western australian
marine science institution

Species diversity and distribution across the offshore Kimberley region

John Keesing[1,3], Jane Fromont [2,3], Joanna Strzelecki [1,3] (Editors)

[1]CSIRO Marine and Atmosphere, Indian Ocean Marine Research Centre, Crawley, Western Australia

[2]Western Australian Museum, Perth, Western Australia

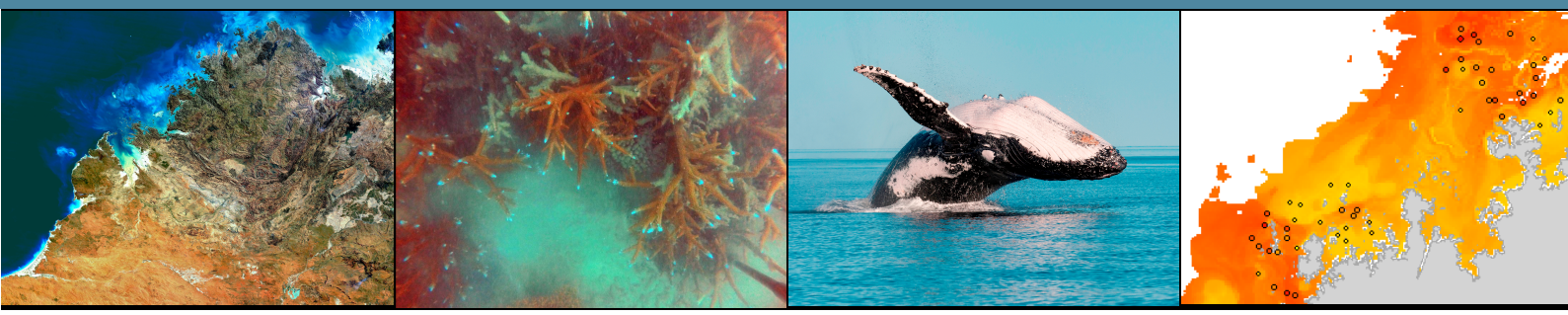
[3]Western Australian Marine Science Institution, Perth, Western Australia

WAMSI Kimberley Marine Research Program

Final Report

Subproject 1.1.1.4

September 2018



WESTERN AUSTRALIAN MARINE SCIENCE INSTITUTION

WESTERN AUSTRALIAN MUSEUM

CSIRO

WAMSI Kimberley Marine Research Program

Initiated with the support of the State Government as part of the Kimberley Science and Conservation Strategy, the Kimberley Marine Research Program is co-invested by the WAMSI partners to provide regional understanding and baseline knowledge about the Kimberley marine environment. The program has been created in response to the extraordinary, unspoilt wilderness value of the Kimberley and increasing pressure for development in this region. The purpose is to provide science based information to support decision making in relation to the Kimberley marine park network, other conservation activities and future development proposals.

Front cover images (L-R)

Image 1: Satellite image of the Kimberley coastline (Image: Landgate)

Image 2: A thicket of staghorn corals located in a very narrow band along the drop off area of rocky shore (see subproject 1.1.1.8)

Image 3: Humpback whale breaching (Image: Pam Osborn)

Image 4: Predicted species richness across the entire study region based on sled catches. (Extract from Figure 11, subproject 1.1.1.4)

Year of publication: September 2018

Metadata: https://apps.aims.gov.au/metadata/view/49791f9e-c8a9-4844-ae31-165f9761cd0f

Citation: Keesing J, Fromont J, Strzelecki J (2018). Species diversity and distribution across the offshore Kimberley region report subproject 1.1.1.4 prepared for the Kimberley Marine Research Program, Western Australian Marine Science Institution, Perth, Western Australia, 94pp.

Author Contributions:

- Sponges (Porifera): Jane Fromont and Oliver Gomez
- Soft corals (Cnidaria: Octocorallia): Monika Bryce, Oliver Gomez and Jenelle Ritchie
- Hard corals (Cnidaria: Anthozoan in part): Zoe Richards, Oliver Gomez and Jenelle Ritchie
- Crustacea: Andrew Hosie, Ana Hara and Qingxi Han
- Echinoderms: John Keesing, Kate Naughton, Mark O'Loughlin, Tim O'Hara and Loisette Marsh
- Molluscs: Lisa Kirkendale, Corey Whisson, Glad Hansen, Hugh Morrison, Nerida Wilson, Jenelle Ritchie
- Fishes: Glenn Moore and Mark Allen
- Algae: John Huisman
- Species richness modelling: Roland Pitcher

Corresponding author and Institution: Enquires specific to individual chapters should be addressed to the relevant institutional lead investigators. General enquiries should be addressed to Dr John Keesing, CSIRO, John.Keesing@csiro.au.

Funding Sources: This project was funded (commissioned) by the Western Australian Marine Science Institution as part of the WAMSI Kimberley Marine Research Program, a $30M program with seed funding of $12M provided by State government as part of the Kimberley Science and Conservation Strategy. The Program has been made possible through co-investment from the WAMSI Joint Venture partners and further enabled by data and information provided by Woodside Energy Ltd.

Competing Interests: The commercial investors and data providers had no role in the data analysis, data interpretation, the decision to publish or in the preparation of the manuscript. The authors have declared that no competing interests exists.

Kimberley Traditional Owner agreement: This research was enabled by the Traditional Owners through their advice, participation and consent to access their traditional lands.

Acknowledgements: The WAMSI Benthic Biodiversity project 1.1.1 undertook surveys in Western Australian waters along the Kimberley coast and also further offshore in Commonwealth waters. We are grateful to Traditional Owners (the Wunambal Gaambera and Dambimangari people) of the Kimberley sea country where some of the studies were done. We thank the Wunambal Gaambera Aboriginal Corporation, the Uunguu Rangers and the Dambimangari Aboriginal Corporation for their assistance, advice and participation in the Benthic Biodiversity project. The authors wish to express our thanks to the Masters and crews of RV Solander and RV Linnaeus for the support and many courtesies extended to the research teams during the field surveys.

Collection permits/ethics approval: This study was part of WAMSI Benthic Biodiversity project 1.1.1. Sampling of representative biota for biodiversity characterisation and lodgement of taxanomic reference material was undertaken under permits; WA Fisheries Exemption No. 2547, 2677, 2721; WA Department of Parks and Wildlife CE 004795, SF010234, SF10627, SF010720; Commonwealth Department of Environment and Energy AU-COM2016-326.

Contents

Executive Summary

The aim of the benthic biodiversity study was to provide description of distribution, species and environmental drivers of benthic diversity for future marine park and reserve management and coastal planning for the region. In this chapter, we describe results of sampling of seabed biodiversity using a towed sled from three vessel-based cruises. Overall, close to 2200 species were identified from three locations. Sponges, echinoderms, molluscs and crustaceans accounted for 83% of all species identified. A number of new species were discovered. Diversity indices were used to measure community structure across depth and substrate type. Highest diversity occurred in deeper >45 m, 40 to 45 m and shallower < 20 m rocky habitat and lowest diversity occurred in mud habitat.

Management Implications

The study has led to a very significant increase in the knowledge of benthic biodiversity of the Kimberley. For many species the northern range of known distribution in WA has been extended and most taxonomic groups recorded new records for Western Australia and Australia. Several new species were discovered some of which have been described as a result of this study. The work provides the basis for determining the extent to which the new marine parks provide adequate protection for the habitat of these species.

While this study has increased knowledge of marine biodiversity in the Kimberley, there remain important gaps that will need to be filled for ecosystem management. Diversity across the taxa examined was high and, given the level of sampling undertaken is likely still underestimated for most groups. Further, the diversity, distribution and abundance of a number of species groups including worms, bryozoa, hydroids ascidians and fish were not identified in this study through either a lack of available expertise for the particular taxa or methodology to adequately sample them. Finally, the study also largely neglected nearshore shallow (<10m) soft bottom habitats leaving these communities as another important knowledge gap.

1 Introduction

This section of the report outlines the results of epibenthic sled surveys undertaken to determine species composition and distribution within and among the three survey areas within the central Kimberley. The Chapter has four main sections. Firstly a summary of the overall collections made for each high level taxonomic group (mostly Phyla or class level) at each survey area are given. Secondly, there is an analysis of the extent to which biodiversity was adequately sampled, principally using species accumulation curves. An assessment of the influence of habitat on adequacy of sampling is also given. Thirdly there are some modelled projections of species richness across the total central Kimberley area. Lastly there is a synopsis of each taxonomic group giving the features of the collections including novelty and aspects of diversity and distribution. A full species list is given as an Appendix to this chapter.

2 Methods

The rationale for selection of the three survey sites and the allocation of the number of sled sites within each survey area and their location is given elsewhere (see 1.1.1.1 Chapters 2 and 3).

Epibenthic sled equipment (two types: AIMS and CSIRO) and deployment methods followed that in previous studies (Fry et al. 2008; Keesing et al. 2014; Pitcher et al. 2016). Distances towed with sleds varied between 50 and 100 m depending on the expected catch volume as determined from the tow video analysis (see 1.1.1.1 Chapters 2 and 3). In general soft sediment habitats were towed for 100 m and areas of reef or rich filter feeder benthos were towed for 50 m. The catch was sorted to species or some higher level taxonomic group onboard and each operational taxonomic unit in each sled sample was assigned a unique barcode, counted (not for colonial organisms) and weighed using a spring balance. Samples were then fixed in ethanol or formalin or frozen (as onboard supplies of ethanol were limited). Frozen samples were transferred to ethanol at the laboratory.

The species lists also include some taxa collected opportunistically on intertidal reef walks or captured inadvertently with other sampling equipment such as the tow camera and Smith-McIntyre grab.

Taxonomic determinations were shared among a number of organisations: fish, sponges, hard corals, soft corals and molluscs (WA Museum), crustaceans (WA Museum and CSIRO), seagrasses and algae (WA Herbarium), sea stars (CSIRO and WA Museum), sea urchins (CSIRO), ophiuroids, holothurians and crinoids (Museum of Victoria). Other cnidarians, ascidians, worms and bryozoans were not identified except for a few common or well-known taxa.

Species richness predictions were made using a Random Forest model (Breiman 2001) and were based on the relationships between species richness in sleds and environmental variables in the study region.

Numbers of species were predicted using non-parametric species estimators. Species accumulation curves were calculated using five non-parametric estimators of species richness: Chao 2, Jackknife 1, Jackknife 2, Bootstrap and Michaelis-Menton (MM). Non-parametric estimators do not require assumptions about underlying species abundance distribution (Chao, 2004). Species accumulation curves were calculated with PRIMER v.7 using 999 randomizations. Non-parametric species estimators extrapolate from the data to find what the 'true' number of species may have been (Colwell and Coddington, 1994). The typical way these estimators operate is by using the number of rare species that are found in a sample as a way of calculating how likely it is there are more undiscovered species (Canning-Clode et al, 2008). Five estimators of species richness were used:

Chao 2 - Chao's estimator using just presence-absence data, $s_2 = s_{obs}+Q_1^2/2Q2$ with singletons ($Q1$) being species occurring in only one sample and doubletons (Q_2) occurring in two samples (Chao, 1987).

Jackknife 1 – first-order Jackknife estimator based on presence of species that only occur in one sample. $S_{Jack1} = S_{obs} + (n-1/n)k$ where S_{obs} is the number of species observed in the sample, n is the number of samples and k is the number of unique species (Heltshe and Forrester, 1983).

Jackknife 2 - Second order Jackknife estimator takes into account the number of unique species K as well as the number of doubletons (Burnham and Overton, 1978, 1979). $S_{Jack2} = S_{obs}+[k(2n-3)/n-m(m-2)^2/n(n-1)]$ where k are singletons (occur in 1 sample only) and m are doubletons (occur in 2 samples).

Bootstrap - Bootstrap estimator is based on proportion of stations containing each species (Effron, 1979) $S_{Boot}= S_{obs}+\Sigma^{Sobs}{}_{j=j}(1-p_j)^n$ where S_{obs} is the number of species observed in the area and p_i is the proportion of samples containing the species j.

Michaelis-Menton (MM) - Curve fitted to observed S curve. The basic shape of the predicted accumulation curve is rigidly determined by relative sample size. S(n) = Smax -BS(n)/n where S(n) is the number of species observed after n units of sampling, S is the total number of species in the samples and B is number of samples (Keating and Quinn, 1998).

3 Results

3.1 Overall summary of collections made

For Camden Sound a total of 51 sites were sampled yielding 2882 specimens and 808 species for the taxa identified (Table 1b). The most speciose groups were sponges, molluscs and crustacea accounting for 71% of all species identified (Table 1a). A full list of species is given in the Appendix to this chapter.

Table 1a. The total number of species collected from all three field trips.

Taxa Group	Total number of species collected
Crustacea	229
Cnidaria – Hard corals	30
Cnidaria – Soft Corals	109
Fish	80
Molluscs	211
Sponges	426
Echinoderms	205

Table 1b. Summary of collections by taxa from the Camden Sound survey in March 2015. Ascidians, bryozoans, hydroids, worms, sea jellies and zoantharians were not identified further (n.d. = not determined). Number of species indicates numbers collected by sleds plus numbers collected on walks.

Expedition	Group	No of sites present at	No of specimens	No of species
Camden Sound Survey March 2015 51 + 2 reef walks	Crustacea	44	399	160 + 2
	Fish	29	55	33
	Molluscs	44	203	115+24
	Bivalves	35	126	77 + 13
	Gastropods	31	73	36 + 11
	Other	3	4	3
	Hard corals	19	32	10
	Soft corals	40	273	49+2
	Sponges	45	1220	265 + 5
	Plants/Chromista	3	26	13 + 4
	Crinoids	35	425	24
	Asteroids	16	32	16
	Ophiuroids	45	146	36+1
	Echinoids	36	93	12
	Holothuroids	33	74	28+1
	Ascidians	34	132	n.d
	Bryozoans	37	115	n.d
	Hydroids	37	46	n.d
	Worms	33	48	n.d
	Jellies	3	3	2
	Zoantharians	11	11	n.d
	TOTALS	-	2882	769 + 39

For Maret Islands a total of 26 sites were sampled yielding 1939 specimens and 607 species for the taxa identified (Table 2). The diversity was dominated by sponges, crustacea and echinoderms making up 70% of all species identified. Only about half as many molluscs were found as at Camden Sound. A full list of species is given in the Appendix.

Table 2. Summary of collections by taxa from the Maret Islands area survey in December 2015. Ascidians, bryozoans, hydroids, worms, sea jellies and zoantharians were not identified further (n.d. = not determined). Number of species indicates numbers collected by sleds plus numbers collected on walks.

Expedition	Group	No of sites present at	No of specimens	No of species
Maret Islands Survey Nov 2015 26 sites + 1 reef walk	Crustaceans	27	345	135
	Fish	14	38	28 + 1
	Molluscs	23	135	70 + 4
	Bivalves	18	63	33 + 1
	Gastropods	18	62	31 + 2
	other	4	10	6 + 1
	Hard corals	14	24	9 + 1
	Soft corals	21	212	42 + 5
	Sponges	19	288	154 + 2
	Plants/Chromista	6	21	7 + 7
	Crinoids	12	379	29
	Asteroids	15	42	15
	Ophiuroids	22	197	41 + 1
	Echinoids	22	62	9 +1
	Holothuroids	22	122	34 + 3
	Ascidians	21	168	n.d.
	Bryozoans	21	121	n.d.
	Hydroids	20	62	n.d.
	Worms	25	95	n.d.
	Jellies	0	0	0
	Zoantharians	5	7	n.d.
	TOTALS	-	1939	578 + 29

For Eclipse Archipelago a total of 26 sites were sampled yielding 2822 specimens and 771 species for the taxa identified (Table 3). Sponges, echinoderms, molluscs and crustacea accounted for 83% of all species identified. A full list of species is given in Appendix 1.

Table 3. Summary of collections by taxa from the Eclipse Islands area survey in March 2016. n.d. =not determined.

Expedition	Group	No of sites present at	No of specimens	No of species
	Crustaceans	**26**	**323**	**129 + 17**
	Fish	19	46	34 + 3
	Molluscs	27	217	77 +40
	Bivalves	24	102	38+13
	Gastropods	21	104	31+27
	Other	8	11	8
	Hard corals	16	39	10+7
	Soft corals	25	238	52+1
Eclipse Archipelago	Sponges	26	653	218+11
Survey March 2016	Plants/Chromista	8	36	6+10
	Crinoids	18	1131	30+2
	Asteroids	13	43	16
26 sites + 2 reef walks (2 grabs but not	Ophiuroids	24	348	49+2
included as sites)	Echinoids	25	65	12+2
	Holothuroids	25	196	31+6
	Ascidians	20	144	n.d.
	Bryozoans	23	100	n.d.
	Hydroids	23	87	n.d.
	Worms	22	54	n.d.
	Jellies	2	4	n.d.
	Zoantharians	9	12	n.d.
	TOTALS	-	2822	670 + 101

3.2 Estimates of species richness

In order to determine the extent to which the sampling has provided a comprehensive assessment of diversity we prepared species accumulation curves for each of the major taxa in each region. As the intent of the sampling had been to adequately sample biodiversity from sub-tidal habitats we did not partition between habitat types.

Typically the real number of species is unknown after sampling campaigns and estimators are needed to provide a clearer picture of species richness patterns. Total richness is extrapolated as the number of species that would be found with an infinite sampling effort. The extrapolation accuracy in a given area depends on how representative the sampling is. Estimators which use information on rare species to extrapolate the number of species present but not detected are believed to perform best in estimating species richness (Hortal et al, 2006).

Species accumulation curves using the observed data from our sampling and each of the five estimators of species richness described in the Methods section are presented in Figures 1 to 9. The analysis below (Table 4) provides the range of estimates given by the estimators for each taxonomic group. For example, between 929 and 1392 total species richness was predicted for Camden Sound (Figure 1, Table 4) meaning the 769 species collected made up an estimated 55 and 83% of total biodiversity. Similar estimates were recorded at both Maret Islands (49-81%) and Eclipse Archipelago (57-83%). The different species richness estimators gave different estimates (Table 4). The aim of the species richness estimators was to obtain upper and lower bounds on species richness. It is impossible to assess the bias of estimators and decide which estimation methods give values near the true value (O'Hara, 2006) but all the estimators should be treated as estimating the lower bound on species richness (Gotelli and Colwell, 2001). It needs to be noted that for some taxa such as fishes our sampling methods would not be expected to obtain realistic estimates of diversity and in the case of other taxa the estimates only apply to the habitat types surveyed. For example, the estimates of hard coral diversity would be much greater if shallow intertidal reef platforms had been included in the sampling plan.

Table 4. Number of species detected at three locations and ranges and percentages of estimated species richness.

Group	Camden Sound			Maret Islands			Eclipse Archipelago		
	No of species detected	range predicted	% of detected species	No of species detected	range predicted	% of detected species	No of species detected	range predicted	% of detected species
All taxa	769	929 - 1392	55 - 83	578	716 - 1170	49 - 81	670	808 - 1168	57 - 83
Arthropoda	160	198 - 308	52 - 81	135	169 - 291	46 - 80	129	160 - 249	52 -81
Asteroidea	16	20 - 77	21 - 80	15	18 - 25	60 - 83	16	20 - 36	44 - 80
Crinoidea	24	27 - 56	43 - 89	29	34 - 48	60 - 85	30	34 - 50	60 - 88
Echinoidea	12	13 - 15	80 - 92	9	10 - 13	69 - 90	12	14 - 20	60 - 86
Holothuroidea	28	35 - 53	53 - 80	34	41 - 57	60 - 83	31	35 - 61	51 - 89
Ophiuroidea	36	42 - 52	70 - 85	41	47 - 66	62 - 87	49	58 - 74	66 - 84
Echinodermata	116	137 - 195	59 - 85	128	149 - 203	63 - 86	138	161 - 219	63 - 86
Bivalvia	77	100 - 276	28 - 77	33	42 - 86	38 - 79	38	47 - 87	44 - 81
Gastropoda	36	47 - 99	36 - 77	31	40 - 127	24 - 76	31	40 - 94	33 - 78
Mollusca	115	149 - 377	31 - 77	68	87 - 207	33 - 78	75	95 - 189	40 - 79
Hard Corals	10	10 - 20	50 - 100	9	11 - 19	47 - 82	10	11 - 16	63 - 91
Soft Corals	49	57 - 75	65 - 86	42	50 - 69	61 - 84	52	60 - 78	66 - 87
Corals	59	69 - 94	63 - 86	51	61 - 87	59 -84	63	72 - 89	71 - 88
Porifera	265	311 - 439	60 - 85	154	194 - 376	41 - 79	218	261 - 365	60 - 84
Fish	33	42 - 80	41 - 79	28	37 - 235	12 - 76	34	45 - 198	17 - 76

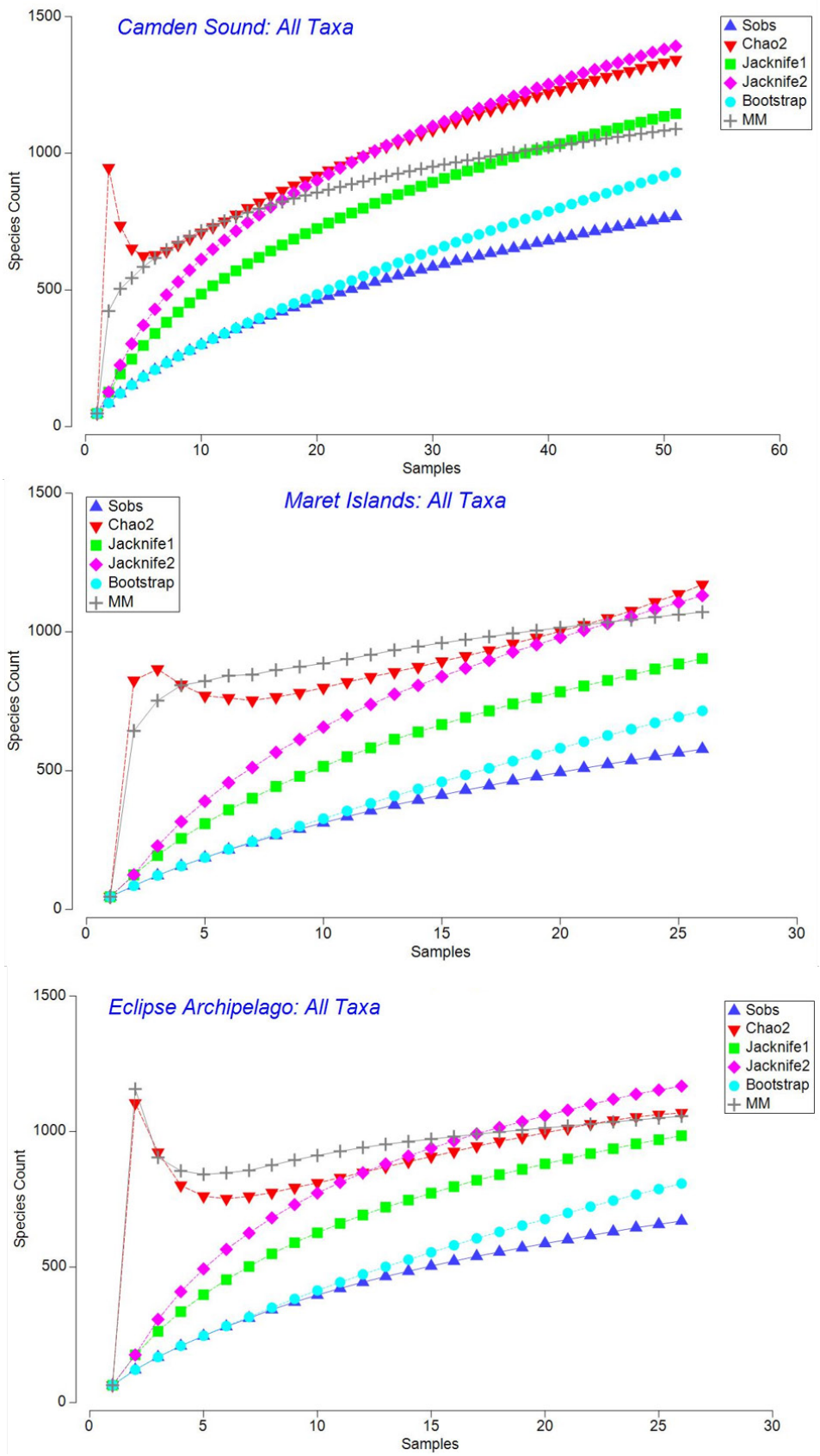


Figure 1. Species accumulation curves for the three survey areas (all species).

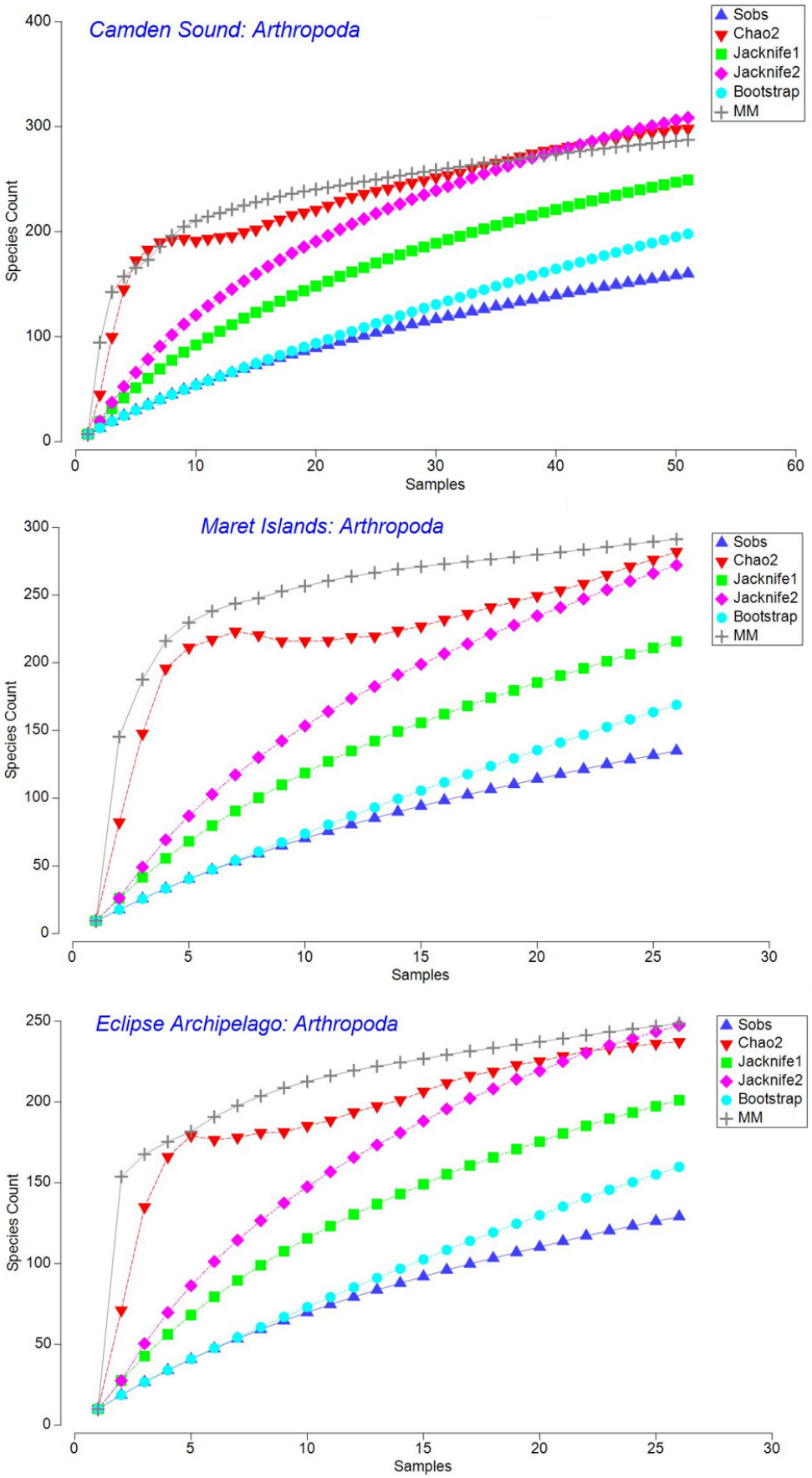


Figure 2 Species accumulation curves for the three survey areas (Crustaceans).

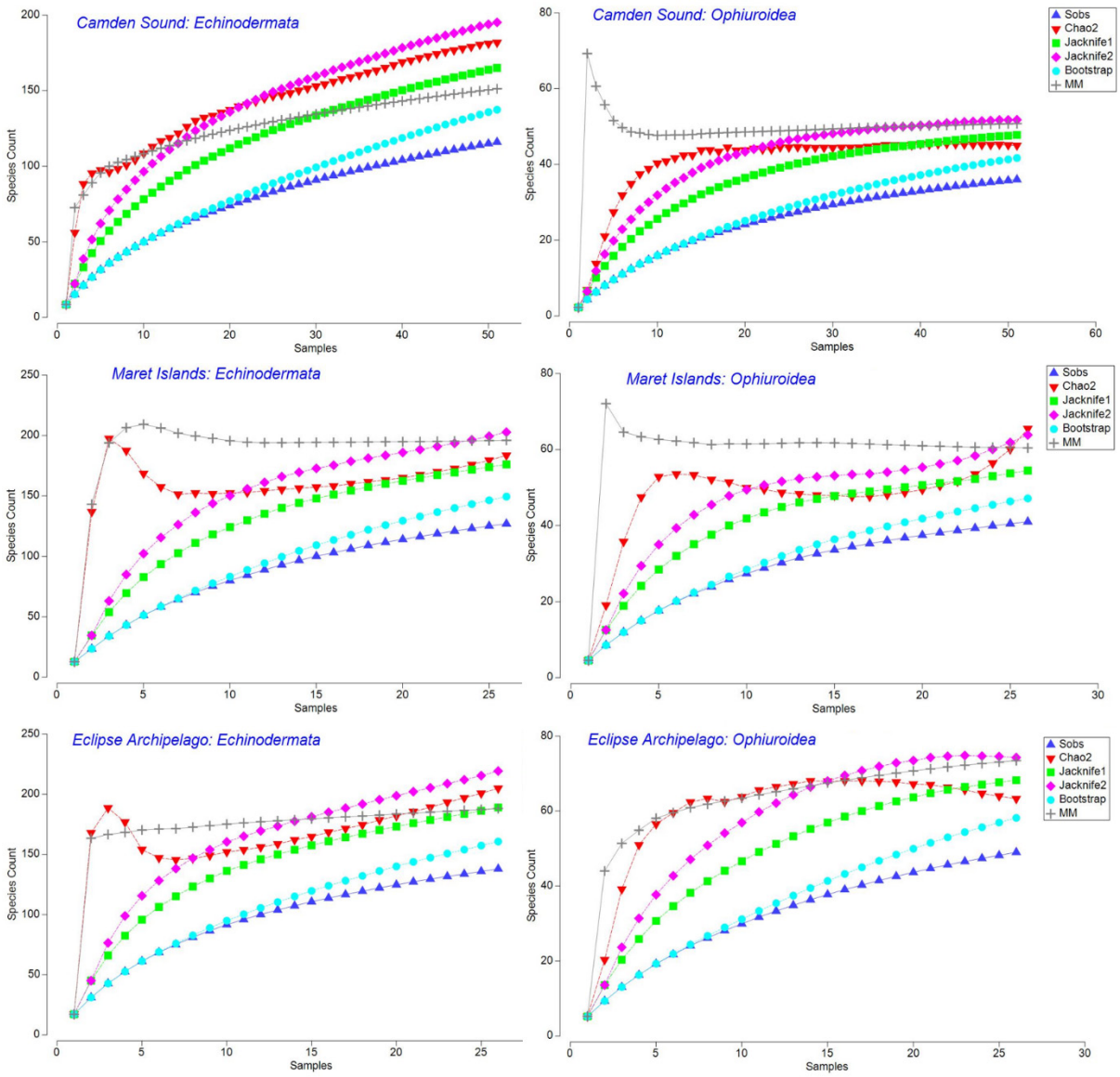


Figure 3 Species accumulation curves for the three survey areas (total echinoderms and ophiuroids).

