00	
FLOUNDER	Peacock Flounder							
GOATFISH	Spotted Goatfish							
	Yellow Goatfish	1	1	1	14	17	4.25	6.50
GOBY	Bridled Goby	30	6	3	15	54	13.50	12.12
	Neon Goby	2				2	2.00	
	Peppermint Goby	15	2		2	19	6.33	7.51
GROUPER	Graysby			2	2	4	2.00	
	Rock Hind	2	3			5	2.50	0.71
GRUNT	Bluestriped Grunt							
	French Grunt	1	2	3		6	2.00	1.00
	Striped Grunt		1	1	1	3	1.00	
HAMLET	Barred Hamlet			1		1	1.00	
	Black Hamlet							
	Butter Hamlet	1		1		2	1.00	
HOGFISH	Spanish Hogfish							
JACK								
PARROTFISH	Blue Parrotfish							
	Princess Parrotfish	4	5	3	4	16	4.00	0.82
	Queen Parrotfish	1	1	1		3	1.00	
	Redband Parrotfish	1	3	2	4	10	2.50	1.29
	Stoplight Parrotfish	3	5	2	5	15	3.75	1.50
PUFFER	Sharpnose Puffer	4	6	2	3	15	3.75	1.71
RAY								
SCORPIONFISH								
SEABASS	Harlequin Bass	4	3	1	5	13	3.25	1.71
SNAPPER	Schoolmaster			1	2	3	1.50	0.71
SQUIRRELFISH	Blackbar Soldier			1	2	3	1.50	0.71
	Squirrelfish			1		1	1.00	
SURGEONFISH	Blue Tang	3			2	5	2.50	0.71
	Ocean Surgeon		3	2		5	2.50	0.71
WRASSE	Bluehead Wrasse	39	46	21	27	133	33.25	11.32
	Clown Wrasse	5	6	1	1	13	3.25	2.63
	Puddingwife			1		1	1.00	
	Slippery Dick							
	Yellowhead Wrasse	8	8	7	15	38	9.50	3.70
OTHERS	Redspotted Hawkfish							
	Lizardfish							
	Sand Diver				1	1	1.00	
	Soapfish, Greater			1		1	1.00	
	Trumpetfish				1	1	1.00	
<b>TOTAL</b>		<b>279</b>	<b>258</b>	<b>246</b>	<b>676</b>	<b>1459</b>	<b>364.75</b>	
<b>Atlantic Belt Transect: Invertebrates</b>		<b>0-20m</b>	<b>25-45m</b>	<b>50-70m</b>	<b>75-100m</b>	<b>Total</b>	<b>Mean</b>	<b>St.Dev.</b>
ANEMONE	Carpet Anemone				1	1	1.00	
	Corkscrew Anemone							
	Giant Anemone	7	10	4	11	32	8.00	3.16
	Knobby Anemone	3	4	5	10	22	5.50	3.11
TUBE WORMS	Christmas tree Worms	131	26	244	180	581	145.25	91.98
	Ghost Feather Duster	8	1		1	10	3.33	4.04
	Magnificent Feather Duster	1				1	1.00	
	Split Crown Feather Duster	2	2	17	5	26	6.50	7.14
	Variagated Feather Duster	17	5	2		24	8.00	7.94
CRUSTACEANS	Banded Coral Shrimp	6	2	1		9	3.00	2.65
	Pederson Cleaner Shrimp		5	4		9	4.50	0.71
	Spotted Cleaner Shrimp							
	Yellowline Arrow Crab							
MOLLUSKS	Lettuce Sea Slug	6	1			7	3.50	3.54
	Queen Conch							
ECHINODERMS	Rough Fileclam			2		2	2.00	
	Reef Urchin							
	Tigertail Sea Cucumber							
<b>TOTAL</b>		<b>181</b>	<b>56</b>	<b>280</b>	<b>207</b>	<b>724</b>	<b>181.00</b>	

Note: Previous observations (jan and april 2002) of Beaded Anemone are in fact Knobby Anemone.

PORTOMAREA MARINE MONITORING

ATLANTIC BELT TRANSECT: FISH and INVERTEBRATES

Transect #3, Depth: 10m

Date: July 3, 2002 Time: 8:36 a.m.

