Species list and relative abundance of marine molluscs collected on Aride Island beach between March 2001 and February 2002

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Abstract: A total of 261 mollusc species were found on Aride Island's beach during the study period. Of these, 224 were gastropods, 36 were bivalves and one was a cephalopod. Seven species, and a further seven specimens that could not be identified to species level, may constitute first records for the granitic Seychelles.

Key words: abundance, bivalve, gastropod, mollusc, Seychelles

Introduction

The original Aride Island marine mollusc species list, compiled by Jackson (1995), detailed the species of *Cypraea* and *Conus* collected by beachcombing on Aride's beach during the south-east monsoon season (June to September). The species list developed during this project details all mollusc species found on the beach during the period of study.

Methods

Specimens were collected during a daily thirty-minute walk along the beach at low tide during the period March 2001 to February 2002. Shell species were initially identified using Jarrett (2000). Samples that could not be identified to species level using the available literature were taken to the Natural History Museum, London, where they were identified using Abbott & Dance (1998), Lorenz & Hubert (1993), Röckel *et al.* (1995), Slimming & Jarrett (1970b) and Tursch & Greifeneder (2001), and through comparison with the reference collection. Specimens of all the species listed in this study are displayed in a reference collection housed on Aride.

To quantify the abundance of each species, it would be necessary to remove all specimens found on a daily basis. This was not done because of the large number of shells already on the beach and because of the ecological importance of shells to hermit crabs. Instead, for each species, all specimens found were removed from the beach and stored until the number of specimens reached 100, our highest relative abundance classification (Table 1). At this point, additional specimens were left on the beach and no further abundance data were recorded for the species. To minimise ecological impact, all 100 specimens were returned to the beach, except for specimens chosen for use the Aride reference collection. At the end of the study, all specimens not used in the reference collection were also returned to the beach.

By using this collection method, the relative abundance of each species could be estimated using the scale shown in Table 1. To allow comparison, the relative abundance descriptions were adapted from previous studies of *Cypraea* by Slimming & Jarrett (1970a) and Jackson (1995). As part of the adaptation, the two categories of 'Fairly common' and 'Quite common' were merged into scale 4 (Fairly common). To enable further comparison, the abundance descriptions in Jarrett (2000) were then adapted to the scale of relative abundance (Table 1). This adaptation is shown in Table 2.

Table 1 Scale used to record the relative abundance of shells beachcombed on Aride's south beach over the period of study

Scale	Relative abundance	Number of specimens found during the period
1	Rare	1 to 4
2	Uncommon	5 to 8
3	Occasional	9 to 20
4	Fairly common	21 to 30
5	Common	31 to 99
6	Abundant	100 or more

Table 2 Classification of the descriptive text used by Jarrett (2000) into the scale of relative abundance used in this paper (detailed in Table 1)

Scale	Relative abundance	Corresponding descriptive terms
1	Rare	Very uncommon / Extremely uncommon / Most uncommon / Only one specimen found / Now hard to find
2	Uncommon	Rather uncommon / Uncommon / Common in only one locality
3	Occasional	Fairly uncommon / Moderately uncommon / Quite uncommon / Not uncommon / Not found very often / Infrequent
4	Fairly common	Fairly common / Moderately common / More common than an uncommon species / Fairly frequent
5	Common	Relatively common / Common / Occurs in large colonies / Collected in reasonable numbers
6	Abundant	Extremely common / Very common / Ubiquitous / Commonest /Particularly common/ Found almost everywhere / Large numbers on most reefs / More common than a common species
-	Unknown	Not stated in the descriptive text

Results

A total of 261 species of mollusc were collected over the study period. All species found are detailed in Appendix I. Of the 261 species, 224 were gastropods, 36 were b□Bivalves and one was a cephalopod. Of the gastropods, there were 44 species of *Conus* and 36 species of *Cypraea*.

Appendix I also lists the relative abundance of each species, as calculated during this study, along with the relative abundance estimated by Jackson (1995), Jarrett (2000) and Slimming & Jarrett (1970a). Of the 261 species collected in this study, 99 were classified as scale 1 (Rare), 42 as scale 2 (Uncommon), 40 as scale 3 (Occasional), 24 as scale 4 (Fairly common), 31 as scale 5 (Common) and 25 as scale 6 (Abundant).

