

Figure 18. General substrate cover for lagoon transect sites (numbers in boxes) at Aldabra in February 2001. Coral branch length and numbers indicate percent cover of category. Colours represent: ♦ Sand, rock, rubble; ♦ Algae; ♦ Live coral; ♦ Dead coral.

Coral Recruitment and Tagging

Number of Recruits

The average number of coral recruits per m² at each of the sampling sites is given in Table 2. Note that the target sampling number of 32 quadrats was not achieved at all sites.

The goal for the coral recruitment surveys was 8 sets of 4 (32 total) quadrats at each site and depth. This was not achieved at Sites 2 (24 quadrats at 20 m), 4 (24 quadrats at 20 m) and 6 (20 quadrats at 20 m and 25 at 6 m) primarily due to bottom time constraints and excessive swell at Site 6. The average number of recruits per m² for all sites varied with depth² from 6 recruits at 6 m depth (s.e. ± 0.32 , standard deviation = 4.4, n° recruits = 1197, n = 198 quadrats), to 7 recruits at 10 m depth (s.e. ± 0.33 , standard deviation = 5, n° recruits = 1582, n = 231), and 4 recruits at 20 m depth (s.e. ± 0.27 , standard deviation = 3.8, n° recruits = 823, n = 199). Coral recruitment was patchy, and the average figures for individual sites varied from 1 per metre squared at Site 5 (20 m depth), to 13 per metre square at Site 8 (10 m depth; Table 2). The maximum number of recruits recorded in a single metre squared was 46 at Site 11 in the lagoon.

Table 2. Average numbers of recruits /m² for three depths at sites around Aldabra Atoll. Note that at Site 7 the recruit estimate labelled 10 m was made at 15 m. s.e. mean = standard error of the mean, s = standard deviation, max n° = maximum number of recruits per quadrat and *n* = total number of recruits.

Depth	Statistic	Site number										
		1	2	3	4	5	6	7	8	9	10	11
6m	mean	3.5	3.8	7.9	8.1	8.7	7.9	7	-	7.8	3.9	10.6
	s.e. mean	0.6	0.4	0.7	0.8	0.8	0.7	0.8	-	1.0	0.5	1.2
	s	3.5	2.4	4.1	4.4	5.1	4.1	4.3	-	6.6	2.9	7.6
	max n°	15	11	17	22	20	17	23	-	25	12	46
	<i>n</i>	119	137	278	259	313	278	216	-	314	160	425
	# quadrats	32	32	32	32	32	28	32	-	32	32	32
10m	mean	4.6	5.6	8.7	8.6	5.6	8.7	8.6	12.6	n/a	n/a	n/a
	s.e. mean	0.5	0.4	0.8	0.9	0.6	0.8	0.7	1.0			
	s	2.7	2.5	5.1	5.0	3.4	5.1	4.3	5.6			
	max n°	14	12	21	24	13	21	19	30			
	<i>n</i>	156	169	329	293	184	329	277	377			
	# quadrats	32	32	32	32	32	32	32	32			
20m	mean	5.8	3.1	6.3	4.1	0.7	6.3	-	5.7	n/a	n/a	n/a
	s.e. mean	0.8	0.3	0.8	0.5	0.2	0.8	-	0.6			
	s	4.4	1.7	4.5	2.7	1.1	4.5	-	3.6			
	max n°	19	6	22	9	4	22	-	13			
	<i>n</i>	192	75	201	99	24	201	-	194			
	# quadrats	32	24	32	24	32	20	-	32			

Coral recruit size-frequencies varied between genera. There was some indication that *Acropora* species may have had two recruitment cohorts in the last few years, as suggested by the two peaks in the size distribution histogram (Figure 19). *Pocillopora* and *Favia* genera had bell shaped distributions suggesting a single cohort, though the *Pocillopora* distribution has a positive skew, which may indicate a second older cohort (Figure 19). Other genera, such as *Pavona* (n = 235) and *Psammocora* (n = 367), showed normal distributions, while *Acanthastrea* (n = 99) showed a strong negative skew, again suggesting two cohorts.

² Figures for Site 7 were excluded due to recording depth differences.