Data collected and recorded by: Marjo van den Bulck

Atlantic Belt Transect: Fish		0-20m	25-45m	50-70m	75-95m	Total	Mean	St.Dev.
ANGELFISH	Cherubfish	2	7			9	4.50	3.54
	French Angelfish	2	1	1		4	1.33	0.58
	Rock Beauty							
BARRACUDA								
BASSLET	Fairy Basslet		1	3		4	2.00	1.41
BIGEYE								
BLENNY								
BOXFISH	Smooth Trunkfish	1	1			2	1.00	
	Spotted Trunkfish							
BUTTERFLYFISH	Foureye Butterflyfish	3			2	5	2.50	0.71
	Banded Butterflyfish							
CHROMIS	Blue Chromis	14	19	1	2	36	9.00	8.91
	Brown Chromis	300	250	165	75	790	197.50	98.87
	Sunshinefish			3		3	3.00	
DAMSELFISH	Bicolor Damselfish	49	80	69	80	278	69.50	14.62
	Cocoa Damselfish				1	1	1.00	
	Dusky Damselfish	3		4	20	27	9.00	9.54
	Sergeant Major	1	1		2	4	1.33	0.58
	Threespot Damselfish	10	3	5	2	20	5.00	3.56
Yellowtail Damselfish								
DRUM								
EEL	Goldentail Moray							
	Spotted Moray		1			1	1.00	
FILEFISH	Orangespotted Filefish							
FLOUNDER	Peacock Flounder							
GOATFISH	Spotted Goatfish							
	Yellow Goatfish	6	3	1		10	3.33	2.52
GOBY	Bridled Goby	40	34	20	31	125	31.25	8.38
	Neon Goby	1	3			4	2.00	1.41
	Peppermint Goby	9	7	2	5	23	5.75	2.99
GROUPEL	Coney			3		3	3.00	
	Graysby	2	1	2	1	6	1.50	0.58
	Red Hind							
	Tiger Grouper							
GRUNT	Bluestriped Grunt	1			2	3	1.50	0.71
	French Grunt	4	2	3	3	12	3.00	0.82
	Striped Grunt	2			1	3	1.50	0.71
HAMLET	Barred Hamlet		1		1	2	1.00	
	Butter Hamlet							
	Yellowtail Hamlet	4	2			6	3.00	1.41
HOGFISH	Spanish Hogfish			1		1	1.00	
JACK	Bar Jack				1	1	1.00	
PARROTFISH	Blue Parrotfish							
	Princess Parrotfish	12	18	6	7	43	10.75	5.50
	Queen Parrotfish	4	2	1		7	2.33	1.53
	Redband Parrotfish	2	1	1	5	9	2.25	1.89
	Stoplight Parrotfish	7	6	7		20	6.67	0.58
	Striped Parrotfish	8	2			10	5.00	4.24
PUFFER	Sharpnose Puffer	1	2	1	3	7	1.75	0.96
RAY								
SCORPIONFISH								
SEABASS	Creolefish			2		2	2.00	
	Harlequin Bass	2	1	3	2	8	2.00	0.82
SNAPPER	Mahogany Snapper							
	Schoolmaster	1				1	1.00	
SQUIRRELFISH	Blackbar Soldierfish	10				10	10.00	
	Squirrelfish	4		1		5	2.50	2.12
SURGEONFISH	Blue Tang	1	2		1	4	1.33	0.58
	Doctorfish				1	1	1.00	
	Ocean Surgeon							
WRASSE	Bluehead Wrasse	25	49	35	17	126	31.50	13.80
	Clown Wrasse		3	2	3	8	2.67	0.58
	Creole Wrasse	1	3	1		5	1.67	1.15
	Puddingwife							
	Slippery Dick							
	Yellowhead Wrasse	9	8	5	3	25	6.25	2.75
OTHERS	Soapfish, Greater			1		1	1.00	
	Trumpetfish	1			1	2	1.00	
<b>TOTAL</b>		<b>542</b>	<b>514</b>	<b>349</b>	<b>272</b>	<b>1677</b>	<b>419.25</b>	
Atlantic Belt Transect: Invertebrates		0-20m	25-45m	50-70m	75-100m	Total	Mean	St.Dev.
ANEMONE	Carpet Anemone							
	Corkscrew Anemone	1				1	1.00	
	Giant Anemone	2	1	2	3	8	2.00	0.82
	Knobby Anemone	4	1	4		9	3.00	1.73
TUBE WORMS	Christmas tree Worm	142	42	50	66	300	75.00	45.77
	Ghost Feather Duster		3	2	9	14	4.67	3.79
	Magnificent Feather Duster		1	1	1	3	1.00	
	Split Crown Feather Duster	2	3	9	18	32	8.00	7.35
	Variegated Feather Duster			3	10	13	6.50	4.95
CRUSTACEANS	Banded Coral Shrimp	1	1	4	1	7	1.75	1.50
	Pederson Cleaner Shrimp	4	4	5		13	4.33	0.58
	Red Snapping Shrimp							
	Yellowline Arrow Crab			2		2	2.00	
ECHINODERMS	Pencil Urchin				1	1	1.00	
<b>TOTAL</b>		<b>156</b>	<b>56</b>	<b>82</b>	<b>109</b>	<b>403</b>	<b>100.75</b>	

Note: Previous observations (jan and april 2002) of Beaded Anemone are in fact Knobby Anemone.

**PORTOMAREA MARINE MONITORING**  
**REEF BALL CORAL PLUG SUMMARY-1a, WEST SIDE OF BAY**

Date : July 9, 2002  
Observer: Marjo van den Bulck

CN	B N/T	LP	Coral Species	Plug Orientation		Number of Branches/ Cups	Height cm	Width cm	Coral Growth on Plug Base Y/N	Algae at Base Y/N	Algae at Top Y/N	Remarks	
				position	height								
10 R	1 P	5	Leaf coral (lettuce)	NE	T	1	2	3	N	Y	N	No new coral growth on this ball	
			Leaf coral (lettuce)	NW	M	1	2	2.5	Y	Y	N	Lots of Turf Algae	
			Leaf coral (lettuce)	N	M	GONE							
			Sea Rod, black	W	M	6	18	9	Y	Y	N		
			Sea Rod, purple	SE	H	6	5	7.5	N	Y	N		
			Staghorn coral	W	T	33	15.5	21	Y	N	N		
10 R	2 LP	2	Sea Rod, black	S	M	6	20.5	14	Y	Y	N	New coral growth on this ball	
			Star Coral, smooth	SW	H		3	5	N	Y	N		
10R	3 P	3	Maze coral	NW	L	DEAD						New coral growth on this ball	
			Sea Rod, purple	W	T	6	10	8	Y	N	N		
			Staghorn coral	NE	T	29	13	24	Y	N	N		
			Star coral	NE	H		4	6	Y	N	N		
10 R	4 O	1	Finger coral	W	L	6	5	6	N	Y	Y	New coral growth on this ball	
10R	5 O	1	Sea Rod, purple	NE	H	DEAD	Small Flamingo Tnogue on it					No new coral growth on this ball	
			Sea Rod, white	NW	M	DEAD						Lots of Turf Algae	
			Sea Rod, white	SW	H	DEAD							
			Staghorn coral	S	M	20	15	15	Y	Y	Y	One Branch broken off, lying on the sand	
10R	6 LP	0	Sea Rod, purple	NE	M	GONE						Lots of Algae on this ball	
			Sea Rod, purple	SE	M	GONE						No new coral growth	
			Sea Rod, white	W	H	DEAD	Fully covered in Algae						
			Sea Rod, white	NW	M	GONE							
10R	7 O	0	No Plugs on this ball										
10R	8 P	8	Leaf coral (lettuce)	NE	H		1	3	N	Y	N	New coral growth on this ball	
			Sea Rod, black	SE	H	4	13	10	N	Y	N		
			Sea Rod, black	SE	M	6	16	10	Y	Y	N		
			Sea Rod, black	S	M	3	17	5	Y	Y	N		
			Sea Rod, white	E	H	34	14	13	Y	N	N		Flamingo Tongue on one of the branches
			Staghorn coral	S	T	BROKEN OFF. GROWTH ON PLUGBASE. REST IS IN PLUG HOLE SWT							
			Staghorn coral	SW	T	17	7	18.5	N	N	N		Hanging in the plug hole, not steady.
			Staghorn coral	W	T	27	14	17	Y	N	N		
<b>Subtotal</b>			<b>20 Number of live coral plugs</b>										
<b>Codes:</b>													
CN	Cluster Number	U	Ultra Ball	T	Top of the ball								
B N/T	Ball number/type	P	Pallet Ball	H	Upper third of the ball								
LP	No. of live coral plugs	B	Bay Ball	M	Middle third of the ball								
		LP	LoPro Ball	L	Lower third of the ball								
		O	Oyster Ball										

