

Echinoderms of the Dampier Archipelago, Western Australia

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Abstract – The results of two diving surveys (DA1/98 and DA3/99) and a dredge survey (DA2/99) conducted in the waters of the Dampier Archipelago, Western Australia, are summarised. The diving surveys sampled 70 sites in the eastern (DA1/98) and western (DA3/99) halves of the Archipelago. Considerable differences were demonstrated between the echinoderm faunas of these areas, with more species (139) recorded in western than eastern (115) areas and only 74 species in common between the two. There are major habitat differences between the eastern and western parts of the archipelago, with more areas of soft substrate in the western part, providing more habitat for astropectinid starfishes and burrowing heart urchins. The dredging survey (DA2/99), which sampled 100 sites spread throughout the archipelago, showed that the area has an extremely rich echinoderm fauna, unmatched by any other in Western Australia. Fifty-two percent of the species taken by dredging were not found on the dive surveys. A complete list of all species found during the diving and dredging expeditions (260) and a supplementary list of material from the Dampier Archipelago held in the Western Australian Museum are presented, making a total of 286 species, the highest number recorded from any part of Western Australia. This rich fauna is a reflection of the diversity of habitats and the range of exposure to wave action, turbidity and currents related to the complex topography of the archipelago. The archipelago is the type locality of three valid echinoderm species and two from deeper water north of the archipelago. The distribution of species falls roughly into five groups: 9% are endemic to northwestern Western Australia, with some extending into the Northern Territory; 11% are endemic to northern Australia including Queensland and some extending to New South Wales; 28% extend northward to Indonesia, with some to Japan; 47% are widespread Indo-West Pacific species; and 6% are Indian Ocean species extending to the Red Sea or Persian Gulf.

INTRODUCTION

The present collections are the result of three expeditions to the Dampier Archipelago, as part of the joint WA Museum-Woodside Energy Ltd. Partnership to survey the marine fauna of the Dampier Archipelago. The expeditions were designated as follows: DA1/98 (diving), DA2/99 (dredging) and DA3/99 (diving). Collections were also made by snorkelling and low tide collecting.

DA1/98 (October 1998) sampled 35 sites in the eastern half of the Archipelago – Delambre, Legendre, Dolphin, Angel and Gidley Islands, several smaller islands and Madeleine and Hamersley Shoals. The second diving expedition (DA3/99) sampled 35 sites in the western half of the Archipelago (East and West Lewis, Malus, Enderby, Rosemary and Kendrew Islands, as well as several smaller islands and rocks and some of the inter-island channels) in August–September

1999. The dredging survey (DA2/99) sampled 100 sites spread over the whole archipelago, between the islands, in Nickol Bay and some deeper sites seaward of the Archipelago in July 1999. Refer to the Station Lists section of this volume for the diving and dredging expedition data and maps.

Published records specifically from the Dampier Archipelago are few, dating mainly from the German *Gazelle* Expedition (Studer, 1880, 1882, 1884; A.H. Clark, 1909; Lampert, 1889) and Mjoberg's Swedish scientific expedition to Australia 1910–1913. However, most of the latter collections were from the Cape Jaubert area, further east (Mortensen, 1918; Ekman, 1918; Gislén, 1919). Material from the Dampier Archipelago is included in a number of taxonomic papers (A.H. Clark, 1912; Baker, 1980; McNamara, 1982, 1992, 1995; Rowe and Marsh, 1982; Rowe, 1985; Rowe and Pawson, 1985; Rowe *et al.*, 1986; Hoggett, 1990, 1991), while

the regional fauna is discussed in zoogeographic accounts (Marsh, 1976; Marsh and Marshall, 1983; Wilson and Allen, 1987).

There are extensive collections in the Western Australian Museum resulting from fieldwork by museum staff at Rosemary, Legendre and Delambre Islands (1961), Rosemary Island (1971), Rosemary and Kendrew Islands during 1972–74 (Wilson and Marsh, 1974, 1975; Wilson *et al.*, 1974), the Burrup Peninsula and nearby islands (Marsh, 1978) and from cruises by *Davena* (1960), *Soela* (1982) and *Lady Basten* (1995).

MATERIALS AND METHODS

Diving expeditions (DA1/98, DA3/99)

The locations of the stations of the 1998 and 1999 dive expeditions are shown on the station maps in the Station Lists section of this volume.

DA1/98

Echinoderms were collected from stations DA1/98/01–35 by walking at low tide, snorkelling in the shallows and by SCUBA diving to 24 m. At many sites (DA1/98/01, 03, 04, 06, 08, 09, 12, 13, 15, 16, 18, 19, 21, 22, 24, 26, 27, 29, 30, 32, 33 and 35) a transect line (25 m long) was laid on the contour and animals observed or collected within 5 m on each side of transect.

DA3/99

Echinoderms were collected from stations DA3/99/36–70 by walking at low tide (DA3/99/38, 42, 45, 48, 51, 54, 59, 62 and 66) or diving (DA3/99/36, 37, 39, 40, 41, 43, 44, 46, 47, 49, 50, 52, 53, 55, 56, 57, 58, 60, 61, 63, 64, 65, 67, 68, 69 and 70). A 25 m transect line was laid on the contour and animals observed or collected within 5 m on either side of the transect at each of the dive stations.

