Kimberley marine biota. Historical data: crustaceans

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ABSTRACT – Using biological collections and relevant literature, an extensive data compilation of the marine crustaceans known from the Kimberley Project Area waters has been assembled. This will contribute to the ecological and environmental understanding of the region. Crustacean records held by Australian museums were surveyed for specimens collected in depths of <30 m from the Kimberley coast and adjacent offshore atolls of Western Australia. A total of 5,399 specimen lots were collated, but 28% of records were excluded owing to incomplete identification, leaving 882 species in the final dataset. Decapods represent 85.5% of all crustacean species presently known from the Kimberley Project Area. Most species (64.6%) were wide ranging Indo-West Pacific, with few Australian endemics (13.3%). However, endemism rates were higher in the inshore (17.3%) than in offshore waters (4.7%). Knowledge gaps regarding the crustacean diversity of the region are discussed and shown to be mainly due to collecting bias and variation in effort.

KEYWORDS: baseline data, biodiversity, natural history collections, north-west Australia, species inventory

INTRODUCTION

The importance of utilising natural science collection datasets to provide baseline biodiversity information to inform conservation and environmental management decisions is increasingly being recognised (Pyke and Ehrlich 2010). The Kimberley region and adjacent areas of Australia are currently of immense interest due to the great conservation value of proposed marine parks. Cultural heritage values are also of high importance, especially because of oil and gas reserves, fishing and aquaculture activities, tourism and other proposed developments (Masini et al. 2009). Consequently, baseline data to 'characterise the assets and values' in the region are needed (Wood and Mills 2008).

Previously, the Western Australian Museum (WAM) and other Australian natural science institutions have undertaken various marine biodiversity surveys to document marine species present in coastal Kimberley waters and offshore atolls. However, much of these data are either unpublished or published in specialist taxonomic literature and thus unavailable or not readily accessible to managers and researchers in the region. To address this, WAM instigated an

extensive data compilation of the marine species from an area henceforth titled the Kimberley Project Area (Project Area). Each major taxon is dealt with in this series of papers. Herein, we document current knowledge regarding the crustacean diversity of the Project Area.

CRUSTACEA

The subphylum Crustacea comprises a highly diverse group of approximately 67,000 species worldwide (Martin and Davis 2001; Ahyong et al. 2011). They are prominent members of all aquatic and most terrestrial habitats, and thus fill very important ecological roles, e.g. by forming a large proportion of the zooplankton, as scavengers, benthic and pelagic predators and as parasites. Crustaceans are most diverse on tropical reefs where the opportunities for niche specialisation are highest and many species form symbiotic relationships with large benthic invertebrates such as corals, echinoderms, ascidians, sponges and molluscs. Many crustacean species form important components of the diets of people around the world, with approximately 11 million tonnes caught or cultured in 2009 (Tacon et al. 2011). The vast majority of commercially important crustaceans

are decapods, which include the lobsters, crabs, shrimps and prawns. In Australia, the largest single species fishery is the Western Rock Lobster, *Panulirus cygnus* George, 1962. In the Project Area, only small commercial fisheries for mud crabs (*Scylla serrata* (Forskål, 1775) and *S. olivacea* De Haan, 1833) and prawns (various species of *Fenneropenaeus*, *Melicertus*, *Metapenaeus* and *Penaeus*) are presently active.

HISTORY OF CRUSTACEAN COLLECTING

Morgan (1990) and Jones (1991) detailed historical biological collecting in the Kimberley inshore bioregions. They noted that although the Baudin Expedition (1801-1803) is considered to have undertaken the first significant biological collecting in southern and northern Western Australia (WA) no descriptions of crustaceans collected within the Kimberley inshore were published. However, subsequent publications have documented sketches and illustrations of crustacea (Jones 1986, 1988; Bonnemains and Jones 1990). From analysis of notebooks and illustrations from this expedition, Bonnemains and Jones (1990) were also able to publish details of crustacean material collected from the north-western coast of WA (Péron Carnet 65006) - Cancer mantis, Cancer notonacanthos, Cancer pelagicus, Cancer pelagicus Lin. Variété Ocellata, Cancer porcellamachromus, Cancer squilla monocurtos, Cancer transversus and Cancer whytensis; the north coast of WA (Péron Carnet 21002, Journal X) - Oniscus asellus rostracanthus var. B (?); and between the north coast of WA and Timor (Péron Carnet 21002, Journal X) – Cancer pelagicus, Oniscus asellusve? indet.

The first published accounts of the crustaceans of north-western Australia occurred over 100 years after the Baudin Expedition, and were based on specimens collected during Dr E.J. Mjöberg's Swedish scientific expeditions to Australia (1910-1913). These expeditions resulted in published reports on a wide range of crustaceans, from marine (Cirripedia, Broch 1916; Stomatopoda, Macrura, Paguridea, Galatheidea, Balss 1921; Cumacea, Zimmer 1921; Amphipoda, Chilton 1922; Brachyura, Albuneidae and Porcellanidae, Rathbun 1924), freshwater (Phyllopoda, Schwartz 1917; Ostracoda, Skogsberg 1917) and terrestrial (Isopoda, Wahrberg 1922). The marine species were collected only from the most southerly shores of the Project Area, from near Broome and off Cape Jaubert, 160 km to the south, and mostly in deeper water.

Apart from sporadic collections of crustaceans, such as brachyurans and hermit crabs, and mostly from the relatively accessible areas near Broome and Derby (e.g. McCulloch 1918), there were no further concerted shallow-water biological surveys undertaken until 1975. At this time the Russian Research Vessel Kallisto conducted a survey at Scott Reef with Tsareva (1980) documenting a total of 45 species of Crustacea. Thirteen years later (1988), WAM and the Field Museum of Natural History, Chicago undertook the first inshore, shallow-water biodiversity survey to specifically target crustaceans. The resulting collection of Thalassinidea, Brachyura and Anomura from coastal habitats along the mainland and islands of the Kimberley coast were detailed by Morgan (1990). This publication recorded 171 crustacean species, 69 of which were new records for the region. WAM has since carried out a further eight surveys in the Project Area and crustaceans were among the taxa collected. These were deposited in WAM collections, and the results of these surveys have remained largely unpublished.

Papers, reviews and revisions referencing various crustacean taxa have also included specimens from within the Project Area, for example, Cirripedia (Jones 1991, 1992a, 1992b, 2003, 2012; Jones and Hewitt 1997; Jones et al. 1990); Amphipoda (Lowry and Stoddart 2003) and within the Isopoda, Cirolanidae (Bruce 1986). However, most work has been undertaken within the Decapoda, e.g. Penaeidae (Dall 1957); caridean Alpheidae (Banner and Banner 1975, 1982); Thalassinidea (Poore and Griffin 1979) and in the Anomura, Porcellanidae (Haig 1965) and Galatheidae (Baba et al. 2008). Similarly, within the Brachyura, Dromiidae (Montgomery 1931); Dorippidae (Tyndale-Biscoe and George 1962); Calappidea (Tyndale-Biscoe and George 1962); Leucosiidae (Tyndale-Biscoe and George 1962; George and Clark 1976); Majidae (Montgomery 1931; Griffin and Yaldwyn 1965; Griffin 1966, 1970 1973; Griffin and Tranter 1986); Portunidae (Rathbun 1924; Stephenson and Hudson 1957; Stephenson, Hudson and Campbell 1957; Stephenson and Campbell 1959, 1960; Stephenson 1961, 1972); Xanthidae (McCulloch 1918; Rathbun 1924; Montgomery 1931); Pilmunidae (Rathbun 1924; Montgomery 1931; Balss 1933; Takeda and Miyake 1968, 1969); Grapsidae (McCulloch 1918); Pinnotheridae (Rathbun 1924) and Ocypodidae (McCulloch 1918; Rathbun 1924; George and Knott 1965; Barnes 1967, 1968; Crane 1975; George and Jones 1982; Hagen and Jones 1989; Davie 2012).

AIMS

To synthesise records of crustacean species in the Project Area, which are verified by specimens lodged in museum collections, and to provide comment on diversity trends, taxonomic and collection gaps in the region.

METHODS

SPATIAL INFORMATION, COLLECTION DETAILS AND MAPPING

The Project Area was defined by waters <30 m depth within the following coordinates: 19.00°S 121.57°E; 19.00°S 118.25°E; 12.00°S 129.00°E; 12.00°S 121.00°E, with the coastline forming a natural inshore boundary (Figure 1; see Sampey et al. 2014, for a full explanation of the study area). The marine crustacean fauna was defined as those species known to rely on the marine environment for a significant portion of their lifecycles. This includes some predominantly terrestrial taxa, such as hermit crabs of the genus *Coenobita*, which live their adult life terrestrially, but migrate to the sea to release larvae, as well as the isopod genera, *Ligia* and *Alloniscus* inhabiting the splash zones of the supralittoral.

Crustacean data were sourced from the collection databases of WAM, Queensland Museum (QM), Museum and Art Gallery of the Northern Territory (MAGNT) and Australian Museum (AM), and from the species lists presented in the results of 10 surveys (Tsareva 1980; Berry and Morgan 1986; Jones 1991; Morgan 1992; Morgan and Berry 1993; Davie and Short 1995, 1996; Jones and Hewitt 1997; Hewitt 1997; Hewitt et al. 2009; Keesing et al. 2011).

The resulting dataset was collated into a single database, the provenance details verified, and specimen locations mapped using ArcGIS v9 and ArcMap v 9.3 (for full methodology see Sampey et al. 2014)

Species names represent a hypothesis and are subject to change as new information (e.g. morphological, genetic, behavioural and distributional) is discovered (Gaston and Mound 1993). The species names and taxonomic placement of the records in the dataset were checked in an endeavour to present the currently accepted name, but the specimens were not re-examined for this study. Species names were checked for current taxonomic placement and validity using a variety of publications, including online databases such as the Australian Faunal Directory (AFD) (ABRS 2014) and the World Register of Marine Species (WoRMS 2014), as well as traditionally published checklists and monographs (Jones et al. 1990; Davie 2002a, 2002b; Poore 2002; Lowry and Stoddart 2003; Baba et al. 2008; Ng et al. 2008; McLaughlin et al. 2010; Osawa and McLaughlin 2010; Ahyong et al. 2011; De Grave and Fransen 2011).

Records pertaining to specimens not identified to a described species were retained in the dataset only if they were the sole representative of a taxonomic group (e.g. *Nebalia* sp. was retained as there were no other representatives of this genus)

or it was clear that a taxonomist regarded them as a valid operational taxonomic unit (OTU) and distinct from known species (e.g. *Conopea* sp. nov.).

BIOGEOGRAPHIC AND HABITAT CODING

Species were coded for their known habitat and biogeographic range to provide extra information for researchers and managers (Table 1). The terms 'inshore' and 'offshore' refer to locations shoreward and seaward of the 50 m depth contour, respectively, and are used to provide a comparison between localities adjacent to mainland Australia and the offshore atolls (see Figure 1).

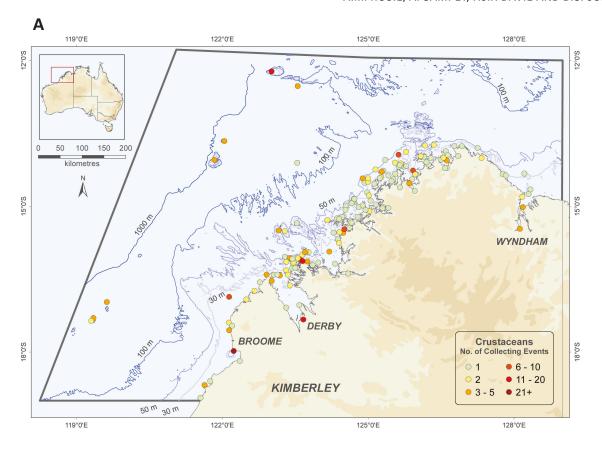
RESULTS

NUMBER OF SPECIMEN LOTS

There were a total of 5,399 registered crustacean specimen lots from within the Project Area from Australian museum collections, but 1,513 records were omitted due to incomplete identification. Of the 3,885 lots retained, 3,323 (85.5%) were decapods and 364 (9.4%) cirripedes (barnacles) (Table 2). Within the decapods, Brachyura (true crabs) were best represented with 2,011 (60.5%) followed by Anomura (hermit crabs, squat lobsters) with 736 (22.1%) and Caridea (shrimp) with 458 (13.8%). The oldest specimen record in this dataset is Nodolambrus nodosus (Jacquinot, in Jacquinot and Lucas, 1853), collected near Broome in 1909 by the Hon. Arthur Male MLA, the Kimberley district representative to the state parliament at the time. The dry specimen is still extant, held in the Australian Museum, Sydney, and in excellent condition (Figure 2).

SPECIES RICHNESS

A total of 882 species were recorded across 128 families and 13 orders (Appendix 1). Of these, 19 are listed as being undescribed and 99 are of uncertain specific designation (e.g. sp., sp. 1, cf., ?). The infraclass Cirripedia forms a discrete taxonomic unit and is herein compared with other taxa at a level comparable to the ordinal level. The most speciose order was Decapoda (732 species), followed by Cirripedia (58), Isopoda (29) and Stomatopoda (28). Within Decapoda, more than half of the species were in Brachyura (405), followed by Caridea (187) and Anomura (98). The most speciose families of these infraorders were the Xanthidae (105) and Palaemonidae (79) and Diogenidae (44), respectively. The remaining peracarid orders, Amphipoda (19), Tanaidacea (1) and Mysidacea (4) as well as subclass Copepoda (3), had such low representation they were excluded from separate treatment in the remainder of the results.



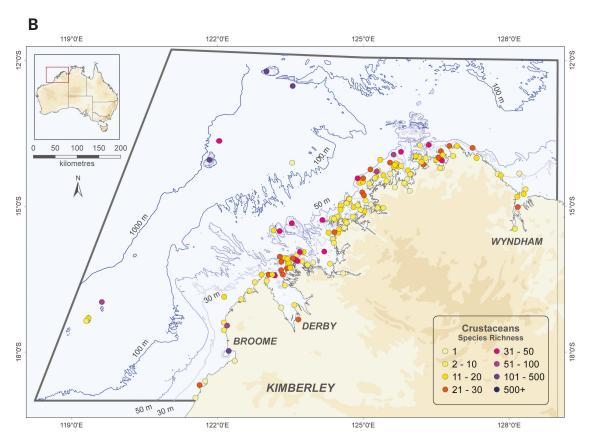


FIGURE 1 Maps showing crustacean collecting locations: A. number of collecting events at each site; B. species richness at each site. The Kimberley Project Area boundary is marked in grey; see Sampey et al. (2014) for methodology. Map projection: GDA 94, scale 1:6, 250,000.