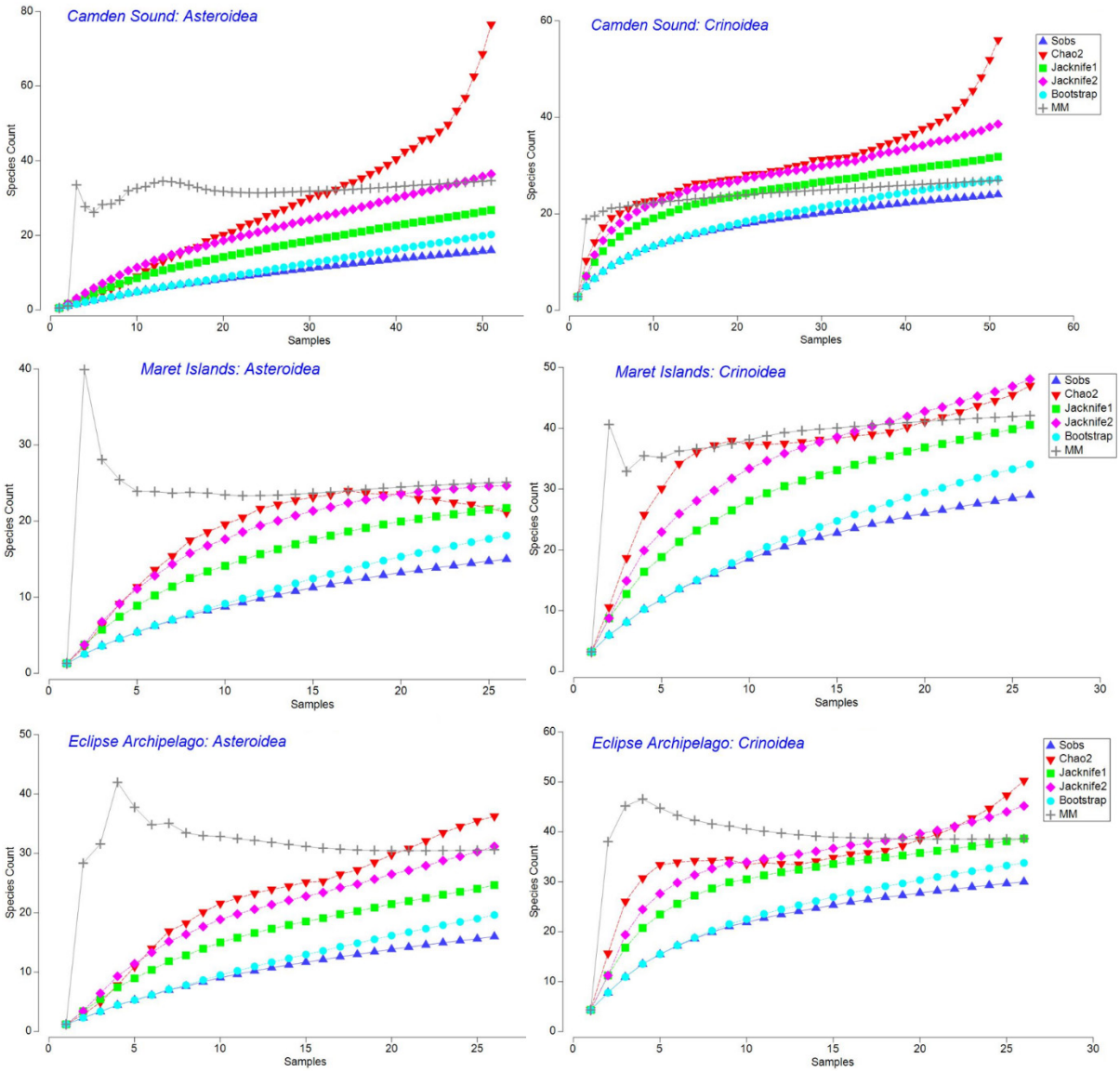


Figure 4 Species accumulation curves for the three survey areas (asteroids and crinoids).

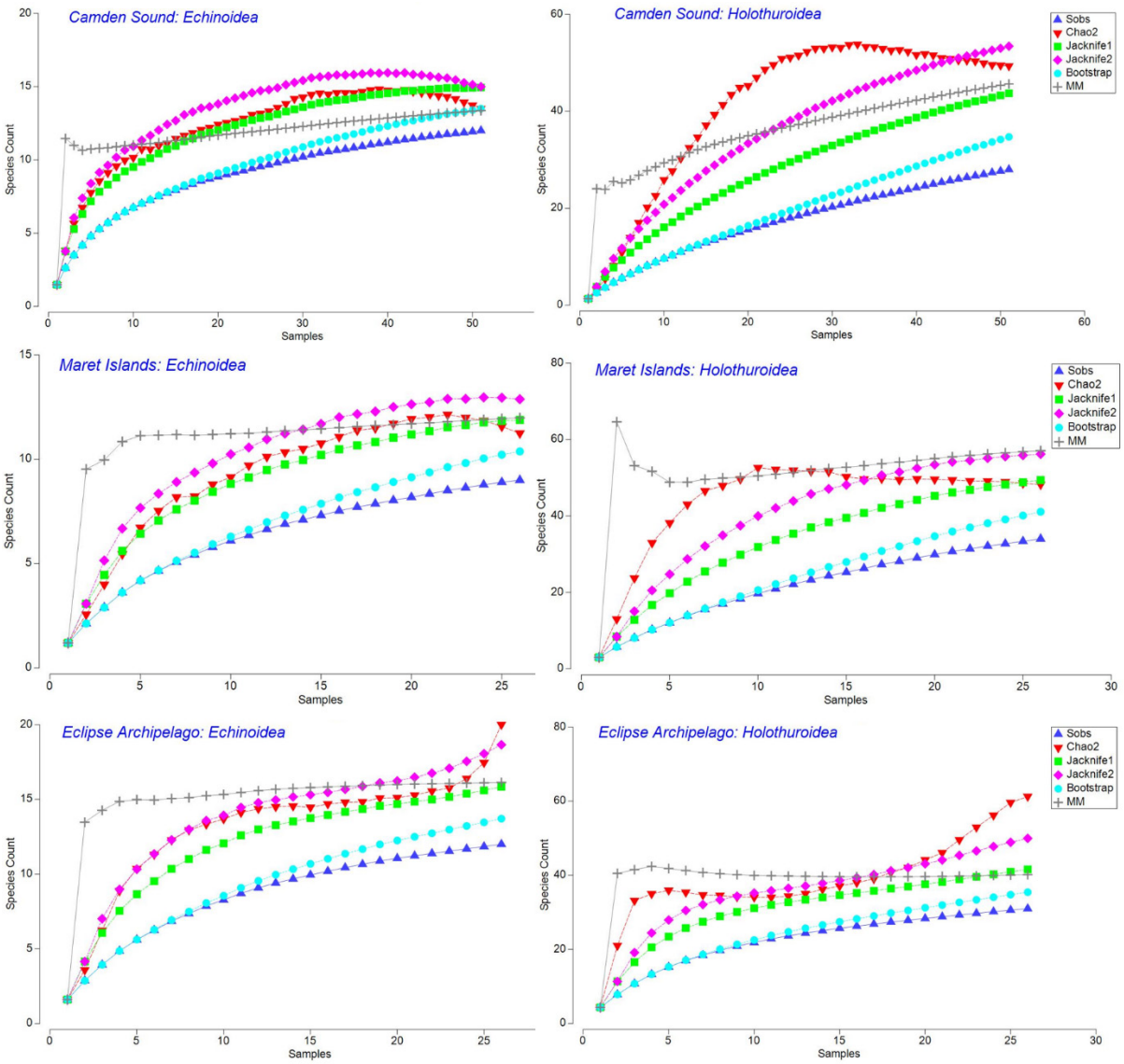


Figure 5 Species accumulation curves for the three survey areas (echinoids and holothuroids).

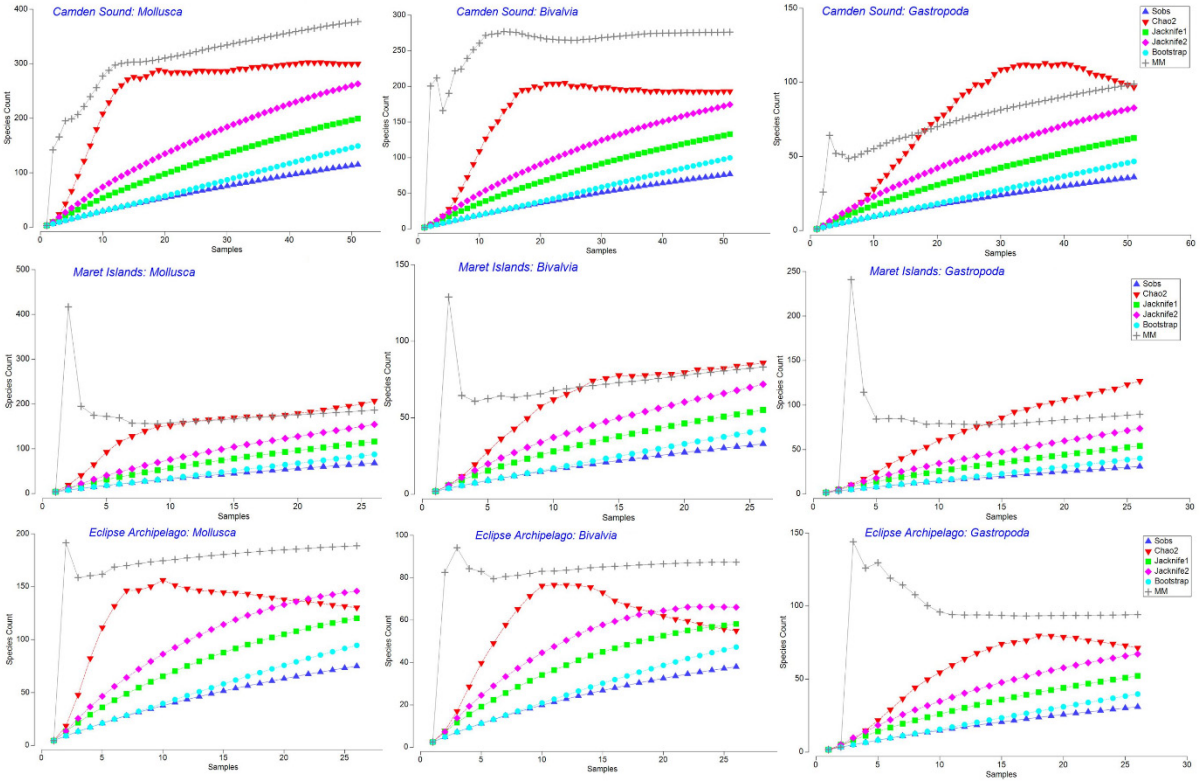


Figure 6 Species accumulation curves for the three survey areas (total Mollusca, bivalves and gastropods).

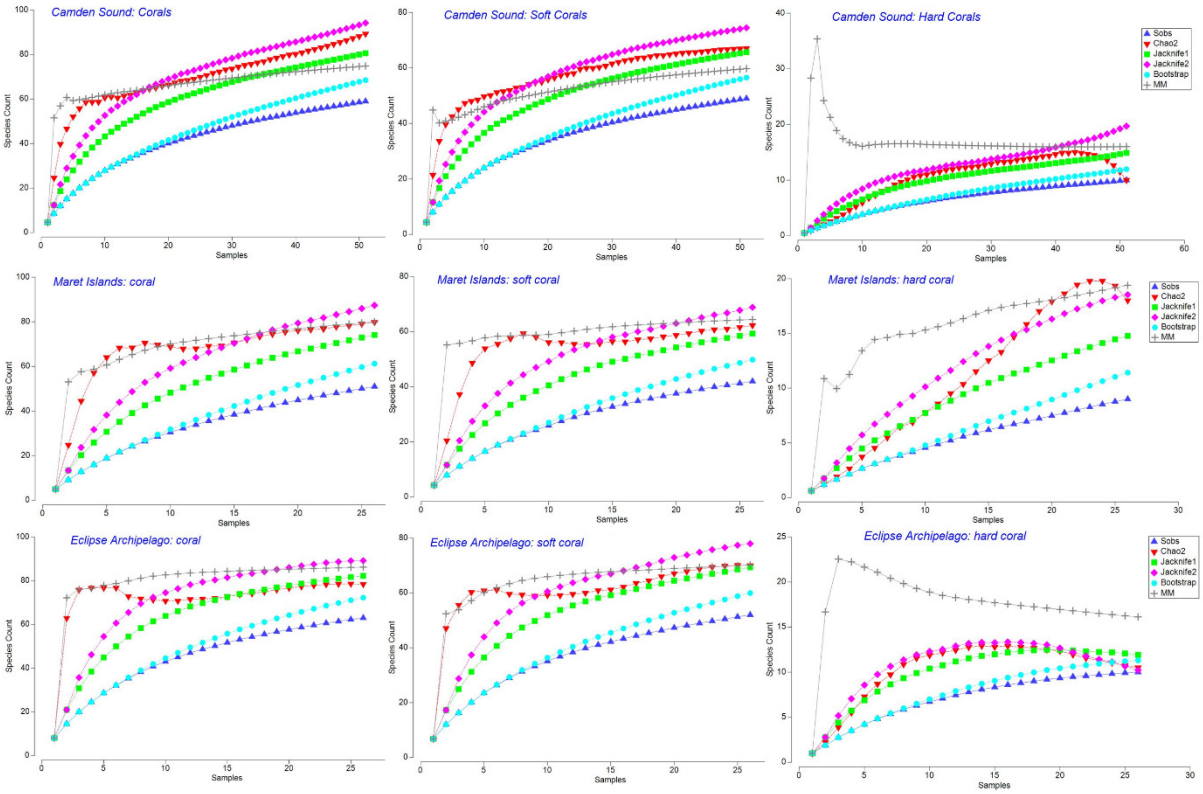


Figure 7 Species accumulation curves for the three survey areas (total corals, soft corals and hard corals).

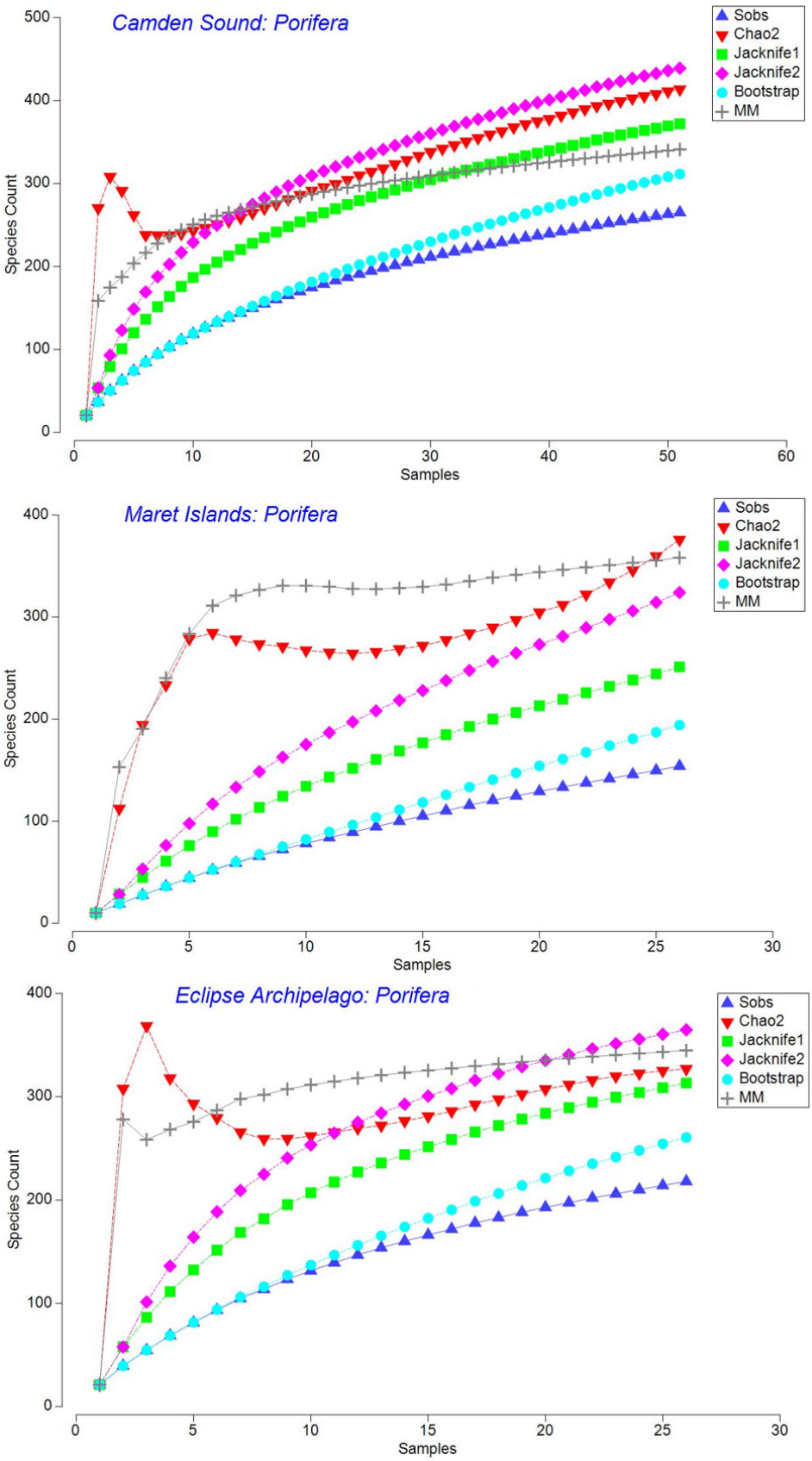


Figure 8 Species accumulation curves for the three survey areas (sponges).

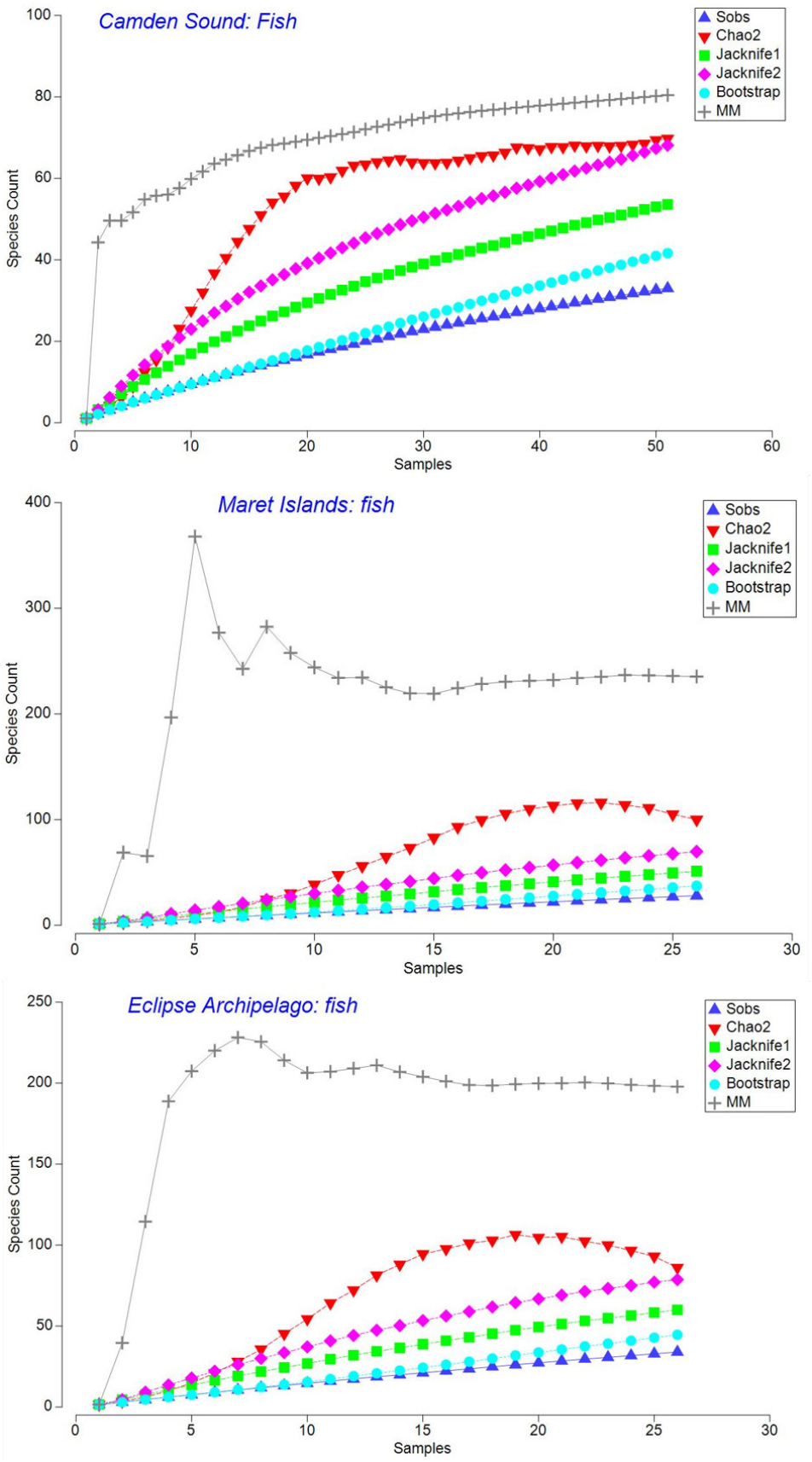


Figure 9 Species accumulation curves for the three survey areas (fishes).

3.3 Diversity indices.

Diversity indices are a measure of community structure in terms of number of species, number of individual organisms present or the distribution of these organisms among the species. Different indices put different weight on each of these components. The different measures of diversity are more sensitive to common or rare species.

Simpson's and Shannon's index accounts for both abundance and evenness of the species present but Simpson diversity is less sensitive to richness and more sensitive to evenness than Shannon diversity which is more sensitive to richness?.

Simpson's diversity index (λ): 1 - λ = 1 – sum (Ni*(Ni-1)/N*(N-1))

Shannon diversity index (H): H' = -sum(Pi*log(Pi))

Hill diversity indices probe different aspects of community. Ninfinity takes into account the most common species, N2 gives more weight to the abundance of common species than N1. N1 gives more weight to rare species.

Hill numbers: N1 = Exp (H'), N2 = 1/SI Ninfinity = 1/Pmax

Margalef index measures species richness and is sensitive to sample size.

Margalef species richness: d = (S-1)/log(N)

Pielou's evenness: J' = H'/log(S)

p_i = proportion of species i

S = number of species

N = total individuals

Diversity varied significantly (P value of Kruskal-Wallis one way analysis of variances on ranks for Shannon H' index P <0.001, Table 5). Highest diversity was on rocky substrates in > 45 m depths, followed by rocky substrates at < 20 m and 40-45 m depth (median 3.631, 3.626 and 3.446 respectively). Lowest diversity was in muddy substrates 20-30 m depth followed by muddy substrates < 20 m and 30-40 m depth (median 0.661, 0.752 and 2.079 respectively). Rocky substrates > 45 m depth were significantly different to all muddy substrates: < 20 m, 20-30 m and 30-40 m depth (Dunn's pairwise test for unequal group sizes p <0.001).

Table 5 Diversity indices based on abundance of taxa in sled samples collected in Camden Sound, Maret Islands and Eclipse Archipelago.

Sample	Margalef d	Pelou J'	Shannon H'(loge)	Simpson 1-Lambda'	Hill N1	Hill N2	Hill Ninf	location	depth (m)	substrate
LIN 77	****	0.1119	0.07757	****	1.081	1.03	1.015	Camden	<20	mud
LIN_15	****	0.9183	0.6365	****	1.89	1.8	1.5	Camden	<20	mud
LIN_18	****	0.8981	2.926	****	18.65	13.07	5.3	Camden	30-40	mud
LIN_28	****	0.8262	2.341	****	10.39	7.29	3.615	Camden	30-40	mud
LIN_35	53.11	0.8116	3.951	1.049	51.97	22.9	6.14	Camden	30-40	rocky
LIN_36	68.98	0.9081	4.135	1.313	62.51	43.77	17.29	Camden	>45	rocky
LIN_41	****	****	0	****	1	1	1	Camden	<20	mud
LIN_46	1316	0.8995	2.895	51.14	18.09	13.14	5.8	Camden	40-45	mud
LIN_47	****	****	0	****	1	1	1	Camden	<20	mud
LIN_48	****	1	1.386	****	4	4	4	Camden	<20	mud
LIN_50	****	0.9697	1.561	****	4.762	4.5	3	Camden	<20	mud
LIN_51	****	0.7239	1.91	****	6.756	3.51	1.944	Camden	20-30	mud
LIN_55	53.1	0.8548	3.542	1.38	34.52	20.39	8	Camden	>45	rocky
LIN_57	****	0.9107	1.894	****	6.644	5.261	2.75	Camden	30-40	mud
LIN_6	****	0.7955	2.622	****	13.76	7.907	4.267	Camden	>45	mud
LIN_61	****	0.8154	2.261	****	9.591	6.964	3.875	Camden	<20	rocky
LIN_8	****	0.3519	0.6305	****	1.879	1.36	1.171	Camden	<20	mud
LIN_9	14.33	0.1246	0.4238	0.1415	1.528	1.14	1.068	Camden	40-45	rocky
SOL 101	152.7	0.8276	2.966	4.474	19.41	11.92	5.792	Camden	30-40	rocky
SOL 160	65.67	0.823	3.782	1.227	43.89	20.34	6.317	Camden	<20	rocky
SOL_100	56.58	0.8339	3.295	1.565	26.98	14.23	4.643	Camden	30-40	rocky
SOL_105	863.6	0.8964	3.47	18.03	32.14	22.3	8.118	Camden	<20	rocky
SOL_107	****	0.941	3.7	****	40.44	30.12	11.14	Camden	>45	mud
SOL_109a	****	0.8563	3.044	****	21	12.99	4.773	Camden	20-30	rocky

SOL_116a	****	0.9528	3.746	****	42.36	32.68	9.875	Camden	40-45	mud
SOL_117	****	0.735	2.673	****	14.49	5.95	2.622	Camden	30-40	rocky
SOL_120	76.09	0.8375	3.921	1.279	50.47	29.32	9.326	Camden	>45	rocky
SOL_2	124.9	0.7913	3.315	2.242	27.53	11.06	3.807	Camden	20-30	rocky
SOL_22	****	0.895	2.224	****	9.245	6.897	3.333	Camden	<20	mud
SOL_24	73.68	0.7282	3.028	1.505	20.66	7.412	2.969	Camden	40-45	rocky
SOL_26	86.63	0.2377	0.4942	2.448	1.639	1.235	1.113	Camden	20-30	mud
SOL_32	530.9	0.8991	3.739	8.624	42.07	28.6	11.92	Camden	40-45	rocky
SOL_4	78.58	0.9063	4.037	1.475	56.66	39.86	16.67	Camden	>45	rocky
SOL_40	71.67	0.8333	3.439	1.651	31.16	18.56	7.049	Camden	>45	rocky
SOL_43	****	0.9099	3.595	****	36.43	23.46	7.462	Camden	>45	mud
SOL_47	37.57	0.8331	3.711	1.063	40.89	21.07	6.34	Camden	30-40	rocky
SOL_48	****	0.9172	3.935	****	51.18	37.16	14.77	Camden	20-30	rocky
SOL_49	60.69	0.7583	3.679	1.035	39.62	10.78	3.497	Camden	40-45	rocky
SOL_56	74.69	0.8802	4.278	1.195	72.07	49.2	17.97	Camden	30-40	rocky
SOL_60	53.02	0.7716	3.446	1.143	31.38	12.13	4.072	Camden	40-45	rocky
SOL_66	****	0.7786	1.935	****	6.922	4.57	2.533	Camden	30-40	mud
SOL_69	44.69	0.7988	3.586	1.075	36.07	13.27	4.291	Camden	40-45	rocky
SOL_7	****	0.9867	3.322	****	27.73	26.27	17	Camden	20-30	rocky
SOL_73	67.92	0.8294	3.277	1.759	26.5	14.07	5.148	Camden	20-30	rocky
SOL_77	****	0.8613	3.156	****	23.47	13.55	4.947	Camden	40-45	mud
SOL_79	****	0.8731	3.153	****	23.4	16.21	7.846	Camden	40-45	mud
SOL_8	****	0.9103	3.543	****	34.56	25.09	10.18	Camden	>45	rocky
SOL_84	71.06	0.8407	3.63	1.477	37.71	22.55	8.78	Camden	30-40	rocky
SOL_87	****	0.8099	2.781	****	16.14	9	4.167	Camden	30-40	rocky
SOL_91	****	0.7932	2.148	****	8.567	5.161	2.615	Camden	20-30	rocky
SOL_97	39.32	0.7287	2.758	1.29	15.76	7.04	3.034	Camden	30-40	rocky

MARL_19	153.6	0.8681	3.887	2.227	48.76	26.94	7.326	Maret	>45	mud
MAR_1	220.2	0.6277	2.403	4.038	11.06	3.942	2.039	Maret	30-40	rocky
MAR_10	****	0.3618	0.8675	****	2.381	1.51	1.235	Maret	<20	mud
MAR_11	56.59	0.8476	3.083	1.937	21.83	14.23	5.652	Maret	20-30	rocky
MAR_12	****	1	1.386	****	4	4	4	Maret	>45	mud
MAR_13	****	0.9782	2.431	****	11.37	10.71	7.5	Maret	>45	mud
MAR_18	****	0.875	2.174	****	8.796	6.261	3	Maret	>45	mud
MAR_21	****	0.6238	1.55	****	4.712	2.473	1.6	Maret	>45	mud
MAR_26	****	0.9755	1.748	****	5.742	5.444	3.5	Maret	>45	mud
MAR_28	82.97	0.7556	3.776	1.105	43.64	12.12	3.75	Maret	>45	rocky
MAR_29	59.5	0.6309	2.415	1.524	11.2	5.23	2.67	Maret	30-40	rocky
MAR_3	19.52	0.1871	0.5509	0.2928	1.735	1.214	1.102	Maret	20-30	mud
MAR_33	****	0.8451	2.488	****	12.04	7.477	3.333	Maret	40-45	mud
MAR_35	106.5	0.7302	3.363	1.5	28.87	10.88	4.974	Maret	>45	rocky
MAR_39	****	0.7525	1.804	****	6.076	3.698	2.083	Maret	30-40	mud
MAR_4	58.4	0.2796	0.8082	1.144	2.244	1.406	1.19	Maret	20-30	rocky
MAR_43	427.1	0.8254	3.759	4.746	42.89	16.02	4.645	Maret	>45	rocky
MAR_50	****	0.8617	3.388	****	29.61	18.02	6.944	Maret	40-45	mud
MAR_52	142.5	0.8601	4.269	1.54	71.43	35.16	9.396	Maret	30-40	rocky
MAR_54	51.39	0.8936	3.938	1.225	51.31	35.44	12.95	Maret	<20	rocky
MAR_58	****	0.6979	2.975	****	19.58	6.238	2.634	Maret	40-45	rocky
MAR_6	****	0.6221	1.685	****	5.39	3.433	2.4	Maret	30-40	mud
MAR_65	48.28	0.9038	3.311	1.738	27.42	18.82	8.625	Maret	30-40	mud
MAR_66	80	0.6265	2.833	1.162	16.99	4.743	2.234	Maret	30-40	rocky
MAR_68	97.7	0.7476	2.614	3.019	13.65	6.376	2.786	Maret	30-40	rocky
MAR_8	****	0.5197	1.142	****	3.132	2.007	1.457	Maret	20-30	mud
ECL_11	****	0.8963	2.639	****	14	10.12	4.375	Eclipse	>45	mud

ECL_12	****	0.9408	3.135	****	22.99	18.85	8.833	Eclipse	>45	rocky
ECL_15	58.76	0.7991	3.541	1.227	34.49	13.95	4.243	Eclipse	>45	rocky
ECL_18	****	0.6013	0.6606	****	1.936	1.549	1.267	Eclipse	20-30	mud
ECL_19	****	0.7967	2.209	****	9.105	4.883	2.357	Eclipse	<20	mud
ECL_23	82.5	0.8237	3.63	1.529	37.71	22.84	9.976	Eclipse	>45	rocky
ECL_24	88.32	0.8094	3.934	1.253	51.09	24.25	8.675	Eclipse	>45	rocky
ECL_26	60.56	0.8834	3.849	1.343	46.94	30.03	11.9	Eclipse	>45	rocky
ECL_28	76.64	0.7757	3.632	1.256	37.78	18.11	6.865	Eclipse	>45	rocky
ECL_29	62.58	0.8779	3.869	1.322	47.88	24.87	6.543	Eclipse	20-30	rocky
ECL_31	67.58	0.8411	3.471	1.578	32.18	16.17	5.273	Eclipse	>45	rocky
ECL_32	567.8	0.5999	2.079	13	7.998	3.231	1.844	Eclipse	30-40	mud
ECL_36	****	0.8955	3.325	****	27.81	17.98	6.75	Eclipse	>45	rocky
ECL_36_B	483.9	0.8558	3.43	8.938	30.86	17.77	7.421	Eclipse	>45	mud
ECL_37	39.9	0.659	2.958	0.9952	19.26	8.737	4.25	Eclipse	20-30	rocky
ECL_38	79.36	0.7502	3.87	1.052	47.95	14.85	4.621	Eclipse	20-30	rocky
ECL_40	56.98	0.7141	3.534	0.9943	34.25	11	3.807	Eclipse	20-30	rocky
ECL_45	461	0.879	3.642	7.585	38.16	22.02	7.05	Eclipse	20-30	rocky
ECL_49	****	0.9692	2.558	****	12.91	11.56	5.667	Eclipse	30-40	mud
ECL_E1	****	0.8295	1.989	****	7.309	5.755	4	Eclipse	40-45	mud
ECL_E12	131.7	0.8781	4.339	1.494	76.64	38.99	11.38	Eclipse	40-45	rocky
ECL_E7	****	0.9272	3.627	****	37.61	28.26	12.12	Eclipse	>45	mud
ECL_E_10	****	0.786	2.179	****	8.841	5.57	2.762	Eclipse	>45	mud
ECL_R15	88.41	0.6755	3.062	1.322	21.37	6.891	2.933	Eclipse	40-45	rocky
ECL_R7	****	0.9449	3.114	****	22.52	18.26	7.333	Eclipse	30-40	rocky
ECL_R_13	154.2	0.8724	3.79	2.477	44.24	27.69	10.74	Eclipse	>45	rocky

3.4 Ranked species abundance by depth and habitat type

Figure 10 shows relative species abundance (percentage cumulative abundance plotted against log species rank). The X- axis is the abundance rank, the most abundant species is given rank 1, the second most abundant is 2 and so on. The Y axis is the relative abundance, a measure of the number of individuals relative to the abundance of species. It is a visual comparison of diversity between samples. Dominance curves for the sites sampled show the relationship between the habitats (depth and substrate) in terms of diversity. The curve represents both species richness (how many species were ranked) and species evenness (the slope of the line). The steep gradient indicates low evenness as the high ranking species have much higher abundances than the lower ranking species. A shallow gradient indicates high evenness as the abundances of different species are similar. The lower line has the higher diversity and more elevated curves represent less diverse assemblages.