Dredging expedition (DA2/99)

Collections were made from 100 stations (DA2/99/01–100) by rake box dredge (88 stations), scoop box dredge (9), shovel box dredge (1) and grab (3). Depths ranged from 5–43 m; 15 stations were in the 5–10 m depth range, 42 in 11–20 m, 13 in 21–30 m and 30 in 31–43 m (refer to the station maps section of this report).

RESULTS

Details of the echinoderm fauna are discussed more specifically in the results from the individual diving (DA1/98, DA3/99) and dredging (DA2/99) expeditions following this brief overview.

A total of 260 species of echinoderms was collected from the three surveys (Appendix 1) and a

further 26 are recorded from collections in the Western Australian Museum (Appendix 2), bringing the total to 286. Doubtful species are excluded from this tally, but some of these may prove to be valid species and may be undescribed. This total is more than half again as many species as have been recorded from Ashmore Reef and Cartier Island (178 species), the next most speciose area off northwestern Australia (Marsh *et al.* 1993). However, the Dampier Archipelago figure is not surprising in view of the high habitat diversity of coral reefs in both clear and turbid water, rocky shores, sand and mud flats and mangroves. There is a range from clear to turbid water and from exposed to sheltered conditions, with a highly complex island coastline and strong tidal currents. The archipelago has also been more intensively sampled (170 sites) than anywhere else in Western Australia by dredging, diving, snorkelling and low tide collection.

The Ophiuroidea are the most speciose class, with 76 species recorded during the dredging and diving surveys and another 13 from previous records, giving a total of 89. The next most speciose are the Holothuroidea with 66 species (surveys) and a further two (total 68). The Asteroidea are represented by 49 species plus five from previous records (54 total); the Crinoidea by 35 species with one additional (36 total); and the Echinoidea with 34 species plus five additional (39 total).

Mermaid Strait is the type locality for three currently recognised species of echinoderms and two which have fallen into synonymy, all collected by the German expedition on S.M.S. *Gazelle*, 1874–1876. The valid species are an ophiuroid, *Dictenophiura stellata* (Studer, 1882) and two holothurians, *Loisettea gazellae* (Lampert, 1889) and *Plesiocolochirus dispar* (Lampert, 1889). The latter was not found during the survey but the former two were found at a number of sites (Appendix 1). An ophiuroid, *Ophiothrix smaragdina* Studer, 1882 has the type locality northwestern Australia, 50 fms (91 m), probably north of the Dampier Archipelago. An echinoid, *Nacospatangus interruptus* (Studer, 1880), was also taken in 30 fms (55 m) by the *Gazelle* Expedition, probably north of the Dampier Archipelago. This species has rarely been collected before and is only known from coastal waters between the Dampier Archipelago and Lagrange Bay, south-west of Broome. Apart from the present collections it is known from few specimens, most from the Dampier area between 18 and 68 m.

Diving expeditions (DA1/98, DA3/99)

DA1/98

One hundred and fifteen species were recorded. Table 1 lists the species, station numbers and depth

range at which they were collected or observed within the transect and elsewhere. Table 2 lists the species collected or observed at each station.

Crinoidea

The crinoid fauna is rather depauperate. Only 13 species were collected and few species were common. This can be largely related to water turbidity as crinoids are more abundant on reefs further offshore in clear water. They were noticeably more plentiful in areas with strong currents and one species, *Oligometra carpenteri*, is only found on gorgonian corals, which also favour areas with good water movement.

Asteroidea

The asteroid fauna was also depauperate with only 14 species recorded. Two genera, *Luidia* and *Astropecten*, are characteristic of sandy or muddy substrates, while the four species of Ophiasteridae were only found at the seaward sites. The small *Linckia multifora* was the most common of these, found at six sites and very common (29 recorded) at Madeleine Shoals.

The large cushion star, *Culcita schmideliana*, was nowhere abundant but was found at more sites (10) than any other asteroid. The coral predator, *Acanthaster planci*, was found at five sites, depth range 3.4–24.0 m, but with only a single specimen at each site, except station DA1/98/04 where several were seen. All sites were on the outer part of the archipelago from Hamersley Shoal to Haüy Island.

Several uncommon species were found – *Fromia* sp. (which may be undescribed), *Gomophia sphenisci* and *Echinaster superbus*. A species of *Asterina* may also be undescribed.

Ophiuroidea

In contrast to the previous two classes, the ophiuroids were exceptionally diverse with 46 species, many of which were very common. However, the majority were small, cryptic species found among corals, in rock crevices and in sponges.

One species, *Ophiodyscrita acosmeta*, has only been found previously at two localities, both in the Kimberley. The present record is, thus, an extension of range. Critical taxonomic evaluation of some of the species of *Ophiactis* may show that some species should be synonymised, as suggested by Clark and Rowe (1971) or, with more material now available, that more species should be recognised. Several species remain unidentified.

Echinoidea

The echinoid fauna is rather small with only 15 species found, some of which were only represented by dead tests or fragments. There are nine species of regular urchins; two of sand dollars

and four of heart urchins. The most abundant was the needle-spined urchin, *Diadema setosum*, found at 17 stations with 129 found on the transect at station DA1/98/04 and 60 at DA1/98/15. The small, rock-boring urchin, *Echinostrephus molaris*, was found at 10 sites with up to 15 at one site. The small sand dollar, *Peronella orbicularis*, was found at eight sites and the heart urchin, *Breynia desorii*, at six but both species were represented almost entirely by dead tests. All the echinoid species are common in northwestern Australia and some are widespread Indo-West Pacific species (Clark and Rowe, 1971).