**PORTOMAREA MARINE MONITORING**

**REEF BALL CORAL PLUG SUMMARY-1b**

CN	B N/T	LP	Coral Species	Plug Orientation		Number of Branches/ Cups	Height cm	Width cm	Coral Growth on Plug Base Y/N	Algae at Base Y/N	Algae at Top Y/N	Remarks
				position	height							
10R	9 P	4	Finger coral	N	on oyste	5	2.5	4.5	Y	N	N	New coral growth on this ball
			Finger coral	NW	on oyste	On base of the plug		2.5	Y	N	N	One Finger coral WNH grows on plug base
			Finger coral	NW	M	4	6.5	5	Y	Y	N	
			Flower coral	NE	T	GONE						
			Leaf coral ( Lettuce	NE	M	2	4	6	Y	Y	N	
			Sea Rod, Black	NE	M	DEAD						
10 R	10 O	1	Finger coral	NE	M	10	5	9.5	N	Y	N	No new coral growth on this ball
10 R	11 LP	1	Staghorn	N	H	28	16	21	Y	N	N	No new coral growth on this ball
10 R	12 LP	3	Brain coral	NW	T	1	6.5	8	N	Y	N	New coral growth on this ball
			Flower coral	NE	H	DEAD						Algae. Dying?
			Flower coral	SE	L	1.5	1	3	N	Y	Y	
			Mustard hill coral	S	T	1	3	4	Y	Y	N	
10 R	13 B	4	Leaf coral ( Lettuce	N	M	1	3	4	N	Y	N	New coral growth on this ball
			Sea Rod, Black	NW	H	5	15.5	11	N	Y	N	
			Sea Rod, Black	NW	M	7	14.5	13	Y	Y	N	
			Staghorn	SW	H	26	19	19	Y	N	N	
10 R	14 U	14	Brain coral	N	L		4	4.5	N	N	N	New coral growth on this ball
			Finger coral	N	M	14	5	9	Y	N	N	Two Lettuce corals and one Pencil coral
			Leaf coral ( Lettuce	E	M	1	3	5	Y	N	N	
			Leaf coral ( Lettuce	NW	L	1	4	4	Y	N	N	
			Leaf coral ( Lettuce	NE	M	1	2	3	Y	Y	N	
			Leaf coral ( Lettuce	SSE	M	1	2.5	2	Y	Y	N	
			Leaf coral ( Lettuce	SSE	ML	1	2.5	5	Y	Y	N	
			Leaf coral ( Lettuce	SSE	M	1	0.5	1	N	Y	Y	
			Leaf coral ( Lettuce	SSE	L	1	2	4	Y	Y	N	
			Leaf coral ( Lettuce	SE	M	1	4	5	N	Y	N	
			Leaf coral ( Lettuce	SW	ML	1	2.5	2.5	N	Y	Y	
			Leaf coral ( Lettuce	SW	M	1	2	3	Y	N	N	
			Pencil coral	NE	M	1	0.5	1	N	N	N	
			Staghorn	S	H	23	8	13	Y	Y	N	
			Staghorn	N	H	GONE						
10R	15 LP	2	Brain coral	SW	T		5	7	Y	Y	N	New coral growth on this ball
			Brain coral	SE	H		2	3.5	Y	Y	N	
10R	16 B	2	Brain coral	NW	H		2	6	Y	N	N	New coral growth on this ball
			Flower coral	NE	M	1	1	1.5	N	Y	Y	Algae all over
10R	17 P	1	Leaf coral (lettuce)	E	M	DEAD						New coral growth on this ball
			Mustard Hill coral	NW	H		2	2	N	Y	Y	Algae. Dying?
			Pencil coral	NW	T	DEAD						
10R	18 LP	0	Mustard hill coral	NE	H	DEAD						No New coral growth on this ball
			Sea Rod, black	W	T	DEAD						Covered in Algae
			Sea Rod, purple	NW	M	DEAD						
<b>Subtotal</b>			<b>32 Number of live coral plugs</b>									