The stations were represented by depth and substrate (Figure 10) and dominance curves were compared using ANOSIM. In Camden Sound there was a significant difference among the stations, $R = 0.2$, $p = 0.3\%$. Pairwise comparisons tests identified that muddy substrates < 20 m depth were significantly different to all the stations in rocky habitat and those in muddy substrates > 45 m mud but similar to stations in muddy substrates at 20-30 m depth. Stations in muddy substrates 30 – 40 m depth were significantly different to those in rocky substrates > 45 m but not to other stations, and all the other pairwise comparisons were not significantly different. In Maret Islands and in Eclipse Archipelago there was no significant difference among stations (Figure 10) (ANOSIM, factor depth/substrate, $R = 0.2$, $p > 0.05$).

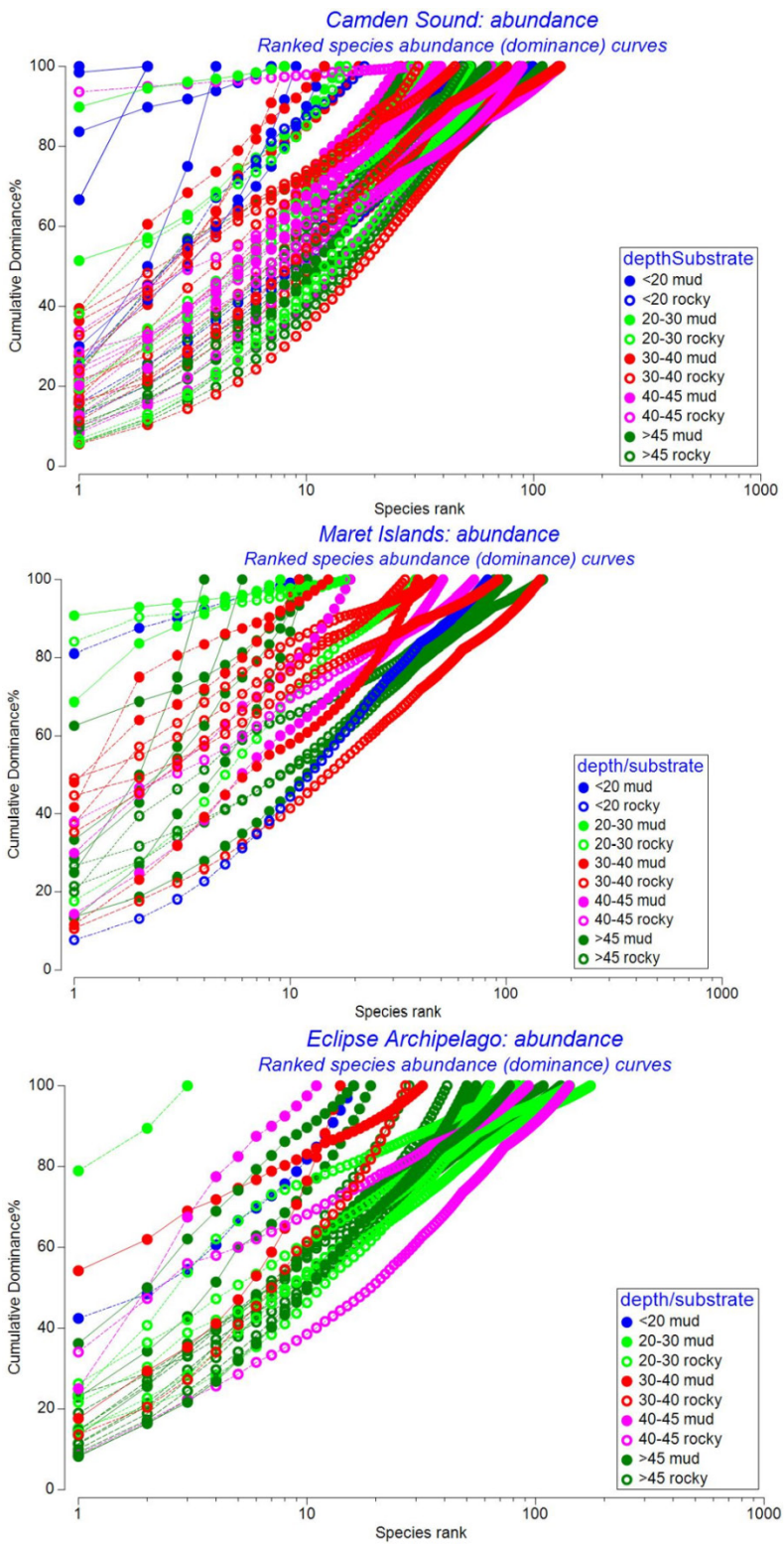


Fig 10 Ranked species abundance curves (x-axis logged to downweight numerous rarer species and enable the distribution of the common species to be better visualised). The ranked abundances are expressed as a percentage of the total abundances of all species.

3.5 Species richness predictions

The total number of species identified from each sled site is mapped in Figure 11. Random Forest models fitted to these richness data (log transformed) against environmental variables were used to predict richness across the region (background colour on map, on same scale as points). The model fit to data was good (un-adjusted Rsq=89%) and cross-validation indicated that 41% of variation in 'out-of-bag' richness was predictable from the environmental variables (a measure of the generalisation error of the regional prediction). Important variables for sled richness included: in particular sediment type (lower richness in muddy habitats, higher in gravel) and seabed current shear-stress (higher richness in stronger currents)

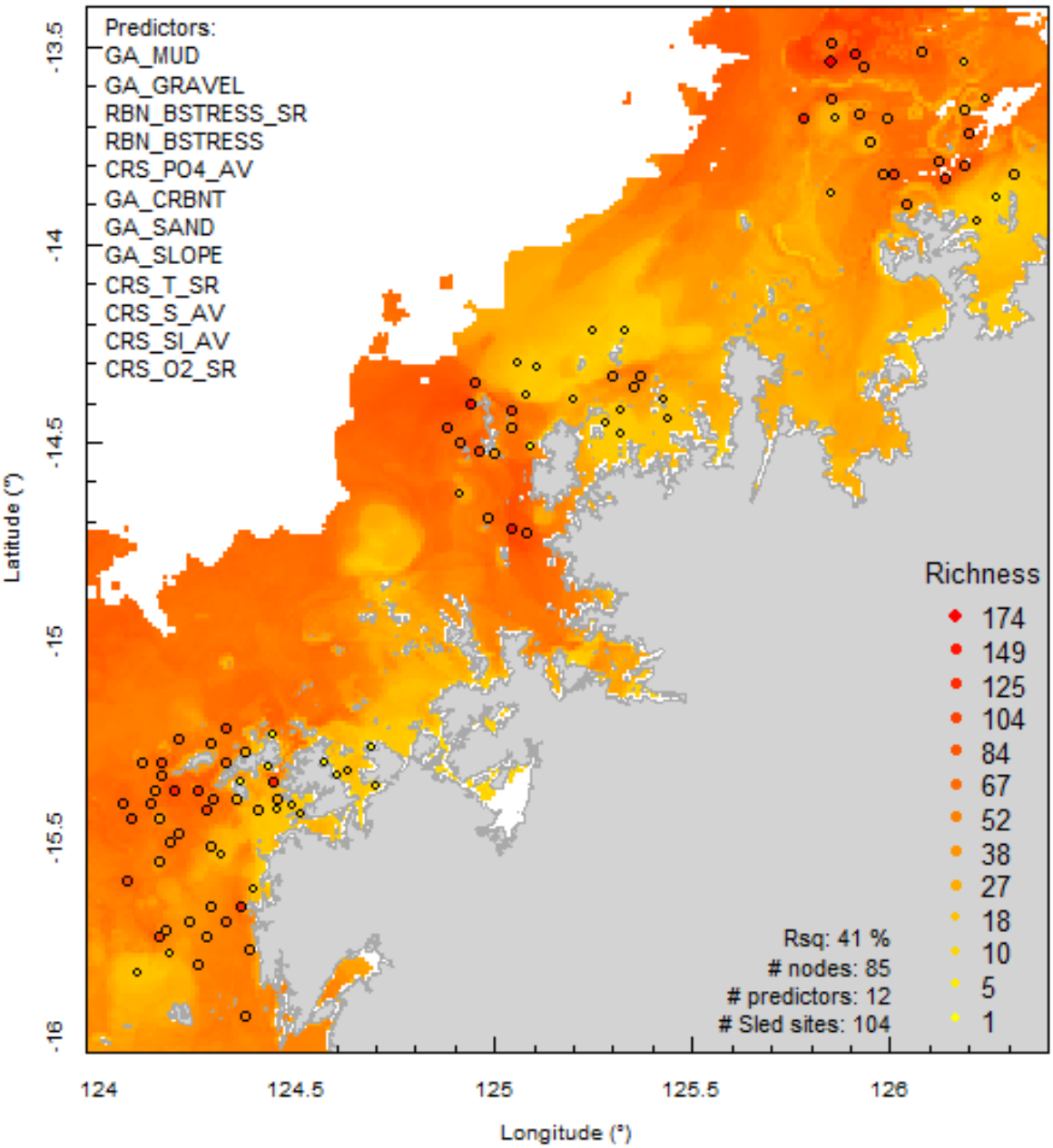


Figure 11 Predicted species richness across the entire study region based on sled catches.

4 Synopsis of taxonomic groups

The following section provides an analysis by taxonomic group of the characteristics of the collection, its novelty and its relevance in the context of other collections in the region. A full species list, by taxa is given in Appendix 1 at the end of this chapter.

4.1 Crustacea

4.1.1 Diversity and distribution

A total of 229 species or OTUs belonging to 45 families and 131 genera were identified from the collections. Of these 75 OTUs were not confidently assigned to a named species (e.g. *Axiopsis* cf. *consobrina*, *Pilumnus* cf. *spinicarpus, Ceratoplax* sp.1), owing to the difficulty of identifying species in these groups, damage, or the specimens being juveniles. The majority of species collected belong to the order Decapoda (87%), as would be expected from the sampling methods used. The decapods are the most speciose group of crustaceans representing the most recognisable groups such as crabs and shrimp. Other crustacean groups such as the Isopoda and Amphipoda are not well represented in the collections, largely owing to their small size and are thus under-sampled, whereas the Stomatopoda and Cirripedia are simply not as diverse. Rare species dominate the dataset with 59% and 20% of the species collected from only one or two stations, respectively, and only 11% of species were found at 10 or more stations.

4.1.2 Novelty

The known shallow water Crustacea of the inshore Kimberley was summarised by Hosie et al. (2015), listing a total of 596 crustacean species (analysing data up to 2009). Their dataset was limited to specimens and records collected from waters shallower than 30 m, making a direct comparison with the present surveys difficult, as this study covered depths to 100 m. In total 85 species identified from the WAMSI expeditions were not included on their list, but only 28 of these were collected in waters less than 30 m depth during the current surveys. Among the species are a number of newly discovered ones including the now named *Paranaxia keesingi* Hosie & Hara, 2016, the stalked barnacle *Smilium* sp. nov. and the shrimp *Odontozona* sp. nov. Several undescribed species known from previous surveys were recollected, including the mantis shrimp *Manningia* sp.1, barnacles *Acasta* sp. nov. and *Euacasta* sp. nov. (Keesing et al 2014). A total of sixteen species are considered to be the first records within Western Australian waters. Recent revisions of squat lobsters (Macpherson & Robainas-Barcia 2015) and spider crabs (Ng & Richer de Forges 2015) have been instrumental in identifying species and revealing new records for the region. Further new records and undescribed species are likely amongst the specimens only identified to morphospecies and will require further research.

4.1.3 Ecology

The faunal composition reflects habitats dominated by non-scleractinian sessile organisms and/or soft sediments, with few coral reef associated crustaceans identified. This can be seen in the high diversity and abundance of groups such as the spider crabs (Majidae, Epialtidae & Inachidae) that use sessile invertebrates or macroalgae for camouflage; as well as the swimming crab genera *Lupocycloporus* and *Portunus,* the pebble crab family Leucosiidae and the prawn family Penaeidae, all of which exhibit clear preferences for sand or mudflats. However, sponge garden habitats remain a rich and understudied component of the tropical Australian fauna.

The most commonly collected species was the porcelain crab *Petrolisthes militaris,* which was found at 55 stations. Ecologically this species is a generalist in terms of habitat preference and is very common in the intertidal and shallow subtidal in tropical Western Australia. An unusual feature of porcelain crabs is that they are filter feeders and their relatively large claws are utilised for defence and not feeding.

4.2 Molluscs

4.2.1 Diversity and distribution

The first three expeditions of the WAMSI KMRP node to trawl at medium depths in the inshore Kimberley yielded 83 well identified mollusc species, and a high number of morphospecies or partially identified specimens from 309 lots. This diversity was distributed across five classes (Polyplacophora, Bivalvia, Scaphopoda, Cephalopoda and Gastropoda), 64 families and 113 genera of molluscs, total. The breakdown over the 3 expeditions is outlined below and it is important to note that effort per expedition was variable (e.g. number of tows differed).

Table 6. Breakdown of molluscan taxonomic diversity by WAMSI expeditions. This includes live-collected taxa sampled during trawls and during opportunistic shore work. Bold represents the families with the highest number of lots per expedition (lots not individuals) and italics represent singleton families per expedition (lots not individuals). Taxa identified as cf. were not included in these tabulations.

Expedition	**Molluscan Class Representation**	**Molluscan Familial Representation**	**No. of Genera**
Camden Sound Survey March 2015	5: Bivalvia, Cephalopoda, Gastropoda, Polyplacophora, Scaphopoda	44: Arcidae, Buccinidae, Bursidae, Cardiidae, Carditidae, *Cerithidae*, Conidae, Chamidae, *Chilodontidae*, *Chitonidae*, Chromodorididae, Columbellidae, *Corbulidae*, *Cucullaeidae*, Cypraeidae, *Dentaliidae*, *Gryphaeidae*, Malleidae, **Muricidae (25)**, Mytilidae, Nuculidae, Octopodidae, *Ostreidae*, Ovulidae, Pectinidae, *Penicillidae*, *Pharidae*, Phyllidiidae, Pinnidae, Plicatulidae, Pteriidae, Ranellidae, *Semelidae*, *Siliquaridae, Solecurtidae, Solenidae*, Spondylidae, Tegulidae, Tellinidae, Turbinellidae, Turbinidae, Velutinidae, **Veneridae (16)**, *Vermetidae*	78
Maret Islands Survey December 2015	3: Bivalvia, Cephalopoda, Gastropoda	26: Bursidae, *Calliostomatidae*, Cardiidae, Chromodorididae, Conidae, Discodorididae, Doridiidae, *Harpidae*, *Mactridae*, **Muricidae (23)**, *Myochamidae*, Mytilidae, Nassariidae, *Naticidae*, Octopodidae, *Olividae*, Pectinidae, *Platydorididae, Pleurobranchidae*, *Pseudomelotomidae*, Ranellidae, *Sepiidae*, Spondylidae, Tellinidae, Turbinellidae, Volutidae	40
Eclipse Islands Survey March 2016	4: Bivalvia, Cephalopoda, Gastropoda, Scaphopoda	41: *Angariidae*, Arcidae, Buccinidae, *Cadlinidae*, Cardiidae, Carditidae, Chamidae, Chromodorididae, Columbellidae, Cypraeidae, Doridiidae, *Fasciolariidae*, *Fissurellidae*, *Galeommatidae, Glaucidae*, *Glycymerididae*, *Haliotidae*, *Laevidentaliidae*, Malleidae, **Muricidae (12)**, Mytilidae, Nassariidae, Nuculidae, Octopodidae, Ovulidae, Phyllidiidae, Pinnidae, Plicatulidae, Pteriidae, Ranellidae, Spondylidae, Tegulidae, Tellinidae, *Terebridae*, *Tritoniidae*, Trochidae, Turbinellidae, Turbinidae, Velutinidae, **Veneridae (11)**, Volutidae	62

Highest familial diversity was found during Expedition 1 (44/64 or 69% families observed), followed by Expedition 3 (41/64 or 64% families observed) and then Expedition 2 (26/64 or 41% families observed). Generic diversity largely reflects familial diversity trends with Expedition 1 (78/113 or 69% genera observed), followed by Expedition 3 (62/113 or 55% genera observed) and then Expedition 2 (40/113 or 35% genera observed). Examining trends between the high familial diversity stations are revealing. Comparison of Expedition 1 and Expedition 3 reveal only 26/52 or 50% of observed families were shared, implying that 50% of familial diversity observed was unique to each expedition area.

From a taxonomic perspective, the sample lots were dominated by two classes: gastropods and bivalves, with sparse but important records from the other classes. Unsurprisingly, the muricids (Muricidae) were the most commonly encountered family of gastropod across expeditions (Table 6 bold). Focusing exclusively on subtidal records from the trawling work indicates that overlap was evident at a range of taxonomic levels. For example,

the marine gastropod family Muricidae was present on all expeditions, and within this family, the species *Chicoreus cervicornis*, *C. banksii* and *Vokesimurex multiplicatus* were present in all three areas.

However, unexpected gaps were evident as well. Venerid clams, which include many commercially important species, have been the dominant bivalve family in previous Kimberley surveys. While this was the dominant bivalve family on Expeditions 1 and 3, it was completely absent from Expedition 2. Of the well identified venerid material from Expeditions 1 and 3, *Globivenus embrithes, Paphia semirugata, Placamen lamellosum* and *Protapes roemeri* were present, but species in the genus *Dosinia, Placemen,* and *Pitar* varied between expeditions; the genus *Circe* was represented on only one expedition.

Many families were only found on one expedition and in total this represented over 50% of families observed (33/64= 52%, see Table 6). Overall, the results are consistent with the interpretation of extremely patchy molluscan diversity, perhaps as a result of high habitat heterogeneity and the need for more sampling to fully characterize the biodiversity of such a rich area.

4.2.2 Novelty

Significant new finds are evident from this work, with four putative new species, at least one from each expedition, in the following families: March 2015: Ovulidae, Dec. 2015: Chromodorididae and March 2016: Carditidae and Chromodorididae. Ovulids are cowrie-like molluscs that live in association with soft corals. The two nudibranchs or sea slugs in the family Chromodorididae are both members of the genus *Goniobranchus*. The new carditid was the only new bivalve found during the expedition. These all await final confirmation and study, including comparison with conspecifics, to determine if they are truly new. New records for Australia and/or WA are still being tallied but nothing notable has been found as yet.

4.3 Sponges

4.3.1 Diversity and distribution

A total of 2,161 specimen lots were examined during this study, with 1,220 collected from the 1st expedition (Camden Sound), 288 from the 2nd (Maret Islands) and 653 from the 3rd (Eclipse).

The majority of the species collected belong to the class Demospongiae (98%). Within the Demospongiae a total of 426 species or OTUs belonging to 16 orders, 48 families and 110 genera were identified from the sponge collections. Of these 205 OTUs were not confidently assigned to a named species owing to time constraints to enable review of historical literature to determine if the species have been previously described, or are new. This will be the subject of ongoing research into the future. The demosponges are known to be the most diverse sponge class, globally accounting for 83% of sponge diversity (van Soest et al. 2012).

The three other classes are much less diverse. In this study the Calcarea had three species and the Homoscleromorpha five species. Both of these classes have much smaller, frequently cryptic individuals, so the method of sampling may have prevented more of these from being collected. The Hexactinellida were not represented in the collections, these are deep sea sponges that do not occur at the depths sampled in this study.

Some species were only found during one of the three expeditions covered in this report. Seventy two species were only collected from the 1st expedition (Camden Sound), 16 species from the 2nd (Maret Islands) and 19 species from the 3rd (Eclipse). Ecological characteristics of the different areas may account for this, or patchy species distributions.

The overall collection from these locations reflects a typical Indo Pacific tropical sponge fauna. For example, *Ianthella* species, *Xestospongia testudinaria*, and species of *Spheciospongia* are commonly found in this region. In addition the North West Shelf is known as a hotspot for the family Raspailiidae and numerous species were found. There are some instances of species being recorded from this study that have only been found in Australia since the WAM Woodside Kimberley shallow water program began. This WAMSI study extends their distributions to additional localities and depths.

The known shallow water sponge fauna of the Kimberley was summarised by Fromont and Sampey (2014) who reported 342 sponge species from the region. The WAMSI expeditions have greatly increased this number, by 20% (84 additional species).

Some of the large specimens collected from these expeditions will form the basis of a filter feeder habitat exhibit in the New Museum to be opened in 2020. It will be the first time this type of habitat has been physically placed in a public forum.

4.4 Fishes

A total of 214 specimen lots, comprising 251 specimens, were examined including 55 collected from Camden Sound, 35 from the Maret Islands, 44 from Eclipse Island and 81 from Lynher Bank.

Most of the fauna comprises widespread species from Northern Australia with typical Indo-West Pacific affinities. Subject to further research or examination by specific experts, the collection comprises some 39 families with up to 80 genera and around 100 species. The most abundant families were Apogonidae (38 lots), Scorpaenidae (17 lots), Gobiidae (16 lots) and Tetrarogidae (15 lots). The most common species (12 individuals) was *Liocranium pleurostigma*. The collection of 8 seahorses *Hippocampus* spp. is a notable important addition to our knowledge of these difficult to collect fishes.

Many specimens remain tentatively identified and some are almost certainly new Western Australian and/or Australian records. Others are known to be undescribed taxa and are currently under revision by both WAM and external experts. Moore et al. (2014) reported 1475 shallow water species from the Kimberley, and once research into the tentatively identified and undescribed species is complete, this number is sure to grow as a result of these surveys.

4.5 Cnidaria: Soft corals:

4.5.1 Diversity and distribution

A total of 723 specimen lots were examined during this study, with 273 collected from the 1st expedition (Camden Sound), 212 from the 2nd (Maret Islands) and 238 from the 3rd (Eclipse).

From these specimen lots, 47 species were found at Camden Sound, 51 species at Maret Islands and 49 species at Eclipse Islands.

Within the Alcyonacea all five suborders were present, representing 15 families and 31 genera (Bayer 1981) (Appendix 1). The five subordinal groups comprised of one Stolonifera octocoral species (*Carijoa* sp.), four families within the suborder Alcyoniina (Alcyoniidae, Nephtheidae, Nidaliidae, Viguieriotidae), four families within the suborder Scleraxonia (Anthothelidae, Parisididae, Melithaeidae, Subergorgiidae), three families within the suborder Holaxonia (Acanthogorgiidae, Gorgoniidae, Plexauridae), and three families within the suborder Calcaxonia (Ellisellidae, Isididae, Primnoidae). The subclass Alcyoniina contained nine genera (*Sarcophyton, Sinularia, Capnella, Dendronephthya, Chromonephthea, Umbellulifera, Chironephthya, Nephthyigorgia, Viguieriotidae*), with most represented by one species. The subclass Scleraxonia was represented by five genera (*Alertigorgia, Iciligorgia, Solenocaulon, Parisis, Melithaea*), with the genus *Melithaea* being the most diverse. The subclass Holoxonia was represented by 10 genera (*Acanthogorgia, Rumphella, Astrogorgia, Echinogorgia, Echinomuricea, Echinomuricea, Euplexaura, Menella, Paraplexaura, Subergorgia*), with the largest species diversity recorded within the genera *Echinogorgia* (13 species), *Menella* (10) and *Paraplexaura* (7), all belonging to the family Plexauridae. Within the subclass Calcaxonia, the family Ellisellidae was represented by the common seawhips *Ctenocella pectinata, Dichotella gemmacea, Junceella fragilis, Junceella juncea* and a species of *Vimiella* sp., the family Isididae by the uncommon species *Jasminisis cavatic,* and the family Primnoidae by *Plumarella penna. Jasminisis cavatica* is so far only known from a few sites and is known to grow in shallow caves and overhangs.

4.5.2 Novelty

The collected assemblages from these locations reflects the general North West Shelf octocoral fauna, and represents a typical Indo-Pacific tropical octocoral fauna for muddy / sandy environments with moderate water movement and low wave action. The relatively high abundance of sea whips and sea fans and octocoral genera know to live predominantly in turbid and sandy environments, such as *Studeriotes, Nephthyigorgia, Carijoa, Iciligorgia*, *Solenocaulon*, and *Plumarella penna,* as well as the absence of the genus *Lobophytum* and the low abundance of genera such as, *Sinularia* and *Sarcophyton* support these findings. Some species generally described as rare or are not often reported in shallow tropical waters, such as *Studeriotes* and *Nephthyigorgia*, appeared to be relatively abundant, but increased sampling effort in these habitats will determine this.

Some of the large specimens of soft corals and sea fans collected from these expeditions will form the basis of a filter feeder habitat exhibit in the New Museum to be opened in 2020. It will be the first time this type of habitat has been physically placed in a public forum.

4.6 Cnidaria: Hard corals:

4.6.1 Diversity and distribution

A total of 107 specimen lots were examined during this study, with 32 collected from the 1st expedition (Camden Sound), 36 from the 2nd (Maret Islands) and 39 from the 3rd (Eclipse). From these specimen lots, 13 species were recorded at Camden Sound, 13 species at Maret Islands and 16 species at Eclipse Islands (See Table 7).

All of the hermatypic corals recorded in these surveys are known from the Kimberley (Richards, Sampey and Marsh, 2014). The collection represents a very small selection of the known hard coral fauna from the Kimberley, however the small representation of zooxanthellate corals at the sites surveyed may indicate the conditions at these depths (~30-60m) are not conducive to autotrophy, hence the predominance of azooxanthellate filter feeding solitary corals.

4.6.2 Novelty

Azooxanthellate solitary scleractinian genera dominated the collections – particularly from the genus *Truncatoflabellum* which accounted for 44% of the collections. Three of the four *Truncatoflabellum* species have been previously recorded in Western Australia (Cairns 1998) and the fourth species requires further investigation to confirm the species identity. All of the known *Truncatoflabellum* species recorded here are known to have an upper depth distribution of 11-40m and a lower depth distribution of 155-136m depth. The finding of *T. veroni* at 32.8m however is slightly shallower than the shallowest depth record in Cairns 1998 of 40m.

Among the azooxanthellate corals were 16 *Caryophyllia* specimens, of which there are at least four different species; however more work is required to identify the species. One of the species is most likely *C. quadragenaria*. This species is known from Western Australia (Cairns, 1998, 1999, 2004) however it is only known from the mesophotic zone 154-201m; hence the finding of this species in a shallower photic zone (from 30.7-64.5m) is unusual. Conversely for *Tubastrea coccinea*, the known depth distribution in Cairns (1998) is 0.3-20m, hence this datasets extends the lower depth distribution of this species in Western Australia to 55.4m.

Table 7. Scleractinian corals collected on the three expeditions.

Expedition	Scleractinian Family Representation	Scleractinian Genera Representation	No. of Family/Genera/Species
March 2015 (Expedition 1 – Camden Sound)	Caryophylliidae Dendrophylliidae Flabelliidae Poritidae Rhizangiidae	Caryophyllia Heterocyathus Balanophyllia Tubastrea Truncatoflabellum Goniopora Culicia	5/7/13
December 2015 (Expedition 2 – Maret Islands)	Caryophylliidae Dendrophylliidae Flabelliidae Merulinidae Poritidae Flabellidae	Caryophyllia Tubrinaria Balanophyllia Tubastraea Truncatoflabellum Cyphastrea Goniopora Porites Flabellum	6/9/13
March 2016 (Expedition 3 – Eclipse Islands)	Acroporidae Caryophylliidae Dendrophylliidae Flabellidae Fungiidae Lobophylliidae Merulinidae Pocilloporidae Poritidae Rhizangiidae	Montipora Caryophyllia Balanophyllia Tubastraea Truncatoflabellum Danafungia Moseleya Favites Pocillopora Porites Cuilcia	10/11/16

4.7 Echinoderms:

4.7.1 Diversity and distribution

A total of 205 species of echinoderms were collected (26 asteroids, 35 crinoids, 20 echinoids, 54 holothuroids and 70 ophiuroids). Diversity was highest at the Eclipse Islands (154 species) and this was true across all classes, despite the number of stations (26 stations) being similar at the Maret Islands (28 stations) and much less than in Camden Sound (51 stations) (see table 8a). Numbers of species and individuals at the Maret Islands were similar to that in Camden Sound despite their being few stations. This suggests overall echinoderm diversity increases from south to north. The number of individuals collected was also highest at the Eclipse Archipelago with very high densities of crinoids and ophiuroids in particular.