Holothuroidea

Twenty seven species of holothurians were found. The most common were *Holothuria (Halodeima) atra* from 17 sites and *H. (H.) edulis* and *H. (Mertensiothuria) leucospilota*, each from 12 sites. Six was the highest number of species recorded from any transect although more were observed but not counted at some non-transect stations. A few specimens could not be identified as they were inadvertently preserved in formalin, which dissolved the diagnostic spicules in the body wall. Most of the holothurians are widespread Indo-West Pacific species but several, characteristic of offshore coral reefs, were not present in the areas sampled.

DA3/99

One-hundred and thirty nine species were recorded from the western part of the Dampier Archipelago by the DA3/99 diving expedition, compared with 115 from the survey of the eastern islands (DA1/98). Of the species collected, 74 (54%) were in common between the two areas. Table 3 lists the species, station numbers and depth range at which they were collected. Table 4 lists the species collected or observed at each station.

Crinoidea

Twenty two crinoid species were recorded, 13 of which were not found in the DA1/98 diving survey and only nine were in common between the eastern and western parts of the archipelago. All but three were found subtidally. Only two species could be regarded as locally common with 400 examples of *Oligometra carpenteri* on gorgonians and 32 *Amphimetra tessellata* on the transect at 17 m in the channel between Enderby and West Lewis Islands (station DA3/99/55). Seven species of crinoids were recorded at this station while eight were found south west of Enderby Island at 14 m (DA3/99/65). However, most species at most sites are recorded as one or two individuals. Only two species, *Comanthina variabilis* and *Clarkcomanthus littoralis*, were found at four of the 35 sites, while four species were found at three sites. The remainder were only collected from one or two stations. Apart from species that live in the crevices of intertidal coral

reefs, crinoids favour deeper subtidal areas with good water flow and moderately clear water.

Asteroidea

Thirty species of asteroids were recorded from the western half of the archipelago, more than double the number (14) recorded from the eastern half by the DA1/98 diving expedition. Thirteen species were in common between the two areas. Three species of *Astropecten*, not found in 1998, were collected from sand flats at Malus and Enderby Islands. Only one species, *Linckia multifora*, found at eight subtidal stations with up to 10 in one transect at Bare Rock (station DA3/99/50), could be regarded as common. *Protoreaster nodulosus*, although only found at two sites, was common on the sand flats at Enderby Island (station DA3/99/51). Other moderately common species are *Culcita schmideliana* found at 13 sites (from intertidal to 17 m) and *Pseudoreaster obtusangulus* at five intertidal and shallow sites, but both were in low numbers at each site.

The coral predator, *Acanthaster planci*, was found at nine sites, between 5–17 m, but was in low numbers with three the highest number seen at one station. No “outbreaks” were found and all those seen were in the outer parts of the archipelago, from Bare Rock to Nelson Rocks. The distribution is similar to that found in the early 1970’s (Wilson and Marsh 1974) when large populations were found at Kendrew and Rosemary Islands. Other species of asteroids were recorded at one or two stations with one or two specimens at each.

Ophiuroidea

Thirty eight ophiuroid species were recorded from the DA3/99 dive survey, six fewer than the 44 recorded from the eastern part of the Archipelago by the DA1/98 dive survey. Twenty six species were in common between the two surveys. Species found at the most stations were: *Ophiactis savignyi*, a small species found in rock or sponges (11 sites); *Macrophiothrix ‘caenosa’* (nine sites); *Ophiothrix martensi* (six sites); *Ophiothrix smaragdina* (five sites); *Ophiothrix ciliaris* common at 16 sites, usually in sponges; *O. exigua* and *O. plana*, both at nine sites; *Ophioplocus imbricatus* (seven sites); *Ophiarachnella gorgonia* and *Ophionereis intermedia* (six sites); and *O. dubia* at five. In 1998, five species in the family Ophiocomidae were found but only one in 1999. Most ophiocomids are fairly large brittle stars, found on rock platforms or coral reefs, so their absence is puzzling. Many of the ophiuroids are small, cryptic species found in sponges and rock crevices, while the larger ones are usually concealed under rocks during the day and so are not a conspicuous part of the fauna.

Echinoidea

Twenty echinoid species were recorded from the western half of the archipelago by the DA3/99

diving expedition and ten of these are in common with the DA1/98 diving expedition. By far the most abundant species is the needle-spined urchin, *Diadema setosum*, found at 15 stations (intertidal to 17 m), at nine of which it was common with the greatest number (101) in the transect at station DA3/99/53 (Enderby Island). Another common species was the rock-burrowing urchin, *Echinostrephus molaris*, found at seven subtidal stations, from 5–17 m and common at three sites. Of great interest was the record from Kendrew Island (DA3/99/46) of *Phyllacanthus imperialis*, a coral reef species not previously recorded in Western Australia although it is found on the Great Barrier Reef, Queensland. Curiously, no members of the family Toxopneustidae, represented by three species in the 1998 survey, was found. Heart urchins (Loveniidae and Schizasteridae) characteristic of soft substrates were represented by three species in 1998 and by two species in 1999. However, three additional families, Fibulariidae, Brissidae and Spatangidae, were represented by six species one of which, *Nacospatangus interruptus*, is endemic to the north-west coast from the Dampier Archipelago to Lagrange Bay.