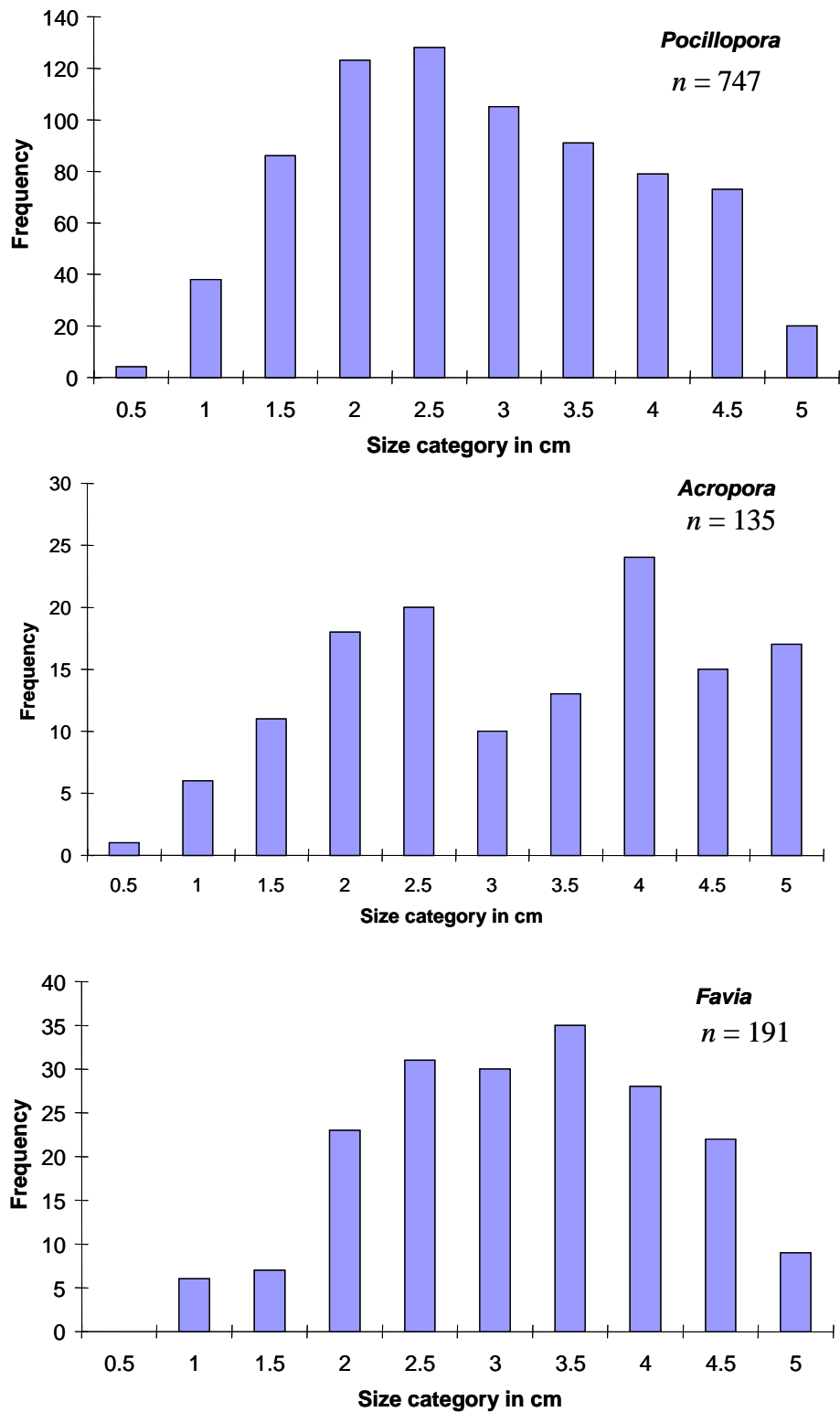


Figure 19. Size frequencies of three genera of coral recruits at Aldabra Atoll in February 2001