**PORTOMAREA MARINE MONITORING**  
**REEF BALL CORAL PLUG SUMMARY-1c**

CN	B N/T	LP	Coral Species	Plug Orientation		Number of Branches/ Cups	Height cm	Width cm	Coral Growth on Plug Base Y/N	Algae at Base Y/N	Algae at Top Y/N	Remarks
				position	height							
10R	19 O	0										
10R	20 O	0										
10R	21 O	0										
10R	22 LP	0										
10R	23 LP	4	Leaf coral (lettuce)	SE	H		3	3.5	Y	Y	Y	New coral growth on this ball Turf Algae
			Mustard hill	N	H		1	4	N	Y	Y	
			Sea rod, white	NW	H	8	7	3.5	N	Y	N	
			Sea rod, white	NW	M	8	7	6	N	Y	N	
10R	24 P	4	Brain coral	NW	T	GONE						New coral growth on this ball Sick. Pencil?
			Maze coral	SE	M	1	1.5	4.5	Y	N	N	
			Mustard hill	NE	M	1	1	3.5	N	Y	Y	
			Sea rod, black	NW	T	2	10	2	N	Y	N	
			Sea rod, black	SW	H	2	9	4	N	Y	N	
			Staghorn coral	N	T	GONE						
10R	25 B	1	Mustard hill	NW	M		0.5	4	N	Y	Y	Algae. Pencil? No new coral growth on this ball
10R	26 LP	1	Maze coral	W	T		5	6.5	N	N	N	No new coral growth on this ball
10R	27 B	1	Sea Rod, black	SW	T	GONE						New coral growth on this ball
			Sea Rod, white	W	T	9	9.5	6.5	Y	Y	N	
10R	28 P	6	Finger coral	SW	H	GONE						New coral growth on this ball Maze Coral and Flower coral previously i as Brain coral
			Finger coral	NE	M	3	4	5	Y	Y	N	
			Flower coral	SE	H	2	1.5	3	N	Y	N	
			Leaf coral (lettuce)	SW	M		4	3.5	Y	Y	N	
			Maze coral	W	M		1.5	3	Y	Y	N	
			Sea Rod, black	SE	T	4	14	7	Y	Y	N	
			Staghorn coral	W	H	5	11	11	Y	Y	N	
10R	29 O	0	Mustard hill	W	M	DEAD						
10R	30 LP	0										
10R	31 O	0										
<b>Subtotal</b>		17										
<b>Total</b>		69	Number of live coral plugs									

PORTOMAREA MARINE MONITORING

REEF BALL CORAL PLUG SUMMARY - 2

EAST SIDE OF BAY

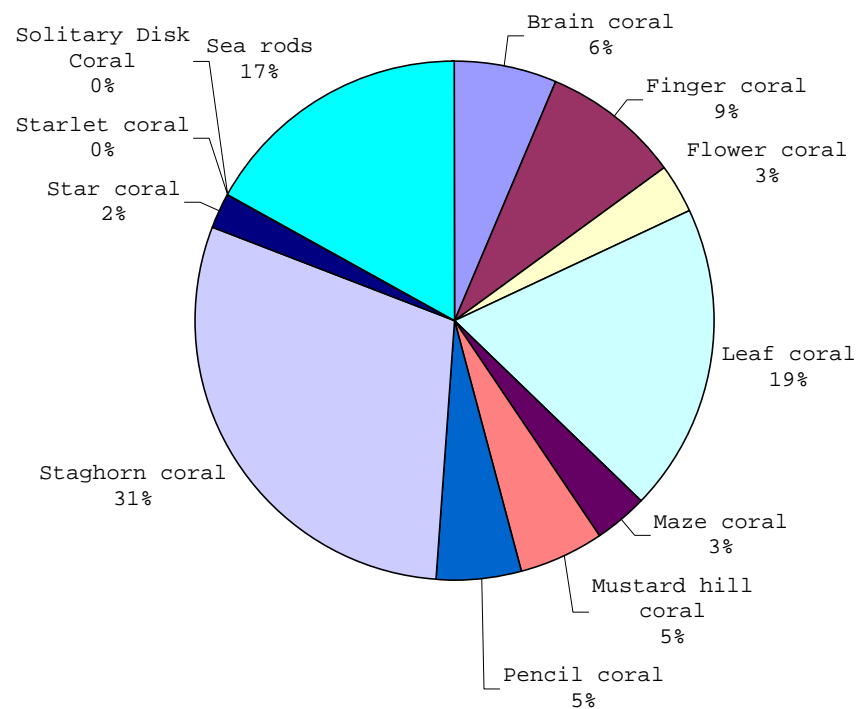
Date : July 5, 2002  
 Observer: Marjo van den Bulck

CN	B N/T	LP	Coral Species	Plug Orientation		Number of Branches/ Cups	Height cm	Width cm	Coral Growth on Plug Base Y/N	Algae at Base Y/N	Algae at Top Y/N	Remarks
				direction	height							
12L	1P	8	Leaf coral (lettuce)	NW	T	1	5.2	6.5	N	Y	N	No new coral growth on this ball. All the new growth tips are counted as b
			Pencil coral	NE	T	8	3.5	7	N	Y	Y	
			Pencil coral	N	H	10	4.5	5	N	Y	Y	
			Solitary Disk coral	N	L	DEAD						
			Staghorn coral	N	T	3	5.5	3	Y	Y	N	
			Staghorn coral	S	T	15	10	15	Y	Y	N	
			Staghorn coral	SW	T	6	8	9	N	Y	N	
			Staghorn coral	NW	H	12	9.5	8.5	N	Y	N	
			Staghorn coral	SE	H	4	5	4.5	N	Y	N	
12L	2P	6	Pencil coral	NE	T	4	4	4.5	Y	Y	Y	No new coral growth on this ball.  Bleached? Algae growing from base direct
			Pencil coral	SW	T	DEAD						
			Pencil coral	SE	H	2	2.5	2.5	Y	Y	Y	
			Staghorn coral	NE	T	17	11.5	10.5	N	Y	N	
			Staghorn coral	SE	T	7	8	10	N	Y	N	
			Staghorn coral	NW	T	7	6.5	3.5	Y	Y	N	
			Staghorn coral	NE	H	6	9	11.5	Y	Y	N	
			Staghorn coral	SW	H	DEAD						
12L	3B	2	Finger coral	NW	T	GONE						No new coral growth on this ball.
			Staghorn coral	SW	T	4	5	3.5	Y	N	N	
			Staghorn coral	NE	H	9	14.5	8	Y	N	N	
12L	4B	2	Staghorn coral	NE	H	DEAD	Overgrown by Algae					No new coral growth on this ball.
			Staghorn coral	SW	T	8	7	8	Y	Y	N	
			Staghorn coral	NW	H	11	12	10	Y	Y	N	
12L	5P	7	Finger coral	NE	T	4	4.5	10	N	Y	Y	No new coral growth on this ball.
			Finger coral	NW	L	2	6	4	N	Y	N	
			Staghorn coral	SE	T	DEAD						
			Staghorn coral	SW	T	3	5	4.5	N	N	N	
			Staghorn coral	NW	T	6	6.2	4	N	N	M	
			Staghorn coral	N	H	GONE						
			Staghorn coral	SE	H	DEAD						
			Staghorn coral	NE	H	4	7	6	N	Y	N	
			Staghorn coral	SW	H	7	7	7	Y	Y	N	
			Staghorn coral	WSW	H	GONE						
			Staghorn coral	NE	T	5	7.5	8	Y	N	N	
<b>Total</b>			<b>25 Number of live coral plugs</b>									