Table 8a. Breakdown of echinoderm species and individuals collected at each of the three survey areas.

	Camden Sound		**Maret Islands**		**Eclipse Archipelago**	
Class	species	individuals	species	individuals	species	individuals
Crinoids	25	425	26	379	32	1131
Asteroids	15	32	15	42	16	43
Ophiuroids	37	146	41	197	52	348
Echinoids	12	93	12	62	16	65
Holothuroids	31	74	36	122	38	196
Totals	120	770	130	802	154	1783

4.7.2 Novelty

A recent review of the records of echinoderms from the whole of the Kimberley region by Sampey and Marsh (2015) recorded 385 species, comprising 71 asteroids, 54 crinoids, 58 echinoids, 91 holothuroids and 111 ophiuroids. Our collection of 205 species from just the central Kimberley includes an additional 66 species (Table 8b) to those recorded by Sampey and Marsh (2015) increasing the total known echinoderm diversity for the Kimberley by 17%. This list includes three new but as yet undescribed species of asteroids and ophiuroids and four new species of holothuroids described recently from this collection by Mark O'Loughlin (O'Loughlin et al. 2016). This publication includes colour photographs of many of the specimens collected in this study from Camden Sound. The list of 66 additional species from the central Kimberley also includes 19 species first recorded for the Kimberley further north from the Joseph Bonaparte Gulf by Keesing et al. (2014) and includes some species of holothurians that were described from that collection by O'Loughlin et al. 2014.

Table 8b. List of 66 echinoderm species which are new records for the Kimberley arising from this study. *denotes new species described by O'Loughlin et al. (2016) from this collection. #denotes species also recorded by Keesing et al. (2014) from the Joseph Bonaparte Gulf.

Class	Order	Family	Genus	Subgenus	Species
Asteroidea	Paxillosida	Astropectinidae	Astropecten		pulcherrimus#
Asteroidea	Spinulosida	Echinasteridae	Metrodira		sp. nov.
Asteroidea	Valvatida	Oreasteridae	Anthenea		conjungens
Crinoidea	Comatulida	Colobometridae	Oligometra		carpenteri#
Crinoidea	Comatulida	Comatulidae	Capillaster		mariae
Crinoidea	Comatulida	Comatulidae	Clarkcomanthus		albinotus#
Crinoidea	Comatulida	Comatulidae	Clarkcomanthus		alternans
Crinoidea	Comatulida	Comatulidae	Comatella		decora
Crinoidea	Comatulida	Zygometridae	Zygometra		andromeda
Echinoidea	Camarodonta	Temnopleuridae	Salmacis		belli#
Echinoidea	Camarodonta	Temnopleuridae	Temnotrema		bothryoides
Echinoidea	Cidaroida	Cidaridae	Phyllacanthus		imperialis
Echinoidea	Diadematoida	Diadematidae	Chaetodiadema		granulatum
Echinoidea	Diadematoida	Diadematidae	Echinotrix		calamaris
Echinoidea	Spatangoida	Brissidae	Brissopsis		luzonica
Holothuroidea	Apodida	Synaptidae	Protankyra		insolens
Holothuroidea	Apodida	Synaptidae	Protankyra		javaensis
Holothuroidea	Apodida	Synaptidae	Protankyra		torquea*
Holothuroidea	Apodida	Synaptidae	Synaptula		lamperti
Holothuroidea	Dendrochirotida	Cucumariidae	Actinocucumis		longipedes
Holothuroidea	Dendrochirotida	Cucumariidae	Actinocucumis		solanderi#
Holothuroidea	Dendrochirotida	Cucumariidae	Pseudocolochirus		australis#
Holothuroidea	Dendrochirotida	Cucumariidae	Pseudocolochirus		axiologus
Holothuroidea	Dendrochirotida	Cucumariidae	Pseudocolochirus		minaeus*
Holothuroidea	Dendrochirotida	Cucumariidae	Plesiocolochirus		quadrangularis
Holothuroidea	Dendrochirotida	Cucumariidae	Staurothyone		distincta
Holothuroidea	Dendrochirotida	Phyllophoridae	Hemithyone		semperi#
Holothuroidea	Dendrochirotida	Phyllophoridae	Massinium		bonapartum#

Holothuroidea	Dendrochirotida	Phyllophoridae	Neothyonidium		insolitum*
Holothuroidea	Dendrochirotida	Phyllophoridae	Phyllophorella	Phyllophorella	spiculata
Holothuroidea	Dendrochirotida	Phyllophoridae	Phyllophorella	Phyllothuria	cebuensis#
Holothuroidea	Dendrochirotida	Phyllophoridae	Phyllophorus	Urodemella	holothurioides#
Holothuroidea	Dendrochirotida	Phyllophoridae	Stolus		canescens#
Holothuroidea	Dendrochirotida	Phyllophoridae	Thyone		axiologa
Holothuroidea	Dendrochirotida	Psolidae	Psolidium		sp.
Holothuroidea	Dendrochirotida	Sclerodactylidae	Cladolabes		arafurus
Holothuroidea	Dendrochirotida	Sclerodactylidae	Globosita		elnazae#
Holothuroidea	Holothuriida	Holothuriidae	Actinopyga		echinites
Holothuroidea	Holothuriida	Holothuriidae	Holothuria	Metriatyla	keesingi
Holothuroidea	Holothuriida	Holothuriidae	Holothuria	Thymiosycia	gracilis
Holothuroidea	Molpadida	Molpadiidae	Molpadia		scabra
Ophiuroidea	Euryalida	Euryalidae	Euryale		aspera
Ophiuroidea	Euryalida	Gorgonocephalidae	Astrochalcis		tuberculosus
Ophiuroidea	Ophiurida	Amphiuridae	Amphioplus		laevis#
Ophiuroidea	Ophiurida	Amphiuridae	Amphioplus		personatus
Ophiuroidea	Ophiurida	Amphiuridae	Amphiura		duncani
Ophiuroidea	Ophiurida	Amphiuridae	Amphiura		maxima#
Ophiuroidea	Ophiurida	Amphiuridae	Amphiura		septemspinosa#
Ophiuroidea	Ophiurida	Amphiuridae	Dougaloplus		echinatus#
Ophiuroidea	Ophiurida	Amphiuridae	Ophiocentrus		inaequalis
Ophiuroidea	Ophiurida	Amphiuridae	Ophiocentrus		sp. nov
Ophiuroidea	Ophiurida	Gorgonocephalidae	Astrochalcis		tuberculosus
Ophiuroidea	Ophiurida	Ophiacanthidae	Ophiacantha		dallasii
Ophiuroidea	Ophiurida	Ophiacanthidae	Ophiacantha		indica#
Ophiuroidea	Ophiurida	Ophiactidae	Ophiactis		brachyura
Ophiuroidea	Ophiurida	Ophiactidae	Ophiactis		brevis
Ophiuroidea	Ophiurida	Ophiactidae	Ophiactis		maculosa#
Ophiuroidea	Ophiurida	Ophiodermatidae	Ophiarachnella		similis#
Ophiuroidea	Ophiurida	Ophionereididae	Ophionereis		sp. nov.
Ophiuroidea	Ophiurida	Ophiotrichidae	Macrophiothrix		aspera
Ophiuroidea	Ophiurida	Ophiotrichidae	Ophiogymna		elegans
Ophiuroidea	Ophiurida	Ophiotrichidae	Ophiopteron		sp.
Ophiuroidea	Ophiurida	Ophiotrichidae	Ophiopteron		vitiense
Ophiuroidea	Ophiurida	Ophiotrichidae	Ophiothrix		foveolata
Ophiuroidea	Ophiurida	Ophiotrichidae	Ophiothela		danae
Ophiuroidea	Ophiurida	Ophiuridae	Ophiura		indica

4.8 Algae and seagrass

4.8.1 Diversity and distribution

A total of 49 species of marine plants (in the broad sense, including cyanobacteria, algae and seagrasses) were collected (one cyanobacterium, 13 brown algae, 17 green algae, 17 red algae and one seagrass). Diversity was highest at the Eclipse Islands (26 species), with Camden Sound and the Maret Islands similar at 16 and 18 species respectively. In all locations this is most likely an under-representation of the true diversity. Rosser et al. (2014) recorded 132 species of marine algae from the Maret Islands, although this total may not be comparable as it does include many smaller epiphytic species that were not assessed in the present study.

4.8.2 Novelty

The flora collected was mostly typical of that expected for the region (Huisman & Sampey, 2014; Huisman 2015, 2018), with the exception of one likely new species of the red alga *Stenogramma*, which also represents a new generic record for Western Australia. Unfortunately the specimen was sterile, but molecular analyses indicate that it is closely related to *Stenogramma lamyi*, a species that was described recently for a taxon from Madagascar. Further collections are needed before the species can be formally named.

5 References

Breiman, L. (2001), Random Forests, Machine Learning 45(1), 5-32.

Cairns, S.D. 1998. Azooxanthellate Scleractinia (Cnidaria: Anthozoa) of Western Australia. Rec. of West. Austr. Mus. 18(4): 361-417, 9 pls

Cairns, S.D. 1999. Species richness of recent Scleractinia. Atoll Res. Bull. 459, 1-46

Cairns, S.D. 2004. Azooxanthellate Scleractinia of Australia. Rec. Australian Mus. 56(3): 259-329, 12 pls

Fromont, J.; Sampey, A. Kimberley Marine Biota. Historical Data: Sponges (Porifera). Rec. West. Aust. Museum 2014, 84, 69–100.

Hosie, A. M., Sampey, A., Davie, P. J. & Jones, D. S. (2015) Kimberley marine biota. Historical data: crustaceans. Records of the Western Australian Museum, Supplement, 84, 247–287.

Huisman, J.M. (2015). Algae of Australia: Marine Benthic Algae of North-western Australia, 1. Green and Brown Algae. ABRS, Canberra; CSIRO Publishing, Melbourne. viii + 320 pp.

Huisman, J.M. (2018). Algae of Australia: Marine Benthic Algae of North-western Australia, 2. Red Algae. ABRS, Canberra; CSIRO Publishing, Melbourne. xii + 672 pp. (in press).

Keesing, J., Bearham, D., Bryce, M., Fromont, J., Hara, A., Hosie, A. M., Huisman, J., Kirkendale, L., Marsh, L., Moore, G., Morrison, S., Naughton, K., O'Hara, T., O'loughlin, M., Richards, Z., Snedden, Z., Strzelecki, J. & Whisson, C. (2014) Biodiversity Assessment. In: J. Keesing (Ed), Marine biodiversity and ecosystem function in the King George River Region of north-western Australia. CSIRO, Floreat, pp. 27–57. Unpublished report to the Total Corporate Foundation. 141 pages. CSIRO, Australia.

Hortal, J., Borges, P. A.V., Gaspar, C. 2006. Evaluating the performance of species richness estimators: sensitivity to sample grain size. Journal of Animal Ecology, 75, 247-287.

Fry, G., Heyward, A., Wassenberg, T., Ellis, N., Taranto, T., Keesing, J., Irvine, T., Stieglitz, T. & Colquhoun, J. (2008). Benthic habitat surveys of potential LNG hub locations in the Kimberley region. Unpublished client Report to WA Marine Sciences Institution. 131 pp.

Gotelli NJ, Colwell RK (2001) Quantifying biodiversity: procedures and pitfalls in the measurement and comparison of species richness. Ecol Lett 4:379–91.

Huisman, J.M. & Sampey, A. (2014). Synthesis of historic marine species data for the Kimberley, Western Australia (1880s – 2009): Marine flora. Records of the Western Australian Museum Supplement 84: 45-67.

Keesing, J.K. (editor) (2014). Marine biodiversity and ecosystem function in the King George River region of north-western Australia. Unpublished report to the Total Corporate Foundation. 141 pages. CSIRO, Australia.

Macpherson, E. & Robainas-Barcia, A. (2015) Species of the genus Galathea Fabricius, 1793 (Crustacea, Decapoda, Galatheidae) from the Indian and Pacific Oceans, with descriptions of 92 new species. 2015, 3913, 335.

Moore, G.I., Morrison, S.M., Hutchins, J.B., Allen, G.R. and Sampey, A. (2014). Kimberley marine biota. Historical data: fishes. Records of the Western Australian Museum Supplement 84: 161–206

Ng, P. K. L. & Richer de Forges, B. (2015) Revision of the spider crab genus Maja Lamarck, 1801 (Crustacea: Brachyura: Majoidea: Majidae), with descriptions of seven new genera and 17 new species from the Atlantic and Indo-West Pacific. Raffles Bulletin of Zoology, 63, 110-225.

O'Hara R.B. 2005. Species richness estimators: how many species can dance on the head of the pin. Journal of Animal Ecology, 74, 375-386.

O'Loughlin, P. M., MacKenzie, M., & Vanderspiegel, D. (2014). New dendrochirotid sea cucumbers from northern Australia (Echinodermata: Holothuroidea: Dendrochirotida). Memoirs of Museum Victoria, 72, 5-23.

O' Loughlin, P. M., Harding, C., & Paulay, G. (2016). The sea cucumbers of Camden Sound in northwest Australia, including four new species (Echinodermata: Holothuroidea). Memoirs of Museum Victoria, 75, 7-52

Pitcher, C.R., Miller, M., Morello, E., Fry, G., Strzelecki, J., McLeod, I., Slawinski, D., Ellis, N., Thomson, D., Bearham, D., Keesing, J., Donovan, A., Mortimer, N. Babcock, R., Fromont, J, Gomez, O., Hosie, A., Hara, A., Moore, G., Morrison, S., Kirkendale, L., Whisson, C., Richards, Z., Bryce, M., Marsh, L., Naughton, K., O'Loughlin, M., O'Hara, T., Boddington, D., Huisman, J. (2016) Environmental Pressures: Regional Biodiversity — Pilbara Seabed Biodiversity Mapping & Characterisation. Final report, CSIRO Oceans & Atmosphere, Published Brisbane, March 2016, 62 pages

Richards, Z., Sampey, A. and Marsh, L., 2014. Kimberley marine biota. Historical data: scleractinian corals. Rec. West. Aust. Mus. Suppl, 84(11).

Rosser, N., Wilson, B., Forde, M., Fitzpatrick, J., Scoones, R. & Huisman, J.M.(2014). Marine ecology. In: Comrie-Greig, J. & Abdo, L.J. (eds), Ecological studies of the Bonaparte Archipelago and Browse Basin. INPEX Operations Australia Pty Ltd, Perth. pp. 273-399.

Sampey, A., & Marsh, L. M. (2015). Kimberley marine biota. Historical data: echinoderms. Records of the Western Australian Museum, Supplement, 84, 207-24

Van Soest, R.W.M.; Boury-Esnault, N.; Vacelet, J.; Dohrmann, M.; Erpenbeck, D.; de Voogd, N.J.; Santodomingo, N.; Vanhoorne, B.; Kelly, M.; Hooper, J.N.A. Global diversity of sponges (Porifera). PLoS ONE 2012, 7, e35105.

6 Appendices

Appendix 1

Table 1. List of species identified from sled samples taken in the Kimberley region study area. Presence or absence at each of the three study sites is shown.

Phylum	Class	Order	Family	Genus	Subgenus	Species	CS	MI	EA
Arthropoda									+
Arthropoda	Hexanauplia							+	
Arthropoda	Hexanauplia	Scalpelliformes	Calanticidae	*Smilium*		*sp. nov.*			+
Arthropoda	Hexanauplia	Sessilia	Archaeobalanidae						+
Arthropoda	Hexanauplia	Sessilia	Archaeobalanidae	*Conopea*		*titani*		+	
Arthropoda	Hexanauplia	Sessilia	Archaeobalanidae	*Euacasta*		sp. nov.			+
Arthropoda	Hexanauplia	Sessilia	Archaeobalanidae	*Neoacasta*		*laevigata*			+
Arthropoda	Hexanauplia	Sessilia	Archaeobalanidae	*Solidobalanus*		*socialis*	+		
Arthropoda	Hexanauplia	Sessilia	Archaeobalanidae	*Striatobalanus*		*amaryllis*	+		+
Arthropoda	Hexanauplia	Sessilia	Archaeobalanidae	*Striatobalanus*		*tenuis*			+
Arthropoda	Hexanauplia	Sessilia	Balanidae	*Amphibalanus*		*poecilotheca*	+		+
Arthropoda	Hexanauplia	Sessilia	Tetraclitidae	*Tetraclita*		*squamosal*		+	+
Arthropoda	Malacostraca	Amphipoda	Aoridae				+		
Arthropoda	Malacostraca	Amphipoda	Eusiridae				+		
Arthropoda	Malacostraca	Amphipoda	Eusiridae	*not identified*		sp. 1		+	
Arthropoda	Malacostraca	Amphipoda	Eusiridae	*not identified*		sp. 2		+	
Arthropoda	Malacostraca	Amphipoda	Eusiridae	*not identified*		sp. 3		+	
Arthropoda	Malacostraca	Amphipoda	Lysianassidae	*Tryphosella*		sp.			+
Arthropoda	Malacostraca	Decapoda	Aethridae	*Drachiella*		sp.		+	
Arthropoda	Malacostraca	Decapoda					+		+
Arthropoda	Malacostraca	Decapoda	Alpheidae						+
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Alpheus*		*bisincisus*		+	

Arthropoda	Malacostraca	Decapoda	Alpheidae	*Alpheus*	*chiragricus*			+
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Alpheus*	*gracilipes*		+	
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Alpheus*	*gracilis*	+		
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Alpheus*	*hippothoe*		+	+
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Alpheus*	*mitis*	+		
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Alpheus*	*cf. mitis*			+
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Alpheus*	*pareuchirus*		+	
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Alpheus*	*paralcyone*	+		
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Alpheus*	*parvirostris*	+		
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Alpheus*	*polyxo*		+	
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Alpheus*	*serenei*	+		+
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Alpheus*	sp.	+		+
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Alpheus*	*strenuous*	+	+	
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Alpheus*	*villosus*		+	+
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Metalpheus*	*paragracilis*	+		
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Synalpheus*	*comatularum*		+	
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Synalpheus*	*coutierei*	+		
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Synalpheus*	*echinus*	+		
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Synalpheus*	*gracilirostris*	+	+	+
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Synalpheus*	*haddoni*	+		
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Synalpheus*	*harpagatrus*	+		
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Synalpheus*	*neomeris*	+	+	
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Synalpheus*	*paraneomeris*		+	
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Synalpheus*	*pococki*	+		+
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Synalpheus*	sp.	+	+	+
Arthropoda	Malacostraca	Decapoda	Alpheidae	*Synalpheus*	*streptodactylus*		+	+
Arthropoda	Malacostraca	Decapoda	Axiidae	*Axiopsis*	*cf. consobrina*		+	
Arthropoda	Malacostraca	Decapoda	Axiidae	*Scytoleptus*	*barbatus*			+

Arthropoda	Malacostraca	Decapoda	Calappidae	*Calappa*	*capellonis*		+	
Arthropoda	Malacostraca	Decapoda	Calappidae	*Calappa*	*philargius*	+		
Arthropoda	Malacostraca	Decapoda	Callianassidae	*Notiax*	*ngochoae*		+	
Arthropoda	Malacostraca	Decapoda	Caridea					+
Arthropoda	Malacostraca	Decapoda	Corystidae	*Gomeza*	sp. 1			+
Arthropoda	Malacostraca	Decapoda	Corystidae	*Gomeza*	sp. 2	+	+	+
Arthropoda	Malacostraca	Decapoda	Corystidae	*Jonas*	sp. 2	+		
Arthropoda	Malacostraca	Decapoda	Crangonidae	*cf. Aegaeon*	sp. 1			+
Arthropoda	Malacostraca	Decapoda	Crangonidae	*Pontocaris*	sp. 1			+
Arthropoda	Malacostraca	Decapoda	Diogenidae	*Clibanarius*	*virescens*			+
Arthropoda	Malacostraca	Decapoda	Diogenidae	*Dardanus*	*deformis*		+	
Arthropoda	Malacostraca	Decapoda	Diogenidae	*Dardanus*	*imbricatus*	+		+
Arthropoda	Malacostraca	Decapoda	Diogenidae	*Dardanus*	*lagopodes*		+	
Arthropoda	Malacostraca	Decapoda	Diogenidae	*Dardanus*	*setifer*	+	+	
Arthropoda	Malacostraca	Decapoda	Diogenidae	*Dardanus*	*squarrosus*		+	+
Arthropoda	Malacostraca	Decapoda	Diogenidae	*Paguristes*	*alegrias*	+		+
Arthropoda	Malacostraca	Decapoda	Diogenidae	*Paguristes*	*dampierensis*		+	+
Arthropoda	Malacostraca	Decapoda	Diogenidae	*Paguristes*	*kimberleyensis*			+
Arthropoda	Malacostraca	Decapoda	Diogenidae	*Paguristes*	*simplex*	+		
Arthropoda	Malacostraca	Decapoda	Diogenidae	*Paguristes*	sp. 1	+		+
Arthropoda	Malacostraca	Decapoda	Dorippidae	*Dorippe*	*quadridens*	+	+	+
Arthropoda	Malacostraca	Decapoda	Dorippidae	*Paradorippe*	*australiensis*	+		
Arthropoda	Malacostraca	Decapoda	Dorippidae	*Paradorippe*	sp.			+
Arthropoda	Malacostraca	Decapoda	Dromiidae	*Alainodromia*	*timorensis*	+		+
Arthropoda	Malacostraca	Decapoda	Dromiidae	*Dromidiopsis*	sp. 1			+
Arthropoda	Malacostraca	Decapoda	Dromiidae	*Fultodromia*	*spinifera*	+		+
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Acanthophrys*	sp.			+
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Austrolibinia*	*gracilipes*			+

Arthropoda	Malacostraca	Decapoda	Epialtidae	*Hoplophrys*	*oatesii*		+	
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Hyastenus*	*aries*		+	+
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Hyastenus*	*campbelli*	+		+
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Hyastenus*	*convexus*		+	
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Hyastenus*	*diacanthus*		+	+
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Hyastenus*	*hilgendorfi*		+	+
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Hyastenus*	*cf. hilgendorfi*		+	
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Hyastenus*	*planasius*			+
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Hyastenus*	*cf. planasius*			+
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Hyastenus*	*sebae*		+	
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Hyastenus*	sp. 1	+		
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Hyastenus*	sp. 2	+		
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Hyastenus*	sp. 3	+		
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Hyastenus*	sp. 4	+		
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Hyastenus*	sp. 5	+		
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Hyastenus*	*cf. subinermis*			+
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Naxioides*	*tenuirostris*	+	+	+
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Paranaxia*	*keesingi*	+		
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Paranaxia*	*serpulifera*	+	+	+
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Phalangipus*	*australiensis*	+	+	+
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Phalangipus*	*cf. australiensis*			+
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Phalangipus*	*cf. longipes*			+
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Phalangipus*	*trachysternus*	+		
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Phalangipus*	sp.	+		
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Pisinae*	sp. 1	+		
Arthropoda	Malacostraca	Decapoda	Epialtidae	*Xenocarcinus*	*tuberculatus*		+	
Arthropoda	Malacostraca	Decapoda	Eriphiidae	*Eriphia*	*sebana*			+
Arthropoda	Malacostraca	Decapoda	Euryplacidae	*Eucrate*	*sexdentata*	+	+	+

Arthropoda	Malacostraca	Decapoda	Euryplacidae	*Trissoplax*	*dentata*		+	+
Arthropoda	Malacostraca	Decapoda	Galatheidae	*Allogalathea*	*elegans*		+	+
Arthropoda	Malacostraca	Decapoda	Galatheidae	*Allogalathea*	*longimana*	+		
Arthropoda	Malacostraca	Decapoda	Galatheidae	*Galathea*	*acerata*	+	+	+
Arthropoda	Malacostraca	Decapoda	Galatheidae	*Galathea*	*consobrina*	+	+	
Arthropoda	Malacostraca	Decapoda	Galatheidae	*Galathea*	sp. 1		+	
Arthropoda	Malacostraca	Decapoda	Galenidae	*Galene*	*bispinosa*	+	+	
Arthropoda	Malacostraca	Decapoda	Galenidae	*Galene*	*cf. bispinosa*		+	
Arthropoda	Malacostraca	Decapoda	Goneplacidae	*Entricoplax*	*vestita*			+
Arthropoda	Malacostraca	Decapoda	Hippolytidae			+		
Arthropoda	Malacostraca	Decapoda	Hippolytidae	*Latreutes*	*anoplonyx*	+		
Arthropoda	Malacostraca	Decapoda	Hippolytidae	*Tozeuma*	*lanceolatum*			+
Arthropoda	Malacostraca	Decapoda	Inachidae	*Achaeus*	sp. 1			+
Arthropoda	Malacostraca	Decapoda	Inachidae	*Camposcia*	*retusa*	+	+	
Arthropoda	Malacostraca	Decapoda	Inachidae	*Oncinopus*	*kathae*		+	+
Arthropoda	Malacostraca	Decapoda	Leucosiidae	*Arcania*	*foliolata*	+	+	+
Arthropoda	Malacostraca	Decapoda	Leucosiidae	*Ebalia*	*lambriformis*	+	+	+
Arthropoda	Malacostraca	Decapoda	Leucosiidae	*Leucosia*	*craniolaris*			+
Arthropoda	Malacostraca	Decapoda	Leucosiidae	*Leucosia*	*ocellata*	+		
Arthropoda	Malacostraca	Decapoda	Leucosiidae	*Leucosia*	*cf. ocellata*	+		
Arthropoda	Malacostraca	Decapoda	Leucosiidae	*Myra*	*australis*	+		+
Arthropoda	Malacostraca	Decapoda	Leucosiidae	*Myra*	*cf. fugax*		+	
Arthropoda	Malacostraca	Decapoda	Leucosiidae	*Nucia*	*speciosa*	+		
Arthropoda	Malacostraca	Decapoda	Leucosiidae	*Nursia*	*sinuata*	+	+	+
Arthropoda	Malacostraca	Decapoda	Leucosiidae	*Oreophorus*	*reticulatus*			+
Arthropoda	Malacostraca	Decapoda	Leucosiidae	*Raylilia*	*coniculifera*	+		
Arthropoda	Malacostraca	Decapoda	Leucosiidae	*Seulocia*	*laevimana*	+		
Arthropoda	Malacostraca	Decapoda	Leucosiidae	*Urnalana*	*whitei*	+		+

Arthropoda	Malacostraca	Decapoda	Majidae	*Achaeus*	sp. 2		+	
Arthropoda	Malacostraca	Decapoda	Majidae	*Holthuija*	*aussie*			+
Arthropoda	Malacostraca	Decapoda	Majidae	*Holthuija*	*cf. aussie*		+	
Arthropoda	Malacostraca	Decapoda	Majidae	*Holthuija*	*miersii*		+	
Arthropoda	Malacostraca	Decapoda	Majidae	*Holthuija*	*cf. miersii*		+	
Arthropoda	Malacostraca	Decapoda	Majidae	*Holthuija*	*poorei*		+	+
Arthropoda	Malacostraca	Decapoda	Majidae	*Micippa*	*excavata*			+
Arthropoda	Malacostraca	Decapoda	Majidae	*Paranaxia*	*keesingi*		+	
Arthropoda	Malacostraca	Decapoda	Majidae	*Prismatopus*	*aculeatus*		+	+
Arthropoda	Malacostraca	Decapoda	Majidae	*Prismatopus*	*longispinus*	+	+	+
Arthropoda	Malacostraca	Decapoda	Majidae	*Pseudomicippe*	*banfieldi*		+	
Arthropoda	Malacostraca	Decapoda	Majidae	*Schizophrys*	*dama*		+	+
Arthropoda	Malacostraca	Decapoda	Majidae	*Schizophrys*	*cf. rufescens*		+	
Arthropoda	Malacostraca	Decapoda	Matutidae	*Izanami*	*inermis*	+		
Arthropoda	Malacostraca	Decapoda	Paguridae					
Arthropoda	Malacostraca	Decapoda	Paguridae	*Nematopagurus*	*alcocki*			+
Arthropoda	Malacostraca	Decapoda	Paguridae	*Pagurixus*	sp. 1	+		+
Arthropoda	Malacostraca	Decapoda	Paguridae	*Spiropagurus*	*spiriger*	+	+	+
Arthropoda	Malacostraca	Decapoda	Palaemonidae					+
Arthropoda	Malacostraca	Decapoda	Palaemonidae	*Palaemonella*	sp. 1			+
Arthropoda	Malacostraca	Decapoda	Parthenopidae	*Aulacolambrus*	*longioculis*	+	+	
Arthropoda	Malacostraca	Decapoda	Parthenopidae	*Cryptopodia*	*queenslandi*		+	+
Arthropoda	Malacostraca	Decapoda	Parthenopidae	*Cryptopodia*	*spatulifrons*	+		
Arthropoda	Malacostraca	Decapoda	Parthenopidae	*Nodolambrus*	*nodosus*	+		
Arthropoda	Malacostraca	Decapoda	Parthenopidae	*Parthenope*	*longimanus*	+		
Arthropoda	Malacostraca	Decapoda	Parthenopidae	*Rhinolambrus*	*spinifer*	+	+	+
Arthropoda	Malacostraca	Decapoda	Penaeidae	*Atypopenaeus*	*stenodactylus*		+	
Arthropoda	Malacostraca	Decapoda	Penaeidae	*Metapenaeopsis*	*lamellate*		+	

Arthropoda	Malacostraca	Decapoda	Penaeidae	*Metapenaeopsis*	*novaeguineae*	+	+	+
Arthropoda	Malacostraca	Decapoda	Penaeidae	*Metapenaeopsis*	*cf. novaeguineae*	+		
Arthropoda	Malacostraca	Decapoda	Penaeidae	*Metapenaeopsis*	*palmensis*		+	
Arthropoda	Malacostraca	Decapoda	Penaeidae	*Metapenaeopsis*	sp.			+
Arthropoda	Malacostraca	Decapoda	Penaeidae	*Metapenaeopsis*	sp. 1	+		
Arthropoda	Malacostraca	Decapoda	Penaeidae	*Metapenaeopsis*	*wellsi*	+		+
Arthropoda	Malacostraca	Decapoda	Penaeidae	*Metapenaeus*	*endeavouri*	+		+
Arthropoda	Malacostraca	Decapoda	Penaeidae	*Metapenaeus*	*ensis*	+		
Arthropoda	Malacostraca	Decapoda	Penaeidae	*Penaeus*	*semisulcatus*			+
Arthropoda	Malacostraca	Decapoda	Penaeidae	*Trachypenaeus*	*anchoralis*	+	+	+
Arthropoda	Malacostraca	Decapoda	Penaeidae	*Trachypenaeus*	sp.	+		
Arthropoda	Malacostraca	Decapoda	Penaeidae	*Trachysalambria*	*curvirostris*	+		
Arthropoda	Malacostraca	Decapoda	Pilumnidae			+	+	
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Actumnus*	*setifer*	+	+	+
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Actumnus*	sp. 1	+		+
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Actumnus*	sp. 2		+	
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Actumnus*	sp. 3		+	
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Bathypilumnus*	*pugilator*	+	+	+
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Ceratocarcinus*	*longimanus*	+	+	+
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Ceratoplax*	sp. 1	+	+	
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*cf. Ceratoplax*	sp.	+		+
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Cryptolutea*	*cf. arafurensis*	+	+	+
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Cryptolutea*	sp.			+
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Glabropilumnus*	*seminudus*	+	+	
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Glabropilumnus*	sp. 1	+		
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Lophopilumnus*	*globosus*		+	
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*cf. Parapilumnus*	sp.		+	
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Pilumnus*	*bleekeri*			+

Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Pilumnus*	*pulcher*			+
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Pilumnus*	*semilanatus*	+	+	+
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Pilumnus*	*spinicarpus*	+		
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Pilumnus*	*cf. spinicarpus*	+	+	+
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Pilumnus*	sp. 1	+	+	+
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Pilumnus*	cf. sp. 2	+	+	
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Pilumnus*	sp. 3	+	+	+
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Pilumnus*	*terraereginae*			+
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*cf. Typhlocarcinops*	sp.	+	+	
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Vellumnus*	*labyrinthicus*	+	+	+
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*cf. Viaderiana*	sp.	+		
Arthropoda	Malacostraca	Decapoda	Pilumnidae	*Zehntneriana*	sp.	+		
Arthropoda	Malacostraca	Decapoda	Porcellanidae				+	+
Arthropoda	Malacostraca	Decapoda	Porcellanidae	*Aliaporcellana*	*suluensis*	+		
Arthropoda	Malacostraca	Decapoda	Porcellanidae	*Aliaporcellana*	*telestophila*	+	+	
Arthropoda	Malacostraca	Decapoda	Porcellanidae	*Capilliporcellana*	sp. 1		+	
Arthropoda	Malacostraca	Decapoda	Porcellanidae	*Enosteoides*	sp. 1	+		
Arthropoda	Malacostraca	Decapoda	Porcellanidae	*Lissoporcellana*	*nitida*	+		
Arthropoda	Malacostraca	Decapoda	Porcellanidae	*Lissoporcellana*	*quadrilobata*	+		
Arthropoda	Malacostraca	Decapoda	Porcellanidae	*Pachycheles*	*sculptus*	+	+	+
Arthropoda	Malacostraca	Decapoda	Porcellanidae	*Pachycheles*	*cf. sculptus*	+		
Arthropoda	Malacostraca	Decapoda	Porcellanidae	*Petrolisthes*	*militaris*	+	+	+
Arthropoda	Malacostraca	Decapoda	Porcellanidae	*Pisidia*	*dispar*	+		
Arthropoda	Malacostraca	Decapoda	Porcellanidae	*Pisidia*	*serratifrons*	+		
Arthropoda	Malacostraca	Decapoda	Porcellanidae	*Pisidia*	sp. 1	+		
Arthropoda	Malacostraca	Decapoda	Porcellanidae	*Pisidia*	sp. 2	+		
Arthropoda	Malacostraca	Decapoda	Porcellanidae	*Polyonyx*	*obesulus*	+	+	
Arthropoda	Malacostraca	Decapoda	Porcellanidae	*Polyonyx*	*similis*	+		

Arthropoda	Malacostraca	Decapoda	Porcellanidae	*Polyonyx*		sp. 1		+	
Arthropoda	Malacostraca	Decapoda	Porcellanidae	*Raphidopus*		*ciliatus*	+		
Arthropoda	Malacostraca	Decapoda	Portunidae	*Charybdis*	*Charybdis*	*helleri*	+	+	+
Arthropoda	Malacostraca	Decapoda	Portunidae	*Charybdis*	*Charybdis*	*jaubertensis*	+	+	
Arthropoda	Malacostraca	Decapoda	Portunidae	*Charybdis*	*Charybdis*	*yaldwyni*		+	+
Arthropoda	Malacostraca	Decapoda	Portunidae	*Charybdis*	*Goniohellenus*	*truncate*		+	
Arthropoda	Malacostraca	Decapoda	Portunidae	*Lupocycloporus*		*gracilimanus*		+	+
Arthropoda	Malacostraca	Decapoda	Portunidae	*Lupocycloporus*		*wilsoni*	+	+	+
Arthropoda	Malacostraca	Decapoda	Portunidae	*Lupocyclus*		*inaequalis*		+	+
Arthropoda	Malacostraca	Decapoda	Portunidae	*Portunus*	*Xiphonectes*	*gracillimus*	+		
Arthropoda	Malacostraca	Decapoda	Portunidae	*Portunus*	*Xiphonectes*	*hastatoides*	+	+	+
Arthropoda	Malacostraca	Decapoda	Portunidae	*Portunus*	*Xiphonectes*	*pulchricristatus*		+	
Arthropoda	Malacostraca	Decapoda	Portunidae	*Portunus*		sp.	+		
Arthropoda	Malacostraca	Decapoda	Portunidae	*Thalamita*		*admete*		+	
Arthropoda	Malacostraca	Decapoda	Portunidae	*Thalamita*		*annulipes*			+
Arthropoda	Malacostraca	Decapoda	Portunidae	*Thalamita*		*danae*		+	
Arthropoda	Malacostraca	Decapoda	Portunidae	*Thalamita*		*intermedia*	+	+	+
Arthropoda	Malacostraca	Decapoda	Portunidae	*Thalamita*		*sexlobata*		+	+
Arthropoda	Malacostraca	Decapoda	Scyllaridae	*Biarctus*		*sordidus*	+	+	+
Arthropoda	Malacostraca	Decapoda	Scyllaridae	*Thenus*		*parindicus*		+	
Arthropoda	Malacostraca	Decapoda	Stenopodidae	*Odontozona*		sp. 1		+	
Arthropoda	Malacostraca	Decapoda	Thoridae	*Eualus*		sp.			+
Arthropoda	Malacostraca	Decapoda	Thoridae	*Eualus*		sp. 1	+		
Arthropoda	Malacostraca	Decapoda	Upogebiidae	*Gebiacantha*		*acustispina*	+	+	
Arthropoda	Malacostraca	Decapoda	Upogebiidae	*Upogebia*		*darwinii*	+	+	+
Arthropoda	Malacostraca	Decapoda	Xanthidae				+		
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Actaea*		*hystrix*	+	+	+
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Actaea*		*jacquelinae*	+		

Arthropoda	Malacostraca	Decapoda	Xanthidae	*Actaea*	*polyacantha*			+
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Actaea*	*pura*			+
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Actaea*	*savignii*		+	
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Actaeodes*	*hirsutissimus*	+		
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Actaeodes*	*mutatus*	+	+	+
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Atergatis*	*floridus*			+
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Atergatopsis*	*tweediei*		+	
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Epiactaea*	*margaritifera*			+
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Epiactaea*	*nodulosa*	+		
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Etisus*	*australis*			+
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Euxanthus*	*exsculptus*			+
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Gaillardiellus*	*rueppelli*	+	+	+
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Hypocolpus*	*abbotti*		+	+
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Hypocolpus*	*maculatus*	+		
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Liomera*	*edwarsi*		+	
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Liomera*	*margaritata*		+	
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Lophozozymus*	*pictor*		+	+
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Medaeops*	*neglectus*		+	
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Neoliomera*	sp.	+		
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Paretisus*	*globulus*		+	+
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Pilodius*	sp.			+
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Serenius*	sp.		+	
Arthropoda	Malacostraca	Decapoda	Xanthidae	*Trichia*	*dromiaeformis*	+		
Arthropoda	Malacostraca	Decapoda	Xenophtalmidae	*Xenophthalmus*	*pinnotheroides*	+		
Arthropoda	Malacostraca	Isopoda	Aegidae	*Rocinela*	sp. 1		+	
Arthropoda	Malacostraca	Isopoda	Cirolanidae	*Aatolana*	*schioedtei*		+	
Arthropoda	Malacostraca	Isopoda	Cirolanidae	*Cirolana*	sp. 1			+
Arthropoda	Malacostraca	Isopoda	Cirolanidae	*Cirolana*	sp. 2		+	

Arthropoda	Malacostraca	Isopoda	Cirolanidae	*Cirolana*	sp. 3	+		
Arthropoda	Malacostraca	Isopoda	Cirolanidae	*Natatolana*	sp.1		+	
Arthropoda	Malacostraca	Isopoda	Corallanidae	*Corallana*	sp. 1	+	+	
Arthropoda	Malacostraca	Isopoda	Sphaeromatidae	*Agostodina*	*munta*	+		
Arthropoda	Malacostraca	Isopoda	Sphaeromatidae	*Cilicaea*	*calcarifera*	+		
Arthropoda	Malacostraca	Isopoda	Sphaeromatidae	*Cilicaea*	sp.	+		+
Arthropoda	Malacostraca	Isopoda	Sphaeromatidae	*Cilicaea*	sp. 1	+		
Arthropoda	Malacostraca	Isopoda	Sphaeromatidae	*Cilicaea*	sp. 2	+		+
Arthropoda	Malacostraca	Isopoda	Sphaeromatidae	*Cilicaea*	sp. 3	+		+
Arthropoda	Malacostraca	Isopoda	Sphaeromatidae	*Cilicaeopsis*	sp. 1	+		
Arthropoda	Malacostraca	Stomatopoda	Eurysquillidae	*Manningia*	*raymondi*			+
Arthropoda	Malacostraca	Stomatopoda	Eurysquillidae	*Manningia*	sp. 1	+		
Arthropoda	Malacostraca	Stomatopoda	Gonodactylidae	*Gonodactylaceus*	*graphurus*	+	+	+
Arthropoda	Malacostraca	Stomatopoda	Gonodactylidae	*Gonodactylus*	*chiragra*		+	+
Arthropoda	Malacostraca	Stomatopoda	Gonodactylidae	*Gonodactylus*	*smithii*			+
Arthropoda	Malacostraca	Stomatopoda	Protosquillidae	*Haptosquilla*	*corrugata*			+
Arthropoda	Malacostraca	Stomatopoda	Squillidae	*Anchisquilla*	*chani*	+		
Arthropoda	Malacostraca	Stomatopoda	Squillidae	*Clorida*	*obtusa*	+		
Arthropoda	Malacostraca	Stomatopoda	Squillidae	*Oratosquillina*	sp.			
Arthropoda	Malacostraca	Stomatopoda	Squillidae	*Oratosquillina*	*stephensoni*	+		+
Arthropoda	Malacostraca	Tanaidacea	Tanaididae					+
Arthropoda	Pycnogonida	Pantopoda	Pycnogonidae			+		+
Bryozoa						+	+	+
Chordata	Actinopterygii							+
Chordata	Actinopterygii	Anguilliformes	Muraenidae				+	
Chordata	Actinopterygii	Anguilliformes	Batrachoididae	*Batrachomoeus*	*trispinosus*		+	
Chordata	Actinopterygii	Lophiiformes	Antennariidae					+
Chordata	Actinopterygii	Lophiiformes	Antennariidae	*Antennarius*	sp.			+

Chordata	Actinopterygii	Lophiiformes	Antennariidae	*Antennatus*	*nummifer*			+
Chordata	Actinopterygii	Lophiiformes	Antennariidae	*Tathicarpus*	*butleri*			+
Chordata	Actinopterygii	Ophidiiformes	Bythitidae				+	
Chordata	Actinopterygii	Perciformes	Apogonidae				+	
Chordata	Actinopterygii	Perciformes	Apogonidae	*Apogon*	*truncatus*	+		
Chordata	Actinopterygii	Perciformes	Apogonidae	*Apogonichthyoides*	*brevicaudatus*		+	+
Chordata	Actinopterygii	Perciformes	Apogonidae	*Jaydia*	*melanopus*	+	+	+
Chordata	Actinopterygii	Perciformes	Apogonidae	*Jaydia*	sp.		+	
Chordata	Actinopterygii	Perciformes	Apogonidae	*Ostorhinchus*	*cavitensis*		+	+
Chordata	Actinopterygii	Perciformes	Apogonidae	*Ostorhinchus*	*fasciatus*	+	+	+
Chordata	Actinopterygii	Perciformes	Apogonidae	*Ostorhinchus*	*melanopus*			+
Chordata	Actinopterygii	Perciformes	Apogonidae	*Ozichthys*	*albimaculosus*	+		+
Chordata	Actinopterygii	Perciformes	Apogonidae	*Pristiapogon*	*fraenatus*		+	
Chordata	Actinopterygii	Perciformes	Apogonidae	*Siphamia*	*cf. roseigaster*			+
Chordata	Actinopterygii	Perciformes	Apogonidae	*Siphamia*	sp.		+	
Chordata	Actinopterygii	Perciformes	Blenniidae	*Blenniella*	*periophthalmus*		+	
Chordata	Actinopterygii	Perciformes	Blenniidae	*Ecsenius*	*yaeyamaensis*			+
Chordata	Actinopterygii	Perciformes	Carangidae	*Chelmon*	*muelleri*	+		+
Chordata	Actinopterygii	Perciformes	Centrogenyidae	*Centrogenys*	*vaigiensis*	+		+
Chordata	Actinopterygii	Perciformes	Chaetodontidae	*Coradion*	*chrysozonus*			+
Chordata	Actinopterygii	Perciformes	Gobiidae			+	+	+
Chordata	Actinopterygii	Perciformes	Gobiidae	*Bathygobius*	*laddi*			+
Chordata	Actinopterygii	Perciformes	Gobiidae	*Priolepis*	sp.		+	
Chordata	Actinopterygii	Perciformes	Gobiidae	*Oxyurichthys*	sp.	+		
Chordata	Actinopterygii	Perciformes	Gobiidae	*Valenciennea*	sp.	+		
Chordata	Actinopterygii	Perciformes	Gobiidae	*Vanderhostia*	sp.		+	
Chordata	Actinopterygii	Perciformes	Labridae	*Choerodon*	*monostigma*	+		
Chordata	Actinopterygii	Perciformes	Leiognathidae	*Leiognathus*	sp.	+		

Chordata	Actinopterygii	Perciformes	Leiognathidae	*Nuchequula*	*blochii*			+
Chordata	Actinopterygii	Perciformes	Mullidae	*Upeneus*	*sulphureus*	+		
Chordata	Actinopterygii	Perciformes	Nemipteridae	*Nemipterus*	sp.	+		
Chordata	Actinopterygii	Perciformes	Opistognathidae				+	
Chordata	Actinopterygii	Perciformes	Pomacentridae	*Pomacentrus*	*nigromanus*			+
Chordata	Actinopterygii	Perciformes	Pseudochromidae	*Assiculus*	*punctatus*			+
Chordata	Actinopterygii	Perciformes	Pseudochromidae	*Congrogadus*	*spinifer*		+	+
Chordata	Actinopterygii	Perciformes	Pseudochromidae	*Pseudochromis*	sp.	+		
Chordata	Actinopterygii	Perciformes	Sciaenidae	*Johnius*	*borneensis*			+
Chordata	Actinopterygii	Perciformes	Sciaenidae	*Johnius*	sp.			+
Chordata	Actinopterygii	Perciformes	Serranidae	*Cephalopholis*	*boenak*		+	
Chordata	Actinopterygii	Perciformes	Serranidae	*Cephalopholis*	sp.		+	
Chordata	Actinopterygii	Perciformes	Serranidae	*Epinephelus*	*bleekeri*	+		
Chordata	Actinopterygii	Perciformes	Serranidae	*Epinephelus*	*malabaricus*	+		+
Chordata	Actinopterygii	Perciformes	Terapontidae	*Terapon*	*theraps*	+		
Chordata	Actinopterygii	Pleuronectiformes	Bothidae	*Arnoglossus*	*polyspilus*		+	
Chordata	Actinopterygii	Pleuronectiformes	Bothidae	*Arnoglossus*	*tenuis*	+		
Chordata	Actinopterygii	Pleuronectiformes	Bothidae	*Asterorhombus*	*intermedius*		+	
Chordata	Actinopterygii	Pleuronectiformes	Bothidae	*Engyprosopon*	*grandisquama*	+		
Chordata	Actinopterygii	Pleuronectiformes	Cynoglossidae	*Cynoglossus*	*kopsii*	+		
Chordata	Actinopterygii	Pleuronectiformes	Cynoglossidae	*Cynoglossus*	sp.			+
Chordata	Actinopterygii	Pleuronectiformes	Paralichthyidae	*Pseudorhombus*	*argus*			+
Chordata	Actinopterygii	Scorpaeniformes	Platycephalidae	*Cociella*	*hutchinsi*			+
Chordata	Actinopterygii	Scorpaeniformes	Platycephalidae	*Sunagocia*	*arenicola*			+
Chordata	Actinopterygii	Scorpaeniformes	Platycephalidae	*Thysanophrys*	sp.	+		
Chordata	Actinopterygii	Scorpaeniformes	Tetrarogidae	*Cottapistus*	*cottoides*			+
Chordata	Actinopterygii	Scorpaeniformes	Tetrarogidae	*Cottapistus*	sp.			+
Chordata	Actinopterygii	Scorpaeniformes	Tetrarogidae	*Liocranium*	*pleurostigma*	+	+	+

Chordata	Actinopterygii	Scorpaeniformes	Scorpaenidae	*Scorpaena*	sp.	+	+	
Chordata	Actinopterygii	Synbranchiformes	Synbranchidae	*Ophisternon*	sp.			+
Chordata	Actinopterygii	Syngnathiformes	Centriscidae	*Centriscus*	*scutatus*	+		
Chordata	Actinopterygii	Syngnathiformes	Syngnathidae	*Haliichthys*	*taeniophorus*	+	+	
Chordata	Actinopterygii	Syngnathiformes	Syngnathidae	*Hippocampus*	*multispinus*			+
Chordata	Actinopterygii	Syngnathiformes	Syngnathidae	*Hippocampus*	sp.		+	
Chordata	Actinopterygii	Syngnathiformes	Syngnathidae	*Hippocampus*	*trimaculatus*	+		
Chordata	Actinopterygii	Syngnathiformes	Syngnathidae	*Trachyrhamphus*	*longirostris*		+	
Chordata	Actinopterygii	Tetraodontiformes	Diodontidae	*Cyclichthys*	*orbicularis*	+		
Chordata	Actinopterygii	Tetraodontiformes	Diodontidae	*Tragulichthys*	*jaculiferus*	+	+	+
Chordata	Actinopterygii	Tetraodontiformes	Monacanthidae	*Aluterus*	*monoceros*			+
Chordata	Actinopterygii	Tetraodontiformes	Monacanthidae	*Paramonacanthus*	*choirocephalus*	+		
Chordata	Actinopterygii	Tetraodontiformes	Monacanthidae	*Paramonacanthus*	*filicauda*	+		
Chordata	Actinopterygii	Tetraodontiformes	Monacanthidae	*Pseudomonacanthus*	*peroni*		+	+
Chordata	Actinopterygii	Tetraodontiformes	Ostraciidae	*Lactoria*	sp.	+		
Chordata	Actinopterygii	Tetraodontiformes	Triacanthidae	*Tripodichthys*	*blochii*	+		
Chordata	Ascidiacea					+	+	+
Cnidaria								+
Cnidaria	Anthozoa					+		+
Cnidaria	Anthozoa	Actiniaria				+		+
Cnidaria	Anthozoa	Alcyonacea				+		
Cnidaria	Anthozoa	Alcyonacea	Acanthogorgiidae	*Acanthogorgia*	sp. 1	+		
Cnidaria	Anthozoa	Alcyonacea	Acanthogorgiidae	*Anthogorgia*	sp. 2	+		
Cnidaria	Anthozoa	Alcyonacea	Alcyoniidae	*Cladiella*	sp.		+	
Cnidaria	Anthozoa	Alcyonacea	Alcyoniidae	*Lobophytum*	*cf. crassum*	+		
Cnidaria	Anthozoa	Alcyonacea	Alcyoniidae	*Sarcophyton*	sp. 2		+	
Cnidaria	Anthozoa	Alcyonacea	Alcyoniidae	*Sarcophyton*	sp. 3		+	
Cnidaria	Anthozoa	Alcyonacea	Alcyoniidae	*Sarcophyton*	*cf. trocheliophorum*		+	

Cnidaria	Anthozoa	Alcyonacea	Alcyoniidae	*Sinularia*	sp. 1		+	
Cnidaria	Anthozoa	Alcyonacea	Anthothelidae	*Alertigorgia*	*orientalis*	+	+	
Cnidaria	Anthozoa	Alcyonacea	Anthothelidae	*Alertigorgia*	sp. 1		+	
Cnidaria	Anthozoa	Alcyonacea	Anthothelidae	*Iciligorgia*	*brunnea*	+		
Cnidaria	Anthozoa	Alcyonacea	Anthothelidae	*Iciligorgia*	sp.		+	+
Cnidaria	Anthozoa	Alcyonacea	Anthothelidae	*Solenocaulon*	*grayi*	+		
Cnidaria	Anthozoa	Alcyonacea	Anthothelidae	*Solenocaulon*	sp.	+	+	+
Cnidaria	Anthozoa	Alcyonacea	Anthothelidae	*Solenocaulon*	*tortuosum*	+		
Cnidaria	Anthozoa	Alcyonacea	Clavulariidae	*Carijoa*	sp.	+	+	+
Cnidaria	Anthozoa	Alcyonacea	Ellisellidae			+		
Cnidaria	Anthozoa	Alcyonacea	Ellisellidae	*Ctenocella*	*pectinata*	+		+
Cnidaria	Anthozoa	Alcyonacea	Ellisellidae	*Ctenocella*	sp.	+	+	
Cnidaria	Anthozoa	Alcyonacea	Ellisellidae	*Dichotella*	*gemmacea*	+	+	+
Cnidaria	Anthozoa	Alcyonacea	Ellisellidae	*Dichotella*	sp.	+		
Cnidaria	Anthozoa	Alcyonacea	Ellisellidae	*Junceella*	*fragilis*	+	+	+
Cnidaria	Anthozoa	Alcyonacea	Ellisellidae	*Junceella*	*juncea*	+		
Cnidaria	Anthozoa	Alcyonacea	Ellisellidae	*Viminella*	sp.		+	
Cnidaria	Anthozoa	Alcyonacea	Gorgoniidae	*Hicksonella*	*princeps*	+		
Cnidaria	Anthozoa	Alcyonacea	Gorgoniidae	*Rumphella*	*aggregata*			+
Cnidaria	Anthozoa	Alcyonacea	Gorgoniidae	*Rumphella*	sp.		+	
Cnidaria	Anthozoa	Alcyonacea	Isididae	*Jasminisis*	*cavatica*			+
Cnidaria	Anthozoa	Alcyonacea	Melithaeidae					+
Cnidaria	Anthozoa	Alcyonacea	Melithaeidae	*Melithaea*	sp.	+	+	+
Cnidaria	Anthozoa	Alcyonacea	Melithaeidae	*Melithaea*	sp. (white & pink)			+
Cnidaria	Anthozoa	Alcyonacea	Melithaeidae	*Melithaea*	sp. (yellow & red)			+
Cnidaria	Anthozoa	Alcyonacea	Melithaeidae	*Melithaea*	sp. A			+
Cnidaria	Anthozoa	Alcyonacea	Melithaeidae	*Melithaea*	sp. B			+
Cnidaria	Anthozoa	Alcyonacea	Melithaeidae	*Melithaea*	sp. C			+

Cnidaria	Anthozoa	Alcyonacea	Melithaeidae	*Melithaea*	sp. D		+	+
Cnidaria	Anthozoa	Alcyonacea	Melithaeidae	*Melithaea*	sp. E		+	+
Cnidaria	Anthozoa	Alcyonacea	Melithaeidae	*Melithaea*	sp. F		+	
Cnidaria	Anthozoa	Alcyonacea	Melithaeidae	*Melithaea*	sp. G		+	
Cnidaria	Anthozoa	Alcyonacea	Melithaeidae	*Melithaea*	sp. H		+	
Cnidaria	Anthozoa	Alcyonacea	Melithaeidae	*Melithaea*	sp. I		+	
Cnidaria	Anthozoa	Alcyonacea	Melithaeidae	*Melithaea*	sp. J			+
Cnidaria	Anthozoa	Alcyonacea	Melithaeidae	*Melithaea*	sp. K		+	
Cnidaria	Anthozoa	Alcyonacea	Melithaeidae	*Melithaea*	sp. L		+	+
Cnidaria	Anthozoa	Alcyonacea	Nephtheidae	*Capnella*	sp.			+
Cnidaria	Anthozoa	Alcyonacea	Nephtheidae	*Chironephthya*	sp. 1		+	
Cnidaria	Anthozoa	Alcyonacea	Nephtheidae	*Chromonephthea*	sp.	+	+	+
Cnidaria	Anthozoa	Alcyonacea	Nephtheidae	*Dendronephthya*	sp.	+	+	+
Cnidaria	Anthozoa	Alcyonacea	Nephtheidae	*Umbellulifera*	sp.	+	+	+
Cnidaria	Anthozoa	Alcyonacea	Nidaliidae	*Nephthyigorgia*	*kükenthali*	+		+
Cnidaria	Anthozoa	Alcyonacea	Nidaliidae	*Nephthyigorgia*	sp.	+		
Cnidaria	Anthozoa	Alcyonacea	Nidaliidae	*Nephthyigorgia*	*sp. nov.*	+	+	
Cnidaria	Anthozoa	Alcyonacea	Parisididae	*Parisis*	*cf. fruticosa*			+
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Astrogorgia*	sp. 1	+		+
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Astrogorgia*	sp. 2	+		+
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Echinogorgia*	sp. 1	+		
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Echinogorgia*	sp. 2	+	+	+
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Echinogorgia*	sp. 3	+		
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Echinogorgia*	sp. 4	+	+	+
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Echinogorgia*	sp. 5			+
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Echinogorgia*	sp. 6			+
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Echinogorgia*	sp. 7		+	
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Echinogorgia*	sp. 8		+	

Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Echinogorgia*	sp. 9			+
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Echinogorgia*	sp. 10		+	
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Echinogorgia*	sp. 11			+
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Echinogorgia*	sp. 12		+	
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Echinogorgia*	sp. 13		+	+
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Echinomuricea*	*indomalaccensis*	+		
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Echinomuricea*	*cf. pulchra*		+	
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Euplexaura*	*erecta*	+	+	+
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Menella*	sp. 1	+		
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Menella*	sp. 2	+		+
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Menella*	sp. 3	+	+	+
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Menella*	sp. 4	+		
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Menella*	sp. 5		+	
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Menella*	sp. 6		+	
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Menella*	sp. 7			+
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Menella*	sp. 8		+	
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Menella*	sp. 9			+
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Menella*	sp. 10			+
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*not specified*	sp. 1			+
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*not specified*	sp. 2			+
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Paraplexaura*	sp.	+		
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Paraplexaura*	sp. 1	+		
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Paraplexaura*	sp. 2	+	+	
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Paraplexaura*	sp. 3	+		
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Paraplexaura*	sp. 4		+	+
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Paraplexaura*	sp. 5		+	+
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Paraplexaura*	sp. 6			+
Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Paraplexaura*	sp. 7		+	

Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Plumarella*		*penna*	+	+	+
Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Plumarella*		sp.	+		
Cnidaria	Anthozoa	Alcyonacea	Subergorgiidae	*Subergorgia*		*suberosa*	+		+
Cnidaria	Anthozoa	Alcyonacea	Subergorgiidae	*Subergorgia*		*cf. suberosa*		+	+
Cnidaria	Anthozoa	Alcyonacea	Viguieriotidae	*Studeriotes*		*crassa*	+	+	+
Cnidaria	Anthozoa	Alcyonacea	Viguieriotidae	*Studeriotes*		sp.	+		
Cnidaria	Anthozoa	Antipatharia							+
Cnidaria	Anthozoa	Pennatulacea					+		+
Cnidaria	Anthozoa	Scleractinia					+	+	+
Cnidaria	Anthozoa	Scleractinia	Acroporidae	*Montipora*		*monasteriata*			+
Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Caryophyllia*	*Caryophyllia*	*cf. quadragenaria*	+	+	+
Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Caryophyllia*	*Caryophyllia*	sp. 1			+
Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Caryophyllia*		*cf. quadragenaria*			+
Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Caryophyllia*		sp. 1			+
Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Caryophyllia*		sp. 2	+		+
Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Caryophyllia*		sp. 3			+
Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Heterocyathus*		*sulcatus*	+		
Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Balanophyllia*		sp.	+		
Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Balanophyllia*		sp. 1	+	+	+
Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Tubastraea*		*coccinea*	+	+	+
Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Turbinaria*		*peltata*		+	
Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Turbinaria*		*reniformis*		+	
Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Truncatoflabellum*		*angiostomum*	+	+	+
Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Truncatoflabellum*		*macroeschara*	+	+	+
Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Truncatoflabellum*		sp. 2	+		
Cnidaria	Anthozoa	Scleractinia	Fungiidae	*Danafungia*		*scruposa*			+
Cnidaria	Anthozoa	Scleractinia	Lobophylliidae	*Moseleya*		*latistellata*			+
Cnidaria	Anthozoa	Scleractinia	Merulinidae	*Coelastrea*		*aspera*			+

Cnidaria	Anthozoa	Scleractinia	Merulinidae	*Cyphastrea*	*chalcidicum*		+	
Cnidaria	Anthozoa	Scleractinia	Merulinidae	*Favites*	*valenciennesi*			+
Cnidaria	Anthozoa	Scleractinia	Pocilloporidae	*Pocillopora*	*damicornis*			+
Cnidaria	Anthozoa	Scleractinia	Poritidae	*Goniopora*	*tenuidens*	+	+	
Cnidaria	Anthozoa	Scleractinia	Poritidae	*Porites*	*lobate*		+	
Cnidaria	Anthozoa	Scleractinia	Rhizangiidae	*Culicia*	*australiensis*	+		+
Cnidaria	Anthozoa	Zoantharia				+	+	+
Cnidaria	Cubozoa							+
Cnidaria	Cubozoa	Chirodropida	Chirodropidae	*Chironex*	*sp. nov.*	+		
Cnidaria	Hydrozoa					+	+	+
Cnidaria	Scyphozoa							+
Echinodermata	Asteroidea					+	+	+
Echinodermata	Asteroidea				sp. D			+
Echinodermata	Asteroidea	Paxillosida	Astropectinidae	*Astropecten*	*pulcherrimus*	+	+	
Echinodermata	Asteroidea	Paxillosida	Luidiidae	*Luidia*	*hardwicki*		+	
Echinodermata	Asteroidea	Paxillosida	Luidiidae	*Luidia*	*maculata*		+	+
Echinodermata	Asteroidea	Spinulosida	Echinasteridae	*Metrodira*	*sp. nov.*	+	+	+
Echinodermata	Asteroidea	Valvatida	Asterinidae	*Anseropoda*	*roseacea*	+		
Echinodermata	Asteroidea	Valvatida	Asterinidae	*Anthenea*	*australiae*	+		
Echinodermata	Asteroidea	Valvatida	Asterinidae	*Anthenea*	*elegans*	+		
Echinodermata	Asteroidea	Valvatida	Asterinidae	*Asterina*	sp.	+		
Echinodermata	Asteroidea	Valvatida	Asterinidae	*Nepanthia*	*belcheri*	+	+	+
Echinodermata	Asteroidea	Valvatida	Asterinidae	*Nepanthia*	*maculata*			+
Echinodermata	Asteroidea	Valvatida	Goniasteridae	*Iconaster*	*longimanus*		+	+
Echinodermata	Asteroidea	Valvatida	Goniasteridae	*Stellaster*	*childreni*	+	+	
Echinodermata	Asteroidea	Valvatida	Ophidiasteridae	*Hacelia*	*heliosticha*	+	+	
Echinodermata	Asteroidea	Valvatida	Ophidiasteridae	*Ophidiaster*	sp.		+	
Echinodermata	Asteroidea	Valvatida	Oreasteridae	*Anthenea*	*conjungens*			+