Holothuroidea

Twenty nine species of holothurians were recorded from the DA3/99 survey, one more than the DA1/98 survey; 16 species are in common between the two surveys. Holothurians were more abundant than other classes of echinoderms in the survey: *Holothuria leucospilota* was found at 14 stations, common at two intertidal sites; *Holothuria atra* at 11 but common at only one; *Stichopus chloronotus* at six, common at three with 16 individuals in a transect at station DA3/99/44 (Rosemary Island); *Actinopyga echinites* at nine sites, common at three with 28 recorded at DA3/99/47 (Kendrew Island) and *Synaptula recta* at six and common at one. Other moderately common species were: *Holothuria hilla* (five sites, common at one); *Holothuria impatiens* (six, common at one); *Holothuria cinerascens*, although only found at two, was common at one; and *Holothuria scabra*, only found at one site where there were many (uncounted).

Dredging expedition (DA2/99)

Echinoderms were found at all but 12 of the 100 stations and all five classes were taken at 18 stations (DA2/99/04, 06, 07, 09, 10, 12, 18, 21, 23, 33, 37, 41, 44, 49, 57, 62, 68 and 69). The locations of the stations are shown on the station maps in the Station Lists section of this Volume.

The dredge survey revealed a far richer fauna than was sampled by the dive surveys, partly because it sampled deeper water but also because many infaunal species not readily collected by diving were found. In all, 170 species were collected

or observed. Of these, 54 (31%) were in common with the first diving expedition (DA1/98), 65 (38%) in common with the second diving expedition (DA3/99), 42 (25%) of the dredged species were in common with both dive trips while 89 (52%) of the species were only taken by dredging (DA2/99). Table 5 lists the species, station numbers and depth range at which they were collected.

Crinoidea

A total of 19 crinoid species was collected. Of these, six were in common with DA1/98 and 10 with DA3/99, six were in common with both dive trips and nine were not taken on either dive survey. The collection included several species associated with gorgonians and one, *Comatula rotalaria*, found on soft substrates.

Asteroidea

Thirty one species of asteroids were collected. Of these, only five were in common with DA1/98 and 12 with DA3/99. Five were in common with both dive surveys and 19 were not taken on either dive survey. At least 14 species are always found on soft substrates and several others are found on mixed hard and soft bottom.

The most common species, *Stellaster equestris*, was found at 17 stations, with over 100 recorded from DA2/99/18. The species recorded at most stations (21) was *Astropecten zebra* with *A. velitaris* a close second (20). *Luidia hardwicki* and *Metrodora subulata* were found at 14 stations, being abundant at DA2/99/18. Most of the species have also been collected from the North-West Shelf, but a few are only known from fairly shallow coastal waters.

Ophiuroidea

There is a rich ophiuroid fauna, with 50 species recorded from the DA2/99 dredge survey. Of these, 22 are in common with DA1/98, 20 with DA3/99 and 17 with both dive surveys, while 22 were only collected on the dredge survey (DA2/99). The most common was *Ophiothrix ciliaris*, usually associated with sponges; this was taken at 34 stations. Other common species in order of the number of stations at which they were collected are: *Ophiochasma stellata* (19), *Macrophiothrix megapoma* (19), *Ophiactis savignyi* (17), *Ophiothrix smaragdina* (17), *Macrophiothrix melanosticta* and *Ophiothrix martensi* (14). Two species of *Ophiarachnella* appear to be undescribed; one of these was taken at 12 stations. Several species of uncertain identity may be new records for Australia.

Two species of brittle stars have their type locality in or near the Dampier Archipelago. These are *Ophiothrix smaragdina* Studer, 1882, first collected by the *Gazelle* expedition north of the Dampier Archipelago and *Dictenophiura stellata* (Studer, 1882) also first collected by the *Gazelle* Expedition, from Mermaid Strait. *Ophiothrix smaragdina* is endemic to

northwestern Australian coasts, from the Dampier Archipelago to Darwin, while the range of *Dictenophiura stellata* extends northward to Indonesia.

Echinoidea

The echinoid fauna of 25 species includes 15 of sand dollars and heart urchins, reflecting the soft substrates sampled. Eleven species are in common with diving expedition DA1/98 and 10 with DA3/99. Five species were also taken on both dive surveys and 10 were not found on either dive survey. Several are of particular interest. The type locality of *Nacospatangus interruptus*, first collected by the *Gazelle* Expedition (1874–76), had its type locality recorded as Western Australia (Studer 1880) but, as the *Gazelle* only sampled near Shark Bay and in and north of the Dampier Archipelago, it is probable that the Dampier Archipelago is the correct locality as it has never been collected in Shark Bay. This is an endemic species found only between the Dampier Archipelago and LaGrange Bay and is considered rare. However, it is not uncommon in the Dampier Archipelago, where it was found at eight stations from depths of 7–33 m during the dredge survey and it was also taken during the diving expedition DA3/99. A single specimen of a species of *Brissopsis*, nearest to *B. persica* from the Persian Gulf, may be undescribed.