PORTOMAREA MARINE MONITORING  
REEF BALL CORAL PLUG SPECIES SUMMARY

SPECIES DISTRIBUTION OF CORAL PLUGS ON REEF BALLS AS OF JULY 2002

Coral Species		Number of Live Plugs	% of Total
Brain coral		6	6.38
Finger coral		8	8.51
Flower coral		3	3.19
Leaf coral		18	19.15
Maze coral		3	3.19
Mustard hill coral		5	5.32
Pencil coral		5	5.32
Staghorn coral		28	29.79
Star coral		2	2.13
Starlet coral		0	0.00
Solitary Disk Coral		0	0.00
Sea rods		16	17.02
black	10		
purple	2		
white	4		
<b>TOTAL</b>		<b>94</b>	<b>100</b>



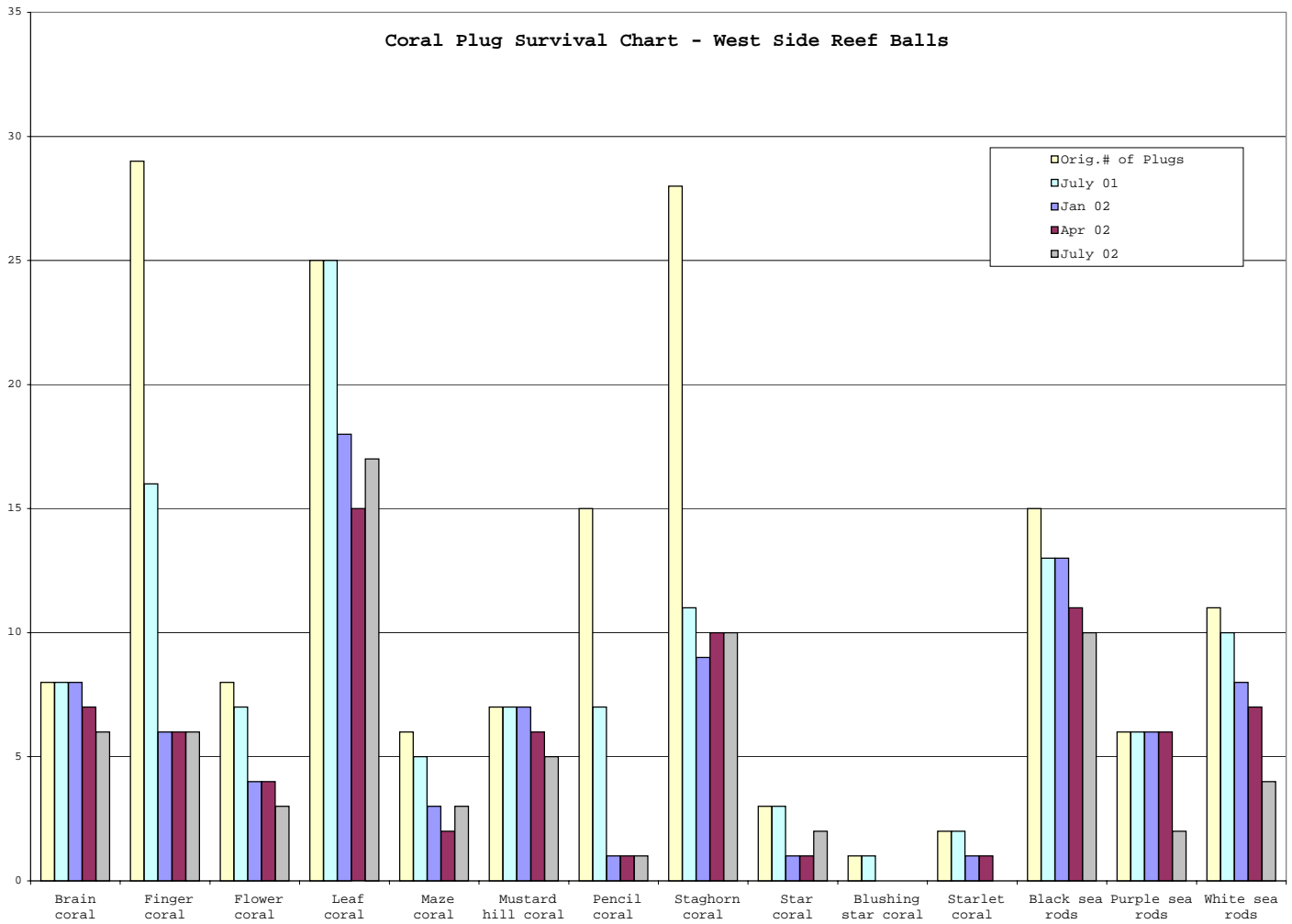


PORTOMAREA MARINE MONITORING

Coral Plug Survival Summary  
West Side Reef Balls

July 2001 Monitoring (per M.Kuennen)				January 2002 Monitoring		April 2002 Monitoring		July 2002 Monitoring	
Coral Species	Orig.# of Plugs	Number of Live Plugs	Mortality 90 days	Number of Live Plugs	Mortality 9 months	Number of Live Plugs	Mortality 12 months	Number of Live Plugs	Mortality 15 months
Brain coral*	8	8	0%	8	0%	7	13%	6	25%
Finger coral	29	16	45%	6	79%	6	79%	6	79%
Flower coral	8	7	13%	4	50%	4	50%	3	63%
Leaf coral	25	25	0%	18	28%	15	40%	17	32%
Maze coral	6	5	17%	3	50%	2	67%	3	50%
Mustard hill coral*	7	7	0%	7	0%	6	14%	5	29%
Pencil coral	15	7	53%	1	93%	1	93%	1	93%
Staghorn coral	28	11	61%	9	68%	10	64%	10	64%
Star coral	3	3	0%	1	67%	1	67%	2	33%
Blushing star coral	1	1	0%	0	100%	0	100%	0	100%
Starlet coral	2	2	0%	1	50%	1	50%	0	100%
Sea rods black	15	13	13%	13	13%	11	27%	10	33%
Sea rods purple	6	6	0%	6	0%	6	0%	2	67%
Sea rods white	11	10	9%	8	27%	7	36%	4	64%
<b>TOTALS</b>	<b>164</b>	<b>121</b>	<b>Mean 26%</b>	<b>85</b>	<b>Mean 48%</b>	<b>77</b>	<b>Mean 53%</b>	<b>69</b>	<b>Mean 58%</b>