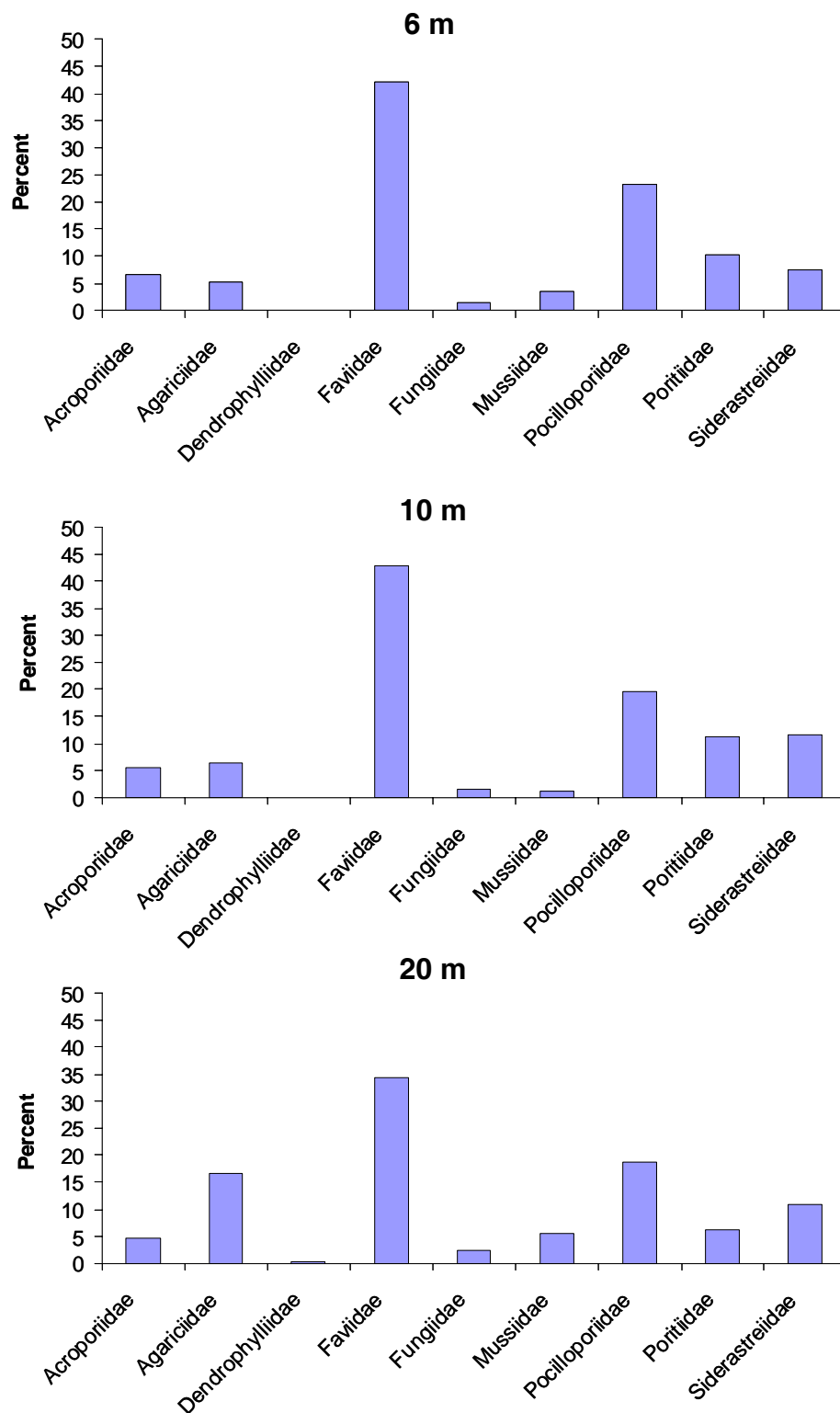


Figure 20. Percent of juvenile coral families in shallow (6m, $n=1409$), intermediate (10m, $n=1579$) and deep (20m, $n=819$) water at Aldabra Atoll in February 2001.