TABLE 1 Biogeographic and habitat codes assigned to crustacean species in the Kimberley Project Area dataset.

Code	Definition
Biogeogra	phic
A	Australian endemic. Recorded in tropical and temperate Australian waters.
AT	Atlantic Ocean. Recorded in the Atlantic Ocean, may include the Mediterranean and Caribbean Seas.
C	Circumglobal. Recorded in all oceans in either tropical or tropical/temperate waters.
IA	Indo-Australian. Recorded in Australian and Indonesian waters, may extend to the Philippines.
IO	Indian Ocean. Restricted to the Indian Ocean.
IP	Indo-Pacific. Recorded in the Indian and Pacific Oceans including the Americas.
IWP	Indo-West Pacific. Recorded in the Indian and western Pacific Oceans as far east as Hawai'i and French Polynesia.
NA	Northern Australian endemic. Recorded in tropical Australian waters.
WA	Western Australian endemic. Known only from Western Australian waters.
U	<i>Unknown</i> . Used only for an undescribed OTU.
Habitat	
E	Estuarine. Recorded in estuarine or brackish waters.
EnP	Endophytic. Always recorded in an external association with a particular species of marine plant.
EnZ	Endozoic. Always recorded in an internal association with a particular species of animal.
EP	Epiphytic. Always recorded in an external association with a particular species of marine plant.
EZ	Epizoic. Always recorded in an external association with a particular species of animal.
Н	Hard Substrate. Recorded associated with hard substrates (e.g. rock, coral, rubble).
i	Intertidal. Recorded living above the low tide line and into the supralittoral.
M	Mangrove. Recorded amongst mangroves.
P	Pelagic. Recorded in the water column.
s	Subtidal. Recorded living below the low tide line.
S	Soft Substrate. Recorded associated with soft substrates (e.g. sand, mud).
SG	Seagrass. Recorded associated with seagrass meadows.
U	Unknown.

TABLE 2 Crustacean specimen lots housed in Australian museum collections retained in the dataset by taxa and institution.

Taxa	AMS	MAGNT	ΩM	WAM	Total
Amphipoda	8	18	2	0	28
Cirripedia	10	9	6	339	364
Copepoda	0	3	0	0	3
Decapoda	382	198	779	1964	3323
Isopoda	5	32	19	8	64
Leptostraca	0	1	4	0	5
Mysidacea	0	2	1	0	3
Stomatopoda	20	9	23	41	93
Tanaidacea	0	2	0	0	2
Total	425	274	834	2352	3885



FIGURE 2 The oldest specimen in the dataset, Nodolambrus nodosa (Jacquinot, in Jacquinot & Lucas, 1853), collected near Broome in 1909 by Arthur Male. Photo courtesy of Steven Keable, Australian Museum.

BIOGEOGRAPHY AND HABITATS

The number of crustacean taxa collected at any given location demonstrated high variability. Crustacean data were available for 150 locations in the Project Area (Table 3). Species richness was highest at Broome (212) followed by Ashmore Reef (208), but ranged down to one at 20 inshore Project Area locations. Collecting effort was also highly variable, with 67 collecting events at Broome to one event at 87 other locations. Decapods were again the most widely collected group, having been collected at 137 of 150 locations, followed by Cirripedia (87) and Stomatopoda (37). Within the Decapoda, Brachyura were collected from 118 locations, followed by Caridea at 66. The Xanthidae and Palaemonidae were the most widely collected families from 73 and 53 locations, respectively.

Most species were collected from only one or two locations (48.5% and 21%, respectively). In contrast,

the most widely collected species, the intertidal grapsid crab *Metopograpsus frontalis*, had been collected from 40 locations throughout the inshore Kimberley.

In this study, 63% of species recorded are wide ranging Indo-West Pacific species, less than 3% are Indian Ocean endemics and 9% are restricted to the Australian-Indonesian region (Table 4, Figure 3). Endemism rates are low with only 13.3% regarded as Australian endemics. These rates differed between the Isopoda (34.4%), Stomatopoda (25%), Cirripedia (15.5%) and Decapoda (10%). Comparisons between inshore and offshore localities demonstrated a marked difference in endemism, with 17% and 4% respectively. Two species, *Megabalanus tintinnabulum* and *Amphibalanus reticulatus*, were considered to be introduced into Australian waters.

The offshore atolls were less diverse than the inshore areas with 408 species compared with 596

(Appendix 1). More than half of the species (53.8% or 476 species) were recorded only from the inshore areas while 32.5 % (288 species) were recorded only from the offshore areas, leaving 13.6% (120 species) shared between both areas.

The overwhelming majority of the species recorded were benthic, with only 3% considered to be pelagic (Table 5). A greater diversity of species was found to utilise hard substrates (63.4%) than soft substrates (34%). This varied between inshore (49% v. 32%) and offshore (70% v. 7%) areas. The number of species utilising hard substrates was comparable between inshore and offshore (344 and 321 respectively). Species forming symbiotic associations accounted for 19% of the dataset, with only 4% of these known to be associated specifically with marine plants, the remainder being associated with marine fauna (e.g. corals and sponges).

DISCUSSION

This synthesis of museum collection data is a valuable first step in understanding the crustacean diversity of the area and provides baseline data for researchers, environmental managers, consultants and other stakeholders. Caution is required when interpreting the data owing to the extreme variability in provenance of the specimens reported herein.

The Project Area, with a total of 882 crustacean species, is very diverse, in large part driven by the presence of two distinct areas, vis-à-vis the inshore and offshore areas. Similar work undertaken at Dampier Archipelago recorded 529 species (Hewitt 2004; Jones 2004; Peart 2004), which is comparable to the diversity of the inshore Kimberley area. No such data have been compiled for other tropical areas of Australia, such as the Great Barrier Reef.

SPECIES RICHNESS PATTERNS

The analysis of species richness follows some clear and expected patterns. The most speciose order of Malacostracan crustaceans was the Decapoda, with Xanthidae, Palaemonidae and Alpheidae the most speciose families (Ahyong et al. 2011). These families have their greatest diversity centred in tropical reef areas (Chace 1988; Davie 2002a, 2002b), which is supported by the present data. A similar pattern is seen within the Cirripedia. The family Archaeobalanidae is the most speciose family of sessile barnacles, both globally and in the Project Area (Newman and Ross 1976; Ahyong et al. 2011).

A large proportion of the recorded species richness across habitats and locations can be accounted for by collecting effort. The pattern demonstrates that most collecting had occurred close to human habitation, as can be seen by the large number of collecting events at Broome (67 events, 212 species), the largest settlement within the Project Area. Owing to their remoteness, the specimens collected from the offshore atolls were the result of targeted crustacean surveys, resulting in a greater diversity relative to collecting effort (e.g. Ashmore Reef: 15 events, 208 species). Similarly, coral reefs and adjacent intertidal shores had received the most attention from researchers. While crustacean diversity in soft sediments was generally considered lower than coral reef habitats (Abele 1974), it was clear from previous museum reports that hard substrates were targeted during surveys (e.g. Morgan 1992; Davie and Short 1995, 1996; Hewitt 1997). The offshore atolls lacked mangrove, sea grass, fine mud and estuarine habitats prevalent inshore. They also received substantially less collecting effort and thus offshore species richness is likely to be higher than currently recorded. According to Moore et al. (2014) and Richards et al. (2014) the offshore atolls are more diverse than inshore areas with 72% of fish and 91% of scleractinian species being found offshore compared to 46% of crustacean species.

TAXONOMIC GAPS

That the decapods were well represented in the Project Area is to be expected, as these are the most familiar crustaceans with the largest species and the highest commercial value, thus making them charismatic megafauna within the Crustacea. Even a cursory examination of the listed diversity in Appendix 1 demonstrates clear taxonomic gaps in the crustacean collections of Australian museums. The bias largely reflects the resources available to, and the interests and expertise of, those involved during the expeditions. The orders of the Peracarida, in particular the orders Amphipoda and Isopoda, which are represented in Australia by approximately 2,500 species (Poore 2002; Lowry and Stoddart 2003) were largely absent from the dataset. Perhaps the largest taxonomic gap, in terms of total biodiversity, was the Copepoda and Ostracoda, which have approximately 15,850 and 7,600 species respectively worldwide (Ahyong et al. 2011). These groups are very diverse and highly abundant in benthic communities, but require specialist knowledge to collect and study.

Within the Cirripedia, only the Thoracica, which includes the stalked and acorn barnacles, were represented, with the parasitic Rhizocephala and the burrowing Acrothoracica yet to have species recorded from the Project Area. The free-living, intertidal thoracican species were well represented in the collections. However, certain groups, such as the coral barnacles (Pyrgomatidae), have received very little attention, and within the collections were often only identified to family.

TABLE 3 Summary of the historical crustacean collection localities, range of years over which records were collected, the number of collecting events (see Sampey et al. 2014 for methodology) and the Order of crustaceans recorded at each site.

Location	Collecting year range	No. Coll. events	Species richness	No. families	Amphipoda	Cirripedia	Copepoda	Decapoda	Leptostraca	Isopoda	Mysidacea	Stomatopoda	Tanaidacea
Inshore sites													
Adele Island	1962–1990	3	12	8				•					
Admiral Island	1989–1994	3	17	9		•		•					
Admiralty Gulf	1968 - 1978	6	18	9		•		•					
Albert Islands	1988	1	16	9		•		•					
Beagle Bay	1996–1997	2	2	2		•		•					
Beagle Reef	1991	1	35	12		•		•					
Bedford Island	1989–1994	2	24	17		•		•		•		•	
Berkeley River	1974	1	1	1		•							
Bernouilli Island	1988	1	14	7				•					
Berthier Island	1988–1996	2	14	10				•					
Bigge Island	1987	1	7	4		•							
Bird Island	1954	1	1	1		•							
Broome	1909–2005	67	212	51		•	•	•		•		•	
Buffon Island	1988	1	1	1				•					
Caffarelli Island	1994	1	26	17		•		•				•	
Cambridge Gulf	1980–1995	3	26	14		•		•					
Camden Sound	1957–1996	5	14	12		•		•					
Cape Bossut	1929–1995	4	21	13				•				•	
Cape Bougainville	2008	1	3	3	•								
Cape Domett	1995	2	13	12		•		•		•			
Cape Jaubert	1995	1	1	1				•					
Cape Leveque	1929–1972	4	16	6				•				•	
Cape Londonderry	1995	1	19	10				•		•			
Cape Talbot	1995	1	22	14				•		•			
Careening Bay	1987–1988	2	18	11		•		•					
Cascade Bay	1975–1976	2	2	1				•					
Cassini Island	1976–1998	6	63	18		•		•					
Chambers Island	1988	1	1	1				•					
Churchill Reef	1991–1996	2	35	13		•		•					
Cockatoo Island	1961–1991	7	37	21		•		•				•	
Colbert Island	1996	1	16	10		•		•					
Collier Bay	1984	1	2	1		•							
Condillac Island	1988–1991	2	30	16		•		•					
Corneille Island	1988	1	12	7				•					

Location	Collecting year range	No. Coll. events	Species richness	No. families	Amphipoda	Cirripedia	Copepoda	Decapoda	Leptostraca	Isopoda	Mysidacea	Stomatopoda	Tanaidacea
Coronation Island	1988	1	3	2				•					
Coulomb Point	1971–1975	2	4	3		•		•					
Cygnet Bay	1949–1984	3	5	3				•					
Dampierland	2008	1	54	21		•		•				•	
De Freycinet Island	1996	1	13	8				•					
Derby	1915–1986	17	30	18		•		•		•		•	
Descartes Island	1988	1	14	6				•					
Don Island	1988	1	2	1				•					
Drysdale River	1995	1	6	2				•					
Entrance Island	1988	1	16	9		•		•					
Etisus Island	1988	1	3	1				•					
Fenelon Island	1988–1991	2	16	8				•					
Freshwater Bay	1995	1	2	2				•					
Gagg Island	1994	1	2	2				•					
Gibbings Reefs	1996	2	17	6				•					
Gregory Island	1989–1994	2	22	12		•		•					
Grey Island	1988	1	5	4		•		•					
Hale Island	1991	1	20	8		•		•					
Hall Point	1988	1	4	3		•		•					
Hedley Island	1996	1	30	12		•		•					
Heritage Reef	1991–1996	2	28	15		•		•					
Heywood Island	1988	1	2	2				•					
Hunter River	1988	1	6	4				•					
Iredale Island	1988	1	14	8				•					
Irvine Island	1988–1994	2	22	13		•		•		•			
Jackson Island	1988	1	6	3				•					
Jamieson Reef	1996	1	17	8				•					
Jar Island	1995	1	25	15				•		•		•	
Jones Island	1991–1995	2	41	20	•	•		•		•		•	
Joseph Bonaparte Gulf	1900	1	1	1				•					
Jungulu Island	1988	1	10	7				•					
Jussieu Island	1996	1	23	12		•		•					
Kalumburu	1992	1	1	1				•					
Katers Island	1988	1	1	1				•					
Keraudren Island	1989	1	2	2		•							
King Edward River	1995	1	3	1				•					
King George River	1991–1995	2	15	10		•		•		•			
King Sound	1914–1918	2	4	4				•				•	
Kingfisher Island	1994	1	1	1						•			