\* Number of original plugs adjusted to correspond to Jan/02 survey

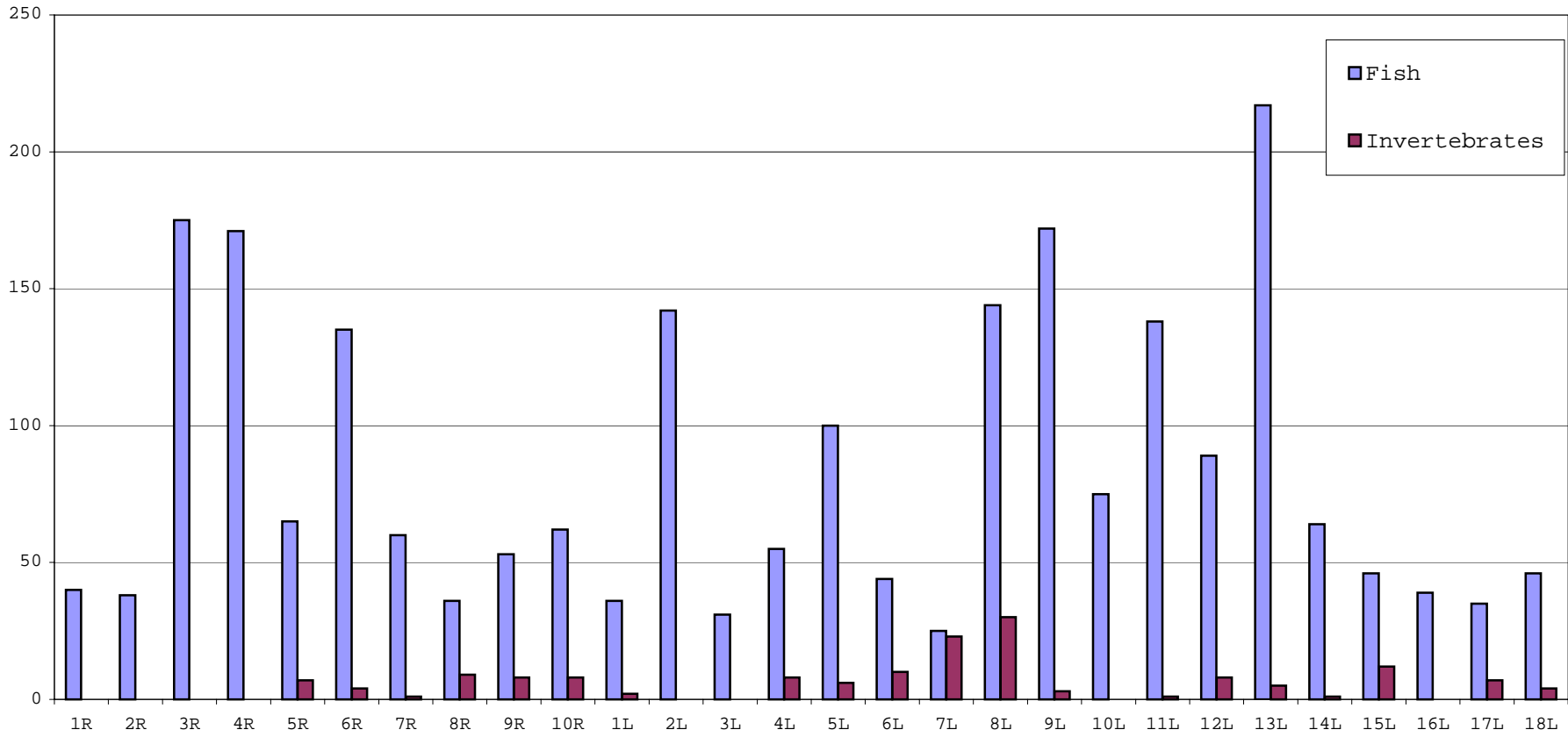




**PORTOMAREA MARINE MONITORING  
REEF BALL CLUSTERS  
FISH AND INVERTEBRATE POPULATION SUMMARY**

<b>Cluster No.</b>	<b>No.of Fish</b>	<b>% of Total</b>	<b>No.of Invertebrates</b>	<b>% of Total</b>
1R	40	1.71	0	0.00
2R	38	1.63	0	0.00
3R	175	7.50	0	0.00
4R	171	7.33	0	0.00
5R	65	2.79	7	4.46
6R	135	5.79	4	2.55
7R	60	2.57	1	0.64
8R	36	1.54	9	5.73
9R	53	2.27	8	5.10
10R	62	2.66	8	5.10
1L	36	1.54	2	1.27
2L	142	6.09	0	0.00
3L	31	1.33	0	0.00
4L	55	2.36	8	5.10
5L	100	4.29	6	3.82
6L	44	1.89	10	6.37
7L	25	1.07	23	14.65
8L	144	6.17	30	19.11
9L	172	7.37	3	1.91
10L	75	3.21	0	0.00
11L	138	5.92	1	0.64
12L	89	3.81	8	5.10
13L	217	9.30	5	3.18
14L	64	2.74	1	0.64
15L	46	1.97	12	7.64
16L	39	1.67	0	0.00
17L	35	1.50	7	4.46
18L	46	1.97	4	2.55
<b>TOTAL</b>	<b>2333</b>	<b>100</b>	<b>157</b>	<b>100.00</b>

PORTOMAREA MARINE MONITORING  
 FISH AND INVERTEBRATE POPULATION SUMMARY CHART  
 REEF BALL CLUSTERS



**PORTOMAREA MARINE MONITORING**

**FISH and INVERTEBRATE SURVEY - REEF BALL CLUSTERS WEST**

DATE: July 5, 2002

TIME: 10:30 a.m.