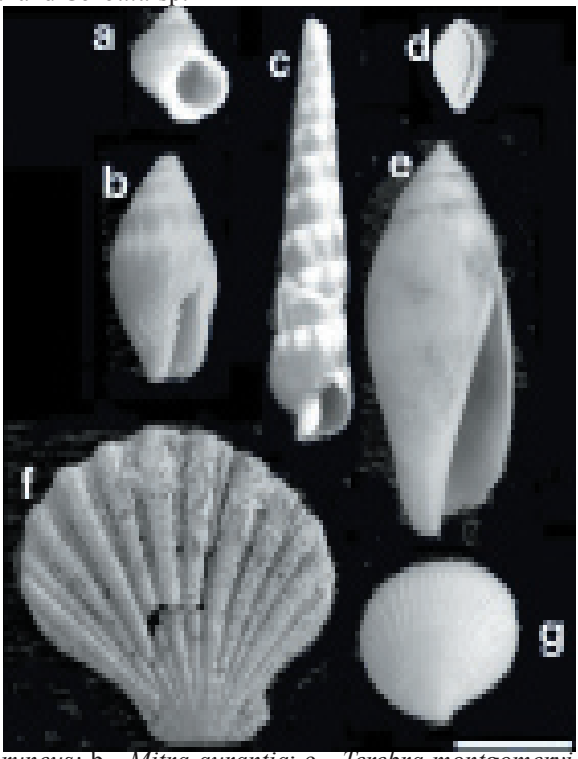
Since the study of beachcombed *Cypraea* on Aride (Jackson 1995), only two out of the 22 species originally recorded changed relative abundance by three scale places or more: *C. talpa* increased from scale 2 (Uncommon) to scale 5 (Common) and *C. nucleus* increased from scale 1 (Rare) to scale 6 (Abundant).

Slimming & Jarrett (1970a) described the overall abundance of *Cypraea* in the granitic Seychelles. This data was compared to the relative abundance measured in this study on Aride. *C. cicercula*, *C. globulus* and *C. nucleus* were more abundant by four scale places on Aride (scale 6, Abundant) than the granitic Seychelles as a whole (scale 2, Uncommon). Similarly, *C. clandestina* was more common by three scale places on Aride (scale 6, Abun-

dant) than overall in the granitic Seychelles (scale 3, Occasional). Only *C. tigris* was less abundant by more than two scale places on Aride than the granitic Seychelles as a whole: scale 3 (Occasional) versus scale 6 (Abundant) respectively. Two species, *C. helvola* and *C. histrio* were consistently scale 6 (Abundant) in all four studies (this study, Jackson 1995, Jarrett 2000 and Slimming & Jarrett 1970a).

In comparing the relative abundance ratings of this study with Jarrett (2000), 48 had the same values, 64 were within one scale place, 48 within two scale places and 34 within three scale places. 11 species in this study were found to be commoner by four scales places in Jarrett (2000), and three species listed as being scale 1 (Rare) in this study, were scale 6 (Abundant) in Jarrett (2000): *Strombus g. gibberulus, Drupa ricinus* and *Oliva sidelia* var. *volvaroides*. 53 species found in our study were either not in Jarrett (2000) or were in Jarrett (2000) but lacked an abundance description.

Overall, eight species that we found were absent from all literature relating to the granitic Seychelles (Fig. 1): *Turbo bruneus*, *Strombus terebellatus*, *Pseudocypraea (Diminovula) adamsonii*, *Mitra aurantia*, *Terebra montgomeryi*, *Excellichlamys spectabilis*, *Ctena bella* and *Conus retifer*. Although *C. retifer* is not referred to in existing literature, it has been recorded on Silhouette (J. Gerlach pers comm.). A further seven distinct species could not be identified to species level: *Melanella* sp., *Quoyula* sp., *Caducifer* sp., *Euplica* sp., *Vexillum* sp., *Crassostrea* sp. and *Corbula* sp.



Figs. 1 a - *Turbo bruneus;* b - *Mitra aurantia*; c - *Terebra montgomeryi* (damaged during growth); d - *Pseudocypraea adamsonii*; e - *Strombus terebellatus*; f - *Excellichlamys spectabilis*; g - *Ctena bella*. Scale: 4□5mm

Discussion

Since Jackson (1995), only two species of *Cypraea* have increased in relative abundance by three scale places or more. These changes may indicate population change, but could simply reflect short-term increases in the number of beachcombed shells caused by climatic conditions or life cycle influences.