Holothuroidea

Dredging uncovered a rich holothurian fauna, including many infaunal species, making a total of 45. Of these, 11 are in common with the first diving survey (DA1/98), 14 with the second (DA3/99) and nine with both. Twenty-nine species taken by dredging were not found on either of the diving surveys.

Species found at most stations were *Cercodemas anceps*, *Colochirus quadrangularis* and *Synaptula recta*, each at 12 stations and the infaunal *Acaudina leucoprocta* at nine. A single specimen of *Loisettea gazellae* was collected. This was first collected by the *Gazelle* Expedition, from Mermaid Strait which is the only known locality of this species in Australia (Lampert, 1889). The only other record is from Sumbawa in the Lesser Sunda Islands, Indonesia. *Loisettea amphictena*, found at seven stations, is endemic to the inner continental shelf of northwestern Australia, from Shark Bay to Darwin.

Holothuria (Metriatyla) timana is a new record for coastal waters. It has been found at Ashmore Reef, Timor Sea and is known from the Great Barrier Reef. Two endemic northern Australian species, *Leptopentacta grisea* and *Phyllophorus spiculata*, have their ranges extended from Broome to the Dampier Archipelago and *Plesiocolochirus challengerii* and *Molpadia scabrum* have ranges extended from the Northern Territory to the Dampier Archipelago. The range of *Stolus canescens* is extended from the

Great Barrier Reef westward to Dampier and it is also found in Indonesia. Two species in the Phyllophoridae could not be placed in a genus or species and may be undescribed.

Biology

Several species of ophiotrichid brittle stars were found living commensally with crinoids, perhaps semi-parasitically: *Ophiomaza cacaotica* was found on the comasterid feather stars *Comanthina variabilis*, *C. nobilis* and *Comatula solaris*; *Macrophiothrix melanosticta* was found associated with *Comatula rotalaria* and *Gymnolophus obscura* with *Comanthus parvicirrus*. Two species of ophiactids were found on sand dollars – *Ophiadaphne formata* on *Peronella lesueuri* and *O. scripta* on *Echinodiscus auritus*.

The soft substrata in the archipelago are rich in sand dollars (eight species of three families) and heart urchins (11 in six) (Appendix 1). Several sites in the archipelago had particularly high numbers of echinoderms (Tables 6, 7). The numbers of echinoderm species found at each diving (DA1/98, DA3/99) and dredging (DA2/99) site are listed (Tables 8, 9). All these sites have a mixed habitat, usually with sand, algae and some corals. At the deeper sites with gorgonians several species of crinoids cling to the gorgonians, while several species of ophiotrichid brittle stars live in the cavities of sponges. Other species of echinoderms shelter under rock or dead coral slabs, while few are associated with living hard corals. The species tables of the reports of the individual expeditions indicate species found in coral, rock crevices and sponges (Tables 1, 3, 6, 7).

Zoogeography

The distribution of 265 echinoderms species found in the Dampier Archipelago falls roughly into five groups: those species endemic to northwestern Western Australia, some extending into the Northern Territory (23 species, 8.68%); those endemic to northern Australia extending into Queensland, sometimes to NSW (29 species, 10.94%); those with their range extending northward to Indonesia with some to Japan (74 species, 27.92%); more or less widespread Indo-West Pacific species (124 species, 46.79%) and those found in the Indian Ocean, some extending to the Red Sea or Persian Gulf (15 species, 5.66%). Widespread Indo-West Pacific species make up the largest group followed by those with a south-east Asian distribution. However, a significant group (8.7%) are endemic to northwestern Australia, some only from the Dampier Archipelago to the Kimberley or even shorter distances e.g. *Nacospatangus interruptus*, known only from the Dampier Archipelago to LaGrange Bay.

Phyllacanthus imperialis has not previously been recorded from northwestern Australia. It is an Indo-Pacific species also recorded from the Great Barrier Reef, Queensland. The range of *Ophiodyscrita acosmeta* has been extended from the Kimberley and Broome to Dampier. Two species of Asteroidea (*Fromia* sp. and *Asterina* sp.) are believed to be undescribed, while several species of Ophiuroidea may be undescribed (*Ophiarachnella* sp. and *Ophiothrix* sp.). The Ophiactidae and Amphiuridae are in need of revision before some species can be determined. Some ophiuroids, tentatively identified, have not been recorded previously from Australia.

DISCUSSION

The diving expeditions documented considerable differences in the echinoderm fauna of the eastern and western parts of the archipelago, with more species recorded in the western areas – 139 in the western part and 115 in the eastern part. Of these, only 74 species (54%) are in common between the two areas. Some differences may be due to the choice of sampling sites, which may reflect localised habitat differences. However, there are major habitat differences between the eastern and western parts of the archipelago, with more areas of soft substrate in the western part, providing more habitat for astropectinid starfishes and burrowing heart urchins.

The wide coverage of the dredge survey and the intensity of sampling have shown that the area has an extremely rich echinoderm fauna, unmatched by any other area in Western Australia. However, it is now the most intensively sampled area, so accurate comparisons cannot be made with other areas. The fact that 52% of the species taken by dredging were not found on the dive surveys suggests that there may be yet more species to be found in the Archipelago.