Echinodermata	Asteroidea	Valvatida	Oreasteridae	*Culcita*	*novaeguineae*	+		
Echinodermata	Asteroidea	Valvatida	Oreasteridae	*Goniodiscaster*	*acanthodes*			+
Echinodermata	Asteroidea	Valvatida	Oreasteridae	*Goniodiscaster*	*rugosus*	+	+	+
Echinodermata	Asteroidea	Valvatida	Oreasteridae	*Goniodiscaster*	sp. A	+	+	+
Echinodermata	Asteroidea	Valvatida	Oreasteridae	*Goniodiscaster*	sp. B		+	+
Echinodermata	Asteroidea	Valvatida	Oreasteridae	*Goniodiscaster*	sp. C	+		+
Echinodermata	Asteroidea	Valvatida	Oreasteridae	*Goniodiscaster*	sp. D			+
Echinodermata	Asteroidea	Valvatida	Oreasteridae	*Tamaria*	sp.		+	+
Echinodermata	Asteroidea	Velatida	Pterasteridae	*Euretaster*	*insignis*	+	+	+
Echinodermata	Crinoidea					+		+
Echinodermata	Crinoidea	Comatulida	Antedonidae	*Dorometra*	*nana*	+	+	
Echinodermata	Crinoidea	Comatulida	Antedonidae	*Dorometra*	*parvicirra*		+	
Echinodermata	Crinoidea	Comatulida	Colobometridae			+		
Echinodermata	Crinoidea	Comatulida	Colobometridae	*Oligometra*	*carpenteri*	+	+	+
Echinodermata	Crinoidea	Comatulida	Colobometridae	*Oligometra*	*serripinna*			+
Echinodermata	Crinoidea	Comatulida	Colobometridae	*Oligometrides*	*adeonae*	+	+	+
Echinodermata	Crinoidea	Comatulida	Comatulidae			+	+	
Echinodermata	Crinoidea	Comatulida	Comatulidae	*Amphimetra*	*tessellata*	+		
Echinodermata	Crinoidea	Comatulida	Comatulidae	*Capillaster*	*mariae*	+		+
Echinodermata	Crinoidea	Comatulida	Comatulidae	*Capillaster*	*cf. mariae*		+	
Echinodermata	Crinoidea	Comatulida	Comatulidae	*Capillaster*	*multiradiata*	+	+	+
Echinodermata	Crinoidea	Comatulida	Comatulidae	*Clarkcomanthus*	*albinotus*			+
Echinodermata	Crinoidea	Comatulida	Comatulidae	*Clarkcomanthus*	*alternans*		+	+
Echinodermata	Crinoidea	Comatulida	Comatulidae	*Clarkcomanthus*	*littoralis*		+	+
Echinodermata	Crinoidea	Comatulida	Comatulidae	*Clarkcomanthus*	*cf. littoralis*	+		
Echinodermata	Crinoidea	Comatulida	Comatulidae	*cf. Clarkcomanthus*	sp.			+
Echinodermata	Crinoidea	Comatulida	Comatulidae	*Comanthus*	*briareus*		+	+
Echinodermata	Crinoidea	Comatulida	Comatulidae	*Comanthus*	*gisleni*		+	+

Echinodermata	Crinoidea	Comatulida	Comatulidae	*Comanthus*		*parvicirrus*	+	+	+
Echinodermata	Crinoidea	Comatulida	Comatulidae	*Comanthus*		sp.			+
Echinodermata	Crinoidea	Comatulida	Comatulidae	*Comanthus*		*suavia*			+
Echinodermata	Crinoidea	Comatulida	Comatulidae	*Comanthus*		*wahlbergii*	+	+	+
Echinodermata	Crinoidea	Comatulida	Comatulidae	*Comaster*		*multifidus*	+	+	+
Echinodermata	Crinoidea	Comatulida	Comatulidae	*Comaster*		*cf. multifidus*		+	+
Echinodermata	Crinoidea	Comatulida	Comatulidae	*Comaster*		sp.			+
Echinodermata	Crinoidea	Comatulida	Comatulidae	*Comatella*		*decora*			+
Echinodermata	Crinoidea	Comatulida	Comatulidae	*Comatella*		*maculata*		+	+
Echinodermata	Crinoidea	Comatulida	Comatulidae	*Comatella*		*stelligera*	+	+	
Echinodermata	Crinoidea	Comatulida	Comatulidae	*Comatula*	*Comatula*	*pectinata*	+	+	+
Echinodermata	Crinoidea	Comatulida	Comatulidae	*Comatula*	*Validia*	*rotalaria*	+		
Echinodermata	Crinoidea	Comatulida	Himerometridae	*Amphimetra*		*tessellata*	+	+	+
Echinodermata	Crinoidea	Comatulida	Himerometridae	*Heterometra*		*crenulata*		+	+
Echinodermata	Crinoidea	Comatulida	Himerometridae	*Heterometra*		*cf. crenulata*	+		
Echinodermata	Crinoidea	Comatulida	Himerometridae	*Himerometra*		*robustipinna*	+	+	+
Echinodermata	Crinoidea	Comatulida	Mariametridae	*Lamprometra*		*palmate*	+		+
Echinodermata	Crinoidea	Comatulida	Mariametridae	*Stephanometra*		*indica*			+
Echinodermata	Crinoidea	Comatulida	Zygometridae	*Zygometra*		*andromeda*	+		
Echinodermata	Crinoidea	Comatulida	Zygometridae	*Zygometra*		*comata*	+	+	+
Echinodermata	Crinoidea	Comatulida	Zygometridae	*Zygometra*		*elegans*	+	+	+
Echinodermata	Crinoidea	Comatulida	Zygometridae	*Zygometra*		*microdiscus*	+	+	+
Echinodermata	Crinoidea	Comatulida	Zygometridae	*Zygometra*		*punctata*	+		+
Echinodermata	Crinoidea	Comatulida	Zygometridae	*Zygometra*		*cf. punctata*		+	
Echinodermata	Crinoidea	Himerometridae							+
Echinodermata	Echinoidea						+	+	+
Echinodermata	Echinoidea	Camarodonta	Temnopleuridae	*Salmacis*		*belli*		+	+
Echinodermata	Echinoidea	Camarodonta	Temnopleuridae	*cf. Salmacis*		sp.	+		

Echinodermata	Echinoidea	Camarodonta	Temnopleuridae	*Temnopleurus*		*alexandri*			+
Echinodermata	Echinoidea	Camarodonta	Temnopleuridae	*Temnotrema*		*bothryoides*			+
Echinodermata	Echinoidea	Camarodonta	Temnopleuridea	*Temnotrema*		*bothryoides*			+
Echinodermata	Echinoidea	Camarodonta	Toxopneustidae	*Nudechinus*		sp.			+
Echinodermata	Echinoidea	Camarodonta	Temnopleuridae	*Mespilia*		*globulus*			+
Echinodermata	Echinoidea	Cidaroida	Cidaridae	*Phyllacanthus*		*imperialis*		+	
Echinodermata	Echinoidea	Cidaroida	Cidaridae	*Prionocidaris*		*baculosa*	+	+	+
Echinodermata	Echinoidea	Cidaroida	Cidaridae	*Prionocidaris*		*bispinosa*	+	+	+
Echinodermata	Echinoidea	Clypeasteroida	Laganidae	*Peronella*		*lesueuri*	+	+	
Echinodermata	Echinoidea	Clypeasteroida	Laganidae	*Peronella*		*orbicularis*	+	+	
Echinodermata	Echinoidea	Clypeasteroida	Laganidae	*Peronella*		sp.	+		+
Echinodermata	Echinoidea	Diadematoida	Diadematidae	*Chaetodiadema*		*granulatum*	+	+	
Echinodermata	Echinoidea	Diadematoida	Diadematidae	*Diadema*		*setosum*		+	+
Echinodermata	Echinoidea	Diadematoida	Diadematidae	*Echinotrix*		*calamaris*		+	
Echinodermata	Echinoidea	Echinolampadoida	Echinolampadidae	*Echinolampas*		*ovata*			+
Echinodermata	Echinoidea	Spatangoida	Brissidae	*Brissopsis*		*luzonica*	+	+	+
Echinodermata	Echinoidea	Spatangoida	Brissidae	*Metalia*		*spatagus*			+
Echinodermata	Echinoidea	Spatangoida	Loveniidae	*Breynia*		*desorii*	+	+	+
Echinodermata	Echinoidea	Spatangoida	Schizasteridae	*Hypselaster*		*jukesii*	+		
Echinodermata	Holothuroidea						+	+	+
Echinodermata	Holothuroidea	Apodida	Synaptidae	*Protankyra*		*insolens*	+		
Echinodermata	Holothuroidea	Apodida	Synaptidae	*Protankyra*		*javaensis*		+	
Echinodermata	Holothuroidea	Apodida	Synaptidae	*Protankyra*		*torquea*	+		+
Echinodermata	Holothuroidea	Apodida	Synaptidae	*Protankyra*		*verrilli*	+	+	
Echinodermata	Holothuroidea	Apodida	Synaptidae	*Synaptula*		*lamperti*	+	+	+
Echinodermata	Holothuroidea	Apodida	Synaptidae	*Synaptula*		*recta*	+	+	+
Echinodermata	Holothuroidea	Aspidochirotida	Holothuriidae	*Holothuria*	*Metriatyla*	*keesingi*	+		
Echinodermata	Holothuroidea	Dendrochirotida	Cucumariidae					+	

Echinodermata	Holothuroidea	Dendrochirotida	Cucumariidae	*Actinocucumis*		*longipedes*	+		
Echinodermata	Holothuroidea	Dendrochirotida	Cucumariidae	*Actinocucumis*		*solanderi*	+	+	+
Echinodermata	Holothuroidea	Dendrochirotida	Cucumariidae	*Actinocucumis*		*typica*	+	+	+
Echinodermata	Holothuroidea	Dendrochirotida	Cucumariidae	*Cercodemas*		*anceps*	+	+	+
Echinodermata	Holothuroidea	Dendrochirotida	Cucumariidae	*Cercodemas*		sp.			+
Echinodermata	Holothuroidea	Dendrochirotida	Cucumariidae	*Colochirus*		*crassus*		+	
Echinodermata	Holothuroidea	Dendrochirotida	Cucumariidae	*Colochirus*		*quadrangularis*	+	+	+
Echinodermata	Holothuroidea	Dendrochirotida	Cucumariidae	*Colochirus*		*robustus*		+	
Echinodermata	Holothuroidea	Dendrochirotida	Cucumariidae	*Colochirus or Plesiocolochirus*		sp.			+
Echinodermata	Holothuroidea	Dendrochirotida	Cucumariidae	*Leptopentacta*		*grisea*	+		
Echinodermata	Holothuroidea	Dendrochirotida	Cucumariidae	*Mensamaria*		*intercedens*	+	+	+
Echinodermata	Holothuroidea	Dendrochirotida	Cucumariidae	*Plesiocolochirus*		sp.			+
Echinodermata	Holothuroidea	Dendrochirotida	Cucumariidae	*Plesiocolochirus*		sp. 1		+	+
Echinodermata	Holothuroidea	Dendrochirotida	Cucumariidae	*Plesiocolochirus*		sp. 2			+
Echinodermata	Holothuroidea	Dendrochirotida	Cucumariidae	*Plesiocolochirus*		*quadrangularis*	+		+
Echinodermata	Holothuroidea	Dendrochirotida	Cucumariidae	*Pseudocolochirus*		*australis*	+		+
Echinodermata	Holothuroidea	Dendrochirotida	Cucumariidae	*Pseudocolochirus*		*axiologus*	+	+	
Echinodermata	Holothuroidea	Dendrochirotida	Cucumariidae	*Pseudocolochirus*		*minaeus*	+		
Echinodermata	Holothuroidea	Dendrochirotida	Cucumariidae	*Staurothyone*		*distincta*			+
Echinodermata	Holothuroidea	Dendrochirotida	Dendrochirotida	*Phyrella*		sp.			+
Echinodermata	Holothuroidea	Dendrochirotida	Phyllophoridae	*Hemithyone*		*semperi*	+	+	+
Echinodermata	Holothuroidea	Dendrochirotida	Phyllophoridae	*Massinium*		*bonapartum*	+	+	+
Echinodermata	Holothuroidea	Dendrochirotida	Phyllophoridae	*Neothyonidium*		*insolitum*	+		
Echinodermata	Holothuroidea	Dendrochirotida	Phyllophoridae	*Phyllophorella*	*Phyllophorella*	*spiculata*	+	+	+
Echinodermata	Holothuroidea	Dendrochirotida	Phyllophoridae	*Phyllophorella*	*Phyllothuria*	*cebuensis*		+	
Echinodermata	Holothuroidea	Dendrochirotida	Phyllophoridae	*Phyllophorus*	*Urodemella*	*holothurioides*	+	+	+
Echinodermata	Holothuroidea	Dendrochirotida	Phyllophoridae	*Stolus*		*buccalis*		+	+
Echinodermata	Holothuroidea	Dendrochirotida	Phyllophoridae	*Stolus*		*canescens*	+	+	+

Echinodermata	Holothuroidea	Dendrochirotida	Phyllophoridae	*Stolus*		sp.		+	
Echinodermata	Holothuroidea	Dendrochirotida	Phyllophoridae	*Thyone*		*axiologa*		+	
Echinodermata	Holothuroidea	Dendrochirotida	Phyllophoridae	*Thyone*		*papuensis*	+	+	+
Echinodermata	Holothuroidea	Dendrochirotida	Phyllophoridae	*Thyone*		sp.	+		+
Echinodermata	Holothuroidea	Dendrochirotida	Phyllophoridae	*Thyone*		sp. 1		+	
Echinodermata	Holothuroidea	Dendrochirotida	Phyllophoridae	*Thyone*		sp. 2		+	
Echinodermata	Holothuroidea	Dendrochirotida	Phyllophoridae	*Thyone*		sp. 3		+	
Echinodermata	Holothuroidea	Dendrochirotida	Psolidae	*Psolidium*		sp.			+
Echinodermata	Holothuroidea	Dendrochirotida	Sclerodactylidae	*Cladolabes*		*arafurus*		+	
Echinodermata	Holothuroidea	Dendrochirotida	Sclerodactylidae	*Cladolabes*		*hamatus*		+	+
Echinodermata	Holothuroidea	Dendrochirotida	Sclerodactylidae	*Cladolabes*		*schmeltzii*			+
Echinodermata	Holothuroidea	Dendrochirotida	Sclerodactylidae	*Globosita*		*elnazae*	+	+	+
Echinodermata	Holothuroidea	Dendrochirotida	Sclerodactylidae	*Havelockia*		*versicolor*	+	+	+
Echinodermata	Holothuroidea	Holothuriida	Holothuriidae	*Actinopyga*		*lecanora*			+
Echinodermata	Holothuroidea	Holothuriida	Holothuriidae	*Actinopyga*		*echinites*		+	
Echinodermata	Holothuroidea	Holothuriida	Holothuriidae	*Holothuria*	*Metriatyla*	*keesingi*	+		+
Echinodermata	Holothuroidea	Holothuriida	Holothuriidae	*Holothuria*	*Mertensiothuria*	*hilla*		+	
Echinodermata	Holothuroidea	Holothuriida	Holothuriidae	*Holothuria*	*Mertensiothuria*	*leucospilota*		+	+
Echinodermata	Holothuroidea	Holothuriida	Holothuriidae	*Holothuria*	*Thymiosycia*	*gracilis*			+
Echinodermata	Holothuroidea	Holothuriida	Holothuriidae	*Holothuria*	*Thymiosycia*	*hilla*			+
Echinodermata	Holothuroidea	Holothuriida	Holothuriidae	*Holothuria*	*Thymiosycia*	*impatiens*			+
Echinodermata	Holothuroidea	Molpadida	Molpadiidae	*Molpadia*		*scabra*	+	+	+
Echinodermata	Holothuroidea	Synallactida	Stichopodidae	*Stichopus*		*hermanni*	+		
Echinodermata	Ophiuroidea						+		+
Echinodermata	Ophiuroidea	Euryalida	Euryalidae	*Euryale*		*aspera*		+	+
Echinodermata	Ophiuroidea	Euryalida	Gorgonocephalidae	*Astrochalcis*		*tuberculosus*		+	+
Echinodermata	Ophiuroidea	Euryalida	Gorgonocephalidae	*Astrochalcis*		sp.		+	
Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae				+		

Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	*Amphioplus*	*Amphichilus*	*ochroleuca*	+	+	+
Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	*Amphioplus*	*Lymanella*	*depressus*	+	+	+
Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	*Amphioplus*	*Lymanella*	*laevis*		+	+
Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	*Amphioplus*	*Amphioplus*	*personatus*	+		
Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	*Amphioplus*		sp.	+	+	+
Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	*Amphipholis*		*squamata*		+	
Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	*Amphiura*		*catephes*			+
Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	*Amphiura*		*duncani*	+	+	
Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	*Amphiura*		*maxima*	+	+	+
Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	*Amphiura*		*microsoma*	+		
Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	*Amphiura*		*octacantha*		+	+
Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	*Amphiura*		*septemspinosa*			+
Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	*Amphiura*		sp.	+		
Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	*Dougalo+*		*echinatus*	+	+	+
Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	*Ophiocentrus*		*aspera*	+		+
Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	*Ophiocentrus*		*dilatata*	+		
Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	*Ophiocentrus*		*inaequalis*		+	
Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	*Ophiocentrus*		*sp. nov.*			+
Echinodermata	Ophiuroidea	Ophiurida	Amphiuridae	*Ophiocentrus*		*verticillatus*	+	+	+
Echinodermata	Ophiuroidea	Ophiurida	Euryalidae	*Euryale*		*aspera*	+		
Echinodermata	Ophiuroidea	Ophiurida	Gorgonocephalidae	*Astrochalcis*		*tuberculosus*	+		
Echinodermata	Ophiuroidea	Ophiurida	Hemieuryalidae	*Ophioplocus*		sp.			+
Echinodermata	Ophiuroidea	Ophiurida	Ophiacanthidae	*Ophiacantha*		*dallasii*		+	+
Echinodermata	Ophiuroidea	Ophiurida	Ophiacanthidae	*Ophiacantha*		*indica*	+	+	+
Echinodermata	Ophiuroidea	Ophiurida	Ophiactidae	*Ophiactis*		*brachyura*			+
Echinodermata	Ophiuroidea	Ophiurida	Ophiactidae	*Ophiactis*		*brevis*	+	+	
Echinodermata	Ophiuroidea	Ophiurida	Ophiactidae	*Ophiactis*		*fuscolineata*	+	+	+
Echinodermata	Ophiuroidea	Ophiurida	Ophiactidae	*Ophiactis*		*maculosa*	+	+	+

Echinodermata	Ophiuroidea	Ophiurida	Ophiactidae	*Ophiactis*	*savignyi*	+		+
Echinodermata	Ophiuroidea	Ophiurida	Ophiocomidae	*Ophiarthrum*	*elegans*		+	+
Echinodermata	Ophiuroidea	Ophiurida	Ophiodermatidae	*Ophiarachnella*	*gorgonia*			+
Echinodermata	Ophiuroidea	Ophiurida	Ophiodermatidae	*Ophiarachnella*	*infernalis*	+		
Echinodermata	Ophiuroidea	Ophiurida	Ophiodermatidae	*Ophiarachnella*	*similis*	+	+	+
Echinodermata	Ophiuroidea	Ophiurida	Ophiodermatidae	*Ophiarachnella*	*sphenisci*	+	+	+
Echinodermata	Ophiuroidea	Ophiurida	Ophiodermatidae	*Ophiochasma*	*stellata*	+		+
Echinodermata	Ophiuroidea	Ophiurida	Ophiodermatidae	*Ophiochasma*	*cf. stellata*	+		
Echinodermata	Ophiuroidea	Ophiurida	Ophiolepididae	*Ophiolepis*	*superba*			+
Echinodermata	Ophiuroidea	Ophiurida	Ophionereididae	*Ophionereis*	*dubia*	+	+	+
Echinodermata	Ophiuroidea	Ophiurida	Ophionereididae	*Ophionereis*	*semoni*	+	+	+
Echinodermata	Ophiuroidea	Ophiurida	Ophionereididae	*Ophionereis*	*sp. nov.*		+	+
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Lissophiothrix*	sp. orange			+
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Macrophiothrix*	*aspera*		+	
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Macrophiothrix*	*caenosa*	+		+
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Macrophiothrix*	*longipeda*	+	+	+
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Macrophiothrix*	*lorioli*			+
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Macrophiothrix*	*megapoma*	+	+	+
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Macrophiothrix*	*microplax*		+	+
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Macrophiothrix*	*paucispina*	+		
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Macrophiothrix*	sp.	+		+
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Ophiogymna*	*elegans*		+	+
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Ophiomaza*	*cacaotica*		+	
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Ophiopteron*	sp.			+

Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Ophiothela*	*danae*		+	
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Ophiopteron*	*vitiense*			+
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Ophiothrix*	*ciliaris*	+	+	+
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Ophiothrix*	*foveolata*			+
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Ophiothrix*	*lineocaerulea*	+	+	+
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Ophiothrix*	*martensi*	+	+	+
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Ophiothrix*	*melanosticta*	+	+	+
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Ophiothrix*	*plana*		+	+
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Ophiothrix*	*savignyi*		+	
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Ophiothrix*	*smaragdina*		+	+
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Ophiothrix*	sp.			+
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Ophiothrix*	*striolata*			+
Echinodermata	Ophiuroidea	Ophiurida	Ophiotrichidae	*Ophiothela*	*danae*			+
Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	*Ophiura*	*indica*		+	
Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae	*Ophiura*	*stellata*		+	+
Mollusca							+	+
Mollusca	Bivalvia						+	+
Mollusca	Bivalvia	Adapedonta	Pharidae			+		
Mollusca	Bivalvia	Adapedonta	Pharidae	*Ensiculus*	*australis*		+	+
Mollusca	Bivalvia	Adapedonta	Pharidae	*Ensiculus*	*cultellus*	+		+
Mollusca	Bivalvia	Adapedonta	Pharidae	*Siliqua*	*cf. albida*	+		
Mollusca	Bivalvia	Adapedonta	Solenidae			+		
Mollusca	Bivalvia	Anomalodesmata	Cuspidariidae	*Cuspidaria*	*hindsiana*		+	
Mollusca	Bivalvia	Anomalodesmata	Laternulidae	*Laternula*	*anatina*			+
Mollusca	Bivalvia	Anomalodesmata	Penicillidae	*Verpa*	*philippinensis*	+		
Mollusca	Bivalvia	Arcida	Arcidae			+		
Mollusca	Bivalvia	Arcida	Arcidae	*Anadara*	*rotundicostata*	+		

Mollusca	Bivalvia	Arcida	Arcidae	*Arca*	*patriarchalis*	+		
Mollusca	Bivalvia	Arcida	Arcidae	*Arca*	sp.			+
Mollusca	Bivalvia	Arcida	Arcidae	*Barbatia*	*amygdalumtostum*	+		
Mollusca	Bivalvia	Arcida	Arcidae	*Mesocibota*	*cf. bistrigata*	+		+
Mollusca	Bivalvia	Arcida	Arcidae	*Trisidos*	*tortuosa*	+		
Mollusca	Bivalvia	Arcida	Arcidae	*Trisidos*	*semitorta*	+	+	
Mollusca	Bivalvia	Arcida	Arcidae	*Trisidos*	*cf. semitorta*	+	+	
Mollusca	Bivalvia	Arcida	Cucullaeidae	*Cucullaea*	*petita*	+		
Mollusca	Bivalvia	Arcida	Cucullaeidae	*Cucullaea*	*cf. petita*		+	
Mollusca	Bivalvia	Arcida	Cucullaeidae	*Cucullaea*	sp.			+
Mollusca	Bivalvia	Arcida	Cucullaeidae	*Cucullaea*	*cf. vaga*	+		
Mollusca	Bivalvia	Cardiida	Cardiidae	*Acrosterigma*	*impolitum*	+		
Mollusca	Bivalvia	Cardiida	Cardiidae	*Hippopus*	*hippopus*			
Mollusca	Bivalvia	Cardiida	Cardiidae	*Maoricardium*	*setosum*	+	+	
Mollusca	Bivalvia	Cardiida	Cardiidae	*Nemocardium*	*bechei*		+	
Mollusca	Bivalvia	Cardiida	Cardiidae	*Tridacna*	*maxima*		+	+
Mollusca	Bivalvia	Cardiida	Cardiidae	*Tridacna*	sp.			+
Mollusca	Bivalvia	Cardiida	Cardiidae	*Tridacna*	*squamosa*	+		
Mollusca	Bivalvia	Cardiida	Cardiidae	*Vepricardium*	*multispinosum*	+	+	
Mollusca	Bivalvia	Cardiida	Semelidae	*Semele*	*amabilis*	+		
Mollusca	Bivalvia	Cardiida	Semelidae	*Semele*	*exarata*	+		
Mollusca	Bivalvia	Cardiida	Solecurtidae	*Azorinus*	*cf. abbreviates*		+	
Mollusca	Bivalvia	Cardiida	Solecurtidae	*Azorinus*	*cf. minutus*			+
Mollusca	Bivalvia	Cardiida	Solecurtidae	cf. Azorinus	sp.	+		
Mollusca	Bivalvia	Cardiida	Tellinidae			+		
Mollusca	Bivalvia	Cardiida	Tellinidae	*Praetextellina*	*cf. praetexta*	+		
Mollusca	Bivalvia	Cardiida	Tellinidae	*Praetextellina*	sp. 1	+		
Mollusca	Bivalvia	Cardiida	Tellinidae	*Psammacoma*	*arafurensis*	+		

Mollusca	Bivalvia	Carditida	Carditidae	*Cardita*	*crassicosta*	+		+
Mollusca	Bivalvia	Carditida	Carditidae	*Centrocardita*	*squamigera*	+	+	+
Mollusca	Bivalvia	Carditida	Carditidae	*Megacardita*	*nodulosa*	+		
Mollusca	Bivalvia	Carditida	Carditidae	*Megacardita*	*cf. nodulosa*	+		+
Mollusca	Bivalvia	Heterodonta	Galeommatidae	*Scintillula*	*cf. lutea*			+
Mollusca	Bivalvia	Imparidentia	Chamidae	*Chama*	*asperella*	+		
Mollusca	Bivalvia	Imparidentia	Chamidae	*Chama*	*cf. asperella*	+		
Mollusca	Bivalvia	Imparidentia	Chamidae	*Chama*	*croceata*	+		
Mollusca	Bivalvia	Imparidentia	Chamidae	*Chama*	*cf. fibula*	+		
Mollusca	Bivalvia	Imparidentia	Chamidae	*Chama*	*lazarus*	+		
Mollusca	Bivalvia	Imparidentia	Chamidae	*Chama*	*limbula*	+		+
Mollusca	Bivalvia	Imparidentia	Chamidae	*Chama*	*cf. limbula*	+		
Mollusca	Bivalvia	Imparidentia	Chamidae	*Chama*	*pacifica*	+		+
Mollusca	Bivalvia	Imparidentia	Chamidae	*Chama*	*cf. pacifica*	+		+
Mollusca	Bivalvia	Imparidentia	Chamidae	*Chama*	*cf. pulchella*	+		
Mollusca	Bivalvia	Limida	Limidae	*Lima*	*vulgaris*			+
Mollusca	Bivalvia	Limida	Limidae	*Limaria*	*fragilis*		+	+
Mollusca	Bivalvia	Myida	Corbulidae			+		
Mollusca	Bivalvia	Myida	Corbulidae	*Corbula*	*fortisulcata*		+	
Mollusca	Bivalvia	Myida	Corbulidae	*Corbula*	*macgillivrayi*	+	+	+
Mollusca	Bivalvia	Myida	Corbulidae	*Corbula*	*ovalina*		+	
Mollusca	Bivalvia	Myida	Corbulidae	*Corbula*	sp.	+		
Mollusca	Bivalvia	Mytilida	Mytilidae	*Amygdalum*	sp.	+		
Mollusca	Bivalvia	Mytilida	Mytilidae	*Botula*	sp.			+
Mollusca	Bivalvia	Mytilida	Mytilidae	*Jolya*	*elongata*			+
Mollusca	Bivalvia	Mytilida	Mytilidae	*Lithophaga*	*teres*	+		+
Mollusca	Bivalvia	Mytilida	Mytilidae	*Lithophaga*	sp.	+		
Mollusca	Bivalvia	Mytilida	Mytilidae	*Modiolus*	*philippinarum*	+		+

Mollusca	Bivalvia	Mytilida	Mytilidae	*Modiolus*	sp.	+		
Mollusca	Bivalvia	Mytilida	Mytilidae	*Modiolus*	sp. 1			+
Mollusca	Bivalvia	Mytilida	Mytilidae	*Septifer*	*bilocularis*	+		+
Mollusca	Bivalvia	Mytilida	Mytilidae	*Stavelia*	*subdistorta*	+	+	
Mollusca	Bivalvia	Nuculida	Nuculidae	*Ennucula*	*cumingii*		+	
Mollusca	Bivalvia	Nuculida	Nuculidae	*Ennucula*	*superba*	+		+
Mollusca	Bivalvia	Ostreida	Gryphaeidae	*Hyotissa*	*inermis*		+	+
Mollusca	Bivalvia	Ostreida	Gryphaeidae	*Hyotissa*	sp.	+		+
Mollusca	Bivalvia	Ostreida	Malleidae	*Malleus*	*albus*	+		+
Mollusca	Bivalvia	Ostreida	Malleidae	*Malleus*	*regula*	+		+
Mollusca	Bivalvia	Ostreida	Malleidae	*Malleus*	*cf. regula*			+
Mollusca	Bivalvia	Ostreida	Ostreidae					
Mollusca	Bivalvia	Ostreida	Ostreidae	*Dendostrea*	sp. 1	+	+	
Mollusca	Bivalvia	Ostreida	Ostreidae	*Saccostrea*	*scyphophilla*			+
Mollusca	Bivalvia	Ostreida	Pinnidae	*Atrina*	*cf. chinensis*	+		
Mollusca	Bivalvia	Ostreida	Pinnidae	*Atrina*	*penna*	+		+
Mollusca	Bivalvia	Ostreida	Pinnidae	*Pinna*	*deltodes*			+
Mollusca	Bivalvia	Ostreida	Pteriidae			+		
Mollusca	Bivalvia	Ostreida	Pteriidae	*Isognomon*	*albisoror*	+		
Mollusca	Bivalvia	Ostreida	Pteriidae	*Isognomon*	*cf. albisoror*			+
Mollusca	Bivalvia	Ostreida	Pteriidae	*Isognomon*	*isognomum*	+		
Mollusca	Bivalvia	Ostreida	Pteriidae	*Isognomon*	*cf. isognomum*			+
Mollusca	Bivalvia	Ostreida	Pteriidae	*Isognomon*	*nucleus*	+		
Mollusca	Bivalvia	Ostreida	Pteriidae	*Isognomon*	sp.	+		
Mollusca	Bivalvia	Ostreida	Pteriidae	*Pinctada*	*albina*			+
Mollusca	Bivalvia	Ostreida	Pteriidae	*Pinctada*	*cf. albina*	+		
Mollusca	Bivalvia	Ostreida	Pteriidae	*Pinctada*	*margaritifera*			+
Mollusca	Bivalvia	Ostreida	Pteriidae	*Pinctada*	*cf. margaritifera*			+