Location	Collecting year range	No. Coll. events	Species richness	No. families	Amphipoda	Cirripedia	Copepoda	Decapoda	Leptostraca	Isopoda	Mysidacea	Stomatopoda	Tanaidacea
Koolan Island	1966–1986	3	10	7		•		•		•		•	
Kuri Bay	1962–1992	6	16	10		•		•				•	
Lacepede Islands	1962–1991	6	20	14		•		•					
Lacrosse Island	1995	1	11	8				•		•			
Lafontaine Island	1988	1	7	5		•		•					
Lagrange Bay	1962	1	1	1				•					
Lamarck Island	1988–1996	2	22	14		•		•					
Langgi	1988–1990	2	4	2		•		•					
Lawley River	1976	1	1	1				•					
Leonie Island	1994	1	22	13				•				•	
Lesueur Island	1991	1	21	10		•		•					
Long Island	1995	1	20	9				•					
Long Reef	1988–1991	2	44	18		•		•					
Lord Island	1991–1994	2	19	11		•		•					
Louis Islands	1995	1	4	3				•		•			
Lucas Island	1988	1	5	5		•		•					
Mackenzie Anchorage	1995	1	13	8				•				•	
Macleay Island	1989–1996	3	35	20		•		•				•	
Malcolm Island	1976	1	1	1		•							
Maret Islands	1949–1996	2	28	15		•		•					
Medusa Banks	1968	1	2	2				•				•	
Mermaid Island	1991–1994	2	23	14		•		•					
Mictyis Island	1988	1	3	2				•					
Mitchell River	1968	1	1	1		•							
Montague Sound	1978	1	1	1				•					
Montalivet Islands	1962–1996	4	58	17		•		•					
Montgomery Reef	1987–1996	5	39	19		•		•		•			
Napier Broome Bay	1968–1991	3	31	20		•		•					
Naturalists Island	1987	1	2	2		•							
Okenia Island	1988	1	7	5		•		•					
Osborne Islands	1976–1988	2	2	2		•							
Packer Island	2008	1	2	2				•					
Parry Harbour	1967–1991	2	11	7		•		•					
Pender Bay	1984–2001	2	3	3		•		•					
Point Torment	-	0	2	2				•					
Port George IV	2008	1	4	4	•								
Port Warrender	1976–1982	3	8	4		•		•					
Powerful Island	1991	1	17	8		•		•					
Prince Frederick Harbour	1987	1	2	2		•							

Prudhoe Islands 1988–1996 2 20 12 • • • Pyrene Island 1988 1 4 2 • Quondong Point 1961–2008 3 7 7 • • Quoy Island 1988 1 10 5 • • Reveley Island 1995 1 20 13 • • Robroy Reefs 1988–1996 3 46 15 • • Roebuck Bay 2010 1 1 1 • • Rogers Strait 1990 1 1 1 • Scorpion Island 1991 1 22 13 • Shirley Island 1988 1 22 11 • Slate Islands 1998 2 24 12 • Solem Islands 1991 1 13 9 • Sunday Island 1930–1994 4 47 20 • • •	Location	Collecting year range	No. Coll. events	Species richness	No. families	Amphipoda	Cirripedia	Copepoda	Decapoda	Leptostraca	Isopoda	Mysidacea	Stomatopoda	Tanaidacea
Pyrene Island 1988 1 4 2 Quondong Point 1961–2008 3 7 7 Quoy Island 1988 1 10 5 • Reveley Island 1995 1 20 13 • Robroy Reefs 1988–1996 3 46 15 • Roebuck Bay 2010 1 1 1 1 • Rogers Strait 1990 1 1 1 1 • Scorpion Island 1991 1 22 13 • Shirley Island 1988–1996 2 24 12 • Solem Islands 1991 1 13 9 Sunday Island 1930–1994 4 47 20 • •														
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Scorpion Island 1991 1 22 13 • • Shirley Island 1988 1 22 11 • • Slate Islands 1988–1996 2 24 12 • • Solem Islands 1991 1 13 9 • • Sunday Island 1930–1994 4 47 20 • • •	•													
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Trochus Island 1988 1 2 1 •									•				_	
Troughton Island 1962–1995 2 3 3 • •	=								•				•	
Valentine Island 1967 1 1 1 1 •									•					
Vansittart Bay 1970–1991 2 21 10 • •	,						•		•					
Wailgwin Island 1988 1 15 7 • •	_						•		•					
Walcott Inlet 2010 1 1 1 1 •									•					
West Governor Island 1995 1 15 10 • • •					_				•		•		•	
Whirlpool Pass 1994 1 13 7 • •	*								•		•			
White Island 1996 1 17 10 •									•					
Wildcat Reefs 1988–1996 2 39 15 • •							•		•					
Woodward Island 1991 1 6 3									•					
Wyndham 1928–1990 4 7 5 • •	•								•				•	
Yampi Sound 1954–1991 16 50 26 • •	-						•		•				•	
Yankawingarri Island 1991 1 19 12 • •	=						•		•					
York Sound 1975 1 8 7 • •	York Sound	1975	1	8	7				•				•	
Offshore sites	Offshore sites													
Ashmore Reef 1961–2002 15 208 70 • • • • • • • •	Ashmore Reef	1961–2002	15	208	70	•	•	•	•	•	•	•	•	•
Browse Island 1979 1 1 1 1 •	Browse Island	1979	1	1	1				•					
Cartier Island 1986–1996 4 184 38 • • • • •	Cartier Island	1986–1996	4	184	38		•	•	•		•	•	•	
Clerke Reef 1982–1983 4 19 15 • •	Clerke Reef	1982–1983	4	19	15		•		•					
Mermaid Reef 1981–2006 4 63 21 ● ●	Mermaid Reef	1981–2006	4	63	21		•		•				•	
Scott Reef 1977–2006 4 123 43 • • • • • •	Scott Reef	1977–2006	4	123	43	•	•		•		•		•	•
Seringapatam Reef 1978—`2006 4 36 16 ● ●	Seringapatam Reef	1978–`2006	4	36	16		•		•					

TABLE 4 Summary of distributional data of crustacean species recorded within the Kimberley Project Area (visualised in Figure 3).

Biogeographic code	Inshore sites # Species	%	Offshore sites # Species	%	Total # species	%
WA	20	3.4	6	1.5	26	2.9
NA	74	12.4	11	2.7	82	9.3
A	9	1.5	2	0.5	10	1.1
С	11	1.8	14	3.4	19	2.1
IA	49	8.2	11	2.7	58	6.6
IO	9	1.5	10	2.5	17	1.9
AT	0	0.0	2	0.5	2	0.2
IP	7	1.2	10	2.5	12	1.4
IWP	376	63.1	293	71.8	571	64.6
U	41	6.9	49	12.0	87	9.8
Total	596		408		884	

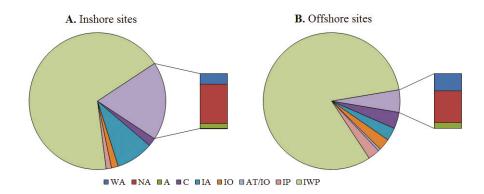


FIGURE 3 Biogeographic affinities of crustacean species in the Kimberley Project Area dataset. A, species recorded inshore; B, species recorded offshore. Australian endemics are pooled in the pie graph and expanded inset. Abbreviations are explained in Table 1.

BIOGEOGRAPHIC PATTERNS IN SPECIES RICHNESS/ COMPOSITION

This dataset indicated only 13.6% of crustacean species were known to be shared between the offshore atolls and inshore areas. This pronounced difference in faunal composition between different bioregions was to be expected (Commonwealth of Australia 2006) and can largely be explained through the diversity and scale of habitats available for colonisation (Wilson 2013, 2014). These are restricted at the offshore atolls compared to inshore areas, where there is a large freshwater influence, as well as expansive areas of fine sediments and mangrove forests. This would explain the greater diversity, at least within such families as Macrophthalmidae, Ocypodidae, Penaeidae and

Sesarmidae, in the inshore areas. The diversity of species associated with hard substrates was comparable between these areas, despite the reefs of the offshore atolls being only a fraction of the size of those found inshore. It has been shown that the diversity of scleractinian corals and fish is much greater in the offshore areas (Moore et al. 2014; Richards et al. 2014), so it would be logical to suggest that with further surveys crustaceans associated with coral reefs would also have an overall greater diversity.

The majority of crustacean species were tropical, occurring well within their known distributional ranges. However, a small proportion of the species were found throughout Australia with the Project Area being near the northern extent of their distributions. Rates of endemism in Australian

tropical regions were relatively lower than those of temperate zones (O'Hara 2002). Only 13.3% of the Project Area crustaceans were regarded as Australian endemics compared with 80% of decapods found along the south coast of WA (Morgan and Jones 1991).

Data on non-indigenous species in the Project Area were deficient, largely because areas of likely incursions, such as ports and other artificial marine infrastructure had not been surveyed. Surveys in these areas would provide further information on the impacts of increasing human activity in the region (e.g. mining, tourism and urban development).

FUTURE DIRECTIONS

The species richness patterns largely reflect collecting effort. The gaps highlighted in this study, both taxonomic and geographic should be addressed. For example, some of these gaps could be filled through dedicating resources to the identification of the many unidentified specimens already housed within museum collections. While knowledge of the shallow water decapods is not complete, future biodiversity and taxonomic surveys should shift the emphasis onto other less conspicuous crustacean groups, such as the Amphipoda and the Isopoda. Future surveys should also target habitats and localities that have received little attention, including mangroves and the midshelf shoals.

The present study of the marine crustaceans of the Project Area is the most comprehensive carried out to date. As well as providing valuable baseline data for future crustacean studies, this information is vital for regional stakeholders such as environmental managers, cultural landowners, resource and regional planners and local residents, and contributes to the debate on wider issues, such as climate change.

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APPENDIX 1 Crustacean species recorded in the Kimberley Project Area. Habitat and biogeographic codes are explained in Table 1. Species marked with † are considered to be probable misidentifications, while species marked with * were recorded by Tsareva (1980) and are not represented in any of the surveyed collections.

		Biogeographic	Inshore	Offshore
Species	Habitat code	code	lns	0ffs
Class: Maxillopoda				
Subclass: Copepoda				
Order: Cyclopbhhiboida				
Family: Lichmolgidae				
Stellicola sp.	U	U		•
Family: Taeniacanthidae				
Taeniacanthus sp.	U	U	•	
Order: Monstrilloida				
Family: Monstrilloidae	U	U		
Monstrilloidae sp.	U	U		•
Infraclass: Cirripedia				
Order: Ibliformes				
Family: Iblidae				
Ibla cumingi Darwin, 1851	H^{i}	IWP	•	
Order: Lepadiformes				
Family: Lepadidae				
Lepas anserifera Linnaeus, 1767	P/EZ/EnZ	C		•
Lepas pectinata Spengler, 1793	P/EZ/EnZ	C		•
Family: Poecilasmatidae				
Megalasma striatum Hoek, 1883	U/EZ^s	IWP	•	
Octolasmis angulata (Aurivillius, 1894)	U/EZ^s	IWP	•	
Octolasmis aperta Aurivillius, 1894	U/EZ^s	IWP	•	
Octolasmis hawaiense (Pilsbry, 1907)	U/EZ^s	IWP	•	
Order: Scalpelliformes				
Family: Lithotryidae				
Lithotrya valentiana (Gray, 1825)	H^{is}	IWP	•	•
Order: Sessilia				
Family: Archaeobalanidae				
Acasta conica Hoek, 1913	H/EZ^s	NA	•	
Acasta echinata Hiro, 1937	H/EZ^s	NA	•	
Acasta fenestrata Darwin, 1854	H/EZ^s	IWP	•	
Acasta hirsuta Broch, 1916	H/EZ^s	NA	•	
Acasta japonica? Pilsbry, 1916	H/EZ^s	NA	•	
Acasta spongites (Poli, 1795)	H/EZ^s	NA	•	
Acasta sulcata Lamarck, 1818	H/EZ^s	IWP	•	
Armatobalanus allium (Darwin, 1854)	H/EZ^s	IWP	•	
Armatobalanus filigranus (Broch, 1916)	H/EZ ^s	IA	•	
Armatobalanus quadrivittatus (Darwin, 1854)	H/EZ ^s	IWP	•	•
Armatobalanus terebratus (Darwin, 1854)	H/EZ ^s	IA	•	
Conopea mjobergi (Broch, 1916)	H/EZ ^s	WA	•	
Conopea sp. nov.	H/EZ ^s	WA	•	
Euacasta antipathidus? (Broch, 1916)	H/EZ ^s	WA	•	
Euacasta dofleini (Krüger, 1911)	H/EZ ^s	IWP	•	

Species	Habitat code	Biogeographic code	Inshore Offshore
Euacasta porata Nilsson-Cantell, 1921	H/EZ ^s	IWP	•
Euacasta zuiho (Hiro, 1936)	H/EZ ^s	IA	•
Neoacasta laevigata Gray, 1825	H/EZ ^s	IWP	•
Solidobalanus ciliatus (Hoek, 1913)	H/EZ ^s	IWP	•
Solidobalanus socialis (Hoek, 1883)	H^{s}	IWP	•
Striatobalanus amaryllis (Darwin, 1854)	H^{s}	IWP	•
Striatobalanus bimae (Hoek, 1913)	H^s	IA	•
Family: Balanidae			
Amphibalanus amphitrite (Darwin, 1854)	H^{is}	С	•
Amphibalanus cirratus (Darwin, 1854)	His	IWP	•
Megabalanus ajax? (Darwin, 1854)	H/EZ ^s	IWP	•
Megabalanus tintinnabulum (Linnaeus, 1758)	H ^{is}	C	•
Notomegabalanus krakatauensis? (Nilsson-Cantell, 1934)	H^{s}	IA	•
Family: Chelonibiidae Chelonibia caretta (Spengler, 1790)	U/EZ ^s	С	
Chelonibia patula (Ranzani, 1818)	U/EZ ^s	C	•
•		C	•
Chelonibia testudinaria (Linnaeus, 1758)	U/EZ ^s	C	•
Family: Chthamalidae			
Caudoeuraphia caudata (Pilsbry, 1916)	S/EPi	IA	•
Chthamalus malayensis Pilsbry, 1916	S^{i}	IWP	•
Euraphia sp. nov.	S^{i}	WA	•
Microeuraphia withersi (Pilsbry, 1916)	S/EP ⁱ	IWP	•
Family: Pyrgomatidae			
Cantellius arcuatus (Hiro, 1938)	H/EZ^s	IWP	•
Cantellius iwayama (Hiro, 1938)	H/EZ^s	IWP	•
Cantellius pallidus (Broch, 1931)	H/EZ^s	IWP	•
Cantellius tredecimus (Kolosvary, 1947)	H/EZ^s	IWP	•
Darwiniella conjugatum (Darwin, 1854)	H/EZ^s	IWP	•
Neotrevathana elongatum (Hiro, 1931)	H/EZ^s	IWP	•
Nobia grandis Sowerby, 1839	H/EZ^s	IWP	•
Pyrgoma cancellata Leach, 1818	H/EZ^s	IWP	•
Savignium crenatum Sowerby, 1823	H/EZ^s	IWP	•
Trevathana dentatum (Darwin,1854)	H/EZ^s	IWP	•
Wanella milleporae (Darwin, 1854)	H/EZ^s	IWP	•
Family: Tetraclitidae			
Newmanella vitiata (Darwin, 1854)	H^{is}	IWP	•
Tesseropora wireni (Nilsson-Cantell, 1921)	H/EZ^s	IWP	•
Tetraclita squamosa (Bruguière, 1789)	H^{is}	IWP	• •
Tetraclitella costata (Darwin, 1854)	H^{is}	IA	•
Tetraclitella multicostata (Nilsson-Cantell, 1930)	H^{is}	IA	•
Class: Malacostraca			
Subclass: Phyllocarida			
Order: Leptostraca			
Family: Nebaliidae			
Nebalia sp.	U	U	•
ı			