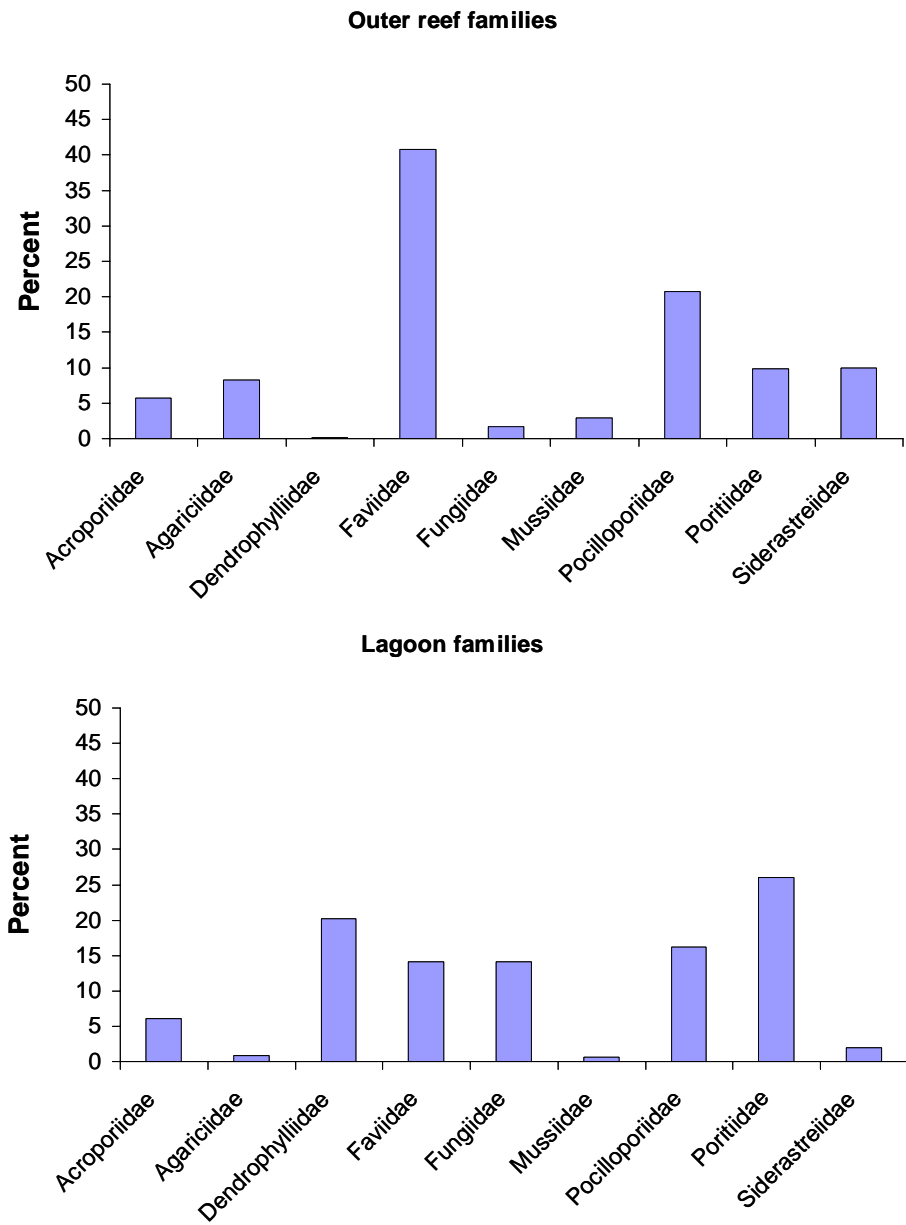


Figure 21. Percent of juvenile coral families at Aldabra Atoll in outer reef sites (combined depths, $n = 3715$) and lagoon sites ($n = 881$) in February 2001.



Acropora spp. coral recruit

Families and Genera of Recruits

Coral recruits from 27 genera representing 13 families were recorded in quadrats around Aldabra. On the outer reefs, there was little difference in the percentage of the nine main families of recruits found at the 6 m and 10 m depths (Figure 20). However, there was a difference at 20 m depth where there were fewer faviids and poritids, and more mussids and agariciids. Lagoon sites were again different, with fewer faviids and siderastreids, and many more fungids and poritids (Figure 21).

Corals tagged at Sites 1,3,6 and 7 were primarily *Pocillopora* spp. where insufficient recruits of this species were found, *Acropora* spp. were tagged. At Site 6 neither of these two genera were abundant enough so other genera such as *Pavona* and *Leptastrea* were also tagged and measured. Tagged colonies will be re-measured during the next survey.

Fish Transects

Number of Species Recorded

In February 2001 fish transects were completed at all the survey sites. However, sampling errors resulted in only 150 m² of benthic habitat surveyed at Site 1, and 275 m² surveyed at Site 6, compared to the norm of 300 m². At Sites 1-8, 191 species, representing 32 families were identified on the transects. The checklist surveys added 14 species and 8 families, giving 205 species representing 40 families (Table 3). In November 1999 surveys of Sites 1-7 yielded 165 species representing 29 families on the transects, and 46 additional species and 5 additional families on the checklist surveys, giving a total of 211 species representing 35 families.

Table 3. Species of fish counted in the transects and sighted off the transects during the Aldabra Marine Programme surveys in February 2001 and November 1999.