The Dampier Archipelago has proved to be an exceptionally rich area for echinoderms, largely because of its diverse range of hydrology and habitats around a variety of island types. Particularly rich areas (dive sites) are in the channels between islands, where there is a strong current e.g. DA1/98/22 (off Delambre Island), DA3/99/45 (Tish Reef, Rosemary Island) and DA3/99/65 (off the SW corner of Enderby Island). The richest dredge sites were DA2/99/06 (N of Legendre Island), DA2/99/75 (E of Goodwyn Island), DA2/99/04 (NW of Legendre Island) and DA2/99/09 (N of Delambre Island).

It is vital that representative areas of each habitat type be preserved from industrial development and it is unfortunate that the Dampier Archipelago was chosen for development before its faunal richness was discovered.

Notes on species recorded from Australia for the first time and on other species of interest.

Asteroidea

Fromia sp. ? nov. This species was earlier thought to be *F. zodiacalis* by Marsh (illustrated in Coleman 1994) despite the fact that one of the specimens in the type series was synonymised by Perrier (1875) with *Scytaster aegyptiacus* (now *Gomophia aegyptiaca* Gray, 1840). It is now believed to be an undescribed species endemic to northwestern Australia, from Exmouth Gulf to Port Hedland. *Asterina* sp., represented by a single specimen, may be undescribed.

Ophiuroidea

Amphiura (*Amphiura*) *morosa* Koehler, 1905. Previously known from Indonesia it is, therefore, not surprising to find it in northwestern Australia.

Amphiura (*Amphiura*) *phrixocantha* Clark and Clark, 1976. Rowe and Gates (1995) include this in the synonymy of *A. (A.) maxima* Lyman, 1879 following Baker (1979). I have examined Baker's specimen and found it is not conspecific with specimens from Dampier nor with *A. phrixocantha* based on description of the holotype. Therefore, I prefer to retain the name *A. phrixocantha* for the Western Australian specimens which closely match the original description.

Ophiactis sp. cf. *brachyura* Döderlein, 1898. The specimens are closer to this species than to any *Ophiactis* previously recorded from Australia.

Ophiactis versicolor H. L. Clark, 1939. This Red Sea species was included in the synonymy of *O. savignyi* (Müller and Troschel, 1842) by Cherbonnier and Guille (1978). However the present specimens differ significantly from *O. savignyi* and fit the description of *O. versicolor*.

Ophiodaphne scripta (Koehler, 1904). This species was considered to be a possible synonym of *Ophiodaphne materna* Koehler, 1930 by Cherbonnier and Guille, 1978. However, Guille (1981) showed that *O. materna* is a junior synonym of *O. formata* (Koehler, 1905) and that *O. scripta* (Koehler, 1904) is a valid species, here recorded from Australia for the first time.

Ophiothrix (*Ophiothrix*) sp. cf. *comata* Müller and Troschel, 1842. The Dampier specimens are closer to this species than to any species so far recorded from Australia.

Ophiarachnella megaloplax Bell, 1884. This species was erroneously included in the synonymy of

O. gorgonia (Müller and Troschel, 1842) by Rowe and Gates 1995 (Rowe pers. comm. 2001) and so is here re-instated as a valid species.

Ophiarachnella sp. 1. May represent an undescribed species.

Echinoidea

Phyllacanthus imperialis (Lamarck, 1816) has been recorded from the Great Barrier Reef but not as yet from the reefs off northwestern Australia. It was surprising, therefore, to find a specimen in the Dampier Archipelago and it should probably be regarded as a vagrant or chance occurrence.

Temnopleurus decipiens (de Meijere, 1904) has not been previously recorded from Australia but is known from Indonesia, so the occurrence of this species at Dampier is not surprising.

Schizaster compactus (Koehler, 1914) was first recorded from Australia by McNamara (1995) from specimens taken north of Dampier and from near Rosemary Island in the Dampier Archipelago. The latter specimen was recorded by McNamara and Philip (1980) and Rowe and Gates (1995) as *Schizaster* (*Schizaster*) *lacunosus* (Linnaeus) and re-identified when further material became available.

Brissopsis sp. aff. *persica* Mortensen, 1940. This may be an undescribed species, very close to *B. persica* from the Persian Gulf.

Holothuroidea

Stichopus cf. *noctivagus* Cherbonnier, 1980. This species has not previously been recorded from Australia but the specimen fits the description of this species.

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Table 1 Echinoderms from the Dampier Archipelago collected by the first diving expedition (DA1/98); species, station numbers and depth range at which they were collected or observed within the transect and elsewhere. (c = from coral; r = from rock crevice; t = collected on transect; d = dead test; s = from sponge; v = visual or photographic record).