Species	Habitat code	Biogeographic code	Inshore	Offshore
	nabitat code	code		
Subclass: Hoplocarida				
Order: Stomatopoda				
Family: Gonodactylidae				
Gonodactylaceus falcatus (Forskål, 1775)	H^{is}	IWP	•	•
Gonodactylaceus graphurus (Miers, 1875)	S^{is}	IA	•	
Gonodactylaceus ternatensis (De Man, 1902)	H^{s}	IWP		•
Gonodactylellus annularis Erdmann & Manning, 1998	H^{is}	IA		•
Gonodactylellus dianae Ahyong, 2008	H^{s}	IWP	•	
Gonodactylellus erdmanni Ahyong, 2001	H^{is}	IWP		•
Gonodactylellus kume (Ahyong, 2012)	H^{is}	IWP		•
Gonodactylus childi Manning, 1971	H^{i}	WP		•
Gonodactylus chiragra (Fabricius, 1781)	H^{is}	IWP	•	•
Gonodactylus platysoma Wood-Mason, 1895	H^{is}	IWP		•
Gonodactylus smithii Pocock, 1893	H^{is}	IWP	•	•
Family: Lysiosquillidae				
Lysiosquilla tredecimdentata Holthuis, 1941	S^{is}	IWP	•	
Lysiosquillina maculata (Fabricius, 1793)	S^{is}	IWP	•	
Family: Nannosquillidae	C /N f /Tio	TAID		
Acanthosquilla multifasciata (Wood-Mason, 1895)	S/M/Eis	IWP	•	
Bigelowina phalangium (Fabricius, 1798)	S^{is}	NA	•	
Family: Odontodactylidae				
Odontodactylus scyllarus (Linnaeus, 1758)	H^{is}	IWP		•
Family: Protosquillidae				
Chorisquilla brooksi (De Man, 1888)	$ m H^{is}$	IWP		•
Haptosquilla corrugata Ahyong, 2001	$ m H^{is}$	NA	•	
Haptosquilla glyptocercus (Wood-Mason, 1875)	H^{is}	IWP		
	11	1771		•
Family: Pseudosquillidae				
Raoulserenea ornata (Miers, 1880)	H^{is}	IWP		•
Family: Squillidae				
Carinosquilla carita Ahyong, 2001	S^{s}	NA	•	
Cloridina stephensoni Ahyong, 2001	S^{i}	NA	•	
Cloridopsis terrareginensis (Stephenson, 1953)	S/Eis	IA	•	
Dictyosquilla tuberculata Ahyong, 2001	Ss	NA	•	
Harpiosquilla harpax (De Haan, 1844)	S^s	IWP	•	
Harpiosquilla stephensoni Manning, 1969	S ^s	NA	•	
Oratosquillina inornata (Tate, 1883)	Sis	IWP		
Oratosquillina interrupta (Kemp, 1911)	S^{s}	IWP	•	
	3	1771	•	
Subclass: Eumalacostraca				
Superorder: Peracarida				
Order: Amphipoda				
Family: Caprellidae				
Caprella sp.	U	U		•
Metaprotella sp.	U	U	•	

Species	Habitat code	Biogeographic code	Inshore	Offshore
Family: Phtisicidae				
Quadrisegmentum triangulum Hirayama, 1988	H/EZ^s	WA		•
Family: Amarylididae Bamarooka tropicalis Lowry & Stoddart, 2002	\mathbf{S}^{s}	NA		•
Family: Amphilochidae Amphilochidae sp.	U	U		•
Family: Ampithoidae Ampithoe ningaloo Peart, 2007	H^{s}	WA	•	
Family: Aoridae Aoridae sp.	U	U		•
Family: Iphimediidae				
Iphimediidae sp.	U	U		•
Family: Ischyroceridae Ericthonius pugnax Dana, 1852	S^s	IWP	•	
Family: Leucothoidae Leucothoidae sp.	U	U		•
Family: Lysianassidae Lysianassidae sp.	U	U		•
Family: Melitidae				
Ceradocus sp. Parelasmopus sp.	U U	U U		•
Family: Oedicerotidae Oedicerotidae sp.	U	U	•	
Family: Photidae				
Photidae sp.	U	U		•
Family: Phoxocephalidae Phoxocephalidae sp.	U	U		•
Family: Podoceridae Podocerus sp.	U	U	•	
Family: Synopiidae Synopia sp.	U	U		•
Family: Talitridae Talitridae sp.	S/A ⁱ	U	•	
Order: Isopoda	0,11	Č	-	
Family: Aegidae Aega sp.	U	U	•	
Family: Anthuridae Anthuridae sp.	U	U		
	U	U		•
Family: Bopyridae Bopyridae gen. nov. et sp. nov.	EZ	U		•
Parabopyrella sp.	EZ	U		•

Species	Habitat code	Biogeographic code	Inshore	Offshore
Family: Cabiropsidae				
Cabiropsidae sp.	EZ	U		•
Family: Cirolanidae				
Aatolana schioedtei (Miers, 1884)	S^s	NA		
Booralana sp.	U	U	•	
Cartetolana integra (Miers, 1884)	H/EZ ^s	IA	•	•
Cirolana dissimilis Keable, 2001	U ^{is}	NA	•	
Cirolana mekista Bruce, 1986	U^{i}	NA	•	
Excirolana orientalis (Dana, 1853)	S^{i}	IWP	•	
Limicolana dinjerra Bruce, 1986	S/EPs	NA	•	
Metacirolana sp.	U	U		•
Natatolana taiti Keable, 1997	S^{is}	NA		•
Neocirolana hermitensis (Boone, 1918)	H/S/Ez ^s	NA		•
Plakolana mandorah Keable, 1997	U^{s}	NA	•	
Family: Cymothoidae				
Anilocra koolanae Bruce, 1987	EZ	IA		
Anilocra pomacentri Bruce, 1987	EZ	NA	•	•
Norileca sp.	EZ	U		•
Renocila curtipinnata Bruce, 1991	EZ	WA	•	•
·	<u>L</u>	****		
Family: Gnathiidae				
Gnathia sp.	U	U		•
Family: Joeropsididae				
Joeropsis sp.	U	U		•
Family: Janiridae				
Carpias cf. longidactylus (Nordenstam, 1946)	U^{s}	IWP		•
Family: Leptanthuridae				
Accalathura sp.	U	U		
	O	O		•
Family: Ligiidae				
Ligia exotica Roux, 1828	H/A^{i}	IWP	•	
Family: Santiidae				
Prethura hutchingsae Kensley, 1982	H^s	NA		•
Family: Scyphacidae				
Alloniscus pallidulus Budde-Lund, 1885	S/A^{i}	IA	•	
•	,			
Family: Sphaeromatidae	TT	TI		_
Cerceis sp.	U	U	•	•
Cymodoce sp. 1	U	U	•	
Order: Mysidacea				
Family: Mysidae				
Heteromysis harpaxoides Bacescu & Bruce, 1980	EZ	NA		•
Heteromysis spinosa Bacescu, 1986	H/EZ^{i}	NA		•
Siriella sp.	H/Ps	U		•
Order: Tanaidacea				
Family: Leptocheliidae				
Leptochelia sp.	U	U		•

Species	Habitat code	Biogeographic code	Inshore	Offshore
Superorder: Eucarida Order: Decapoda				
Suborder: Dendrobranchiata				
Family: Penaeidae				
Atypopenaeus formosus Dall, 1957	S^s	IA	•	
Kishinouyepenaeopsis cornuta (Kishinouye, 1900)	S/P/E ^s	IWP	•	
Melicertus latisulcatus (Kishinouye, 1896)	H/S ^s	IWP	•	
Melicertus longistylus Kubo, 1943	H/P ^s	IWP	•	
Melicertus marginatus (Randall, 1840)	S/P ^s	IWP	•	
Metapenaeopsis commensalis Borradaile, 1898	H/S ^s	IWP		•
Metapenaeopsis crassissima Racek & Dall, 1965	S/P ^s	A	•	
Metapenaeopsis lamellata (De Haan, 1844)	H/P ^s	IWP		•
Metapenaeopsis menoui Crosnier, 1991	S/P ^s	IWP		•
Metapenaeopsis mogiensis Crosnier, 1991	H^{s}	IWP	•	
Metapenaeopsis palmensis (Haswell, 1879)	S/P ^s	IWP	•	
Metapenaeopsis sinuosa Dall, 1957	H/S/Ps	NA	•	
Metapenaeopsis tarawensis Racek & Dall, 1965	H/S/Pis	IWP		•
Metapenaeus dalli Racek, 1957	S/E ^s	IA	•	
Metapenaeus ensis (De Haan, 1844)	S/E ^s	IWP	•	
Mierspenaeopsis sculptilis (Heller, 1862)	S/P ^s	IWP	•	
Fenneropenaeus merguiensis De Man, 1888	S/E/Ps	IWP	•	
Penaeus monodon Fabricius, 1798	S/E/Ps	IWP	•	
Megokris gonospinifer (Racek & Dall, 1965)	S/P ^s	IA	•	
Megokris granulosus? (Haswell, 1879)	S/P ^s	IWP	•	
Trachypenaeus anchoralis (Bate, 1881)	H/S/Ps	NA	•	
Trachysalambria curvirostris (Stimpson, 1860)	S/P ^s	IWP	•	
Trachysalambria fulvus (Dall, 1957)	S/P ^s	NA	•	
Family: Sergestidae				
Acetes sp.	P/E	U		•
•	1 / 2	C		
Family: Sicyonidae				
Sicyonia bispinosa De Haan, 1844	U^{s}	IWP	•	
Suborder: Pleocyemata				
Infraorder: Anomura				
Family: Albuneidae				
Albunea sp.	S^{s}	U	•	
Family: Chirostylidae				
Uroptychus joloensis Van Dam, 1939	U/EZ ^s	IA	•	
	O/ LZ	17.1	·	
Family: Coenobitidae				
Coenobita cavipes Stimpson, 1858	S/A ⁱ	IWP	•	
Coenobita perlatus H. Milne Edwards, 1837	S/A^{i}	IWP		•
Coenobita rugosus H. Milne Edwards, 1837	S/A^{i}	IWP		•
Coenobita spinosus H. Milne Edwards, 1837†	S/A ⁱ	IWP	•	
Coenobita variabilis McCulloch, 1909	S/A ⁱ	NA	•	•
Family: Diogenidae				
Aniculus ursus (Olivier, 1811)	H^{is}	IWP		•
Calcinus elegans (H. Milne Edwards, 1836)*	H^{is}	IWP		•

Species	Habitat code	Biogeographic code	Inshore	Offshore
Calcinus gaimardii (H. Milne Edwards, 1848)	His	IA		•
Calcinus guamensis Wooster, 1984	H^{is}	IWP	•	•
Calcinus laevimanus (Randall, 1840)	H^{is}	IWP	•	
Calcinus latens (Randall, 1840)	H/S ^{is}	IWP	•	•
Calcinus lineapropodus Morgan & Forest, 1991	H ^{is}	IWP	•	•
Calcinus minutus Buitendijk, 1937	H ^{is}	IWP	•	•
Calcinus pulcher Forest, 1958	H^{is}	IWP		•
Calcinus seurati Forest, 1951	H^{i}	IWP		•
Calcinus vachoni Forest, 1958	H^{s}	IWP	•	•
Ciliopagurus strigatus (Herbst, 1804)	H^{is}	IWP	•	•
Clibanarius corallinus (H. Milne Edwards, 1848)	H^{is}	IWP		•
Clibanarius cf. eurysternus Hilgendorf, 1879	H^{is}	IWP		•
Clibanarius infraspinatus Hilgendorf, 1869	S^{is}	IWP	•	
Clibanarius longitarsus (De Haan, 1849)	S/M/Ei	IWP	•	
Clibanarius padavensis De Man, 1888	H/S ⁱ	IWP	•	
Clibanarius striolatus Dana, 1852	H^{is}	IWP		•
Clibanarius taeniatus (H. Milne Edwards, 1848)	H^{is}	NA	•	
Clibanarius virescens (Krauss, 1843)	H^{i}	IWP	•	•
Dardanus crassimanus (H. Milne Edwards, 1836)	H/S^s	IWP		•
Dardanus deformis (H. Milne Edwards, 1836)	H/S^{is}	IWP	•	•
Dardanus gemmatus (H. Milne Edwards, 1848)	H/S^s	IWP		•
Dardanus guttatus (Olivier, 1811)	H/S^{is}	IWP		•
Dardanus imbricatus (H. Milne Edwards, 1848)	H/S^s	NA	•	
Dardanus lagopodes (Forskål, 1775)	H^{is}	IWP	•	•
Dardanus megistos (Herbst, 1804)	H^{is}	IWP	•	•
Dardanus pedunculatus (Herbst, 1804)	H^{s}	IWP		•
Dardanus scutellatus (H. Milne Edwards, 1848)	H/S^{is}	IWP		•
Dardanus setifer (H. Milne Edwards, 1836)	H^s	IWP	•	
Dardanus sp. nov.	U	U		•
Dardanus squarrosus Cook, 1989	H^{s}	WA	•	
Dardanus cf. vulnerans (Thalwitz, 1892)	S^s	IWP		•
Diogenes avarus Heller, 1865	H^s	IWP	•	
Diogenes biramus Morgan, 1987	H^s	NA	•	
Diogenes gardineri Alcock, 1905	$H/S/M/E^{i}$	IWP	•	
Diogenes rectimanus Miers, 1884	S^s	IWP	•	
Diogenes serenei Forest, 1956	H/S^{is}	IWP	•	
Diogenes stenops Morgan & Forest, 1991	S^{is}	NA	•	
Paguristes alegrias Morgan, 1987	H/S^{is}	NA	•	
Paguristes brevirostris Baker, 1905*	H^{is}	A		•
Paguristes kimberleyensis Morgan & Forest, 1991	H/S ^{is}	WA	•	
Paguristes monoporus Morgan, 1987	H^{is}	IWP	•	
Strigopagurus strigimanus (White, 1847)	H/S ^s	A	•	•
Family: Galatheidae				
Allogalathea elegans (Adams & White, 1848)	H/EZ^s	IWP	•	•
Galathea orientalis Stimpson, 1858	H^{s}	IWP	•	
Galathea subsquamata Stimpson, 1858	H/S^s	IWP	•	
Phylladiorhynchus cf. integrirostris (Dana, 1852)	H^{is}	IWP	•	