	2001	2001	1999	1999
	SITES 1-8	SITES 1-8	SITES 1-7	SITES 1-7
	Number	Sighted	Number	Sighted
Family/Genus species	In Transects	Off Transect	In Transects	Off Transect
MYLIOBATIDAE				
<i>Aetobatis narinari</i>				X
MURAENIDAE				
<i>Gymnothorax breedeni</i>			1	
<i>Gymnothorax flavimarginatus</i>	1		2	
HETEROCONGRIDAE				
<i>Heteroconger hassi</i>				X
CHANIDAE				
<i>Chanos chanos</i>		X		X
BELONIDAE				
<i>Tylosurus crocodilus</i>	1			
SYNODONTIDAE				
<i>Synodus jaculum</i>			3	
<i>Synodus variegatus</i>			9	
HOLOCENTRIDAE				
<i>Myripristis adusta</i>	12		6	
<i>Myripristis berndti</i>	297		72	
<i>Myripristis murdjan</i>	36		98	
<i>Myripristis vittata</i>			52	
<i>Neoniphon sammara</i>	7		19	
<i>Sargocentron caudimaculatum</i>	92		106	
<i>Sargocentron diadema</i>	13			X
<i>Sargocentron spiniferum</i>	2		14	
SERRANIDAE				
<i>Aethaloperca rogaa</i>	552		1	
<i>Cephalopholis argus</i>	21		2	
<i>Cephalopholis leoparda</i>	4		1	
<i>Cephalopholis miniata</i>	20		58	
<i>Cephalopholis spiloparaea</i>	27			X
<i>Cephalopholis urodeta</i>	16		176	
<i>Dermatolepis striolatus</i>	1			X
<i>Epinephelus fasciatus</i>	27		60	
<i>Epinephelus fuscoguttatus</i>	1			X
<i>Epinephelus multinotatus</i>				X
<i>Epinephelus polyphekadion</i>	4		2	
<i>Epinephelus spilotoceps</i>	4		19	

Table 3 (continued)

	2001	2001	1999	1999
	SITES 1-8	SITES 1-8	SITES 1-7	SITES 1-7
	Number	Sighted	Number	Sighted
Family/Genus species	In Transects	Off Transect	In Transects	Off Transect
<i>Epinephelus tukula</i>			2	
<i>Gracilia albomarginata</i>	10		7	
<i>Plectropomus laevis</i>	1		1	
<i>Plectropomus punctatus</i>				X
<i>Variola louti</i>	3		2	
<i>Nemanthias carberryi</i>	1			X
<i>Pseudanthias cooperi</i>	17		1975	
<i>Pseudanthias evansi</i>	381		91	
<i>Pseudanthias squamipinnis</i>	2027		18679	
<i>Plectropomus areolatus</i>	6			X
<i>Cephalopholis nigripinnis</i>	64			
<i>Pseudanthias ignitis</i>	6			
<i>Anyperodon leucogrammicus</i>	1			
APOGONIDAE				
<i>Apogon angustatus</i>				X
<i>Apogon apogonoides</i>	2237		13285	
<i>Apogon fraenatus</i>			6	
<i>Apogon nigrofaciatus</i>			10	
<i>Cheilodipterus artus</i>				X
<i>Cheilodipterus macrodon</i>	1		3	
HAEMULIDAE				
<i>Plectorhinchus gaterinus</i>	7			X
<i>Plectorhinchus obscurus</i>	7		2	
<i>Plectorhinchus orientalis</i>	4		1	
<i>Plectorhinchus paulayi</i>				X
<i>Plectorhinchus plagiodesmus</i>			2	
LUTJANIDAE				
<i>Aphareus furca</i>	17		17	
<i>Aprion virescens</i>	3		1	
<i>Lutjanus bengalensis</i>	1		5	
<i>Lutjanus bohar</i>	43		23	
<i>Lutjanus fulvus</i>				X
<i>Lutjanus gibbus</i>	6		1	
<i>Lutjanus kasmira</i>	715		166	
<i>Lutjanus monostigma</i>	14		37	
<i>Lutjanus obscurus</i>				X
<i>Lutjanus argentimaculatus</i>		X		
CAESIONIDAE				
<i>Caesio teres</i>			275	
<i>Caesio xanthonota</i>	94		21	

Table 3 (continued)