Of the 261 species that we found, 183 were recorded during the first two months of this study (mid-March to mid-May). In comparison, over a two-month period from mid-February to mid-April, 104 shell species were collected by beachcombing on Cousine Island (Lawrence & Steyn 2001). Lawrence & Steyn do not provide a detailed methodology, so this may be a result of differences in the methodology of collection. However, it may have arisen because of a greater range of offshore habitats, the presence of certain food resources and/or the absence of certain predators in the waters surrounding Aride, compared to some of the islands nearer to the larger granitic Seychelles Islands.

Only three species that we classified as scale 1 (Rare) were scale 6 (Abundant) in Jarrett (2000); however, a further 11 species were four scale places higher in Jarrett (2000). It is likely that these species prefer habitats or niches that are more extensive, or are of better quality, at sites away from Aride. This may explain why Aride does not have many of the 649 species listed in Jarrett (2000) and why 14 of the species recently found on Cousine Island (Lawrence & Steyn 2001) were absent in this study.

Conversely, Jarrett (2000) states that he does not know of any sites where *Cypraea mauritiana* can be regularly found, yet we collected five specimens on the beach over the study period. Jarrett (2000) knows of only one specimen of *Conus cylindraceus* collected in the granitic Seychelles, but a second specimen was found during this study. Additionally, fifteen species that we found were not mentioned in Jarrett (2000). It should be noted that Jarrett (2000) is mostly based on observations on Mahe.

Several factors may influence our abundance comparisons; the abundance descriptions in Jarrett (2000) are purely subjective, with no quantified method described; the abundances in Jarrett (2000) refer to live, not beachcombed, specimens; greater abundances of living shells will be found in shallow rather than deep water due to ease of location; species that are smaller may be recorded as being less abundant because they are overlooked.

Additionally, it was apparent that the number and types of shell washed up depends on both the date and the sea conditions. A week of rough seas in June resulted in many larger species being washed up, whilst calmer conditions in August resulted in the deposition of many smaller species on the sand at the west end of the beach. Although the majority of the shells collected on Aride's beach are likely to be from the surrounding reef, it is likely that *Janthina janthina* and *Nautilus pompilius* are from deeper waters due to their pelagic lifestyles. It should be noted that it is possible that other smaller shells, such as *Trivia oryza* or *Mitra tabanula*, could have been washed up from further afield.

Despite these influencing factors, *Cypraea helvola* and *C. histrio* have been recorded as scale 6 (Abundant) in all four studies and, of the 208 species that we found with abundances detailed in Jarrett (2000), 48 have the same relative abundance rating as this study. In total, 54% of the species recorded in this study have either the same relative abundance rating or are within one abundance scale place, suggesting that the majority of abundance ratings are consistent throughout the granitic Seychelles.

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Appendix I: Species list and abundance of marine molluscs collected on Aride Island beach between March 2001 and February 2002. Species have been classified in the order that they are found in Hardy's Internet Guide to Marine Gastropods (Hardy 2002). Studies for relative abundance: 1 - Slimming & Jarrett (1970a); 2 - Jackson (1995); 3 - Jarrett (2000); 4 - this study

Class	Family	Species	Authority	Relative abundance			
				1	**2**	**3**	**4**
Gastropoda	Patellidae	*Cellana radiata*	(Born, 1778)	-	-	-	6
	Fissurellidae	*Diodora singaporensis*	(Reeve, 1855)	-	-	-	2
		Fissurella (Montfortia) cumingii	(Reeve, 1859)	-	-	-	1
		Emarginula scutellata	(Deshayes, 1863)	-	-	-	1
	Trochidae	trochinae	*Monodonta australis*	(Lamarck,			
1818)	-	-	4	1			
Clanculus flosculus		(Fisher, 1878)	-	-	5	2	
Trochus maculatus		(Linneaus, 1758)	-	-	5	4	
Trochus mauritianus		(Gmelin, 1791)	-	-	4	5	
Trochus virgatus		(Gmelin, 1791)	-	-	5	6	
Stomatia phymotis		(Helbling, 1779)	-	-	1	1	