Species	Habitat code	Biogeographic code	Inshore	Offshore
Family: Hippidae				
Hippa pacifica (Dana, 1852)	Sis	IP	•	•
	-			
Family: Munididae	T T	T.T.		
Munida sp.	U	U		•
Sadayoshia sp. nov.	U	U		•
Family: Paguridae				
Catapagurus sp.	U	U	•	
Paguritta harmsi (Gordon, 1935)	H/EZ^s	IA		•
Pagurixus cf. boninensis (Melin, 1939)	H/S^s	IWP	•	
Pagurus boriaustraliensis Morgan, 1990	H/S^{is}	WA	•	
Pagurus hirtimanus (Miers, 1880)	S^{is}	IWP		•
Pagurus kulkarnii Sankolli, 1962	H/S^{is}	IO	•	
Family: Porcellanidae				
Aliaporcellana pygmaea (De Man, 1902)	H^s	IWP		•
Aliaporcellana suluensis (Dana, 1852)	H^{is}	IWP	•	
Ancylocheles gravelei (Sankolli, 1963)	H^{is}	IWP	•	
Enosteoides ornatus (Stimpson, 1858)	H^{is}	IWP	•	
Lissoporcellana furcillata Haig, 1965	H^{is}	IWP	•	
Lissoporcellana spinuligera (Dana, 1853)	H^{is}	IWP	•	
Lissoporcellana streptochiroides (Johnson, 1970)	H/S^{is}	IWP	•	
Neopetrolisthes maculatus (H. Milne Edwards, 1837)	H/EZ^s	IWP	•	•
Pachycheles garciaensis (Ward, 1942)	H^{s}	IWP		•
Pachycheles johnsoni Haig, 1965	H^{is}	IWP	•	
Pachycheles sculptus (H. Milne Edwards, 1837)	H^{is}	IWP	•	•
Petrolisthes asiaticus (Leach, 1820)	U^{is}	IWP		•
Petrolisthes boscii (Audouin, 1826)	H^{is}	IWP	•	
Petrolisthes eldredgei Haig & Kropp, 1986	H^s	IWP		•
Petrolisthes haswelli Miers, 1884	H^{i}	NA	•	•
Petrolisthes heterochrous Kropp, 1986	H^s	IWP		•
Petrolisthes kranjiensis Johnson, 1970	$S/M/E^{i}$	IA	•	
Petrolisthes lamarckii (Leach, 1820)	H^{i}	IWP		•
Petrolisthes limicola Haig, 1988	$S/M/E^{is}$	NA	•	
Petrolisthes militaris (Heller, 1862)	H^s	IWP	•	
Petrolisthes moluccensis (De Man, 1888)	H^{is}	IWP		•
Petrolisthes scabriculus (Dana, 1852)	H^s	IWP	•	•
Petrolisthes teres Melin, 1939	S/M/Eis	IWP	•	
Pisidia dispar (Stimpson, 1858)	H^{is}	IWP	•	
Pisidia gordoni (Johnson, 1970)	H/S^s	IWP	•	
Pisidia serratifrons (Stimpson, 1858)	H^s	WP	•	
Polyonyx biunguiculatus (Dana, 1852)	H^s	IWP	•	
Polyonyx maccullochi Haig, 1965	H/S^s	NA	•	
Polyonyx obesulus Miers, 1884	H^s	IWP	•	
Polyonyx sp. nov.	U	U		•
Polyonyx triunguiculatus Zehntner, 1894	H^s	IWP	•	
Porcellana habei Miyake, 1961	H/EZ^s	IWP	•	
Porcellana nitida Haswell, 1882	U^s	NA	•	
Raphidopus ciliatus Stimpson, 1858	$S^{ m is}$	IWP	•	

		Biogeographic	Inshore	Offshore
Species	Habitat code	code	Ë	
Infraorder: Astacidea				
Family: Enoplometopidae				
Enoplometopus sp.	H^{s}	U		•
Infraorder: Axiidea				
Family: Axiidae				
Axiopsis sp.	U	U	•	
Paraxiopsis brocki (De Man, 1888)	H^{i}	IWP	•	•
Scytoleptus barbatus Sakai, 2011	H^{is}	IA	•	
Scytoleptus serripes Gerstaecker, 1856	H^{is}	IWP	•	
Family: Callianassidae				
Callianassa sp.	U	U	•	•
Family: Strahlaxiidae				
Neaxius acanthus (A. Milne Edwards, 1878)	S	IWP		•
Infraorder: Achelata				
Family: Palinuridae				
Panulirus femoristriga (von Martens, 1872)	H^{s}	IWP		•
Panulirus homarus (Linnaeus, 1758)	H^{s}	IWP	•	
Panulirus ornatus (Fabricius, 1798)	H^{s}	IWP	•	
Panulirus polyphagus (Herbst, 1793)	H^{s}	IWP	•	
Panulirus versicolor (Latreille, 1804)	H^{s}	IWP	•	•
Family: Scyllaridae				
Biarctus sordidus (Stimpson, 1860)	H^{s}	IWP	•	
Biarctus vitiensis (Dana, 1852)*1	H^{s}	IWP	•	
Parribacus antarcticus (Lund, 1793)	H^{s}	C		•
Petrarctus demani Holthuis, 1946	H^{s}	IWP	•	
Thenus australiensis Burton & Davie, 2007	H^s	NA	•	
Thenus orientalis (Lund, 1793)	H^{s}	IWP	•	
Infraorder: Brachyura				
Family: Aethridae				
Aethra scruposa (Linnaeus, 1764)	H/S ^s	IWP		•
Family: Aphanodactylidae				
Selwynia sibogae (Tesch, 1918)	U/EZ^s	IA	•	
Family: Calappidae				
Calappa calappa (Linnaeus, 1758)	S^s	IWP		•
Calappa capellonis Laurie, 1906	S^{s}	IWP		•
Calappa clypeata Borradaile, 1903	S^s	IWP	•	
Calappa gallus (Herbst, 1803)	S^{s}	IWP		•
Calappa hepatica (Linnaeus, 1758)	S^s	IP	•	•
Calappa philargius (Linnaeus, 1758)	S^s	IWP	•	
Family: Camptandriidae				
Baruna trigranulum (Dai & Song, 1986)	S/M/Eis	IWP	•	
Camptandrium sp. nov.	S/M/Eis	U	•	
Paracleistostoma wardi (Rathbun, 1926)	$S/M/E^{is}$	NA	•	

Species	Habitat code	Biogeographic code	Inshore	Offshore
	Traditat oodo	0000		
Family: Carpiliidae	T Ic	TIATO.		
Carpilius convexus (Forskål, 1775)	H ^s	IWP		•
Carpilius maculatus (Linnaeus, 1758)	H^{s}	IWP	•	
Family: Corystidae				
Gomeza bicornis Gray, 1831	S^s	IWP	•	
Family: Cryptochiridae				
Cryptochirus sp.	H/EZ ^s	U	•	
Hapalocarcinus marsupialis Stimpson, 1859	H/EZ^s	IWP	•	•
Family: Dairidae				
Daira perlata (Herbst, 1790)	H^{is}	IWP		
	11	1441		•
Family: Domeciidae				
Domecia glabra Alcock, 1899	H/EZ ^s	IWP	•	•
Domecia hispida Eydoux & Souleyet, 1842	H/EZ^s	С		•
Family: Dorippidae				
Dorippe quadridens (Fabricius, 1793)	H/S^s	IWP	•	
Dorippe trilobata Manning, 1993	S^s	WA	•	
Paradorippe australiensis (Miers, 1884)	S^s	IA	•	
Family: Dotillidae				
Ilyoplax strigicarpus Davie, 1990	S^{i}	NA	•	
Scopimera inflata A. Milne Edwards, 1873	S ⁱ	NA	•	
Scopimera kochi Roux, 1917	Si	IA	•	
Scopimera sp. nov. P.J.F. Davie, pers. comm	Si	U	•	
Tmethypocoelis sp.	S^{i}	U	•	
**				
Family: Dromiidae Cryptodromia amboinensis De Man, 1888	H/EZ ^s	IWP		
Cryptodromia tumida Stimpson, 1858	H/EZ ^s	IWP	•	
Dromidiopsis australiensis (Haswell, 1882)	H/EZ ^s	IA		•
Petalomera? sp.	H/EZ ^s	U		•
Stimdromia lateralis (Gray, 1831)	H/EZ ^s	IWP	•	•
Tumidodromia dormia (Linnaeus, 1763)	H/EZ ^s	IWP	•	
	,			
Family: Epialtidae	11/E7s	IVAZD		_
Hoplophrys oatesi Henderson, 1893	H/EZs	IWP		•
Huenia brevifrons Ward, 1941 Huenia heraldica (De Haan, 1837)	H/EP ^{is} H ^{is}	IWP IA		•
Hyastenus campbelli Griffin & Tranter, 1986	H/S ^{is}	IA IA		
Hyastenus campoetti Girini & Trantei, 1900 Hyastenus convexus Miers, 1884	H/S ^s	IWP		
Hyastenus diacanthus De Haan, 1839	H/S ^s	IWP	•	
Hyastenus elatus Griffin & Tranter, 1986	H ^{is}	IA	•	
Hyastenus hilgendorfi De Man, 1887	S ^s	IWP	•	
Hyastenus planasius (Adams & White, 1848)	Ss	IWP	•	
Hyastenus scrobiculatus Rathbun, 1916	Ss	IA	•	
Hyastenus sebae White, 1847	S^s	IWP	•	
Hyastenus uncifer Calman, 1909	H/S ^s	IA		•
Lahaina agassizi (Rathbun, 1902)	Hs	IWP		•
Menaethius monoceros (Latreille, 1825)	H^{is}	IWP	•	•
Menaethius orientalis (Sakai, 1969)	H/S^s	IWP		•

Species	Habitat code	Biogeographic code	Inshore	Offshore
	H ^{is}			<u> </u>
Perinia tumida Dana, 1851 Phalangipus australiensis Rathbun, 1918	S ^s	IWP IA		•
Phalangipus longipes (Linnaeus, 1758)	S ^s	IWP		
Phalangipus trachysternus Griffin, 1973	S ^s	IA	•	
Picrocerus armatus A. Milne Edwards, 1865	H ^s	IWP	•	
Thusaenys irami (Laurie, 1906)	H ^s	IWP	•	
Tylocarcinus styx (Herbst, 1803)	H^{is}	IWP		•
Xenocarcinus depressus Miers, 1874	H^{s}	IWP		•
Family: Eriphiidae				
Dacryopilumnus rathbunae Balss, 1932	H^{i}	IWP		•
Eriphia scabricula Dana, 1852	H^{i}	IWP		•
Eriphia sebana (Shaw & Nodder, 1803)	H^{i}	IWP	•	•
Family: Euryplacidae				
Eucrate crenata De Haan, 1835	S^{s}	NA	•	
Eucrate haswelli Campbell, 1969	S^{s}	IWP	•	
Trissoplax dentata (Stimpson, 1858)	S^{s}	IWP	•	
Family: Galenidae				
Galene bispinosa (Herbst, 1783)	S^{s}	IWP	•	
Halimede ochtodes (Herbst, 1783)	S^s	IWP	•	
Family: Goneplacidae				
Carcinoplax? sp.	U	U	•	
Family: Grapsidae				
Geograpsus grayi? (H. Milne Edwards, 1853)	H^{i}	IWP	•	
Grapsus albolineatus Latreille in Milbert, 1812	H^{i}	IWP	•	•
Grapsus longitarsis Dana, 1851	H^{i}	IWP	•	
Grapsus tenuicrustatus (Herbst, 1783)	H^{i}	IWP		•
Leptograpsus sp.	U	U	•	
Metopograpsus frontalis Miers, 1880	H^{i}	IWP	•	
Metopograpsus latifrons (White, 1847)	H^i	IWP	•	
Metopograpsus messor (Forskål, 1775)	H^i	IWP	•	
Metopograpsus quadridentatus Stimpson, 1858	H^i	IWP	•	
Metopograpsus thukuhar (Owen, 1839)	H ⁱ	IWP	•	
Pachygrapsus minutus A. Milne Edwards, 1873	H ⁱ	IWP		•
Pachygrapsus plicatus (H. Milne Edwards, 1837)	H^{i}	IWP		•
Family: Hymenosomatidae				
Elamena umerata Lucas, 1980	H^{s}	NA	•	
Halicarcinus sp. nov. 1	U	U	•	
Halicarcinus sp. nov. 2	U	U	•	
Trigonoplax spathulifera Lucas, 1980	$ m H^s$	NA	•	
Family: Incahidae	0.	W.175		
Achaeus brevirostris (Haswell, 1879)	Ss	IWP	•	
Achaeus lacertosus Stimpson, 1858	S ^s	IWP	•	
Camposcia retusa (Latreille, 1829)	H ^s	IWP	•	•
Dumea latipes (Haswell, 1880)	H ^{is}	A	•	
Litosus sexspinosus (Miers, 1884)	H ^{is} Us	IWP	•	
Oncinopus araneus (De Haan, 1839)	H^{s}	IWP	•	