	Intertidal	Depth 0-10 m	Depth >10 m
ECHINODERMATA			
Class CRINOIDEA			
Family Comasteridae			
cf. <i>Clarkomanthus littoralis</i> (Carpenter, 1888)		13t	4t, 21r
<i>Comanthina variabilis</i> (Bell, 1882)	10, 25	33	
<i>Comanthus wahlbergi</i> (Müller, 1843)		29t	
<i>Comatula purpurea</i> (Müller, 1843)		29t	
<i>Oxycomanthus</i> sp.	10		
Family Zygometridae			
<i>Zygometra punctata</i> A.H. Clark, 1912			30
Family Mariametridae			
<i>Lamprometra palmata</i> (Müller, 1841)		9, 16	
<i>Stephanometra indica</i> (Smith, 1876)	25	16, 22	
<i>Stephanometra oxyacantha</i> (Hartlaub, 1890)			26
Family Colobometridae			
<i>Colobometra perspinosa</i> (Carpenter, 1881)			27t
<i>Oligometra carpenteri</i> (Bell, 1884)		33	15t, 26, 27t
<i>Petasometra helianthoides</i> A.H. Clark, 1912		33	
Family Antedonidae			
<i>Dorometra parvicirra</i> (Carpenter, 1888)		12	
Class ASTEROIDEA			
Family Luidiidae			
<i>Luidia maculata</i> Müller & Troschel, 1842	11		
Family Astropectinidae			
<i>Astropecten sumbawanus</i> Döderlein, 1917	2, 23		
Family Goniasteridae			
<i>Iconaster longimanus</i> (Möbius, 1859)			4
Family Oreasteridae			
<i>Culcita schmideliana</i> (Retzius, 1805)	10v, 14v, 17v, 25v	3v, 16v, 33t, v	4v, 27v, 32t, v
<i>Gymnanthenea globigera</i> (Döderlein, 1915)	7	16	
<i>Pseudoreaster obtusangulus</i> (Lamarck, 1816)	11, 14		
Family Ophidiasteridae			
<i>Fromia indica</i> (Perrier, 1869)			21, 26t, 27t, v, 32t, v
<i>Fromia</i> sp. ?nov.			15t
<i>Gomophia sphenisci</i> (A.M. Clark, 1967)			15t, 26t
<i>Linckia multifora</i> (Lamarck, 1816)		3t	4, 15t, 21, 26t, 27
Family Asterinidae			
<i>Asterina</i> sp. ?nov.	31		
Family Acanthasteridae			
<i>Acanthaster planci</i> (Linnaeus, 1758)		16v, 18t, v	4v, 26t, v, 32
Family Echinasteridae			
<i>Echinaster superbus</i> H.L. Clark, 1916	17		
<i>Echinaster varicolor</i> H.L. Clark, 1938			26t
CLASS OPHIUROIDEA			
Family Amphiuridae			
<i>Amphioplus didymus</i> H.L. Clark, 1938		33	
<i>Amphioplus (Amphichilus) ochroleuca</i> (Brock, 1888)		3t	
<i>Amphipholis squamata</i> (Delle-Chiaje, 1828)	23	29t	32s, t
<i>Amphiura bidentata</i> H.L. Clark, 1938		1	

Table 1 (cont.)

	Intertidal	Depth 0-10 m	Depth >10 m
<i>Amphiura diacritica</i> H.L. Clark, 1938		3t	
<i>Amphiura duncani</i> Lyman, 1882		6, 33	
<i>Amphiura velox</i> Koehler, 1910	2	1, 3, 13, 33	4
<i>Amphiura</i> sp.	11	8	
<i>Dougaloplus echinatus</i> (Ljungman, 1867)			4
<i>Ophiocentrus dilatata</i> (Koehler, 1905)		29t, 33t	
<i>Ophiocentrus</i> sp. aff. <i>dilatata</i> (Koehler, 1905)		33r	
Family Ophiactidae			
<i>Ophiactis fuscolineata</i> H.L. Clark, 1938	2, 7s, 17, 23		32s, t
<i>Ophiactis luteomaculata</i> H.L. Clark, 1915	10	6, 8, 9, 12, 13, 16t, 29t	
<i>Ophiactis macrolepidota</i> Marktanner-Turnertscher 1887		22s	
<i>Ophiactis modesta</i> Brock, 1888	10, 28, 31	33t	
<i>Ophiactis</i> sp. cf. <i>modesta</i> Brock, 1988		13	27, 32s, t
<i>Ophiactis savignyi</i> (Müller & Troschel, 1842)	2s, 5, 10, 17, 20, 23, 25s, 31, 34	1, 3t, 6, 8s, 12, 13, 16t, 22, 29t, 33t, 35	4, 15t, 26, 27t, 32s, t
<i>Ophiactis</i> cf. <i>savignyi</i> (Müller & Troschel, 1842)	31r	22s	
<i>Ophiactis</i> sp.		1s, 22s	
Family Ophiotrichidae			
<i>Macrophiothrix</i> 'caenosa' sensu Hoggett, 1990	10, 23, 31	3t, 12, 22, 35	21
<i>Macrophiothrix callizona</i> H.L. Clark, 1938	25, 31	8t	
<i>Macrophiothrix lineocaerulea</i> H.L. Clark, 1928	31		
<i>Macrophiothrix lorioli</i> A.M. Clark, 1968	31r	3c	
<i>Macrophiothrix megapoma</i> H.L. Clark, 1938	23	6	
<i>Macrophiothrix paucispina</i> Hoggett, 1991	10, 11, 14, 23	9, 19	
<i>Macrophiothrix</i> sp. juv.		3t, 6r, 8	32t
<i>Ophiomaza cacaotica</i> Lyman, 1871			30
<i>Ophiothela danae</i> Verrill, 1869	31s	8, 13	15t, s, 27t
<i>Ophiotrix</i> (<i>Keystonea</i>) <i>martensi</i> Lyman, 1874	10s, 23, 31	12	15t, s, 27t
<i>Ophiotrix</i> (<i>Keystonea</i>) <i>smaragdina</i> Studer, 1882	10		15s
<i>Ophiotrix ciliaris</i> (Lamarck, 1816)	5, 7s, 10s, 17c, s, 25, 31c	1, 3t, s, 6s, 8, 9, 12t, 13s, 19s, 22s, 29t, 33t, s	4, 15t, s, 21s, 26, 27t
<i>Ophiotrix</i> cf. <i>ciliaris</i> (Lamarck, 1816)		22s	32t, s
<i>Ophiotrix exigua</i> Lyman, 1874	5s, 7s, 10s, 25s, 31s	3t, 6s, 12, 19s	27s
<i>Ophiotrix plana</i> Lyman, 1874	5s, 7s, 10, 11s, 17, 20s, 23, 25, 31r, s	6, 8r, s, 12t, 13, 16t, 19s, 22s, 29t, 33t	15t, s, 26, 27t
<i>Ophiotrix</i> sp.	10	1	
Family Ophiocomidae			
<i>Ophiocomma dentata</i> Müller & Troschel, 1842	14	16	
<i>Ophiocomma</i> sp. cf. <i>pusilla</i> (Brock, 1888)		16	
<i>Ophiocomella sexradia</i> (Duncan, 1887)	10	1	
<i>Ophiomastix mixta</i> Lütken, 1869		1, 22	
<i>Ophiomastix variabilis</i> Koehler, 1905		1, 29t	
Family Ophionereididae			
<i>Ophionereis dubia</i> (Müller & Troschel, 1842)	10, 14		
<i>Ophionereis intermedia</i> A.M. Clark, 1953		22	
<i>Ophionereis semoni</i> (Döderlein, 1896)		6s	
Family Ophiidermatidae			
<i>Ophiarachnella gorgonia</i> (Müller & Troschel, 1842)		8, 22	
<i>Ophiarachnella infernalis</i> (Müller & Troschel, 1842)	20	8	21
<i>Ophiarachnella sphensci</i> (Bell, 1894)	20	16	
<i>Ophiodyscrita acosmeta</i> H.L. Clark, 1938		8, 12, 33	
Family Ophiuridae			
<i>Ophiolepis unicolor</i> H.L. Clark, 1938		22	
<i>Ophioplocus imbricatus</i> (Müller & Troschel, 1842)	14	6s, 8, 16	4
Class ECHINOIDEA			
Family Cidaridae			
<i>Phyllacanthus longispinus</i> Mortensen, 1918		13t, 22d, 29	30d, t