Class	Family	Species	Authority	Relative abundance			
				1	**2**	**3**	**4**
	Turbinidae	*Turbo argyrostomus* syn. *margaritaceous*	(Linneaus, 1758)	-	-	5	6
		Turbo bruneus	(Röding, 1798)	-	-	-	1
		Turbo marmoratus	(Linneaus, 1758)	-	-	2	1
		Turbo petholatus	(Linnaeus, 1758)	-	-	4	2
		Turbo setosus	(Gmelin, 1791)	-	-	5	6
		Phasianella aethiopica	(Philippi, 1853)	-	-	5	2
	Neritopsidae	*Neritopsis radula*	(Linneaus, 1758)	-	-	1	3
	Neritidae	*Mienerita (Nerita) debilis*	(Dufo, 1840)	-	-	3	1
		Nerita albicilla	(Linneaus, 1758)	-	-	5	6
		Nerita plicata	(Linneaus, 1758)	-	-	5	5
		Nerita polita	(Linneaus, 1758)	-	-	4	1
		Nerita textilis	(Gmelin, 1791)	-	-	4	5
	Cerithiidae	*Cerithium acutinodulosum*	Smith, 1884	-	-	4	1
		Cerithium atromarginatum	(Dautzenberg & Bouge, 1933)	-	-	2	
		Cerithium echinatum	(Lamarck, 1822)	-	-	5	5
		Cerithium nodulosum	(Bruguière, 1792)	-	-	-	3
		Rhinoclavis sinensis syn. *Obeliscus cedonulli*	(Gmelin, 1791)	-	-	4	1
	Planaxidae	*Planaxis niger*	(Quoy & Gaimard, 1834)	-	-	4	
	Modulidae	*Modulus tectum*	(Gmelin, 1791)	-	-	2	1
	Littorinidae	*Littorina kraussi*	(Rosewater, 1970)	-	-	5	3
	Strombidae	*Lambis chiragra arthritica*	(Röding, 1798)	-	-	4	5
		Lambis crocata crocata	(Link, 1807)	-	-	4	4
		Lambis truncata truncata	(Humphrey, 1786)	-	-	4	4
		Strombus aurisdianae	(Linnaeus, 1758)	-	-	3	3
		Strombus decorus decorus	(Röding, 1798)	-	-	4	1
		Strombus dentatus	(Linnaeus, 1758)	-	-	1	3
		Strombus erythrinus erythrinus	(Dillwyn, 1817)	-	-	2	1
		Strombus gibberulus gibberulus	(Linnaeus, 1758)	-	-	6	1
		Strombus lentiginosus	(Linnaeus, 1758)	-	-	3	2
		Strombus mutabilis	(Swainson, 1821)	-	-	4	2
		Strombus pipus syn. papilio	(Röding, 1798)	-	-	2	1
		Strombus sinuatus	(Humphrey, 1786)	-	-	2	2
		Strombus terebellatus	(Sowerby, 1842)	-	-	-	1
	Hipponicidae	*Hipponix conica*	(Schumacher, 1817)	-	-	5	4
	Vanikoridae	*Vanikoro cancellata*	(Lamarck, 1822)	-	-	4	3
	Capulidae	*Malluvium lissus (Hipponix lissa)*	(Smith, 1894)	-	-	-	2
	Cypraeidae	*Cypraea annulus*	(Linnaeus, 1758)	6	6	6	5
		Cypraea arabica var. *immanis*	(Linnaeus, 1758)	3	1	3	3
		Cypraea argus	(Linnaeus, 1758)	2	-	2	4
		Cypraea asellus	(Linnaeus, 1758)	-	3	4	5
		Cypraea caputserpentis	(Linnaeus, 1758)	4	5	5	6
		Cypraea carneola	(Linnaeus, 1758)	5	6	6	5
		Cypraea caurica	(Linnaeus, 1758)	6	3	5	5
		Cypraea cicercula	(Linnaeus, 1758)	2	6	4	6
		Cypraea clandestina	(Linnaeus, 1767)	3	-	4	6
		Cypraea cribraria	(Linnaeus, 1758)	2	-	2	1
		Cypraea depressa	(Gray, 1824)	3	3	3	4
		Cypraea diliculum	(Reeve, 1845)	-	-	3	1
		Cypraea erosa	(Linnaeus, 1758)	4	2	5	4
		Cypraea fimbriata	(Gmelin, 1791)	4	-	6	4
		Cypraea globulus	(Linnaeus, 1758)	2	6	3	6
		Cypraea helvola	(Linnaeus, 1758)	6	6	6	6
		Cypraea hirundo var. *francisca*	(Linnaeus, 1758)	3	-	-	5
		Cypraea histrio	(Gmelin, 1791)	6	6	6	6
		Cypraea isabella	(Linnaeus, 1758)	4	4	4	6
		Cypraea kieneri	(Hidalgo, 1906)	3	-	-	2
		Cypraea limacina	(Lamarck, 1810)	3	-	2	1
		Cypraea lynx	(Linnaeus, 1758)	5	3	6	5
		Cypraea mappa	(Linnaeus, 1758)	1	1	1	2
		Cypraea mauritiana	(Linnaeus, 1758)	2	-	1	2
		Cypraea moneta	(Linnaeus, 1758)	5	6	6	6
		Cypraea nucleus	(Linnaeus, 1758)	2	1	6	6
		Cypraea poraria	(Linnaeus, 1758)	2	-	1	3
		Cypraea punctata	(Linnaeus, 1758)	3	-	4	4