Mollusca	Bivalvia	Ostreida	Pteriidae	*Pinctada*	sp.	+		
Mollusca	Bivalvia	Ostreida	Pteriidae	*Pteria*	*broomie*		+	
Mollusca	Bivalvia	Ostreida	Pteriidae	*Pteria*	*cf. cooki*			+
Mollusca	Bivalvia	Ostreida	Pteriidae	*Pteria*	*maccullochi*	+		
Mollusca	Bivalvia	Ostreida	Pteriidae	*Pteria*	*saltata*	+		
Mollusca	Bivalvia	Pectinida	Pectinidae	*Amusium*	*pleuronectes*		+	
Mollusca	Bivalvia	Pectinida	Pectinidae	*Annachlamys*	*flabellate*	+		
Mollusca	Bivalvia	Pectinida	Pectinidae	*Glorichlamys*	*cf. quadrilirata*	+		
Mollusca	Bivalvia	Pectinida	Pectinidae	*Laevichlamys*	*cf. gladysiae*	+		
Mollusca	Bivalvia	Pectinida	Pectinidae	*Laevichlamys*	sp.	+		
Mollusca	Bivalvia	Pectinida	Pectinidae	*Mimachlamys*	*gloriosa*		+	
Mollusca	Bivalvia	Pectinida	Pectinidae	*Volachlamys*	*singaporina*	+		
Mollusca	Bivalvia	Pectinida	Plicatulidae			+		
Mollusca	Bivalvia	Pectinida	Plicatulidae	*Plicatula*	*australis*	+		
Mollusca	Bivalvia	Pectinida	Plicatulidae	*Plicatula*	*aff. complanata*	+		
Mollusca	Bivalvia	Pectinida	Plicatulidae	*Plicatula*	*muricata*			+
Mollusca	Bivalvia	Pectinida	Plicatulidae	*Plicatula*	*cf. muricata*	+	+	
Mollusca	Bivalvia	Pectinida	Plicatulidae	*Plicatula*	*cf. plicata*		+	+
Mollusca	Bivalvia	Pectinida	Plicatulidae	*Plicatula*	sp.	+		
Mollusca	Bivalvia	Pectinida	Spondylidae	*Spondylus*	*asperrimus*			+
Mollusca	Bivalvia	Pectinida	Spondylidae	*Spondylus*	*cf. asperrimus*			+
Mollusca	Bivalvia	Pectinida	Spondylidae	*Spondylus*	*cf. orstomi*			+
Mollusca	Bivalvia	Pectinida	Spondylidae	*Spondylus*	*victoriae*	+	+	+
Mollusca	Bivalvia	Pectinida	Spondylidae	*Spondylus*	*cf. victoriae*		+	
Mollusca	Bivalvia	Pteriomorphia	Mytilidae					
Mollusca	Bivalvia	Pteriomorphia	Pinnidae	*Pinna*	*deltodes*	+		
Mollusca	Bivalvia	Pteriomorphia	Pinnidae	*Pinna*	sp.	+		
Mollusca	Bivalvia	Venerida	Veneridae	*Circe*	*quoyi*	+		

Mollusca	Bivalvia	Solemyida	Solemyidae	*Solemya*	sp.		+	
Mollusca	Bivalvia	Venerida	Veneridae	*Antigona*	*laqueata*		+	
Mollusca	Bivalvia	Venerida	Veneridae	*Dosinia*	*contracta*		+	
Mollusca	Bivalvia	Venerida	Veneridae	*Dosinia*	*cf. contracta*			+
Mollusca	Bivalvia	Venerida	Veneridae	*Dosinia*	*stabilis*	+		
Mollusca	Bivalvia	Venerida	Veneridae	*Dosinia*	sp.	+		+
Mollusca	Bivalvia	Venerida	Veneridae	*Globivenus*	*embrithes*	+	+	+
Mollusca	Bivalvia	Venerida	Veneridae	*Paphia*	*semirugata*	+	+	+
Mollusca	Bivalvia	Venerida	Veneridae	*Paratapes*	*cf. undulates*	+		+
Mollusca	Bivalvia	Venerida	Veneridae	*Pitar*	sp.			+
Mollusca	Bivalvia	Venerida	Veneridae	*cf. Pitar*	sp.			
Mollusca	Bivalvia	Venerida	Veneridae	*Placamen*	*foliaceum*	+	+	
Mollusca	Bivalvia	Venerida	Veneridae	*Placamen*	*lamellosum*	+	+	+
Mollusca	Bivalvia	Venerida	Veneridae	*Placamen*	*cf. lamellosum*	+		
Mollusca	Bivalvia	Venerida	Veneridae	*Protapes*	*roemeri*	+		+
Mollusca	Cephalopoda	Myopsida	Australiteuthidae	*Australiteuthis*	*aldrichi*			+
Mollusca	Cephalopoda	Octopoda	Octopodidae			+		
Mollusca	Cephalopoda	Octopoda	Octopodidae	*Abdopus*	*cf. aculeatus*		+	
Mollusca	Cephalopoda	Octopoda	Octopodidae	*Ameloctopus*	*litoralis*			+
Mollusca	Cephalopoda	Octopoda	Octopodidae	*Octopus*	sp. 1		+	+
Mollusca	Cephalopoda	Octopoda	Octopodidae	*Octopus*	sp. 2		+	+
Mollusca	Cephalopoda	Octopoda	Octopodidae	*Octopus*	*cf. vitiensis*		+	
Mollusca	Cephalopoda	Sepiida	Sepiidae	*Sepia*	*elliptica*		+	+
Mollusca	Gastropoda						+	+
Mollusca	Gastropoda	Caenogastropoda	Cerithiidae					
Mollusca	Gastropoda	Caenogastropoda	Siliquariidae	*Tenagodus*	*cf. ponderosus*	+		
Mollusca	Gastropoda	Cephalaspidea	Gastropteridae	*cf. Gastropteron*	sp.		+	
Mollusca	Gastropoda	Lepetellida	Fissurellidae	*Scutus*	*unguis*			+

Mollusca	Gastropoda	Lepetellida	Haliotidae	*Haliotis*	*diversicolor*			+
Mollusca	Gastropoda	Lepetellida	Haliotidae	*Haliotis*	*varia*			+
Mollusca	Gastropoda	Littorinimorpha	Bursidae	*Bufonaria*	*rana*	+	+	
Mollusca	Gastropoda	Littorinimorpha	Cypraeidae	*Contradusta*	*walker*	+		
Mollusca	Gastropoda	Littorinimorpha	Cypraeidae	*Erosaria*	*miliaris*	+		+
Mollusca	Gastropoda	Littorinimorpha	Cypraeidae	*Erronea*	*cylindrica*	+		+
Mollusca	Gastropoda	Littorinimorpha	Cypraeidae	*Erronea*	*errones*			+
Mollusca	Gastropoda	Littorinimorpha	Cypraeidae	*Erronea*	*subviridis*	+		
Mollusca	Gastropoda	Littorinimorpha	Cypraeidae	*Mauritia*	*arabica*			+
Mollusca	Gastropoda	Littorinimorpha	Cypraeidae	*Purpuradusta*	*gracilis*			+
Mollusca	Gastropoda	Littorinimorpha	Naticidae	*Natica*	sp.		+	
Mollusca	Gastropoda	Littorinimorpha	Ovulidae			+		+
Mollusca	Gastropoda	Littorinimorpha	Ovulidae	*Pellasimnia*	*sp. nov.*	+		
Mollusca	Gastropoda	Littorinimorpha	Ovulidae	*Phenacovolva*	sp.	+		
Mollusca	Gastropoda	Littorinimorpha	Ranellidae	*Monoplex*	*vespaceus*		+	+
Mollusca	Gastropoda	Littorinimorpha	Ranellidae	*Reticutriton*	*pfeifferianus*	+	+	+
Mollusca	Gastropoda	Littorinimorpha	Ranellidae	*Reticutriton*	*cf. pfeifferianus*	+		
Mollusca	Gastropoda	Littorinimorpha	Ranellidae					+
Mollusca	Gastropoda	Littorinimorpha	Velutinidae			+	+	+
Mollusca	Gastropoda	Littorinimorpha	Vermetidae			+		
Mollusca	Gastropoda	Neogastropoda	Ancillariidae	*Ancillista*	*albicans*	+		+
Mollusca	Gastropoda	Neogastropoda	Buccinidae	*Cantharus*	*erythrostoma*			+
Mollusca	Gastropoda	Neogastropoda	Buccinidae	*Cantharus*	*cf. erythrostoma*	+		
Mollusca	Gastropoda	Neogastropoda	Columbellidae	*Mitrella*	*nympha*	+		
Mollusca	Gastropoda	Neogastropoda	Columbellidae	*Pardalinops*	*testudinaria*			+
Mollusca	Gastropoda	Neogastropoda	Conidae	*Conus*	*ebraeus*		+	+
Mollusca	Gastropoda	Neogastropoda	Conidae	*Conus*	*cf. mustelinus*			+
Mollusca	Gastropoda	Neogastropoda	Conidae	*Conus*	*striatus*			+

Mollusca	Gastropoda	Neogastropoda	Conidae	*Conus*	*terebra*			+
Mollusca	Gastropoda	Neogastropoda	Conidae	*Conus*	*trigonus*	+	+	+
Mollusca	Gastropoda	Neogastropoda	Costellariidae	*Vexillum*	*rugosum*	+		
Mollusca	Gastropoda	Neogastropoda	Fasciolariidae	*Fusolatirus*	*paetelianus*			+
Mollusca	Gastropoda	Neogastropoda	Fasciolariidae	*Latirus*	sp.	+		
Mollusca	Gastropoda	Neogastropoda	Fasciolariidae	*Peristernia*	*reincarnata*			+
Mollusca	Gastropoda	Neogastropoda	Harpidae	*Harpa*	*articularis*		+	
Mollusca	Gastropoda	Neogastropoda	Muricidae			+		+
Mollusca	Gastropoda	Neogastropoda	Muricidae	*Chicoreus*	*banksii*	+	+	+
Mollusca	Gastropoda	Neogastropoda	Muricidae	*Chicoreus*	*cervicornis*	+	+	+
Mollusca	Gastropoda	Neogastropoda	Muricidae	*Chicoreus*	*torrefactus*		+	
Mollusca	Gastropoda	Neogastropoda	Muricidae	*Chicoreus*	*trivialis*	+		+
Mollusca	Gastropoda	Neogastropoda	Muricidae	*Chicoreus*	*cf. trivialis*			+
Mollusca	Gastropoda	Neogastropoda	Muricidae	*Coralliophila*	sp.	+		
Mollusca	Gastropoda	Neogastropoda	Muricidae	*Cronia*	*avellana*	+		
Mollusca	Gastropoda	Neogastropoda	Muricidae	*Cronia*	sp.	+		
Mollusca	Gastropoda	Neogastropoda	Muricidae	*Drupella*	*margariticola*	+		
Mollusca	Gastropoda	Neogastropoda	Muricidae	*Ergalatax*	*crassulnata*			+
Mollusca	Gastropoda	Neogastropoda	Muricidae	*Homalocantha*	*secunda*	+		
Mollusca	Gastropoda	Neogastropoda	Muricidae	*Mancinella*	*alouina*			+
Mollusca	Gastropoda	Neogastropoda	Muricidae	*Mancinella*	*echinata*		+	+
Mollusca	Gastropoda	Neogastropoda	Muricidae	*Murex*	*acanthostephes*		+	
Mollusca	Gastropoda	Neogastropoda	Muricidae	*Murex*	*brevispina*	+		
Mollusca	Gastropoda	Neogastropoda	Muricidae	*Pterochelus*	*acanthopterus*	+	+	
Mollusca	Gastropoda	Neogastropoda	Muricidae	*Thalessa*	*aculeata*		+	+
Mollusca	Gastropoda	Neogastropoda	Muricidae	*Vokesimurex*	*multiplicatus*	+	+	+
Mollusca	Gastropoda	Neogastropoda	Nassariidae	*Cyllene*	*sibogae*		+	
Mollusca	Gastropoda	Neogastropoda	Nassariidae	*Nassaria*	*acuminata*		+	+

Mollusca	Gastropoda	Neogastropoda	Nassariidae	*Nassaria*	*cf. acuminata*	+		
Mollusca	Gastropoda	Neogastropoda	Nassariidae	*Nassaria*	*cf. amboynensis*	+		
Mollusca	Gastropoda	Neogastropoda	Nassariidae	*Nassarius*	*cremates*		+	
Mollusca	Gastropoda	Neogastropoda	Nassariidae	*Nassarius*	*glans*			+
Mollusca	Gastropoda	Neogastropoda	Olividae	*Ancillista*	*cf. albicans*		+	
Mollusca	Gastropoda	Neogastropoda	Terebridae	*Cinguloterebra*	*lima*			+
Mollusca	Gastropoda	Neogastropoda	Turbinellidae	*Tudivasum*	*inerme*	+	+	
Mollusca	Gastropoda	Neogastropoda	Volutidae	*Amoria*	*turneri*		+	
Mollusca	Gastropoda	Neogastropoda	Volutidae	*Cymbiola*	*nivosa*			+
Mollusca	Gastropoda	Nudibranchia					+	
Mollusca	Gastropoda	Nudibranchia	cf. Chromodorididae					+
Mollusca	Gastropoda	Nudibranchia	Chromodorididae	*Ceratosoma*	*trilobatum*	+	+	
Mollusca	Gastropoda	Nudibranchia	Chromodorididae	*Goniobranchus*	sp.		+	+
Mollusca	Gastropoda	Nudibranchia	Chromodorididae	*Goniobranchus*	*sp. nov.*		+	
Mollusca	Gastropoda	Nudibranchia	Discodorididae	*Platydoris*	*dierythros*			+
Mollusca	Gastropoda	Nudibranchia	Discodorididae	*Thordisa*	sp.		+	
Mollusca	Gastropoda	Nudibranchia	Discodorididae	*Thordisa*	*cf. verrucosa*	+		
Mollusca	Gastropoda	Nudibranchia	Dorididae			+		
Mollusca	Gastropoda	Nudibranchia	cf. Dorididae					+
Mollusca	Gastropoda	Nudibranchia	Dorididae	*Aphelodoris*	*gigas*		+	
Mollusca	Gastropoda	Nudibranchia	Dorididae	*Aphelodoris*	*cf. gigas*			+
Mollusca	Gastropoda	Nudibranchia	Dorididae	*Aphelodoris*	*karpa*			+
Mollusca	Gastropoda	Nudibranchia	Dorididae	*Aphelodoris*	sp.	+		
Mollusca	Gastropoda	Nudibranchia	Dorididae	*Doris*	sp.		+	
Mollusca	Gastropoda	Nudibranchia	Dorididae	*Paradoris*	sp.			+
Mollusca	Gastropoda	Nudibranchia	Facelinidae	*Moridilla*	sp.			+
Mollusca	Gastropoda	Nudibranchia	Phyllidiidae	*Phyllidia*	*ocellata*			+
Mollusca	Gastropoda	Nudibranchia	Phyllidiidae	*Phyllidiella*	sp.			+

Mollusca	Gastropoda	Nudibranchia	Phyllidiidae	*Phyllidiopsis*	*cf. pipeki*	+		
Mollusca	Gastropoda	Nudibranchia	Phyllidiidae	*Aldisa*	sp.			+
Mollusca	Gastropoda	Nudibranchia	Platydorididae	*Platydoris*	*cf. Formosa*		+	
Mollusca	Gastropoda	Nudibranchia	Tritoniidae	*Marionia*	sp.			+
Mollusca	Gastropoda	Pleuro-branchomorpha	Pleurobranchaeidae	*Euselenops*	*luniceps*		+	
Mollusca	Gastropoda	Seguenziida	Chilodontidae	*Hybochelus*	sp.	+		
Mollusca	Gastropoda	Trochida	Angariidae	*Angaria*	*delphinus*			+
Mollusca	Gastropoda	Trochida	Tegulidae	*Tectus*	*fenestratus*	+		+
Mollusca	Gastropoda	Trochida	Tegulidae	*Tectus*	*niloticus*			+
Mollusca	Gastropoda	Trochida	Tegulidae	*Tectus*	*pyramis*	+		+
Mollusca	Gastropoda	Trochida	Trochidae	*Calthalotia*	sp.			+
Mollusca	Gastropoda	Trochida	Trochidae	*Trochus*	*nigropunctatus*			+
Mollusca	Gastropoda	Trochida	Turbinidae	*Astralium*	*rotularium*	+		+
Mollusca	Gastropoda	Trochida	Turbinidae	*Astralium*	*stellare*	+		
Mollusca	Gastropoda	Trochida	Turbinidae	*Turbo*	*cf. bruneus*			+
Mollusca	Gastropoda	Trochida	Turbinidae	*Turbo*	*laminiferus*	+		+
Mollusca	Gastropoda		Pyramidellidae			+		
Mollusca	Polyplacophora					+		
Mollusca	Polyplacophora	Chitonida	Chitonidae	*Acanthopleura*	*gemmata*			+
Mollusca	Scaphopoda	Dentaliida	Dentaliidae	*Dentalium*	*javanum*	+		
Mollusca	Scaphopoda	Dentaliida	Laevidentaliidae	*Laevidentalium*	*martyi*			+
Porifera						+	+	+
Porifera	Calcarea					+	+	
Porifera	Calcarea			*not specified*	sp. KB1			+
Porifera	Calcarea			*not specified*	sp. KMB5			+
Porifera	Demospongiae					+		+
Porifera	Demospongiae	Agelasida	Agelasidae	*Agelas*	sp.		+	+

Porifera	Demospongiae	Axinellida	Axinellidae				+	
Porifera	Demospongiae	Axinellida	Axinellidae	*Axinella*	*aruensis Type I*	+	+	+
Porifera	Demospongiae	Axinellida	Axinellidae	*Axinella*	*aruensis Type II*	+	+	+
Porifera	Demospongiae	Axinellida	Axinellidae	*Axinella*	*badungensis*	+		+
Porifera	Demospongiae	Axinellida	Axinellidae	*Axinella*	*cf.badungensis*	+		+
Porifera	Demospongiae	Axinellida	Axinellidae	*Axinella*	*loribellae*	+		+
Porifera	Demospongiae	Axinellida	Axinellidae	*Axinella*	sp. KB1	+	+	+
Porifera	Demospongiae	Axinellida	Axinellidae	*Axinella*	sp. KB2	+		
Porifera	Demospongiae	Axinellida	Axinellidae	*Axinella*	sp. KB3	+	+	
Porifera	Demospongiae	Axinellida	Axinellidae	*Axinella*	sp. KB4	+		+
Porifera	Demospongiae	Axinellida	Axinellidae	*Axinella*	sp. NW1	+	+	
Porifera	Demospongiae	Axinellida	Axinellidae	*Cymbastela*	*stipitata*	+		+
Porifera	Demospongiae	Axinellida	Axinellidae	*Cymbastela*	*cf. stipitata*	+		+
Porifera	Demospongiae	Axinellida	Axinellidae	*Cymbastela*	*vespertine*		+	+
Porifera	Demospongiae	Axinellida	Axinellidae	*Phakellia*	*tropicalis*	+	+	+
Porifera	Demospongiae	Axinellida	Axinellidae	*Phakellia*	*cf. tropicalis*	+		
Porifera	Demospongiae	Axinellida	Axinellidae	*Phycopsis*	sp.	+		
Porifera	Demospongiae	Axinellida	Axinellidae	*Pipestela*	*cf. candelabra*	+		
Porifera	Demospongiae	Axinellida	Axinellidae	*Pipestela*	cf. sp. CERF1	+		
Porifera	Demospongiae	Axinellida	Axinellidae	*Pipestela*	sp. KB1	+	+	+
Porifera	Demospongiae	Axinellida	Axinellidae	*Pipestela*	sp. Ng1	+		+
Porifera	Demospongiae	Axinellida	Axinellidae	*Reniochalina*	sp. 2	+	+	+
Porifera	Demospongiae	Axinellida	Axinellidae	*Reniochalina*	sp. 3	+		+
Porifera	Demospongiae	Axinellida	Axinellidae	*Reniochalina*	*stalagmitis*	+	+	+
Porifera	Demospongiae	Axinellida	Axinellidae	*Reniochalina*	*cf. stalagmitis*	+		
Porifera	Demospongiae	Axinellida	Heteroxyidae	*Myrmekioderma*	*granulatum*	+		+
Porifera	Demospongiae	Axinellida	Raspailiidae					+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Aulospongus*	sp. KB1	+		

Porifera	Demospongiae	Axinellida	Raspailiidae	*Aulospongus*		sp. KMB1	+		+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Axechina*		sp. KB1			
Porifera	Demospongiae	Axinellida	Raspailiidae	*Ceratopsion*		*montebelloensis*	+		
Porifera	Demospongiae	Axinellida	Raspailiidae	*Ceratopsion*		*palmatum*	+	+	+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Ceratopsion*		*cf. palmatum*			+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Echinodictyum*		*cancellatum*	+	+	+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Echinodictyum*		*conulosum*	+	+	
Porifera	Demospongiae	Axinellida	Raspailiidae	*Echinodictyum*		*cf. conulosum*	+	+	+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Echinodictyum*		*clathratum*		+	
Porifera	Demospongiae	Axinellida	Raspailiidae	*Echinodictyum*		*clathrioides*	+	+	+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Echinodictyum*		*conulosum*			+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Echinodictyum*		*mesenterinum*		+	+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Echinodictyum*		*cf. mesenterinum*			+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Echinodictyum*		*rugosum*	+		+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Ectyoplasia*		*tabula*	+	+	+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Ectyoplasia*		*vannus*	+	+	+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Endectyon*	*Endectyon*	*fruticosum*	+	+	+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Endectyon*	*Endectyon*	*thurstoni*	+		+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Raspailia*	*Clathriodendron*	*arbuscula*	+	+	+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Raspailia*	*Clathriodendron*	*cf. arbuscula*	+		
Porifera	Demospongiae	Axinellida	Raspailiidae	*Raspailia*	*Clathriodendron*	*cf. bifurcata*	+		
Porifera	Demospongiae	Axinellida	Raspailiidae	*Raspailia*	*Clathriodendron*	*keriontria*		+	+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Raspailia*	*Parasyringella*	*australiensis*	+	+	+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Raspailia*	*Parasyringella*	*clathrate*	+		+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Raspailia*	*Parasyringella*	*elegans*	+		
Porifera	Demospongiae	Axinellida	Raspailiidae	*Raspailia*	*Parasyringella*	*cf. elegans*		+	+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Raspailia*	*Parasyringella*	*cf. nuda*			+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Raspailia*	*Parasyringella*	sp. KB1	+		

Porifera	Demospongiae	Axinellida	Raspailiidae	*Raspailia*	*Raspailia*	*phakellopsis*	+		
Porifera	Demospongiae	Axinellida	Raspailiidae	*Raspailia*	*Raspailia*	*vestigifera*	+	+	+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Raspailia*	*Raspailia*	*cf. vestigifera*	+		
Porifera	Demospongiae	Axinellida	Raspailiidae	*Sollasella*		*digitata*			+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Sollasella*		sp. KB1	+	+	+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Thrinacophora*		*cervicornis*	+	+	+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Thrinacophora*		*cf. cervicornis*	+		+
Porifera	Demospongiae	Axinellida	Raspailiidae	*Trikentrion*		*flabelliforme*	+	+	+
Porifera	Demospongiae	Axinellida	Stelligeridae	*Higginsia*		*cf. mixta*	+	+	+
Porifera	Demospongiae	Axinellida	Stelligeridae	*Higginsia*		*scabra*	+	+	+
Porifera	Demospongiae	Axinellida	Stelligeridae	*Higginsia*		*cf. scabra*	+		
Porifera	Demospongiae	Axinellida	Stelligeridae	*Higginsia*		sp.			+
Porifera	Demospongiae	Axinellida	Stelligeridae	*Higginsia*		sp. K1	+		
Porifera	Demospongiae	Biemnida	Biemnidae				+		
Porifera	Demospongiae	Biemnida	Biemnidae	*Biemna*		*saucia*	+		+
Porifera	Demospongiae	Bubarida	Desmanthidae	*Desmanthus*		sp. 1	+		+
Porifera	Demospongiae	Bubarida	Dictyonellidae	*Acanthella*		*pulcherrima*	+	+	+
Porifera	Demospongiae	Bubarida	Dictyonellidae	*Acanthella*		*cf. pulcherrima*	+		+
Porifera	Demospongiae	Bubarida	Dictyonellidae	*Haliclona*	*Haliclona*	sp. SS5	+		
Porifera	Demospongiae	Bubarida	Dictyonellidae	*Phakettia*		*euctimena*	+	+	+
Porifera	Demospongiae	Bubarida	Dictyonellidae	*Phakettia*		*cf. euctimena*	+		
Porifera	Demospongiae	Chondrillida					+		
Porifera	Demospongiae	Chondrillida	Chondrillidae				+		
Porifera	Demospongiae	Chondrillida	Chondrillidae	*Chondrilla*		*australiensis*			+
Porifera	Demospongiae	Clionaida	Clionaidae	*Cliona*		*dissimilis*	+		
Porifera	Demospongiae	Clionaida	Clionaidae	*Cliona*		*cf. orientalis*	+		
Porifera	Demospongiae	Clionaida	Clionaidae	*Cliona*		sp.	+		
Porifera	Demospongiae	Clionaida	Clionaidae	*Spheciospongia*		sp. 2	+	+	

Porifera	Demospongiae	Clionaida	Clionaidae	*Spheciospongia*	sp. 4	+		+
Porifera	Demospongiae	Clionaida	Clionaidae	*Spheciospongia*	sp. K1	+	+	+
Porifera	Demospongiae	Clionaida	Clionaidae	*Spheciospongia*	sp. KB1	+		
Porifera	Demospongiae	Clionaida	Clionaidae	*Spheciospongia*	sp. KMB1	+		
Porifera	Demospongiae	Clionaida	Clionaidae	*Spheciospongia*	*papillosa*		+	
Porifera	Demospongiae	Clionaida	Clionaidae	*Spheciospongia*	*vagabunda*		+	
Porifera	Demospongiae	Clionaida	Clionaidae	*Spheciospongia*	*cf. vagabunda*	+	+	
Porifera	Demospongiae	Clionaida	Placospongiidae	*Placospongia*	*carinata*	+	+	
Porifera	Demospongiae	Clionaida	Placospongiidae	*Placospongia*	*cf. carinata*	+		+
Porifera	Demospongiae	Clionaida	Placospongiidae	*Placospongia*	*melobesioides*	+	+	+
Porifera	Demospongiae	Dendroceratida				+		
Porifera	Demospongiae	Dendroceratida	Darwinellidae	*Dendrilla*	sp.		+	
Porifera	Demospongiae	Dendroceratida	Darwinellidae	*Dendrilla*	sp. EG1	+	+	+
Porifera	Demospongiae	Dendroceratida	Dictyodendrillidae	*Dictyodendrilla*	sp.			
Porifera	Demospongiae	Dendroceratida	Dictyodendrillidae	*Dictyodendrilla*	sp. SS1	+		+
Porifera	Demospongiae	Dictyoceratida				+		
Porifera	Demospongiae	Dictyoceratida	Dysideidae	*Dysidea*	sp. KB1	+		+
Porifera	Demospongiae	Dictyoceratida	Dysideidae	*Dysidea*	sp. KB2	+		
Porifera	Demospongiae	Dictyoceratida	Dysideidae	*Dysidea*	sp. KMB2			+
Porifera	Demospongiae	Dictyoceratida	Dysideidae	*Lamellodysidea*	sp. KB1			+
Porifera	Demospongiae	Dictyoceratida	Irciniidae				+	
Porifera	Demospongiae	Dictyoceratida	Irciniidae	*Ircinia*	*cf. bulbosa*		+	
Porifera	Demospongiae	Dictyoceratida	Irciniidae	*Ircinia*	*irregularis*	+	+	+
Porifera	Demospongiae	Dictyoceratida	Irciniidae	*Ircinia*	sp.		+	
Porifera	Demospongiae	Dictyoceratida	Irciniidae	*Ircinia*	sp. 1	+	+	+
Porifera	Demospongiae	Dictyoceratida	Irciniidae	*Ircinia*	sp. KMB2			+
Porifera	Demospongiae	Dictyoceratida	Irciniidae	*Psammocinia*	*bulbosa*			+
Porifera	Demospongiae	Dictyoceratida	Irciniidae	*Psammocinia*	*cf. bulbosa*		+	

Porifera	Demospongiae	Dictyoceratida	Irciniidae	*Psammocinia*		sp. KB1	+	+	
Porifera	Demospongiae	Dictyoceratida	Irciniidae	*Sarcotragus*		cf. sp. 2	+		
Porifera	Demospongiae	Dictyoceratida	Irciniidae	*Sarcotragus*		sp. SS7	+		+
Porifera	Demospongiae	Dictyoceratida	Irciniidae	*Sarcotragus*		sp. SS8	+	+	+
Porifera	Demospongiae	Dictyoceratida	Irciniidae	*Sarcotragus*		sp. SS11		+	+
Porifera	Demospongiae	Dictyoceratida	Spongiidae	*Hippospongia*		sp.			+
Porifera	Demospongiae	Dictyoceratida	Spongiidae	*Hippospongia*		sp. SS1	+	+	+
Porifera	Demospongiae	Dictyoceratida	Spongiidae	*Hippospongia*		sp. SS2		+	+
Porifera	Demospongiae	Dictyoceratida	Spongiidae	*Hippospongia*		cf. sp. SS2		+	
Porifera	Demospongiae	Dictyoceratida	Spongiidae	*Hyattella*		*intestinalis*		+	
Porifera	Demospongiae	Dictyoceratida	Spongiidae	*Hyattella*		*cf.intestinalis*	+		
Porifera	Demospongiae	Dictyoceratida	Spongiidae	*Spongia*		cf. sp. PB1		+	+
Porifera	Demospongiae	Dictyoceratida	Spongiidae	*Spongia*	*Australospongia*	sp.	+		
Porifera	Demospongiae	Dictyoceratida	Thorectidae	*Aplysinopsis*		sp. 1	+	+	+
Porifera	Demospongiae	Dictyoceratida	Thorectidae	*Cacospongia*		cf. sp. SS2	+		+
Porifera	Demospongiae	Dictyoceratida	Thorectidae	*Carteriospongia*		*flabellifera*			+
Porifera	Demospongiae	Dictyoceratida	Thorectidae	*Carteriospongia*		*foliascens*	+		+
Porifera	Demospongiae	Dictyoceratida	Thorectidae	*Carteriospongia*		sp. 1		+	
Porifera	Demospongiae	Dictyoceratida	Thorectidae	*Fasciospongia*		sp. 1	+		+
Porifera	Demospongiae	Dictyoceratida	Thorectidae	*Fasciospongia*		sp. SS1	+		+
Porifera	Demospongiae	Dictyoceratida	Thorectidae	*Hyrtios*		sp. 1	+		
Porifera	Demospongiae	Dictyoceratida	Thorectidae	*Hyrtios*		sp. KMB1			+
Porifera	Demospongiae	Dictyoceratida	Thorectidae	*Hyrtios*		sp. Ng1			+
Porifera	Demospongiae	Dictyoceratida	Thorectidae	*Hyrtios*		cf. sp. NW1			+
Porifera	Demospongiae	Dictyoceratida	Thorectidae	*Hyrtios*		sp. SS2	+	+	+
Porifera	Demospongiae	Dictyoceratida	Thorectidae	*Lendenfeldia*		*plicata*			+
Porifera	Demospongiae	Dictyoceratida	Thorectidae	*Luffariella*		sp. KB1		+	+
Porifera	Demospongiae	Dictyoceratida	Thorectidae	*Luffariella*		sp. KMB2			+