Species	Habitat code	Biogeographic code	Inshore Offshore
Family: Leucosiidae			
Ebalia sp.	U	U	•
Ixa acuta Tyndale-Biscoe & George, 1962	H/S ^s	WA	
Heteronucia venusta Nobili, 1906*	H ^s	IWP	•
	S ^s	IWP	•
Hiplyra platycheir De Haan, 1841	S ^s	IWP	•
Leucosia anatum (Herbst, 1783) Leucosia craniolaris (Linnaeus, 1758)	S ^s		•
	S ^s	IWP	•
Leucosia haswelli Miers, 1886	S ⁱ	IWP	•
Leucosia moresbiensis Haswell, 1880	S ^s	IA IA	•
Leucosia ocellata Bell, 1855			•
Leucosia reticulata Miers, 1877	H/S ^{is}	NA	•
Myra affinis Bell, 1855	S ^s	IWP	•
Myra australis Haswell, 1880	S ^s	IWP	•
Myra mammillaris Bell, 1855	Ss	A	•
Nucia sp.	U	U	•
Philyra orbicularis (Bell, 1855)	Ss	A	•
Seulocia laevimana (Miers, 1884)	S ^s	NA	•
Seulocia pubescens (Miers, 1877)	S/E ^s	WA	•
Family: Macrophthalmidae			
Chaenostoma boscii (Audouin, 1826)	H/S/Ei	IWP	• •
Macrophthalmus convexus Stimpson, 1858	$S/M/E^{i}$	IWP	•
Macrophthalmus crassipes H. Milne Edwards, 1852	$S/M/E^{i}$	IWP	•
Macrophthalmus darwinensis Barnes, 1971	$S/M/E^{i}$	NA	•
Macrophthalmus depressus Rüppell, 1830	$S/M/E^{i}$	IWP	•
Macrophthalmus gagadju Davie, 2012	$S/M/E^{i}$	NA	•
Macrophthalmus milloti Crosnier, 1965	S^{is}	IWP	•
Macrophthalmus sp. nov.	S^{is}	U	•
Macrophthalmus telescopicus Owen, 1839	S^s	IWP	•
Venitus latreillei (Desmarest, 1822)	S/E ⁱ	IWP	•
Family: Majidae			
Anacinetops stimpsoni (Miers, 1879)	S^s	IP	•
Cyclax suborbicularis (Stimpson, 1858)	H^s	IWP	• •
Entomonyx sp.	U	U	•
Leptopisa australis Griffin & Tranter, 1986	H^s	IA	•
Micippa cristata (Linnaeus, 1758)	H^s	IA	•
Micippa curtispina Haswell, 1880	H^s	IA	•
Micippa excavata Lanchester, 1900	H^s	IA	•
Micippa philyra (Herbst, 1803)	H^{is}	IWP	•
Micippa thalia (Herbst, 1803)	H/S^s	IWP	•
Paranaxia serpulifera (Guérin, 1829)	H^s	IA	•
Planotergum mirabile Balss, 1935	S^s	IA	•
Prismatopus aculeatus (H. Milne Edwards, 1834)	H^s	IWP	•
Prismatopus albanyensis Ward, 1933	S^s	IA	•
Prismatopus longispinus (De Haan, 1839)	S^s	IWP	•
Pseudomicippe banfieldi (McCulloch, 1913)	H^{is}	NA	•
Schizophrys aspera (H. Milne Edwards, 1834)	H^s	IWP	• •
Schizophrys dama (Herbst, 1804)	H^{s}	IA	•

		Biogeographic	Inshore	Offshore
Species	Habitat code	code	<u> </u>	5
Tiarinia angusta Dana, 1851	H^{is}	IWP	•	•
Tiarinia cornigera (Latreille, 1825)	H^{is}	IWP	•	•
Tiarinia dana Griffin & Tranter, 1986	H^{s}	IA	•	
Tiarinia garthi Griffin & Tranter, 1986	H^{i}	WA	•	
Tiarinia cf. gracilis Dana, 1852	H^{is}	IWP	•	
Family: Matutidae				
Ashtoret granulosa (Miers, 1877)	S^{i}	IWP	•	
Ashtoret lunaris (Forskål, 1775)	S^{i}	IWP	•	
Izanami inermis (Miers, 1884)	S^{i}	IWP	•	
Matuta planipes Fabricius, 1798	S^{i}	IWP	•	
Matuta victor (Fabricius, 1781)	S^{i}	IWP	•	
Family: Menippidae				
Myomenippe fornasinii (Bianconi, 1851)	S^{is}	IWP	•	
Family: Mityridae	Ci	IIA/D		
Micturis positivatalis Llares 2000	S ⁱ	IWP	•	
Micturis occidentalis Unno, 2008	S ⁱ	WA	•	
Mictyris sp. nov.	S^{i}	U	•	
Family: Ocypodidae				
Ocypode ceratophthalmus (Pallas, 1772)	S^{i}	IWP	•	•
Ocypode convexa Quoy & Gaimard, 1824	S^{i}	WA	•	
Ocypode cordimana Latreille, 1818	S^{i}	IWP	•	•
Ocypode fabricii H. Milne Edwards, 1837	S^{i}	IO	•	
Uca capricornis Crane, 1975	$S/M/E^{i}$	NA	•	
Uca dampieri Crane, 1975	$S/M/E^{i}$	NA	•	
Uca dussumieri (H. Milne Edwards, 1852)	$S/M/E^{i}$	IWP	•	
Uca elegans George & Jones, 1982	$S/M/E^{i}$	NA	•	
Uca flammula Crane, 1975	$S/M/E^{i}$	NA	•	
Uca hirsutimanus George & Jones, 1982	$S/M/E^{i}$	NA	•	
Uca mjoebergi Rathbun, 1924	$S/M/E^{i}$	NA	•	
<i>Uca polita</i> Crane, 1975	$S/M/E^{i}$	NA	•	
Uca seismella Crane, 1975	S/M/E ⁱ	NA	•	
Uca signata (Hess, 1865)	S/M/Ei	NA	•	
Uca tetragonon (Herbst, 1790)	S/M/E ⁱ	IWP		•
Uca vomeris McNeill, 1920	S/M/Ei	NA	•	
Family: Oziidae				
Epixanthus dentatus (White, 1848)	$S/M/E^{i}$	IWP	•	
Epixanthus frontalis (H. Milne Edwards, 1834)	S^{i}	IWP	•	
Ozius guttatus H. Milne Edwards, 1834	H/S^i	IWP	•	
Family: Crossotonotidae				
Crossotonotus spinipes (De Man, 1888)	H/Sis	IWP	•	
Family: Parthenopidae	U	U		
Aulacolambrus sp. Cryptopodia fistulosa Chiong & Ng, 1994	U H⁵	NA	•	
Cryptopodia queenslandi Rathbun, 1918	H/S ^s	IA	•	
Cryptopodia spatulifrons Miers, 1879	H/S ^s	NA	_	
Daldorfia horrida (Linnaeus, 1758)	H/S° Hs	IWP	-	_
Danorja norran (Entitaeus, 1700)	11	IVVI	•	•

		Biogeographic	Inshore	Offshore
Species	Habitat code	code	п	<u> </u>
Enoplolambrus validus (De Haan, 1837)	H^s	IWP	•	
Nodolambrus nodosus (Jacquinot, in Jacquinot & Lucas, 1953)	S^s	IWP	•	
Pseudolambrus harpax (Adams & White, 1848)	S^s	IWP	•	
Rhinolambrus lamelliger (White, 1847)	H/S^s	IWP	•	
Rhinolambrus cf. longispinus (Miers, 1879)	H/S^s	IWP	•	
Family: Percnidae				
Percnon abbreviatum (Dana, 1851)	H^s	IWP		•
Percnon guinotae Crosnier, 1965	H^s	IWP		•
Percnon planissimum (Herbst, 1804)	H^s	С	•	•
Family: Pilumnidae				
Actumnus dorsipes (Stimpson, 1858)	S^{s}	IWP	•	
Actumnus elegans De Man, 1887	H ^s	IWP	•	
Actumnus setifer (De Haan, 1835)	H ^{is}	IWP	•	
Actumnus cf. squamosus (De Haan, 1835)	S ^s	IWP		•
Bathypilumnus cf. nigrispinifer (Griffin, 1970)	H ^s	NA	•	
Benthopanope estuarius Davie, 1989	S/M/Eis	NA	•	
Ceratocarcinus longimanus White, 1847	H/EZ ^s	IWP	•	
Echinoecus pentagonus Milne Edwards, 1879	H/EZ ^s	IWP		•
Eurycarcinus natalensis (Krauss, 1843)	S/M/E ⁱ	IO	•	
Gonatonotus pentagonus White, 1847	H/EZ ^s	IWP	•	
Harrovia elegans De Man, 1887	H ^s	IWP	•	
Heteropanope glabra Stimpson, 1858	S/M/E ⁱ	IWP	•	
Heteropanope longipedes Davie, 1989	S/M/E ⁱ	IWP	•	
Heteropilumnus longipes (Stimpson, 1858)	H ^s	IWP		•
Lentilumnus latimanus Gordon, 1834	H^s	IWP		•
Lophopilumnus cristipes (Calman, 1900)	\mathbf{H}^{is}	WP	•	
Lophopilumnus globosus Davie, 1988	H^s	NA	•	
Permanotus purpureus (Gordon, 1934)	H/EZ ^s	IWP		•
Pilumnus bleekeri Miers, 1880	H^s	IA	•	
Pilumnus aff. guinotae Takeda & Miyake, 1968	Н	WP	•	
Pilumnus longicornis Hilgendorf, 1878	H/S^s	IWP	•	•
Pilumnus merodentatus Nobili, 1906	Н	WP		•
Pilumnus minutus De Haan, 1835	H/S^{is}	IWP	•	•
Pilumnus cf. orbitospinus Rathbun, 1911	S^s	IWP	•	
Pilumnus pulcher Miers, 1884	H^s	NA	•	
Pilumnus scabriusculus Adams & White, 1849	H^{s}	IWP		•
Pilumnus semilanatus Miers, 1884	H/S^s	NA	•	
Pilumnus vespertilio (Fabricius, 1793)	\mathbf{H}^{is}	IWP	•	•
Pseudolitochira integra (Miers, 1884)	H^s	U	•	
Serenepilumnus pisifer (MacLeay, 1838)	S^{is}	IO	•	
Serenolumnus kasijani (Serène, 1969)	S	IA	•	
Tiaramedon spinosum (Miers, 1879)	H^s	IWP		•
Typhlocarcinops tonsuratus Griffin & Campbell, 1969	S^{s}	NA	•	
Vellumnus labyrinthicus (Miers, 1884)	H^s	NA	•	
Vellumnus vermiculatus (A. Milne-Edwards, 1873)*	H^{s}	IWP		•
Viaderiana quadrispinosa (Zehntner, 1894)	H^{s}	IWP		•

Species	Habitat code	Biogeographic code	Inshore	Offshore
· · · · · · · · · · · · · · · · · · ·		Coue		
Family: Pinnotheridae				
Arcotheres spinidactylus (Gordon, 1936)	EnZ	IWP	•	
Holotheres danielae Ahyong, 2010	EnZ	WP	•	
Nepinnotheres cardii (Bürger, 1895)	EnZ	IWP	•	
Nepinnotheres villosulus (Guerin-Meneville, 1831)	H/EnZ ⁱ	IWP	•	
Pinnixa sp.	EZ	U	•	•
Pinnotheres boninensis Stimpson, 1858	H/EnZ ⁱ	IWP	•	
Pinnotheres edwardsi De Man, 1887	H/EnZ^s	IWP	•	
Xanthasia murigera White, 1846	H/EnZ ^s	IWP		•
Family: Plagusiidae				
Plagusia squamosa (Herbst, 1790)	H^{is}	IP		•
Family: Portunidae				
Caphyra laevis (A. Milne Edwards, 1869)	H/EZ^s	IWP		•
Catoptrus nitidus A. Milne Edwards, 1870	H^s	IWP		•
Charybdis acutifrons (De Man, 1879)	H^s	IWP	•	
Charybdis anisodon (De Haan, 1850)	S^s	IWP	•	
Charybdis callianassa (Herbst, 1789)	S^s	IWP	•	•
Charybdis feriata (Linnaeus, 1758)	H/S^s	IWP	•	
Charybdis hellerii (A. Milne Edwards, 1867)	H/S^{is}	IWP	•	
Charybdis jaubertensis Rathbun, 1924	Sis	WA	•	
Charybdis natator (Herbst, 1794)	H/S^{is}	IWP	•	
Lissocarcinus orbicularis Dana, 1852	H/S/Ez ^s	IWP		•
Lissocarcinus polybioides Adams & White, 1849	S^s	IWP	•	
Monomia rubromarginatas (Lanchester, 1900)	S^s	IWP	•	
Podophthalmus vigil (Fabricius, 1798)	S^s	IWP	•	
Portunus armatus (Linnaeus, 1758)	S/Eis	IWP	•	
Portunus australiensis Stephenson & Cook, 1973	S^s	WA	•	
Portunus curvipenis Stephenson, 1961	S^s	WA	•	
Portunus gracilimanus (Stimpson, 1858)	S^s	IWP	•	
Portunus granulatus granulatus (H. Milne Edwards, 1834)	S^s	IWP	•	•
Portunus hastatoides Fabricius, 1798	S^s	IWP	•	
Portunus longispinosus longispinosus (Dana, 1852)	H/S^s	IWP		•
Portunus rugosus (A. Milne Edwards, 1861)	S^s	IWP	•	
Portunus sanguinolentus sanguinolentus (Herbst, 1783)	S^s	IWP	•	
Portunus tenuipes (De Haan, 1835)	S^s	IWP	•	
Scylla olivacea (Herbst, 1796)	$S/M/E^{is}$	IWP	•	
Scylla serrata (Forskål, 1775)	S/M/Eis	IWP	•	
Thalamita admete (Herbst, 1803)	H^{is}	IWP	•	•
Thalamita annulipes Stephenson & Hudson, 1957	H^{is}	WA	•	
Thalamita bouvieri Nobili, 1906	S^{is}	IWP	•	
Thalamita coeruleipes Hombron & Jacquinot, 1846	H^{is}	IWP		•
Thalamita cooperi Borradaile, 1902	Sis	IO	•	•
Thalamita crenata Rüppell, 1830	$S/M/E^{i}$	IWP	•	
Thalamita danae Stimpson, 1858	H/S^{is}	IWP	•	
Thalamita demani Nobili, 1905	H/S^{is}	IWP		•
Thalamita intermedia Miers, 1886	H^{is}	NA	•	
Thalamita malaccensis Gordon, 1938	H/S^s	IA	•	