Class	Family	Species	Authority	Relative abundance			
				1	**2**	**3**	**4**
		Cypraea scurra	(Gmelin, 1791)	3	4	6	5
		Cypraea staphylaea	(Linnaeus, 1758)	3	-	4	2
		Cypraea stolida	(Linnaeus, 1758)	2	-	1	1
		Cypraea talpa	(Linnaeus, 1758)	3	2	4	5
		Cypraea teres	(Gmelin, 1791)	3	-	4	3
		Cypraea testudinaria	(Linnaeus, 1758)	2	1	3	2
		Cypraea tigris	(Linnaeus, 1758)	6	3	5	3
		Cypraea vitellus	(Linnaeus, 1758)	4	2	6	3
	Ovulidae	*Ovula ovum*	(Linnaeus, 1758)	-	-	1	3
	Pediculariidae	*Pseudocypraea (Diminovula) adamsonii*	(Sowerby, 1832)	-	-	-	1
	Triviidae	*Trivia oryza*	(Lamarck, 1810)	-	-	4	6
	Naticidae	*Polinices simiae*	(Deshayes, 1838)	-	-	3	1
		Polinices tumidus	(Swainson, 1840)	-	-	5	1
	Tonnidae	*Malea pomum*	(Linnaeus, 1758)	-	-	-	1
		Tonna perdix	(Linnaeus, 1758)	-	-	3	1
	Cassidae	*Cypraecassis rufa*	(Linnaeus, 1758)	-	-	4	1
		Casmaria erinacea erinaceus syn. *vibex*	(Linnaeus, 1758)	-	-	4	4
		Phalium glaucum	(Linnaeus, 1758)	-	-	2	1
	Ranellidae	*Gyrineum pusillum*	(Broderip, 1833)	-	-	4	1
		Charonia tritonis	(Linneaus, 1758)	-	-	-	1
		Cymatium aquatile	(Reeve, 1844)	-	-	-	3
		Cymatium hepaticum	(Röding, 1798)	-	-	4	2
		Cymatium nicobaricum	(Röding, 1798)	-	-	6	3
	Personidae	*Distorsio anus*	(Linneaus, 1758)	-	-	-	3
		Distorsio reticulata	(Linneaus, 1758)	-	-	2	1
	Bursidae	*Bursa bufonia*	(Gmelin, 1791)	-	-	4	2
		Bursa granularis	(Röding, 1798)	-	-	4	3
		Tutufa (Bursa) bubo	(Linneaus, 1758)	-	-	-	1
		Tutufa (Bursa) rubeta	(Linneaus, 1758)	-	-	4	1
	Triphoridae	*Triphora crenulata*	(Deshayes, 1857)	-	-	-	1
		Triphora rubra	(Hinds, 1843)	-	-	4	1
	Janthinidae	*Janthina janthina*	(Linneaus, 1758)	-	-	5	6
	Eulimidae	*Melanella* sp.		-	-	-	1
	Muricidae	*Chicoreus (Euphyllon) axicornis*	(Lamarck, 1822)	-	-	2	3
		Chicoreus brunneus	(Link, 1807)	-	-	5	1
		Chicoreus ramosus	(Linnaeus, 1758)	-	-	5	1
		Chicoreus (Pterynotus) triqueter	(Born, 1778)	-	-	1	3
		Morula margariticola	(Broderip, 1832)	-	-	5	2
		Maculotriton serriale	(Deshayes, 1834)	-	-	4	1
		Drupa morum	(Röding, 1798)	-	-	5	4
		Drupa ricinus	(Linnaeus, 1758)	-	-	6	1
		Drupa rubusidaeus	(Röding, 1798)	-	-	4	2
		Drupella cornus	(Röding, 1798)	-	-	-	5
		Drupella rugosa	(Born, 1778)	-	-	5	5
		Drupina lobata	(Blainville, 1832)	-	-	2	2
		Morula biconica	(Blainville, 1832)	-	-	1	3
		Morula granulata	(Duclos, 1832)	-	-	6	5
		Morula uva	(Röding, 1798)	-	-	4	6
		Nassa francolina	(Bruguière, 1789)	-	-	6	2
		Purpura rudolphi (Thais rudolphi)	(Lamarck, 1822)	-	-	-	5
		Rapana rapiformis	(Born, 1778)	-	-	4	1
		Thais echinulata	(Lamarck, 1822)	-	-	4	4
		Thais mancinella	(Linnaeus, 1758)	-	-	5	3
		Thais tuberosa	(Röding, 1798)	-	-	4	2