Porifera	Demospongiae	Dictyoceratida	Thorectidae	*Luffariella*		sp. PB1	+		+
Porifera	Demospongiae	Dictyoceratida	Thorectidae	*Luffariella*		sp. SS10	+		+
Porifera	Demospongiae	Dictyoceratida	Thorectidae	*Phyllospongia*		sp.	+		
Porifera	Demospongiae	Dictyoceratida	Thorectidae	*Thorecta*		sp. KMB1			+
Porifera	Demospongiae	Haplosclerida	Callyspongiidae	*Arenosclera*		sp. SS1	+	+	+
Porifera	Demospongiae	Haplosclerida	Callyspongiidae	*Callyspongia*		*aerizusa*			+
Porifera	Demospongiae	Haplosclerida	Callyspongiidae	*Callyspongia*	*Callyspongia*	sp. KB1	+	+	+
Porifera	Demospongiae	Haplosclerida	Callyspongiidae	*Callyspongia*	*Callyspongia*	sp. KB2	+		
Porifera	Demospongiae	Haplosclerida	Callyspongiidae	*Callyspongia*	*Callyspongia*	sp. KB3	+		+
Porifera	Demospongiae	Haplosclerida	Callyspongiidae	*Callyspongia*	*Callyspongia*	cf. sp. P2		+	
Porifera	Demospongiae	Haplosclerida	Callyspongiidae	*Callyspongia*	*Toxochalina*	sp.1	+		
Porifera	Demospongiae	Haplosclerida	Callyspongiidae	*Callyspongia*	*Toxochalina*	cf. sp.1	+	+	
Porifera	Demospongiae	Haplosclerida	Callyspongiidae	*Dactylia*		sp. KB1	+	+	
Porifera	Demospongiae	Haplosclerida	Chalinidae				+		
Porifera	Demospongiae	Haplosclerida	Chalinidae	*Cladocroce*		sp. KB1	+		+
Porifera	Demospongiae	Haplosclerida	Chalinidae	*Cladocroce*		sp. KB2			+
Porifera	Demospongiae	Haplosclerida	Chalinidae	*Haliclona*		*cf. koremella*	+		
Porifera	Demospongiae	Haplosclerida	Chalinidae	*Haliclona*	*Flagellia*	*indonesiae*	+	+	+
Porifera	Demospongiae	Haplosclerida	Chalinidae	*Haliclona*	*Gellius*	*amboinensis*	+		
Porifera	Demospongiae	Haplosclerida	Chalinidae	*Haliclona*	*Gellius*	*cf. amboinensis*	+		
Porifera	Demospongiae	Haplosclerida	Chalinidae	*Haliclona*	*Gellius*	*cymaeformis*	+		+
Porifera	Demospongiae	Haplosclerida	Chalinidae	*Haliclona*	*Haliclona*	sp. KB1			+
Porifera	Demospongiae	Haplosclerida	Chalinidae	*Haliclona*	*Haliclona*	sp. KB2	+		+
Porifera	Demospongiae	Haplosclerida	Chalinidae	*Haliclona*	*Haliclona*	sp. KMB3	+	+	+
Porifera	Demospongiae	Haplosclerida	Chalinidae	*Haliclona*	*Haliclona*	cf. sp. KMB3	+		
Porifera	Demospongiae	Haplosclerida	Chalinidae	*Haliclona*	*Haliclona*	cf. sp. Ng3			+
Porifera	Demospongiae	Haplosclerida	Chalinidae	*Haliclona*	*Haliclona*	cf. sp. SS5	+		
Porifera	Demospongiae	Haplosclerida	Chalinidae	*Haliclona*	*Reniera*	sp. KB1			+

Porifera	Demospongiae	Haplosclerida	Chalinidae	*Haliclona*	*Reniera*	cf. sp. KMB2			+
Porifera	Demospongiae	Haplosclerida	Chalinidae	*Haliclona*	*Reniera*	cf. sp. KMB4			+
Porifera	Demospongiae	Haplosclerida	Chalinidae	*Haliclona*	*Reniera*	sp. KMB5			+
Porifera	Demospongiae	Haplosclerida	Niphatidae	*not specified*		cf. sp. 2		+	
Porifera	Demospongiae	Haplosclerida	Niphatidae	*not specified*		sp. 3		+	
Porifera	Demospongiae	Haplosclerida	Niphatidae	*Amphimedon*		*paraviridis*	+		+
Porifera	Demospongiae	Haplosclerida	Niphatidae	*Amphimedon*		cf. sp. 2			+
Porifera	Demospongiae	Haplosclerida	Niphatidae	*Amphimedon*		sp. 3	+	+	+
Porifera	Demospongiae	Haplosclerida	Niphatidae	*Gelliodes*		*fibulata*		+	
Porifera	Demospongiae	Haplosclerida	Niphatidae	*Gelliodes*		sp. KB1	+		+
Porifera	Demospongiae	Haplosclerida	Niphatidae	*Gelliodes*		cf. sp. KB1	+	+	
Porifera	Demospongiae	Haplosclerida	Niphatidae	*Niphates*		sp. KB1	+		
Porifera	Demospongiae	Haplosclerida	Niphatidae	*Niphates*		sp. KB2			+
Porifera	Demospongiae	Haplosclerida	Petrosiidae				+		
Porifera	Demospongiae	Haplosclerida	Petrosiidae	*Petrosia*		sp.	+	+	
Porifera	Demospongiae	Haplosclerida	Petrosiidae	*Petrosia*	*Petrosia*	sp. 1	+		+
Porifera	Demospongiae	Haplosclerida	Petrosiidae	*Petrosia*	*Petrosia*	sp. 4	+		
Porifera	Demospongiae	Haplosclerida	Petrosiidae	*Petrosia*	*Petrosia*	sp. 5	+		
Porifera	Demospongiae	Haplosclerida	Petrosiidae	*Petrosia*	*Petrosia*	cf. sp. 5		+	
Porifera	Demospongiae	Haplosclerida	Petrosiidae	*Petrosia*	*Petrosia*	sp. 7	+		+
Porifera	Demospongiae	Haplosclerida	Petrosiidae	*Petrosia*	*Petrosia*	sp. CERF6	+		
Porifera	Demospongiae	Haplosclerida	Petrosiidae	*Petrosia*	*Petrosia*	sp. SS4	+		+
Porifera	Demospongiae	Haplosclerida	Petrosiidae	*Petrosia*	*Strongylophora*	sp.		+	
Porifera	Demospongiae	Haplosclerida	Petrosiidae	*Petrosia*	*Strongylophora*	sp. 2			+
Porifera	Demospongiae	Haplosclerida	Petrosiidae	*Xestospongia*		cf. sp 1		+	
Porifera	Demospongiae	Haplosclerida	Petrosiidae	*Xestospongia*		sp. 3		+	+
Porifera	Demospongiae	Haplosclerida	Petrosiidae	*Xestospongia*		cf. sp. 3			+
Porifera	Demospongiae	Haplosclerida	Petrosiidae	*Xestospongia*		sp. KB1			+

Porifera	Demospongiae	Haplosclerida	Petrosiidae	*Xestospongia*	sp. KB2			+
Porifera	Demospongiae	Haplosclerida	Petrosiidae	*Xestospongia*	sp. KMB1			+
Porifera	Demospongiae	Haplosclerida	Petrosiidae	*Xestospongia*	sp. P1			+
Porifera	Demospongiae	Haplosclerida	Petrosiidae	*Xestospongia*	cf. sp. P2			+
Porifera	Demospongiae	Haplosclerida	Petrosiidae	*Xestospongia*	sp. P3		+	+
Porifera	Demospongiae	Haplosclerida	Petrosiidae	*Xestospongia*	*testudinaria*	+	+	+
Porifera	Demospongiae	Haplosclerida	Petrosiidae	*Xestospongia*	*cf. testudinaria*		+	
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Oceanapia*	*macrotoxa*	+		+
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Oceanapia*	*cf. macrotoxa*	+		+
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Oceanapia*	*ramsayi*	+	+	+
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Oceanapia*	sp.		+	
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Oceanapia*	sp. 3		+	+
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Oceanapia*	sp. 5	+	+	+
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Oceanapia*	sp. CERF9	+		+
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Oceanapia*	sp. KB1	+		+
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Oceanapia*	sp. KB4	+	+	+
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Oceanapia*	cf. sp. KB4	+		
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Oceanapia*	sp. KB5	+		+
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Oceanapia*	sp. KMB2	+		
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Oceanapia*	cf. sp. KMB2	+		
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Oceanapia*	sp. Ng1	+		+
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Oceanapia*	sp. Ng3		+	
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Oceanapia*	sp. NW1	+		+
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Oceanapia*	sp. SS4	+	+	+
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Oceanapia*	sp. SS13	+	+	+
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Siphonodictyon*	sp. 2			+
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Siphonodictyon*	sp. K2	+		
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Siphonodictyon*	sp. KB1	+		+

Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Siphonodictyon*		sp. KB2	+		+
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Siphonodictyon*		sp. KB3	+		
Porifera	Demospongiae	Haplosclerida	Phloeodictyidae	*Siphonodictyon*		sp. SS3	+		
Porifera	Demospongiae	Poecilosclerida	Acarnidae	*Acarnus*		*thielei*	+	+	+
Porifera	Demospongiae	Poecilosclerida	Acarnidae	*Acarnus*		*cf. thielei*			+
Porifera	Demospongiae	Poecilosclerida	Acarnidae	*Cornulella*		sp. KB1	+	+	
Porifera	Demospongiae	Poecilosclerida	Acarnidae	*Cornulum*		sp. KB1	+		+
Porifera	Demospongiae	Poecilosclerida	Chrondropsidae					+	
Porifera	Demospongiae	Poecilosclerida	Chrondropsidae	*Chondropsis*		sp. 1	+		+
Porifera	Demospongiae	Poecilosclerida	Coelosphaeridae	*Coelosphaera*	*Coelosphaera*	sp. SS3	+	+	+
Porifera	Demospongiae	Poecilosclerida	Coelosphaeridae	*Lissodendoryx*		sp. KMB1			+
Porifera	Demospongiae	Poecilosclerida	Crambeidae	*Crambe*		sp. KB1	+		
Porifera	Demospongiae	Poecilosclerida	Crellidae	*Crella*	*Yvesia*	*spinulata*	+	+	+
Porifera	Demospongiae	Poecilosclerida	Guitarridae	*Guitarra*		sp. 1	+		
Porifera	Demospongiae	Poecilosclerida	Iotrochotidae	*Iotrochota*		sp. 1	+	+	
Porifera	Demospongiae	Poecilosclerida	Iotrochotidae	*Iotrochota*		sp.2	+	+	
Porifera	Demospongiae	Poecilosclerida	Iotrochotidae	*Iotrochota*		sp. KMB1		+	
Porifera	Demospongiae	Poecilosclerida	Isodictyidae	*Coelocarteria*		*singaporensis*	+		+
Porifera	Demospongiae	Poecilosclerida	Isodictyidae	*Coelocarteria*		sp. SS1			+
Porifera	Demospongiae	Poecilosclerida	Microcionidae	*Antho*	*Acarnia*	*ridleyi*	+	+	+
Porifera	Demospongiae	Poecilosclerida	Microcionidae	*Clathria*	*Thalysias*	*abietina*	+	+	+
Porifera	Demospongiae	Poecilosclerida	Microcionidae	*Clathria*	*Thalysias*	*cactiformis*	+		
Porifera	Demospongiae	Poecilosclerida	Microcionidae	*Clathria*	*Thalysias*	*cancellaria*	+		
Porifera	Demospongiae	Poecilosclerida	Microcionidae	*Clathria*	*Thalysias*	*coppingeri*		+	+
Porifera	Demospongiae	Poecilosclerida	Microcionidae	*Clathria*	*Thalysias*	*darwinensis*	+		+
Porifera	Demospongiae	Poecilosclerida	Microcionidae	*Clathria*	*Thalysias*	*cf. darwinensis*		+	
Porifera	Demospongiae	Poecilosclerida	Microcionidae	*Clathria*	*Thalysias*	*fusterna*	+		+
Porifera	Demospongiae	Poecilosclerida	Microcionidae	*Clathria*	*Thalysias*	*lendenfeldi*	+		

Porifera	Demospongiae	Poecilosclerida	Microcionidae	*Clathria*	*Thalysias*	*major*	+	+	+
Porifera	Demospongiae	Poecilosclerida	Microcionidae	*Clathria*	*Thalysias*	*procera*	+		+
Porifera	Demospongiae	Poecilosclerida	Microcionidae	*Clathria*	*Thalysias*	*reinwardti*		+	
Porifera	Demospongiae	Poecilosclerida	Microcionidae	*Clathria*	*Thalysias*	*cf. spinifera*	+		
Porifera	Demospongiae	Poecilosclerida	Microcionidae	*Clathria*	*Thalysias*	*cf. tingens*	+		
Porifera	Demospongiae	Poecilosclerida	Microcionidae	*Clathria*	*Thalysias*	*vulpina*	+	+	+
Porifera	Demospongiae	Poecilosclerida	Microcionidae	*Clathria*	*Thalysias*	*cf. vulpina*	+		
Porifera	Demospongiae	Poecilosclerida	Microcionidae	*Echinochalina*		sp.			+
Porifera	Demospongiae	Poecilosclerida	Microcionidae	*Echinochalina*		cf. sp. K1			+
Porifera	Demospongiae	Poecilosclerida	Microcionidae	*Echinoclathria*		*bergquistae*			+
Porifera	Demospongiae	Poecilosclerida	Microcionidae	*Echinoclathria*		*cf. bergquistae*	+		
Porifera	Demospongiae	Poecilosclerida	Mycalidae	*Mycale*	*Aegogropila*	sp. PB1	+	+	+
Porifera	Demospongiae	Poecilosclerida	Mycalidae	*Mycale*	*Arenochalina*	*mirabilis*	+	+	
Porifera	Demospongiae	Poecilosclerida	Mycalidae	*Mycale*	*Arenochalina*	*cf. mirabilis*	+		
Porifera	Demospongiae	Poecilosclerida	Mycalidae	*Mycale*		sp.			+
Porifera	Demospongiae	Poecilosclerida	Mycalidae	*Mycale*		cf. sp 1	+		
Porifera	Demospongiae	Poecilosclerida	Mycalidae	*Mycale*		sp. 2	+		
Porifera	Demospongiae	Poecilosclerida	Mycalidae	*Mycale*		cf. sp. 3	+		
Porifera	Demospongiae	Poecilosclerida	Mycalidae	*Mycale*		sp. 4		+	
Porifera	Demospongiae	Poecilosclerida	Mycalidae	*Mycale*		sp. 5	+		
Porifera	Demospongiae	Poecilosclerida	Mycalidae	*Mycale*		sp. KB1		+	+
Porifera	Demospongiae	Poecilosclerida	Myxillidae	*Myxilla*	*Myxilla*	sp. KB1	+		
Porifera	Demospongiae	Poecilosclerida	Tedaniidae	*Tedania*	*Tedania*	sp. TB1	+		+
Porifera	Demospongiae	Poecilosclerida	Tedaniidae	*Tedania*	*Trachytedania*	sp. EG1	+	+	+
Porifera	Demospongiae	Polymastiida	Polymastiidae	*Polymastia*		sp. CERF2	+		
Porifera	Demospongiae	Polymastiida	Polymastiidae	*Polymastia*		sp. KB1		+	
Porifera	Demospongiae	Polymastiida	Polymastiidae	*Polymastia*		sp. KB2	+		
Porifera	Demospongiae	Polymastiida	Polymastiidae	*Polymastia*		sp. KB3			+

Porifera	Demospongiae	Polymastiida	Polymastiidae	*Polymastia*		sp. KMB2	+		
Porifera	Demospongiae	Polymastiida	Polymastiidae	*Polymastia*		sp. SS4			+
Porifera	Demospongiae	Polymastiida	Polymastiidae	*Polymastia*		sp. SS5	+		
Porifera	Demospongiae	Scopalinida	Scopalinidae	*Stylissa*		*flabelliformis*	+	+	+
Porifera	Demospongiae	Suberitida	Halichondriidae				+		
Porifera	Demospongiae	Suberitida	Halichondriidae	*Amorphinopsis*		*cf. foetida*	+		+
Porifera	Demospongiae	Suberitida	Halichondriidae	*Amorphinopsis*		*cf. sacciformis*	+	+	+
Porifera	Demospongiae	Suberitida	Halichondriidae	*Axinyssa*		sp. KB1	+		
Porifera	Demospongiae	Suberitida	Halichondriidae	*Ciocalypta*		sp. PB3	+	+	+
Porifera	Demospongiae	Suberitida	Halichondriidae	*Ciocalypta*		cf. sp. PB3	+	+	
Porifera	Demospongiae	Suberitida	Halichondriidae	*Ciocalypta*		*tyleri*	+	+	+
Porifera	Demospongiae	Suberitida	Halichondriidae	*Ciocalypta*		*cf. tyleri*	+		
Porifera	Demospongiae	Suberitida	Halichondriidae	*Halichondria*	*Halichondria*	*phakellioides*	+		+
Porifera	Demospongiae	Suberitida	Halichondriidae	*Halichondria*	*Halichondria*	sp. K1	+	+	+
Porifera	Demospongiae	Suberitida	Halichondriidae	*Halichondria*	*Halichondria*	sp. KMB4	+		
Porifera	Demospongiae	Suberitida	Halichondriidae	*Hymeniacidon*		sp. KB1	+		
Porifera	Demospongiae	Suberitida	Halichondriidae	*Hymeniacidon*		sp. KB2			+
Porifera	Demospongiae	Suberitida	Halichondriidae	*Hymeniacidon*		sp. KMB1		+	
Porifera	Demospongiae	Suberitida	Halichondriidae	*Hymeniacidon*		sp. SS4		+	
Porifera	Demospongiae	Tethyida	Hemiasterellidae	*Axos*		*flabelliformis*			+
Porifera	Demospongiae	Tethyida	Hemiasterellidae	*Hemiasterella*		sp. CERF1	+		
Porifera	Demospongiae	Tethyida	Hemiasterellidae	*Hemiasterella*		sp. KB1	+		
Porifera	Demospongiae	Tethyida	Hemiasterellidae	*Liosina*		*cf. granularis*			+
Porifera	Demospongiae	Tethyida	Hemiasterellidae	*Liosina*		*cf. paradoxa*			+
Porifera	Demospongiae	Tethyida	Tethyidae	*Anthotethya*		*fromontae*			+
Porifera	Demospongiae	Tethyida	Tethyidae	*Halicometes*		sp. KB1	+		+
Porifera	Demospongiae	Tethyida	Tethyidae	*Tethya*		*ingalli*	+		+
Porifera	Demospongiae	Tethyida	Tethyidae	*Tethya*		*cf. ingalli*		+	+

Porifera	Demospongiae	Tethyida	Tethyidae	*Tethya*	*magna*	+		
Porifera	Demospongiae	Tethyida	Tethyidae	*Tethya*	*robusta*	+		
Porifera	Demospongiae	Tethyida	Tethyidae	*Tethya*	*cf. robusta*			+
Porifera	Demospongiae	Tethyida	Tethyidae	*Tethya*	sp. 1	+	+	+
Porifera	Demospongiae	Tethyida	Tethyidae	*Xenospongia*	*patelliformis*	+		+
Porifera	Demospongiae	Tetractinellida					+	
Porifera	Demospongiae	Tetractinellida	Ancorinidae	*Ancorina*	sp.		+	
Porifera	Demospongiae	Tetractinellida	Ancorinidae	*Asteropus*	sp. KB1	+		
Porifera	Demospongiae	Tetractinellida	Ancorinidae	*Disyringa*	*nodosa*	+	+	+
Porifera	Demospongiae	Tetractinellida	Ancorinidae	*Disyringa*	sp. KB1	+	+	+
Porifera	Demospongiae	Tetractinellida	Ancorinidae	*Jaspis*	sp. KB1	+	+	
Porifera	Demospongiae	Tetractinellida	Ancorinidae	*Jaspis*	sp. KB2	+		+
Porifera	Demospongiae	Tetractinellida	Ancorinidae	*Jaspis*	sp. SS3	+		
Porifera	Demospongiae	Tetractinellida	Ancorinidae	*Jaspis*	sp. SS4	+	+	
Porifera	Demospongiae	Tetractinellida	Ancorinidae	*Jaspis*	cf. sp. SS4			+
Porifera	Demospongiae	Tetractinellida	Ancorinidae	*Rhabdastrella*	*globostellata*		+	+
Porifera	Demospongiae	Tetractinellida	Ancorinidae	*Stelletta*	*clavosa*	+		
Porifera	Demospongiae	Tetractinellida	Ancorinidae	*Stelletta*	sp. KB1	+		+
Porifera	Demospongiae	Tetractinellida	Ancorinidae	*Stelletta*	sp. KB2	+		
Porifera	Demospongiae	Tetractinellida	Ancorinidae	*Stelletta*	sp. KMB2	+		
Porifera	Demospongiae	Tetractinellida	Ancorinidae	*Stelletta*	sp. SS11	+	+	+
Porifera	Demospongiae	Tetractinellida	Ancorinidae	*Tribrachium*	sp. SS1	+	+	+
Porifera	Demospongiae	Tetractinellida	Ancorinidae	*Stryphnus*	sp. KB1			+
Porifera	Demospongiae	Tetractinellida	Geodiidae	*Erylus*	sp. SS1	+		+
Porifera	Demospongiae	Tetractinellida	Geodiidae	*Erylus*	sp. SS2	+		+
Porifera	Demospongiae	Tetractinellida	Geodiidae	*Erylus*	cf. sp. SS2		+	
Porifera	Demospongiae	Tetractinellida	Geodiidae	*Erylus*	sp. SS4	+	+	
Porifera	Demospongiae	Tetractinellida	Geodiidae	*Geodia*	sp.		+	

Porifera	Demospongiae	Tetractinellida	Geodiidae	*Geodia*	cf. sp. 1	+		
Porifera	Demospongiae	Tetractinellida	Geodiidae	*Geodia*	sp. 3	+	+	+
Porifera	Demospongiae	Tetractinellida	Geodiidae	*Geodia*	sp. 5	+		
Porifera	Demospongiae	Tetractinellida	Geodiidae	*Geodia*	sp. CERF1	+	+	+
Porifera	Demospongiae	Tetractinellida	Geodiidae	*Geodia*	sp. KB1		+	
Porifera	Demospongiae	Tetractinellida	Tetillidae	*Cinachyra*	sp.		+	
Porifera	Demospongiae	Tetractinellida	Tetillidae	*Cinachyra*	sp. 1	+	+	+
Porifera	Demospongiae	Tetractinellida	Tetillidae	*Cinachyra*	sp. BB1	+		+
Porifera	Demospongiae	Tetractinellida	Tetillidae	*Cinachyra*	sp. KB1	+	+	+
Porifera	Demospongiae	Tetractinellida	Tetillidae	*Cinachyrella*	sp. SS5			+
Porifera	Demospongiae	Tetractinellida	Tetillidae	*Cinachyrella*	*australiensis*	+	+	+
Porifera	Demospongiae	Tetractinellida	Tetillidae	*Cinachyrella*	*australiensis Type I*	+	+	
Porifera	Demospongiae	Tetractinellida	Tetillidae	*Cinachyrella*	sp.		+	+
Porifera	Demospongiae	Tetractinellida	Tetillidae	*Cinachyrella*	sp. SS5	+	+	+
Porifera	Demospongiae	Tetractinellida	Tetillidae	*Cinachyrella*	*teniuiviolacea*			+
Porifera	Demospongiae	Tetractinellida	Tetillidae	*Cinachyrella*	*cf. teniuiviolacea*	+		
Porifera	Demospongiae	Tetractinellida	Tetillidae	*Craniella*	sp. P1	+		
Porifera	Demospongiae	Tetractinellida	Tetillidae	*Craniella*	sp. SS1	+	+	+
Porifera	Demospongiae	Tetractinellida	Tetillidae	*Craniella*	cf. sp. SS1			+
Porifera	Demospongiae	Tetractinellida	Theonellidae	*Theonella*	*cf. levior*	+		+
Porifera	Demospongiae	Tetractinellida	Theonellidae	*Theonella*	sp. KB1	+		
Porifera	Demospongiae	Tetractinellida	Theonellidae	*Theonella*	sp. KMB3			+
Porifera	Demospongiae	Verongiida				+		
Porifera	Demospongiae	Verongiida	Aplysinellidae	*Suberea*	*laboutei*	+	+	+
Porifera	Demospongiae	Verongiida	Aplysinellidae	*Porphyria*	sp. PB1		+	
Porifera	Demospongiae	Verongiida	Aplysinidae	*Aplysina*	sp. KB1	+		
Porifera	Demospongiae	Verongiida	Ianthellidae	*Anomoianthella*	*popeae*	+		
Porifera	Demospongiae	Verongiida	Ianthellidae	*Anomoianthella*	*cf. popeae*	+	+	+

Porifera	Demospongiae	Verongiida	Ianthellidae	*Anomoianthella*	sp. KB1			+
Porifera	Demospongiae	Verongiida	Ianthellidae	*Ianthella*	*basta*	+	+	+
Porifera	Demospongiae	Verongiida	Ianthellidae	*Ianthella*	*cf. basta*	+		
Porifera	Demospongiae	Verongiida	Ianthellidae	*Ianthella*	*flabelliformis*	+	+	+
Porifera	Demospongiae	Verongiida	Ianthellidae	*Ianthella*	*cf. flabelliformis*	+		
Porifera	Demospongiae	Verongiida	Ianthellidae	*Ianthella*	*labyrinthus*	+		+
Porifera	Demospongiae	Verongiida	Ianthellidae	*Ianthella*	*cf labyrinthus.*			+
Porifera	Demospongiae	Verongiida	Ianthellidae	*Ianthella*	*cf. quadrangulata*		+	
Porifera	Demospongiae	Verongiida	Ianthellidae	*Ianthella*	*reticulata*	+		
Porifera	Demospongiae	Verongiida	Ianthellidae	*Ianthella*	*cf. reticulata*			+
Porifera	Demospongiae	Verongiida	Ianthellidae	*Ianthella*	sp.	+	+	
Porifera	Demospongiae	Verongiida	Pseudoceratinidae	*Pseudoceratina*	sp.	+		
Porifera	Demospongiae	Verongiida	Pseudoceratinidae	*Pseudoceratina*	sp. 2	+		
Porifera	Demospongiae	Verongiida	Pseudoceratinidae	*Pseudoceratina*	cf. sp. 2			+
Porifera	Demospongiae	Verongiida	Pseudoceratinidae	*Pseudoceratina*	sp. 3		+	
Porifera	Demospongiae	Verongiida	Pseudoceratinidae	*Pseudoceratina*	sp. KMB2	+		+
Porifera	Homoscleromorpha	Homosclerophorida	Plakinidae	*Corticium*	*cf. simplex*			+
Porifera	Homoscleromorpha	Homosclerophorida	Plakinidae	*Plakortis*	*cf. bergquistae*			+
Porifera	Homoscleromorpha	Homosclerophorida	Plakinidae	*Plakortis*	*cf. communis*	+		+
Porifera	Homoscleromorpha	Homosclerophorida	Plakinidae	*Plakortis*	sp. NW2		+	+
worms						+	+	+
Cyanobacteria	Cyanophyceae	Oscillatoriales	Phormidiaceae	*Symploca*	*hydnoides*			+
Ochrophyta	Phaeophyceae	Dictyotales	Dictyotaceae	*Dictyota*	*ciliolata*		+	
Ochrophyta	Phaeophyceae	Dictyotales	Dictyotaceae	*Padina*	*australis*		+	+
Ochrophyta	Phaeophyceae	Dictyotales	Dictyotaceae	*Padina*	*boryana*	+		+
Ochrophyta	Phaeophyceae	Fucales	Sargassaceae	*Sargassopsis*	*decurrens*			+
Ochrophyta	Phaeophyceae	Fucales	Sargassaceae	*Sargassum*	*aquifolium*		+	+
Ochrophyta	Phaeophyceae	Fucales	Sargassaceae	*Sargassum*	*ilicifolium*		+	+

Ochrophyta	Phaeophyceae	Fucales	Sargassaceae	*Sargassum*	*linearifolium*		+	+
Ochrophyta	Phaeophyceae	Fucales	Sargassaceae	*Sargassum*	*polycystum*	+		+
Ochrophyta	Phaeophyceae	Fucales	Sargassaceae	*Sargassum*	*cf. polycystum*			+
Ochrophyta	Phaeophyceae	Fucales	Sargassaceae	*Sargassum*	*rasta*	+		
Ochrophyta	Phaeophyceae	Fucales	Sargassaceae	*Sargassum*	sp.			+
Ochrophyta	Phaeophyceae	Fucales	Sargassaceae	*Turbinaria*	*conoides*	+		
Ochrophyta	Phaeophyceae	Fucales	Sargassaceae	*Turbinaria*	*cf. luzonensis*	+		
Chlorophyta	Ulvophyceae	Bryopsidales	Caulerpaceae	*Caulerpa*	*chemnitzia*			+
Chlorophyta	Ulvophyceae	Bryopsidales	Caulerpaceae	*Caulerpa*	*lamourouxii*	+		
Chlorophyta	Ulvophyceae	Bryopsidales	Caulerpaceae	*Caulerpa*	*lentillifera*	+		
Chlorophyta	Ulvophyceae	Bryopsidales	Caulerpaceae	*Caulerpa*	*racemosa*		+	
Chlorophyta	Ulvophyceae	Bryopsidales	Caulerpaceae	*Caulerpa*	*taxifolia*			+
Chlorophyta	Ulvophyceae	Bryopsidales	Dichotomosiphonaceae	*Avrainvillea*	*obscura*	+		
Chlorophyta	Ulvophyceae	Bryopsidales	Halimedaceae	*Halimeda*	*borneensis*		+	
Chlorophyta	Ulvophyceae	Bryopsidales	Halimedaceae	*Halimeda*	*cylindracea*	+		
Chlorophyta	Ulvophyceae	Bryopsidales	Halimedaceae	*Halimeda*	*discoidea*		+	
Chlorophyta	Ulvophyceae	Bryopsidales	Halimedaceae	*Halimeda*	*macroloba*	+		
Chlorophyta	Ulvophyceae	Bryopsidales	Halimedaceae	*Halimeda*	*opuntia*	+	+	+
Chlorophyta	Ulvophyceae	Bryopsidales	Halimedaceae	*Halimeda*	*xishaensis*	+		+
Chlorophyta	Ulvophyceae	Cladophorales	Anadyomenaceae	*Anadyomene*	*plicata*			+
Chlorophyta	Ulvophyceae	Dasycladales	Dasycladaceae	*Bornetella*	*oligospora*		+	
Chlorophyta	Ulvophyceae	Siphonocladales	Boodleaceae	*Boodlea*	*composita*		+	
Chlorophyta	Ulvophyceae	Siphonocladales	Siphonocladaceae	*Boergesenia*	*forbesii*			+
Chlorophyta	Ulvophyceae	Ulvales	Ulvaceae	*Ulva*	*flexuosa*			+
Rhodophyta	Florideophyceae	Halymeniales	Halymeniaceae	*Halymenia*	*durvillei*			+
Rhodophyta	Florideophyceae	Ceramiales	Ceramiaceae	*Ceramium*	*vagans*			+
Rhodophyta	Florideophyceae	Ceramiales	Rhodomelaceae	*Acanthophora*	*spicifera*			+
Rhodophyta	Florideophyceae	Ceramiales	Rhodomelaceae	*Laurencia*	*dendroidea*		+	+

Rhodophyta	Florideophyceae	Ceramiales	Rhodomelaceae	*Laurencia*	sp.			+
Rhodophyta	Florideophyceae	Gigartinales	Cystocloniaceae	*Hypnea*	*pannosa*	+		
Rhodophyta	Florideophyceae	Gigartinales	Solieriaceae	*Eucheuma*	*denticulatum*			+
Rhodophyta	Florideophyceae	Gigartinales	Phyllophoraceae	*Stennogramma*	*sp*			+
Rhodophyta	Florideophyceae	Gracilariales	Gracilariaceae	*Gracilaria*	*canaliculata*	+	+	
Rhodophyta	Florideophyceae	Gracilariales	Gracilariaceae	*Gracilaria*	*vieillardii*		+	
Rhodophyta	Florideophyceae	Gracilariales	Rhizophyllidaceae	*Portieria*	*hornemannii*	+		
Rhodophyta	Florideophyceae	Halymeniales	Halymeniaceae	*Halymenia*	sp.			+
Rhodophyta	Florideophyceae	Nemaliales	Galaxauraceae	*Actinotrichia*	*fragilis*		+	
Rhodophyta	Florideophyceae	Nemaliales	Galaxauraceae	*Galaxaura*	*rugosa*		+	+
Rhodophyta	Florideophyceae	Nemaliales	Liagoraceae	*Titanophycus*	sp.		+	
Rhodophyta	Florideophyceae	Rhodymeniales	Rhodymeniaceae	*Botryocladia*	*leptopoda*		+	
Rhodophyta	Florideophyceae	Corallinales	Corallinaceae	*Amphiroa*	*foliacea*			+
Tracheophyta						+		
Tracheophyta	Magnoliopsida	Alismatales	Hydrocharitaceae	*Thalassia*	*hemprichii*	+		