Species	Habitat code	Biogeographic code	Inshore	Offshore
	H ^{is}	IWP		
Thalamita picta Stimpson, 1858 Thalamita prymna (Herbst, 1803)	H ^{is}	IWP		•
Thalamita quadrilobata Miers, 1884	H ^s	IWP	•	•
•	S ^{is}		•	
Thalamita sima H. Milne Edwards, 1834		IWP	•	•
Thalamita spinifera Borradaile, 1902	Hs LL (Cic	IWP		•
Thalamita spinimana Dana, 1852	H/Sis	IWP	•	
Thalamitoides tridens A. Milne Edwards, 1869	S/M/Eis	IWP		•
Family: Pseudoziidae				
Pseudozius caystrus (Adams & White, 1849)	H^i	IWP		•
Family: Sesarmidae				
Clistocoeloma merguiensis De Man, 1888	$S/M/E^{i}$	IWP	•	
Clistocoeloma sp. nov.	U	U	•	
Metasesarma sp.	U	U	•	
Nanosesarma minutum (De Man, 1887)	H^{is}	IWP	•	
Neosarmatium meinerti (De Man, 1887)	S/M/Ei	IWP	•	
Parasesarma erythodactyla (Hess, 1865)	S/M/E ⁱ	A	•	
Parasesarma moluccensis De Man, 1892	S/M/E ⁱ	IA	•	
Parasesarma sp. nov.	S/M/E ⁱ	U	•	
Perisesarma darwinense (Campbell, 1967)	S/M/E ⁱ	NA	•	
Perisesarma messa (Campbell, 1967)	S/M/E ⁱ	NA	•	
Perisesarma semperi (Bürger, 1893)	S/M/E ⁱ	IWP	•	
Sarmatium germaini (A. Milne Edwards, 1869)	S/M/E ⁱ	IWP	•	
Sarmatium hegerli Davie, 1992	S/M/E ⁱ	NA	•	
Selatium brockii (De Man, 1887)	S/M/E ⁱ	IWP	•	
Sesarmoides borneensis (Tweedie, 1950)	S/M/E ⁱ	IA	•	
	5/ W/ E	17.1		
Family: Tetraliidae				
Tetralia cinctipes Paul'son, 1875	H/EZ ^s	IWP		•
Tetralia glaberrima (Herbst, 1790)	H/EZ ^s	IWP	•	•
Tetralia nigrolineata Serène & Pham, 1957	H/EZ ^s	IWP	•	•
Tetralia rubridactyla Garth, 1971	H/EZ ^s	IWP	•	•
Tetraloides heterodactylus (Heller, 1861)	H/EZ ^s	IWP		•
Tetraloides nigrifrons (Dana, 1862)	H/EZ^s	IWP		•
Family: Trapeziidae				
Trapezia areolata (Dana, 1852)*	H/EZ^s	IWP		•
Trapezia bidentata (Forskål, 1775)	H/EZ^s	IWP		•
Trapezia cymodoce (Herbst, 1801)	H/EZ^s	IWP	•	•
Trapezia digitalis Latreille, 1828	H/EZ^s	IWP		•
Trapezia flavopunctata Eydoux & Souleyet, 1842	H/EZ^s	IWP		•
Trapezia guttata Rüppell, 1830	H/EZ^s	IWP	•	•
Trapezia lutea Castro, 1997	H/EZ^s	IWP		•
Trapezia rufopunctata (Herbst, 1799)	H/EZ^s	IWP		•
Trapezia septata Dana, 1852	H/EZ^s	IWP	•	•
Trapezia serenei Odinetz, 1984	H/EZ^s	WP	•	•
Trapezia tigrina Eydoux & Souleyet, 1842	H/EZ^s	IWP		•
Family: Varunidae				
Pseudograpsus elongatus (A. Milne Edwards, 1873)	H^{is}	IWP	•	
1 Schuogrupous cionguius (A. Willie Edwards, 10/3)	11	1 4 4 1	•	

Consider the control of the control	Hali Mana ana da	Biogeographic	Inshore	Offshore
Species	Habitat code	code		
Family: Xanthidae				
Actaea calculosa (H. Milne Edwards, 1834)	H^{i}	IWP	•	
Actaea glandifera Rathbun, 1914	H^{i}	WA	•	
Actaea peronii (H. Milne Edwards, 1834)	H^{i}	A	•	
Actaea polyacantha (Heller, 1861)	H^{i}	IWP	•	•
Actaea savignyi (H. Milne-Edwards, 1834)	H^{i}	IWP	•	
Actaeodes consobrinus (A. Milne Edwards, 1873)	H^{i}	IWP		•
Actaeodes hirsutissimus (Rüppell, 1830)	H^{i}	IWP		•
Actaeodes mutatus Guinot, 1976	H^{is}	IWP	•	
Actaeodes tomentosus (H. Milne Edwards, 1834)	H^{i}	IWP		•
Atergatis floridus (Linnaeus, 1767)	H^{is}	IWP	•	•
Atergatis integerrimus (Lamarck, 1801)	H^{is}	IWP	•	
Atergatopsis sp. 1	U	U		•
Banareia armata A. Milne Edwards, 1869	H^{s}	IWP		•
Calvactaea tumida Ward, 1933	H/EZ^s	IWP		•
Chlorodiella barbata (Borradaile, 1900)	H^{is}	IWP		•
Chlorodiella corallicola Miyake & Takeda, 1968	H/EZ^s	WP		•
Chlorodiella cytherea (Dana, 1852)	H^{is}	IWP		•
Chlorodiella laevissima (Dana, 1852)	H^{is}	IWP		•
Chlorodiella nigra (Forskål, 1775)	H^{is}	IWP	•	
Chlorodiella xishaensis Chen & Lan, 1978	H^s	IWP		•
Cyclodius granulatus (Targioni Tozzetti, 1877)	H^{s}	IWP		•
Cyclodius granulosus De Man, 1888	H^{is}	IWP		•
Cyclodius nitidus (Dana, 1852)*	H^{is}	IWP		•
Cyclodius obscurus (Hombron & Jacquinot, 1846)	H^{is}	IWP		•
Cyclodius ungulatus (H. Milne Edwards, 1834)	H^{is}	IWP		•
Cymo andreossyi (Audouin, 1826)*	H/EZ^s	IWP		•
Cymo cerasma Morgan, 1990	H/EZ^s	IA	•	
Cymo deplanatus A. Milne Edwards, 1873	H^{s}	IWP		•
Cymo melanodactylus Dana, 1852	H^{s}	IWP		•
Cymo quadrilobatus Miers, 1884	H^{s}	IWP		•
Epiactaeodes pictus (Zehntner, 1894)	H^{is}	IO		•
Etisus anaglyptus H. Milne Edwards, 1834	H^{is}	IWP	•	
Etisus australis (Ward, 1936)	H^{s}	NA	•	
Etisus demani Odhner, 1925	H^{is}	IWP	•	•
Etisus dentatus (Herbst, 1785)	H^{s}	IWP		•
Etisus electra (Herbst, 1801)	H^{is}	IWP		•
Etisus laevimanus Randall, 1840	H^{i}	IWP	•	
Etisus utilis? Jacquinot, in Jacquinot & Lucas, 1853	H^{s}	IWP		•
Etisus cf. waialuanus (Rathbun, 1906)	H^{is}	IWP	•	
Euxanthus exsculptus (Herbst, 1790)	H^{is}	IWP	•	•
Euxanthus huonii (Hombron & Jacquinot, 1846)	H^{is}	IWP	•	•
Forestiana scabra (Odhner, 1925)	H^{s}	IWP	•	
Gaillardiellus orientalis (Odhner, 1925)*	$ m H^{is}$	IWP		•
Gaillardiellus rueppelli (Krauss, 1843)	H/S ^{is}	IWP	•	
Hypocolpus abbotti (Rathbun, 1894)	H ^s	IWP		•
Hypocolpus kurodai Takeda, 1980	H ^s	IWP		•
Lachnopodus subacutus (Stimpson, 1858)	H ^s	IWP		•

pecies	Habitat code	Biogeographic code	Inshore	
Leptodius exaratus (H. Milne Edwards, 1834)	H/S ⁱ	IWP		
Leptodius gracilis (Dana, 1852)	H^{i}	IWP	•	
Leptodius nudipes (Dana, 1852)	H^{i}	IWP		
Leptodius sanguineus (H. Milne Edwards, 1834)	H^{i}	IWP		
Liocarpilodes armiger (Nobili, 1905)	H^{i}	IO		
Liomera cinctimana (White, 1847)	H^{is}	IWP		
Liomera edwardsi Kossmann, 1877	H/S ^{is}	IWP		
Liomera laevis (A. Milne Edwards, 1873)	H ^s	IWP		
Liomera monticulosa (A. Milne Edwards, 1873)	H^{i}	IWP		
Liomera pallida (Borradaile, 1900)	H^{is}	IWP		
•	H^{is}	IWP	•	
Liomera ruorta (I.I. Milna Edwards, 1865)				
Liomera rugata (H. Milne Edwards, 1834)	$egin{array}{c} H^s \end{array}$	IWP		
Liomera stimpsonii (A. Milne Edwards, 1865)		IWP		
Liomera tristis (Dana, 1852)	H ^{is}	IWP		
Liomera venosa (H. Milne Edwards, 1834)	His	IWP	•	
Lophozozymus cf. evestigatus Guinot, 1977	Hs	IWP	•	
Lophozozymus pictor (Fabricius, 1798)	His	IWP	•	
Lybia tessellata (Latreille, 1812)	Hs	IWP		
Macromedaeus crassimanus (A. Milne Edwards, 1867)	His	IWP		
Medaeops granulosus (Haswell, 1882)	H^{is}	IWP	•	
Medaeus sp.	U	U	•	
Miersiella haswelli (Miers, 1886)	H^{s}	IWP		
Nanocassiope alcocki (Rathbun, 1902)	H^{s}	IWP		
Neoliomera insularis (Adams & White, 1849)	H^{is}	IWP	•	
Neoxanthias impressus (Latreille in Milbert, 1812)	H^{is}	IWP		
Neoxanthops sp.	U	U	•	
Palapedia integra (De Haan, 1835)	S^s	IWP	•	
Palapedia marquesa? (Serène, 1972)	H/S^s	IWP		
Palapedia sp. nov.	U	U		
Paractaea rufopunctata (H. Milne Edwards, 1834)	H^{is}	C		
Paramedaeus simplex (A. Milne Edwards, 1873)	H^s	IWP	•	
Paraxanthias elegans (Stimpson, 1858)	H^{is}	IWP	•	
Paraxanthias notatus (Dana, 1852)	H^{is}	IWP		
Paraxanthias pachydactylus (A. Milne Edwards, 1867)	H^{is}	IWP		
Pilodius areolatus (H. Milne Edwards, 1834)	H^{is}	IWP		
Pilodius cephalalgicus Clark & Galil, 1993	H^{s}	IA	•	
Pilodius granulatus Stimpson, 1858	H^{s}	WP	•	
Pilodius cf. philippinensis (Ward, 1941)	H^{s}	IWP	•	
Pilodius pilumnoides (White, 1848)	H^{is}	IWP	•	
Platypodia cf. anaglypta (Heller, 1861)	H^{is}	IWP		
Platypodia eydouxi (A. Milne Edwards, 1865)	Н	IWP		
Platypodia granulosa (Rüppell, 1830)	H^{is}	IWP		
Platypodia pseudogranulosa Serène, 1984	H^{is}	IWP		
Platypodia cf. semigranosa (Heller, 1861)	H^{is}	IWP		
Polydectus cupulifer (Latreille in Milbert, 1812)	H^{is}	IWP		
Psaumis cavipes? (Dana, 1852)	H^{s}	IWP		
Pseudoliomera granosimana (A. Milne Edwards, 1865)	H^{i}	IWP		
Pseudoliomera helleri (A. Milne Edwards, 1865)	H^{s}	IWP		

Species	Habitat code	Biogeographic code	Inshore	Offshore
				•
Pseudoliomera speciosa (Dana, 1852) Serenius sp.	$egin{array}{c} H^{i} \ U \end{array}$	IWP U		•
Soliella flava (Rathbun, 1894)	H^{s}	IWP	•	
Soliella pubescens (Dana, 1852)	H ^s	WP	•	•
	H ^s	IO	•	
Soliella spinipes (Heller, 1861)			•	_
Tweedieia odhneri (Gordon, 1934)	H ^s	IWP	•	•
Xanthias lamarcki (H. Milne Edwards, 1834)*	H ^{is}	IWP		•
Zalasius horii Miyake, 1940	H ^{is}	IWP	•	_
Zosimus aeneus (Linnaeus, 1758)	H ^{is}	IWP	•	•
Zozymodes cavipes (Dana, 1852)	H^{i}	IWP		•
Infraorder: Caridea				
Family: Alpheidae				
Alpheopsis aequalis Coutière, 1896	H ⁱ	IWP		•
Alpheus acutofemoratus Dana, 1852	H ^{is}	IWP	•	•
Alpheus amirantei sizou Banner & Banner, 1967	His	IWP	•	
Alpheus australiensis Banner & Banner, 1982	S/E ^{is}	NA	•	
Alpheus balaenodigitus Banner & Banner, 1982	S^{is}	NA		•
Alpheus batesi Banner & Banner, 1964	U	IA		•
Alpheus bidens (Olivier, 1811)	H^{is}	IWP	•	•
Alpheus bouvieri A. Milne Edwards, 1878*†	H/S^{is}	AT		•
Alpheus brevirostris (Olivier, 1811)	S^s	IWP	•	
Alpheus bucephalus Coutière, 1905	H^{is}	IWP	•	•
Alpheus chiragricus H. Milne Edwards, 1837	H^{is}	IWP	•	
Alpheus collumianus Stimpson, 1860	H^{is}	IWP		•
Alpheus cristatus Coutière, 1897	H^{is}	IO	•	
Alpheus dentipes (Guérin-Méneville, 1832)* †	H/S^s	AT		•
Alpheus deuteropus Hilgendorf, 1879*	H^{is}	IWP		•
Alpheus diadema Dana, 1852	H^{is}	IWP		•
Alpheus dolerus Banner, 1956	H^{is}	IWP		•
Alpheus edamensis De Man, 1888	H/S^{is}	IWP		•
Alpheus edwardsii (Audouin, 1827)	H/S^{is}	IWP	•	
Alpheus eulimene De Man, 1909	H^{is}	IWP	•	•
Alpheus facetus De Man, 1908	H^{is}	IWP	•	
Alpheus frontalis H. Milne Edwards, 1837	H^{is}	IWP		•
Alpheus gracilipes Stimpson, 1861	H^{is}	IWP	•	
Alpheus gracilis Heller, 1861	H^s	IWP		•
Alpheus hailstonei Coutière, 1905	S^{s}	IWP		•
Alpheus cf. lanceloti Coutière, 1905	S^s	IO		•
Alpheus leviusculus leviusculus Dana, 1852	H/S^{is}	IWP	•	•
Alpheus lobidens De Haan, 1844	H/S^{is}	IWP		•
Alpheus lottini Guérin-Méneville, 1829	H^{is}	IWP	•	•
Alpheus malleodigitus (Bate, 1888)	H^{is}	IWP	•	
Alpheus microstylus (Bate, 1888)	H^{is}	IWP		•
Alpheus novaezealandiae Miers, 1878	H^{is}	IWP	•	
Alpheus obesomanus Dana, 1852	H^{is}	IWP	•	•
Alpheus ovaliceps Coutière, 1905	H^{is}	IWP		•
Alpheus pachychirus Stimpson, 1861	H/EP^{is}	IWP		•
Alpheus pacificus Dana, 1852	H/S^{is}	IP		•