Class	Family	Species	Authority	Relative abundance			
				1	2	3	4
		Coralliophila costularis	(Lamarck, 1816)	-	-	2	1
		Coralliophila erosa	(Röding, 1798)	-	-	-	1
		Coralliophila violacea	(Kiener, 1836)	-	-	4	2
		Quoyula sp.		-	-	-	2
	Turbinellidae	*Vasum ceramicum*	(Linnaeus, 1758)	-	-	-	3
		Vasum turbinellus	(Linnaeus, 1758)	-	-	-	4
	Buccinidae	*Caducifer* sp.		-	-	-	1
		Cantharus undosus	(Linnaeus, 1758)	-	-	6	3
		Colubraria nitidula	(Sowerby, 1833)	-	-	4	1
		Pisania decollata	(Sowerby, 1833)	-	-	4	1
		Pisania ignea	(Gmelin, 1791)	-	-	4	2
	Colmbellidae	*Euplica* sp.		-	-	-	1
		Pyrene (*Columbella*) *turturina*	(Lamarck, 1822)	-	-	5	1
		Mitrella albina	(Kiener, 1841)	-	-	2	1
		Pyrene flava	(Bruguière, 1789)	-	-	5	1
		Pyrene varians	(Sowerby, 1832)	-	-	2	1
	Nassariidae	*Nassarius papillosus*	(Linnaeus, 1758)	-	-	4	2
		Nassarius pauperus	(Gould, 1850)	-	-	4	1
	Fasciolariidae	*Latirolagena smaragdula*	(Linnaeus, 1758)	-	-	5	2
		Latirus craticulatus	(Linnaeus, 1758)	-	-	4	3
		Latirus polygonus	(Linnaeus, 1758)	-	-	4	4
		Peristernia nassatula	(Lamarck, 1822)	-	-	5	3
		Pleuroploca filamentosa	(Röding, 1798)	-	-	4	3
		Pleuroploca trapezium	(Linnaeus, 1758)	-	-	5	5
	Olividae	*Oliva caerulea* syn. *episcopalis*	(Röding, 1798)	-	-	6	2
		Oliva paxillus	(Reeve, 1850)	-	-	3	1
		Oliva sidelia var. *volvaroides*	(Duclos, 1835)	-	-	6	1
		Oliva miniacea tremulina	(Lamarck, 1811)	-	-	5	3
	Harpidae	*Harpa amouretta*	(Röding, 1798)	-	-	4	4
		Harpa major syn. *ventricosa*	(Röding, 1798)	-	-	-	2
	Mitridae	*Mitra acuminata*	(Swainson, 1824)	-	-	2	1
		Mitra aurantia	(Gmelin, 1791)	-	-	-	1
		Mitra cardinalis	(Gmelin, 1791)	-	-	1	1
		Mitra chrysostoma	(Broderip, 1836)	-	-	1	1
		Mitra cucumerina	(Lamarck, 1811)	-	-	4	2
		Mitra edentula	(Swainson, 1823)	-	-	1	1
		Mitra fastigium	(Reeve, 1845)	-	-	4	3
		Mitra ferruginea	(Lamarck, 1811)	-	-	4	2
		Mitra imperialis	(Röding, 1798)	-	-	2	1
		Mitra litterata	(Lamarck, 1811)	-	-	4	4
		Mitra tabanula	(Lamarck, 1811)	-	-	1	1
	Costellariidae	*Vexillum* sp.		-	-	-	1
	Terebridae	*Terebra columellaris*	(Hinds, 1844)	-	-	2	1
		Terebra crenulata	(Linnaeus, 1758)	-	-	4	1
		Terebra guttata	(Röding, 1798)	-	-	3	1
		Terebra maculata	(Linnaeus, 1758)	-	-	4	2
		Terebra montgomeryi	(Burch, 1965)	-	-	-	1
	Conidae	*Conus abbas*	(Hwass, 1792)	-	-	1	1
		Conus arenatus	(Hwass, 1792)	-	-	6	2
		Conus aulicus	(Linnaeus, 1758)	-	-	2	5
		Conus auricomus	(Hwass, 1792)	-	-	1	1
		Conus canonicus syn. *tigrinus*	(Hwass, 1792)	-	-	6	4
		Conus capitaneus	(Linnaeus, 1758)	-	-	3	1
		Conus catus	(Hwass, 1792)	-	-	4	6