	2001	2001	1999	1999
	SITES 1-8	SITES 1-8	SITES 1-7	SITES 1-7
	Number	Sighted	Number	Sighted
Family/Genus species	In Transects	Off Transect	In Transects	Off Transect
<i>Pterocaesio lativittata</i>	75			X
<i>Pterocaesio marri</i>				X
<i>Pterocaesio tile</i>	3201		4438	
MULLIDAE				
<i>Parupeneus barbarensis</i>	2		3	
<i>Parupeneus bifasciatus</i>	20		17	
<i>Parupeneus cyclostomus</i>	10		5	
<i>Parupeneus macronema</i>	219		82	
<i>Parupeneus pleurostigma</i>	4		5	
<i>Mulloidichthys vanicolensis</i>	550			
<i>Parupeneus rubescens</i>	1			
PEMPHERIDAE				
<i>Pempheris vanicolensis</i>			1	
CHAETODONTIDAE				
<i>Chaetodon auriga</i>	30		26	
<i>Chaetodon bennetti</i>	6			X
<i>Chaetodon falcula</i>	14		11	
<i>Chaetodon guttatissimus</i>	40		26	
<i>Chaetodon kleinii</i>	20		33	
<i>Chaetodon lineolatus</i>	2		4	
<i>Chaetodon lunula</i>	10		15	
<i>Chaetodon melannotus</i>			3	
<i>Chaetodon meyeri</i>	7		12	
<i>Chaetodon paucifasciatus</i>			2	
<i>Chaetodon trifasciatus</i>	12		17	
<i>Chaetodon unimaculatus</i>				X
<i>Chaetodon xanthocephalus</i>	9		2	
<i>Chaetodon zanzibariensis</i>	5		2	
<i>Forcipiger flavissimus</i>	42		5	
<i>Forcipiger longirostris</i>			9	
<i>Hemitaenichthys zoster</i>	19		8	
<i>Heniochus acuminatus</i>	1			X
<i>Heniochus diphreutes</i>			3	
<i>Heniochus monoceros</i>	1		2	
<i>Chaetodon interruptus</i>	2			
<i>Chaetodon madagaskariensis</i>	8			
<i>Chaetodon vagabundus</i>	2			
<i>Heniochus singularius</i>	2			

Table 3 (continued)

	2001	2001	1999	1999
	SITES 1-8	SITES 1-8	SITES 1-7	SITES 1-7
	Number	Sighted	Number	Sighted
Family/Genus species	In Transects	Off Transect	In Transects	Off Transect
LETHRINIDAE				
<i>Gnathodentex aureolineatus</i>				X
<i>Lethrinus nebulosus</i>	3			X
<i>Monotaxis grandoculis</i>	59		40	
<i>Lethrinus xanthurus</i>		X		
<i>Lethrinus obsoletus</i>		X		
EPHIPPIDAE				
<i>Platax orbicularis</i>	8			X
<i>Platax teira</i>				X
MALACANTHIDAE				
<i>Malacanthus brevirostris</i>			5	
<i>Malacanthus latovittatus</i>	1		1	
PINGUIPEDIDAE				
<i>Parapercis hexophthalma</i>	8			
<i>Parapercis millipunctata</i>	5			
<i>Parapercis signata</i>	6			
POMACANTHIDAE				
<i>Apolemichthys trimaculatus</i>	12		19	
<i>Centropyge acanthops</i>	45		79	
<i>Centropyge multispinis</i>	100		226	
<i>Pomacanthus chrysurus</i>			2	
<i>Pomacanthus imperator</i>			6	
<i>Pygoplites diacanthus</i>	7		4	
<i>Centropyge bispinosa</i>	4			
<i>Centropyge debelius</i>	6			
POMACENTRIDAE				
<i>Amphiprion chrysogaster</i>	2		5	
<i>Amphiprion clarkii</i>	1			X
<i>Chromis dimidiata</i>	1710		3289	
<i>Chromis lepidolepis</i>			310	
<i>Chromis nigrura</i>	303		2219	
<i>Chromis ternatensis</i>	729		1796	
<i>Chromis weberi</i>	431		2205	
<i>Chromis xanthura</i>			43	
<i>Dascyllus aruanus</i>	12			X
<i>Dascyllus carneus</i>	63		55	
<i>Dascyllus trimaculatus</i>	15		18	
<i>Lepidozygus tapeinosoma</i>	15985		7139	
<i>Plectroglyphidodon dickii</i>	24		1	

Table 3 (continued)