Species	Habitat code	Biogeographic code	Inshore	Offshore
Alpheus paracrinitus Miers, 1881	His	С		•
Alpheus paralcyone Coutière, 1905	H^{s}	IWP	•	•
<i>Alpheus pareuchirus</i> Coutière, 1905	H^{is}	IWP	•	•
Alpheus parvirostris Dana, 1852	H^{is}	IWP	•	
Alpheus serenei Tiwari, 1963	H^{is}	IWP	•	
Alpheus spongiarum Coutière, 1897	H^{is}	IWP	•	
Alpheus strenuus cremnus Banner & Banner, 1982	H/S/Eis	NA	•	
Alpheus strenuus strenuus Dana, 1852	S^{is}	IWP	•	•
Alpheus sulcatus Kingsley, 1878	H^{is}	С	•	•
Alpheus villosus (Olivier, 1811)	H^{is}	IWP	•	
Arete dorsalis Stimpson, 1861	H/EZ^{is}	IWP		•
Arete indicus (Coutiere, 1903)	H/EZ^{is}	IWP		•
Aretopsis amabilis De Man, 1910	H/EZ^{is}	IWP		•
Athanas areteformis Coutière, 1903	H^{is}	IWP		•
Athanas dimorphus Ortmann, 1894	H^{is}	IWP	•	
Athanas djiboutensis Coutière, 1897	H^{is}	IWP		•
Athanas parvus De Man, 1910	H^{is}	IWP	•	•
Automate dolichognatha De Man, 1888	H^{is}	С	•	•
Betaeopsis indica (De Man, 1910)	U	IO		•
Macrocheles sp.	U	U	•	
Metalpheus paragracilis (Coutière, 1897)	H^{is}	С		•
Racilius compressus Paul'son, 1875	H/EZ^s	IWP	•	
Salmoneus serratidigitus (Coutière, 1896)	H^{i}	IP		•
Synalpheus ancistrorhynchus De Man, 1909	H^{is}	IWP	•	
Synalpheus bituberculatus De Man, 1910	H/S^{is}	IWP	•	
Synalpheus comatularum (Haswell, 1882)	H/EZ^{is}	IWP	•	•
Synalpheus coutierei Banner, 1953	H^{is}	IP	•	•
Synalpheus demani Borradaile, 1900	H^{s}	IWP		•
Synalpheus echinus Banner & Banner, 1975	H^{is}	WA		•
Synalpheus fossor (Paul'son, 1875)	H^{s}	IWP	•	
Synalpheus gracilirostris De Man, 1910	H^{is}	IWP	•	•
Synalpheus harpagatrus Banner & Banner, 1975	H^{is}	A	•	
Synalpheus hastilicrassus Coutière, 1905	H^{is}	IWP	•	•
Synalpheus lophodactylus Coutière, 1908	H^{is}	IWP	•	
Synalpheus neomeris (De Man, 1897)	H^{is}	IWP	•	•
Synalpheus neptunus Dana, 1852	H^{is}	IWP	•	
Synalpheus pococki Coutière, 1898	H^{s}	IA	•	
Synalpheus readi Banner & Banner, 1972	H/EZ^s	IA		•
Synalpheus sciro Banner & Banner, 1975	S^s	IA	•	
Synalpheus stimpsonii (De Man, 1888)	H/EZ^{is}	IWP	•	•
Synalpheus streptodactylus Coutière, 1905	H^{is}	IWP	•	•
Synalpheus tumidomanus (Paul'son, 1875)	H^{is}	IWP	•	•
Family: Crangonidae				
Philocheras parvirostris (Kemp, 1916)	S^s	IO		•
Family: Disciadidae				
Discias exul Kemp, 1920	H/EZ^{is}	IWP		•

Species	Habitat code	Biogeographic code	Inshore	Offshore
Frankley Europe to a still a				
Family: Eugonatonotidae	U	U		
Eugonatonotus sp.	U	U		•
Family: Gnathophyllidae				
Gnathophyllum americanum Guerin-Meneville, 1856	H^{s}	С		•
Family: Hippolytidae				
Alope sp.*	U	U		•
Gelastocaris paronae (Nobili, 1905)	H/S/Ez ^s	IWP	•	
Hippolyte sp. nov.	U	U	•	
Lysmata ternatensis De Man, 1902	H/S^{i}	IWP		•
Lysmata vittata (Stimpson, 1860)	S^{is}	IWP	•	
Paralatreutes bicornis Kemp, 1925	U	IWP	•	
Phycocaris sp.	U	U	•	
Saron marmoratus (Olivier, 1811)	H^{is}	IWP	•	•
Saron neglectus De Man, 1902	H/S^{is}	IWP		•
Thinora maldivensis (Borradaile, 1917)	H^{i}	IWP		•
Thor amboinensis De Man, 1888	H/EZ^s	С	•	•
Thor marguitae Bruce, 1978	H/S^{is}	NA	•	•
Thor paschalis Heller, 1862	H^{is}	IWP	•	
Thor spinipes Bruce, 1983	S^{is}	NA	•	
Thor spinosus Boone, 1935	Н	IWP	•	
Thorella cobourgi Bruce, 1982	S^{is}	NA	•	
Family: Ogyrididae				
Ogyrides sp.	S^s	U		•
Family: Palaemonidae				
Anchistus australis Bruce, 1977	H/EZis	IWP		•
Anchistus custos (Forskål, 1775)	H/EZis	IWP	•	
Anchistus miersi (De Man, 1888)	H/EZis	IWP	•	•
Ancylomenes venustus (Bruce, 1990)	H/EZ ^s	IWP	•	
Araiopontonia sp.	U	U		•
Climeniperaeus orbitospinatus (Bruce, 1969)	H/EZ ^s	IA		•
Conchodytes meleagrinae Peters, 1852	H/EZis	IWP		•
Coralliocaris graminea (Dana, 1852)	H/EZis	IWP	•	
Coralliocaris venusta Kemp, 1922	H/EZis	IWP		•
Coralliocaris viridis Bruce, 1974	H/EZis	IWP	•	
Cuapetes amymone (De Man, 1902)	H/EZis	IWP	•	•
Cuapetes anacanthus (Bruce, 1988)	S ^s	WA	•	
Cuapetes elegans (Paul'son, 1875)	H/S ^{is}	IWP	•	
Cuapetes grandis (Stimpson, 1860)	H ^{is}	IWP	•	
Cuapetes seychellensis (Borradaile, 1915)	H^{s}	IWP	•	
Cuapetes suvadivensis (Borradaile, 1915)	Si	IO	•	
Cuapetes tenuipes (Borradaile, 1898)	H^{is}	IWP	•	•
Dasycaris zanzibarica Bruce, 1973	H/EZis	IWP	•	•
Exoclimenella maldivensis Duriš & Bruce, 1995	H ^s	IO	•	•
Exopontonia malleatrix Bruce, 1988	H ^s	IO		•
Hamodactylus boschmai Holthuis, 1952	H/EZis	IWP	•	
Hamodactylus noumeae Bruce, 1970	H/EZis	IWP	•	•

Species	Habitat code	Biogeographic code	Inshore	Offshore
•				
Hamopontonia corallicola Bruce, 1970	H/EZis	IWP	•	
Harpiliopsis beaupresii (Audouin, 1826)	H/EZis	IP	•	•
Harpiliopsis depressa (Stimpson, 1860)	H/EZis	IP		•
Harpilius bayeri (Holthuis, 1981)	His	WP		•
Harpilius consobrinus De Man, 1902	H/EZis	IWP		•
Ischnopontonia lophos (Barnard, 1962)	H/EZ^{is}	IWP	•	
Jocaste japonica (Ortmann, 1890)	H/EZ ^s	IWP		•
Jocaste lucina (Nobili, 1901)	H/EZ^s	IWP		•
Leander tenuicornis (Say, 1818)	S/Pis	С	•	•
Leandrites celebensis (De Man, 1881)	S^{is}	IWP	•	
Macrobrachium equidens (Dana, 1852)	S/E ^s	IWP	•	
Macrobrachium novaehollandiae (De Man, 1908)	S/E^s	NA	•	
Manipontonia psamathe (De Man, 1902)	H/EZ^s	IWP	•	
Neopontonides sp.*	U	U		•
Orthopontonia ornata (Bruce, 1970)	H/EZ^{is}	IWP		•
Palaemon semmelinkii (De Man, 1881)	S/Eis	IWP	•	
Palaemon serrifer (Stimpson, 1860)	$H/S/E^{is}$	IWP	•	
Palaemonella crosnieri Bruce, 1978	H^{s}	IO		•
Palaemonella pottsi (Borradaile, 1915)	H/EZ^s	IWP	•	•
Palaemonella rotumana (Borradaile, 1898)	H^{is}	IWP	•	
Palaemonetes atrinubes Bray, 1976	S/Eis	IWP	•	
Paranchistus sp.	Ü	U		
Periclimenaeus hecate (Nobili, 1904)	H/EZ ^s	IWP	•	
Periclimenaeus kottae Bruce, 2005	H/EZ ^s	WA		
Periclimenaeus matherae Bruce, 2005	H/EZ ^s	WA		
Periclimenaeus minutus Holthuis, 1952	H/EZ ^s	IWP	•	
Periclimenaeus sp. nov.	U	U	•	
Periclimenella spinifera (De Man, 1902)	${\sf H}^{\sf is}$	IWP		
		NA	•	
Periclimenes alegrias Bruce, 1986	H/EZ ^s		•	
Periclimenes amboinensis (De Man, 1888)	H/EZ ^s	IWP	_	
Periclimenes brevicarpalis (Schenkel, 1902)	H/EZis	IWP	•	•
Periclimenes commensalis Borradaile, 1915	H/EZis	IWP	•	
Periclimenes cristimanus aff. Bruce, 1965	H/EZis	IWP	•	
Periclimenes hongkongensis Bruce, 1969	H/EZ ^{is}	IWP	•	
Periclimenes imperator Bruce, 1967	H/EZ^s	IWP		(
Periclimenes incertus Borradaile, 1915	H/EZ^s	IWP	•	
Periclimenes inornatus Kemp, 1922	H/EZ^s	IWP		•
Periclimenes kempi Bruce, 1969	H/EZ^{i}	IWP	•	•
Periclimenes madreporae Bruce, 1969	H/EZ^s	IWP		•
Periclimenes mahei Bruce, 1969	H/EZ^s	IWP		•
Periclimenes obscurus aff. Kemp, 1922	H/EZ^s	IWP	•	
Periclimenes soror Nobili, 1904	H/EZ^s	IP		•
Periclimenes sp. nov.	U	U	•	
Periclimenes zanzibaricus Bruce, 1969	H/EZ^s	IO		,
Philarius gerlachei (Nobili, 1905)	H/EZ^{is}	IP	•	
Philarius imperialis (Kubo, 1940)	H/EZ^{is}	IWP	•	
Phycomenes indicus (Kemp, 1915)	S/E/EPis	IWP	•	
Phycomenes zostericola Bruce, 2008	S/E/EP ^{is}	NA	•	

Species	Habitat code	Biogeographic code	Inshore	Offshore
Platycaris latirostris Holthuis, 1952	H/EZis	IWP	•	
Pontonides sp.	U	U		•
Pontoniopsis comanthi Borradaile, 1915	H/EZ^{is}	IWP		•
Pontophilus sp.	U	U	•	
Thaumastocaris streptopus Kemp, 1922	H/EZ^s	IWP	•	•
Typtonychus dimorphus (Bruce, 1986)	H/EZ^s	WA		•
Urocaridella antonbruunii (Bruce, 1967)	H^{s}	IWP		•
Vir orientalis? (Dana, 1852)	H/EZ^s	IWP		•
Vir philippinensis Bruce & Svoboda, 1984	H/EZ^s	IWP		•
Family: Pandalidae				
Chlorotocella gracilis Balss, 1914	H^{is}	IWP	•	
Family: Pasiphaeidae				
Leptochela sp.	U	U		•
Family: Processidae				
Nikoides maldivensis Borradaile, 1915	H^s	IWP		•
Nikoides steinii (Edmondson, 1935)	H^{is}	IWP		•
Processa neglecta? Hayashi, 1975	HS^s	IWP		•
Processa sulcata Hayashi, 1975	S^{is}	IWP	•	•
Family: Rhynchocinetidae				
Cinetorhynchus concolor (Okuno, 1994)	H^{s}	IWP		•
Rhynchocinetes hiatti Holthuis & Hayashi, 1967	H^{s}	IWP		•
Family: Thalassocaridae				
Thalassocaris sp.	P	U		•
Infraorder: Gebiidea				
Family: Thalassinidae				
Thalassina emerii Bell, 1844	$S/M/E^{i}$	IA	•	
Thalassina squamifera De Man, 1915	$S/M/E^{i}$	IWP	•	
Family: Upogebiidae				
Upogebia bowerbankii (Miers, 1884)	S/EZ ^s	A	•	
Upogebia carinicauda (Stimpson, 1860)	HS/EZ ^s	IWP	•	
Upogebia darwinii (Miers, 1884)	HS/EZ ^s	IWP	•	
Infraorder: Stenopodidea				
Family: Spongicolidae				
Microprosthema validum Stimpson, 1860	H^{s}	IP	•	•
Family: Stenopodidae				
Odontozona sp.	H^{s}	U		•
Stenopus hispidus (Olivier, 1811)	H^{s}	С	•	•