Class	Family	Species	Authority	Relative abundance			
				1	2	3	4
		Conus chaldeus	(Röding, 1798)	-	-	4	6
		Conus coronatus	(Gmelin, 1791)	-	-	6	6
		Conus cylindraceus	(Broderip & Sowerby, 1833)	-	-	1	1
		Conus distans	(Hwass, 1792)	-	-	4	2
		Conus ebraeus	(Linnaeus, 1758)	-	-	6	6
		Conus episcopus	(Hwass, 1792)	-	-	4	4
		Conus flavidus	(Lamarck, 1810)	-	-	4	3
		Conus frigidus	(Reeve, 1848)	-	-	3	5
		Conus fulgetrum	(Sowerby, 1834)	-	-	5	6
		Conus geographus	(Linnaeus, 1758)	-	-	4	5
		Conus gubernator	(Hwass, 1792)	-	-	3	2
		Conus imperialis	(Linnaeus, 1758)	-	-	4	4
		Conus legatus	(Lamarck, 1810)	-	-	1	1
		Conus leopardus	(Röding, 1798)	-	-	6	3
		Conus litoglyphus	(Hwass, 1792)	-	-	4	5
		Conus litteratus	(Linnaeus, 1758)	-	-	3	3
		Conus lividus	(Hwass, 1792)	-	-	6	6
		Conus marmoreus forma *bandanus*	(Linnaeus, 1758)	-	-	3	3
		Conus miles	(Linnaeus, 1758)	-	-	5	5
		Conus mitratus	(Hwass, 1792)	-	-	1	1
		Conus moreleti	(Crosse, 1858)	-	-	2	2
		Conus musicus	(Hwass, 1792)	-	-	-	6
		Conus nussatella	(Linnaeus, 1758)	-	-	4	4
		Conus obscurus	(Sowerby, 1833)	-	-	1	1
		Conus pennaceus	(Born, 1778)	-	-	2	1
		Conus rattus	(Hwass, 1792)	-	-	6	6
		Conus retifer	(Menke, 1829)	-	-	-	1
		Conus sponsalis	(Hwass, 1792)	-	-	4	5
		Conus striatellus	(Link, 1807)	-	-	1	1
		Conus striatus	(Linnaeus, 1758)	-	-	4	2
		Conus tendineus	(Hwass, 1792)	-	-	3	4
		Conus tenuistriatus	(Sowerby, 1858)	-	-	4	2
		Conus tessulatus	(Born, 1778)	-	-	-	1
		Conus tulipa	(Linnaeus, 1758)	-	-	2	5
		Conus varius	(Linnaeus, 1758)	-	-	4	1
		Conus vexillum	(Gmelin, 1791)	-	-	4	3
		Conus virgo	(Linnaeus, 1758)	-	-	-	3
	Architectonicidae	*Heliacus infundibuliformis*	(Gmelin, 1791)	-	-	1	1
		Heliacus variegatus	(Gmelin, 1791)	-	-	5	1
	Acteonidae	*Pupa nitidula*	(Lamarck, 1822)	-	-	1	1
	Siphonariidae	*Siphonaria atra*	(Quoy & Gaimard, 1833)	-	-	5	3
	Melampidae	*Melampus flavus*	(Gmelin, 1791)	-	-	5	2
Cephalopoda	Nautilidae	*Nautilus pompilius*	(Linnaeus, 1758)	-	-	-	1
Bivalvia	Arcidae	*Anadara antiquata*	(Linnaeus, 1758)	-	-	4	1
		Arca avellana	(Lamarck, 1819)	-	-	-	3
		Barbatia fusca	(Bruguière, 1789)	-	-	-	4
		Barbatia helblingi	(Bruguière, 1792)	-	-	5	2
		Barbatia lacerata	(Bruguière, 1792)	-	-	-	1
	Glycymerididae	*Glycymeris (Tucetona) tenuicostatus*	(Reeve, 1843)	-	-	-	2
	Mytilidae	*Brachidontes* cf. *variabilis*	(Krauss, 1848)	-	-	4	1
		Modiolus auriculatus	(Krauss, 1848)	-	-	-	5
		Septifer bilocularis	(Linnaeus, 1758)	-	-	-	1
	Pinnidae	*Atrina vexillum*	(Born, 1778)	-	-	2	1
	Pteriidae	*Pinctada margaritifera*	(Linnaeus, 1758)	-	-	2	5