	2001	2001	1999	1999
	SITES 1-8	SITES 1-8	SITES 1-7	SITES 1-7
	Number	Sighted	Number	Sighted
Family/Genus species	In Transects	Off Transect	In Transects	Off Transect
<i>Plectroglyphidodon johnstonianus</i>	53		33	
<i>Plectroglyphidodon lacrymatus</i>	104		59	
<i>Pomacentrus caeruleus</i>	69		101	
<i>Pomacentrus sulfureus</i>	1			X
<i>Chromis xutha</i>	107		16	
<i>Abudefduf sexfasciatus</i>	2			
<i>Abudefduf vaigiensis</i>		X		
<i>Amphiprion allardi</i>	5			
<i>Chromis atripectoralis</i>	1			
<i>Pomacentrus chrysurus</i>	1			
<i>Pomacentrus philippinus</i>	1			
LABRIDAE				
<i>Anampses lineatus</i>			2	
<i>Anampses meleagrides</i>	16		4	
<i>Anampses twistii</i>			3	
<i>Bodianus axillaris</i>	14		13	
<i>Bodianus bilunulatus</i>	3			X
<i>Bodianus diana</i>	20		63	
<i>Cheilinus undulatus</i>			1	
<i>Cirrhilabrus exquisitus</i>	754		555	
<i>Coris cuvieri</i>	2		3	
<i>Coris aygula</i>				X
<i>Coris frerei</i>	7		16	
<i>Epibulus insidiator</i>	1		1	
<i>Gomphosus caeruleus</i>	54		61	
<i>Halichoeres cosmetus</i>	198		258	
<i>Halichoeres hortulanus</i>	19		47	
<i>Halichoeres marginatus</i>			4	
<i>Halichoeres vrolikii</i>	6		2	
<i>Hemigymnus fasciatus</i>	2		5	
<i>Hemigymnus melapterus</i>			1	
<i>Hologymnosus doliatus</i>	3		1	
<i>Labroides bicolor</i>	18		24	
<i>Labroides dimidiatus</i>	214		305	
<i>Labrobsis xanthonata</i>	8		1	
<i>Macropharingodon bipartitus</i>	13		11	
<i>Pseudocheilinus evanidus</i>	155		306	
<i>Pseudocheilinus hexataenia</i>	221		254	
<i>Pseudocheilinus octotaenia</i>	42		92	
<i>Pseudodax moluccanus</i>	2		17	
<i>Thalassoma amblycephalum</i>	41		624	
<i>Thalassoma hardwicke</i>	4		6	
<i>Thalassoma herbraicum</i>	66		103	

Table 3 (continued)

	2001	2001	1999	1999
	SITES 1-8	SITES 1-8	SITES 1-7	SITES 1-7
	Number	Sighted	Number	Sighted
Family/Genus species	In Transects	Off Transect	In Transects	Off Transect
<i>Thalassoma janseni</i>			7	
<i>Thalassoma lunare</i>	26		14	
<i>Anampses caeruleopunctatus</i>	1			
<i>Bodianus anthioides</i>	4		1	
<i>Bodianus mesothorax</i>	1			
<i>Coris batuensis</i>	37			
<i>Coris caudimacula</i>			99	
<i>Hologymnosus annulatus</i>	1			
<i>Novaculichthys taeniourus</i>	6			
<i>Pseudojuloides kaleidas</i>	14			
<i>Stethojulis albobittata</i>	11			
CIRRHITIDAE				
<i>Cirrhitichthys oxycephalus</i>	21		14	
<i>Paracirrhites arcatus</i>	39		50	
<i>Paracirrhites forsteri</i>	18		25	
SCARIDAE				
<i>Bolbometopon muricatum</i>		X		X
<i>Scarus sordidus</i>	117		106	
<i>Scarus rubroviolatus</i>	1		1	
<i>Scarus frenatus</i>	3			
<i>Scarus strongylocephalus</i>	8			
CARANGIDAE				
<i>Caranx ignobilis</i>	25			X
<i>Caranx melampygus</i>	50		29	
<i>Caranx sexfasciatus</i>	515			X
<i>Elagatis bipinnulata</i>	2			X
<i>Trachinotus blochii</i>				X
<i>Scomberoides lysan</i>		X		
SPHYRAENIDAE				
<i>Sphyræna barracuda</i>		X	1	
<i>Sphyræna quenie</i>				X
BLENNIIDAE				
<i>Aspidontus taeniatus</i>	15		11	
<i>Ecsenius midas</i>	4		9	
<i>Plagiotremus rhinorhynchus</i>	1		11	
<i>Plagiotremus tapeinosoma</i>	9		47	
<i>Cirripectes castaneus</i>	17			

Table 3 (continued)