Data collected and recorded by: Marjo van den Bulck

CLUSTER NUMBER		1R	2R	3R	4R	5R	6R	7R	8R	9R	10R			
DEPTH		1.2m	1.4m	1.2m	1.6m	1.8m	2.7m	2.9m	3.6m	3.8m	3.8m			
FISH												Total	Mean	St.Dev.
ANGELFISH	French Angelfish		1									1	1.00	
BASSLET	Fairy Basslet													
BLenny	Redlip Blenny		1	5	1	6						13	3.25	2.63
BOXFISH	Smooth Trunkfish							1				1	1.00	
	Spotted Trunkfish													
BUTTERFLYFISH	Banded Butterflyfish				2						2	4	2.00	
	Foureye Butterflyfish													
CHROMIS	Blue Chromis													
	Brown Chromis	4	2	50	90	10	100					256	42.67	44.27
DAMSELFISH	Beaugregory													
	Bicolor Damsel		3	27	24	2	9	3		7	3	78	9.75	10.04
	Cocoa Damsel		2	3		1		2		1		9	1.80	0.84
	Dusky Damsel	3	1	2	2	7	6	1		4	9	35	3.89	2.85
	Sergeant Major	1	8								5	14	4.67	3.51
	Threespot Damsel	1										1	1.00	
	Yellowtail Damsel				1	1		1				2	5	1.25
DRUM	Spotted Drum											1	1.00	
EEL	Spotted Moray											1	1.00	
FILEFISH	Orangespotted Filefish							1				2	1.00	
GOATFISH	Spotted Goatfish			1								1	1.00	
	Yellow Goatfish		4					3				8	2.67	1.53
GOBY	Bridled Goby						5	10	18	25		58	14.50	8.81
	Cleaning Goby										1	1	1.00	
GROUPEr	Graysby													
	Rock Hind					1	2				1	5	1.25	0.50
GRUNT	Bluestriped Grunt							1			3	4	2.00	1.41
	French Grunt	1		55	1	3	2	3	2		2	69	8.63	18.75
	Striped Grunt						1	2				3	1.50	0.71
HAMLET	Blue Hamlet													
	Butter Hamlet	1										1	1.00	
HOGFISH	Spanish Hogfish													
JACK	Bar Jack													
PARROTFISH	Princess Parrotfish		2					3	3	2	4	14	2.80	0.84
	Queen Parrotfish					1	1	2	1		1	6	1.20	0.45
	Redtail Parrotfish	1	3		1							5	1.67	1.15
	Stoplight Parrotfish						1					1	1.00	
PUFFER	Balloonfish													
	Sharpnose Puffer			2	2			3			2	9	2.25	0.50
SCORPIONFISH	Spotted Scorpionfish	2										2	2.00	
SEABASS														
SNAPPER	Mahogany Snapper		2									2	2.00	
	Schoolmaster							2			2	4	2.00	
SQUIRRELFISH	Blackbar Soldierfish						2	1		2	5	10	2.50	1.73
	Squirrelfish	2		9							1	12	4.00	4.36
SURGEONFISH	Blue Tang		1	1		1		1		2	3	9	1.50	0.84
	Doctorfish	2			9	1		2	1			15	3.00	3.39
WRASSE	Bluehead Wrasse	18	2	10	25	19	5	10	4	2	6	101	10.10	7.99
	Clown Wrasse	1	1	6	4	2			2	3		19	2.71	1.80
	Puddingwife			1	5	1						7	2.33	2.31
	Rainbow Wrasse													
	Slippery Dick	3	5	5	4	7		2		1		27	3.86	2.04
	Yellowhead Wrasse						1	4	3	2	4	14	2.80	1.30
OTHERS	Lizardfish, Bluestriped													
	Mojarra, Yellowfin									1		1	1.00	
	Soapfish, Greater							1	1			2	1.33	
	Trumpetfish							1	1		2	4	1.33	0.58
<b>TOTAL</b>		<b>40</b>	<b>38</b>	<b>175</b>	<b>171</b>	<b>65</b>	<b>135</b>	<b>60</b>	<b>36</b>	<b>53</b>	<b>62</b>	<b>835</b>	<b>83.5</b>	
<b>INVERTEBRATES</b>												<b>Total</b>	<b>Mean</b>	<b>St.Dev.</b>
ANEMONE	Knobby Anemone					2			3		3	8	2.67	0.58
	Corkscrew Anemone								4	2	1	7	2.33	1.53
	Giant Anemone					5	3	1		1		10	2.50	1.91
CRUSTACEANS	Banded Coral Shrimp									1	1	2	1.00	
	Pedersen Cleaner Shrimp								1			1	1.00	
	Spiny Lobster													
	Yellowline Arrow Crab									1		1	1.00	
TUBE WORMS	Split Crown Feather Dstr													
	Magnificent Feather Dstr													
	Variegated Feather Duster								1	2	3	6	2.00	1.00
MOLLUSKS	Atlantic Pearl Oyster													
	Lettuce Sea Slug									1		1	1.00	
	Amber Pen Shell													
ECHINODERMS	Queen Conch													
	Longspined Sea Urchin													
TOTAL	Sea Cucumber Three-Rowed						1					1	1.00	
						7	4	1	9	8	8	37	3.7	

Note: Previous observations ( jan and april 2002) of Beaded Anemone are in fact Knobby Anemone.

PORTOMAREA MARINE MONITORING

FISH and INVERTEBRATE SURVEY - REEF BALL CLUSTERS EAST

DATE: July 8, 2002

TIME: 11:30 a.m.