Class	Family	Species	Authority	Relative abundance			
				1	2	3	4
	Isognomonidae	*Isognomon isognomum*	(Linnaeus, 1758)	-	-	-	1
	Pectinidae	*Chlamys senatorius*	(Gmelin, 1791)	-	-	-	1
		Excellichlamys spectabilis	(Reeve, 1853)	-	-	-	1
		Lyropecten (Decadopecten) noduliferus	(Sowerby, 1842)	-	-	-	1
	Ostreidae	*Hyotissa hyotis*	(Linnaeus, 1758)	-	-	4	1
		Hyotissa (Parahyotissa) numisma	(Lamarck, 1819)	-	-	-	2
	Chamidae	*Chama brassica*	(Reeve, 1846)	-	-	-	3
		Chama sp.		-	-	2	3
	Lucinidae	*Codakia punctata*	(Linnaeus, 1758)	-	-	4	2
		Codakia tigerina	(Linnaeus, 1758)	-	-	4	2
		Ctena bella	(Conrad, 1837)	-	-	-	1
	Carditidae	*Cardita variegata*	(Bruguière, 1792)	-	-	5	4
	Crassatellidae	*Crassostrea* sp.		-	-	-	3
	Cardiidae	*Laevicardium biradiatum*	(Bruguière, 1792)	-	-	-	1
		Trachicardium leucostomum	(Born, 1778)	-	-	-	5
		Trachicardium maculosum	(Wood, 1815)	-	-	2	1
	Tridacnidae	*Tridacna maxima*	(Röding, 1798)	-	-	4	3
		Tridacna squamosa	(Lamarck, 1819)	-	-	4	4
	Donacidae	*Donax cuneatus*	(Linnaeus, 1758)	-	-	5	1
	Tellinidae	*Tellina scobinata*	(Linnaeus, 1758)	-	-	4	5
	Trapeziidae	*Trapezium oblongum*	(Linnaeus, 1758)	-	-	4	5
	Veneridae	*Australodosinai (Dosinia) histrio*	(Gmelin, 1791)	-	-	5	1
		Periglypta puerpera	(Linnaeus, 1771)	-	-	-	3
		Periglypta reticulata	(Linnaeus, 1758)	-	-	4	1
	Corbulidae	*Corbula* sp.		-	-	-	1