	2001	2001	1999	1999
	SITES 1-8	SITES 1-8	SITES 1-7	SITES 1-7
	Number	Sighted	Number	Sighted
Family/Genus species	In Transects	Off Transect	In Transects	Off Transect
GOBIIDAE				
<i>Amblyeleotris periphthalmus</i>			1	
<i>Amblyeleotris</i> sp.				
<i>Gnatholepis</i> sp.				
<i>Gunnellichthys curiosus</i>			1	
<i>Valenciennea helsdingeni</i>	2		6	
<i>Valenciennea puellaris</i>			1	
<i>Valenciennea strigata</i>	4		8	
ACANTHURIDAE				
<i>Acanthurus auranticavus</i>	2		1	
<i>Acanthurus leucocheilus</i>	21		4	
<i>Acanthurus leucosternon</i>	93		74	
<i>Acanthurus mata</i>				X
<i>Acanthurus thompsoni</i>	88		116	
<i>Acanthurus triostegus</i>				X
<i>Acanthurus tristis</i>			5	
<i>Acanthurus xanthopterus</i>			16	
<i>Ctenochaetus binotatus</i>			14	
<i>Ctenochaetus striatus</i>	128		54	
<i>Ctenochaetus strigosus</i>	373		325	
<i>Naso brevirostris</i>	57		17	
<i>Naso hexacanthus</i>			1	
<i>Naso lituratus</i>	4		4	
<i>Naso unicornis</i>				X
<i>Zebrasoma scopas</i>	55		155	
<i>Acanthurus lineatus</i>	5			
<i>Acanthusus nigricauda</i>	4			
<i>Acanthurus tennenti</i>	1			
<i>Naso vlamingii</i>	14			
<i>Zebrasoma desjardinii</i>	2			
ZANCLIDAE				
<i>Zanclus cornutus</i>	11		19	
BALISTIDAE				
<i>Balistapus undulatus</i>	5		5	
<i>Balistoides conspicillum</i>				X
<i>Balistoides viridescens</i>	1			X
<i>Melichthys indicus</i>	72		22	
<i>Melichthys niger</i>				X
<i>Odonus niger</i>	10		13	
<i>Rhinecanthus aculeatus</i>				X
<i>Sufflamen bursa</i>	4		6	

Table 3 (continued)

	2001	2001	1999	1999
	SITES 1-8	SITES 1-8	SITES 1-7	SITES 1-7
	Number	Sighted	Number	Sighted
Family/Genus species	In Transects	Off Transect	In Transects	Off Transect
<i>Sufflamen chrysopterus</i>	14		15	
OSTRACIIDAE				
<i>Ostracion meleagris</i>	2			X
TETRAODONTIDAE				
<i>Arothron meleagris</i>	3		1	
<i>Arothron nigropunctatus</i>	6		13	
<i>Canthigaster valentini</i>	7		4	
<i>Canthigaster amboinensis</i>			1	
<i>Canthigaster coronata</i>	1			
SCOMBRIDAE				
<i>Gymnosarda unicolor</i>		X	5	
SCORPAENIDAE				
<i>Scorpaenopsis diabolus</i>	1			
SIGANIDAE				
<i>Siganus argenteus</i>				X
<i>Siganus stellatus</i>	2			
GINGLYMOSTOMATIDAE				
<i>Nebrius ferrugineus</i>		X		
DASYATIDIDAE				
[species ID needed]		X		
KYPHOSIDAE				
<i>Kyphosus vaigiensis</i>		X		
MOBULIDAE				
<i>Manta briostriis</i>	1			
OPHICHTHIDAE				
<i>Myrichthys maculosus</i>		X		
MICRODESMIDAE				
<i>Nemateleotris magnifica</i>	68		108	
<i>Ptereleotris evides.</i>	5			

Table 3 (continued)

	2001	2001	1999	1999
	SITES 1-8	SITES 1-8	SITES 1-7	SITES 1-7
	Number	Sighted	Number	Sighted
Family/Genus species	In Transects	Off Transect	In Transects	Off Transect
MONACANTHIDAE				
<i>Amanes scopas</i>	4			
<i>Cantherinus pardalis</i>	1			
<i>Paraluteres prionurus</i>			1	
PLESIOPIDAE				
<i>Callopleles altivelis</i>		X		
Total Fish Counted	34901		61939	
Total Area Surveyed	2325 m²		2100 m²	
Fish/100m²	1501		2949	
Number of Species	191	14	165	46
Total Number Species Identified	205		211	



Powder Blue Tang (*Acanthurus leucosternon*)