Data collected and recorded by: Marjo van den Bulck

CLUSTER NUMBER		1L	2L	3L	4L	5L	6L	7L	8L	9L	10L	11L	12L	13L	14L	15L	16L	17L	18L	Total	Mean	St. Dev.	
DEPTH	FISH	1.5m	1.5m	1.6m	1.6m	2.1m	2.1m	2.1m	2.4m	2.7m	3.2m	3.4m	4.3m	4.3m	4.3m	4.3m	4.3m	4.3m	4.3m				
ANGELFISH	Cherubfish										1									1	1.00		
BLENNY	Redlip Blenny		1	1	1	1														4	1.00		
BOXFISH	Smooth Trunkfish													1	1					2	1.00		
	Spotted Trunkfish																						
BUTTERFLYFISH	Banded Butterflyfish			1	1	1	1													4	1.00		
	Foureye Butterflyfish										2		5							7	3.50	2.12	
CHROMIS	Brown Chromis					20			8	126		78	40	100						372	62.00	46.82	
DAMSELFISH	Beaugregory																						
	Bicolor Damselfish	1	3	1	11	9	9	3		6	36	7	6	35	1	2	1	3	4	138	8.12	10.77	
	Cocoa Damselfish		2	3				1												6	2.00	1.00	
	Dusky Damselfish	4	1		1	3	3	5	6		1									24	3.00	1.93	
	Sergeant Major	8			2	5		2	2		1		4	2	5		1	1	2	35	2.92	2.15	
	Threespot Damselfish																						
Yellowtail Damselfish					1														1	1.00			
EEL	Chain Moray			1																1	1.00		
FILEFISH	Whitespotted Filefish										1									1	1.00		
FLOUNDER	Peacock Flounder																						
GOATFISH	Spotted Goatfish		2							1	1									4	1.33	0.58	
	Yellow Goatfish		8							5	4		3						4	24	4.80	1.92	
GOBY	Bridled Goby					2			7	1	7	9	16	38	31	19	30	26	31	217	18.08	12.86	
GROUPE	Coney							1												1	1.00		
	Graysby	1		1		1	1							1						5	1.00		
	Rock Hind	1				2		5	2		1		2	3	2					18	2.25	1.28	
GRUNT	Bluestriped Grunt								1				1	2			1			5	1.25	0.50	
	French Grunt	1	1	1	2		2	3	116	1				1	1		1	1	1	132	10.15	31.81	
	Juvenile Grunt U.I.		100		10	5														115	38.33	53.46	
HAMLET	Butter Hamlet		1									1	1						1	4	1.00		
JACK	Bar Jack												2							2	2.00		
PARROTFISH	Princess Parrotfish												1	2	6		1			10	2.50	2.38	
	Blue Parrotfish																						
	Queen Parrotfish									1				1	1					3	1.00		
	Stoplight Parrotfish				1															1	1.00		
	Redtail Parrotfish																						
	Redband Parrotfish							1												1	1.00		
Striped Parrotfish																							
PUFFER	Sharpnose Puffer											3		1						4	2.00	1.41	
SCORPIONFISH	Spotted Scorpionfish									1										1	1.00		
SEABASS	Harlequin Bass										1			1						2	1.00		
	Tobaccofish																						
SNAPPER	Mutton Snapper												1							1	1.00		
SQUIRRELFISH	Squirrelfish		3		1	1	1		1											7	1.40	0.89	
SURGEONFISH	Blue Tang			3	3											1	1		1	9	1.80	1.10	
	Doctorfish		3	5	1	3	1			4	3	9		2	2					33	3.30	2.36	
	Ocean Surgeonfish																						
WRASSE	Bluehead Wrasse	16	12	9	12	41	22	2		18	5	16		20	10	13			1	197	14.07	9.99	
	Clown Wrasse	2	2	1	4	2	1			1	3	3								19	2.11	1.05	
	Puddingwife	2		1	2	1		1		1	2		1							11	1.38	0.52	
	Rainbow Wrasse																						
	Slippery Dick		3	3	3	2	1	3		5	3	11	2	2	1	6	2	2		49	3.27	2.52	
Yellowhead Wrasse									1	2		1	3	3	3			1	14	2.00	1.00		
OTHERS	Mojarra, Yellowfin													1	1					2	1.00		
	Sand Diver																		2	2	2.00		
	Soapfish, Greater										1	1		1		1				4	1.00		
	Trumpetfish								1				2			1	1			5	1.25	0.50	
<b>TOTAL</b>		<b>36</b>	<b>142</b>	<b>31</b>	<b>55</b>	<b>100</b>	<b>44</b>	<b>25</b>	<b>144</b>	<b>172</b>	<b>75</b>	<b>138</b>	<b>89</b>	<b>217</b>	<b>64</b>	<b>46</b>	<b>39</b>	<b>35</b>	<b>46</b>	<b>1498</b>	<b>83.22</b>		
<b>INVERTEBRATES</b>																				<b>Total</b>	<b>Mean</b>	<b>St. Dev.</b>	
ANEMONE	Corkscrew Anemone																		1	1	1.0		
	Giant Anemone					1		1					1	3	1	2				9	1.5	0.84	
	Knobby Anemone				2				1					3	1	1				8	1.6	0.89	
CRUSTACEANS	Nimble Spray Crab							2		2	1		1						1	7	1.4	0.55	
	Pederson Cleaner Shrimp													1						1	1.0		
	Yellowline Arrow Crab									2										2	2.0		
TUBE WORMS	Split Crown Fthr.Dstr.																		6	3	9	4.5	2.12
	Magnificent Fthr.Dstr.				1															1	1.0		
	Variegated Fth.Dstr.								2				4							6	3.0	1.41	
	X-man Tree Worm									2							9			11	5.5	4.95	
ECHINODERMS	Longspined Sea Urchin	2			5	5	8	19	24	2										65	9.3	8.71	
<b>TOTAL</b>		<b>2</b>			<b>8</b>	<b>6</b>	<b>10</b>	<b>23</b>	<b>30</b>	<b>3</b>		<b>1</b>	<b>8</b>	<b>5</b>	<b>1</b>	<b>12</b>		<b>7</b>	<b>4</b>	<b>120</b>	<b>6.67</b>		

Note: Previous observations ( jan and april 2002) of Beaded Anemone are in fact Knobby Anemone.