	Intertidal	Depth 0-10 m	Depth >10 m
Family Diadematidae			
<i>Diadema setosum</i> (Leske, 1778)	25v	1t, v, 3v, 6t, v, 8v, 12t, v, 18t, v, 6t, v, 19t, v, 22t, v, 29t, v	4t, 15t, v, 21t, v, 26t, v, 27t, v, 32t, v
Family Temnopleuridae			
<i>Salmacis sphaeroides</i> (Linnaeus, 1758)	7		
<i>Salmacis</i> sp. (incomplete)	23d, 25d		
<i>Temnopleurus decipiens</i> (de Meijere, 1904)		9	
<i>Temnotrema siamense</i> (Mortensen, 1904)			30
Family Toxopneustidae			
<i>Nudechinus darnleyensis</i> (Tenison-Woods, 1878)	23d		
<i>Nudechinus scotiopremnus</i> H.L. Clark, 1912	25d		
<i>Tripneustes gratilla</i> (Linnaeus, 1758)	10, 14v		
Family Echinometridae			
<i>Echinostrephus molaris</i> (Blainville, 1825)		3t, 8t, v, 12t, v, 13t, v, 16v, 22v	4v, 15t, v, 26t, v, 32t, v
Family Laganidae			
<i>Peronella lesueuri</i> (Valenciennes, 1841)	20, 23d		
<i>Peronella orbicularis</i> (Leske, 1778)	11d, 14d, 20d, 23d, 25d, 28d, 31d	6	
<i>Peronella</i> sp. (unidentifiable)		8	
Family Echinolampadidae			
<i>Echinolampas ovata</i> (Leske, 1778)	14d, 25d		
Family Schizasteridae			
<i>Schizaster</i> sp. cf. <i>compactus</i> (Koehler, 1914)	23d		
Family Loveniidae			
<i>Brynia desorii</i> Gray, 1851	2d, 23d, 28d, 31d, 34d	19	
<i>Lovenia elongata</i> (Gray, 1845)	11		
Class HOLOTHUROIDEA			
Family Holothuriidae			
<i>Actinopyga echinites</i> (Jaeger, 1833)	25	3, 6t, v	4v
<i>Holothuria (Cystipus) inhabilis</i> Selenka, 1867	31		
<i>Holothuria (Halodeima) atra</i> Jaeger, 1833	7v, 10v, 11v, 14v, 23v, 25	3v, 6t, v, 9, 12t, v, 16t, v, 19t, v, 22, 35v	4v, 15t, v, 26t, 32v
<i>Holothuria (Halodeima) edulis</i> Lesson, 1830	17	3v, 8v, 13v, 16, 18t, v, 19t, v	4, 15t, v, 26t, v, 27t, v, 32v
<i>Holothuria (Lessonothuria) pardalis</i> Selenka, 1867	14, 28	8	
<i>Holothuria (Mertensiothuria) leucospilota</i> (Brandt, 1835)	7, 10v, 11v, 14v, 25v, 34v	3, 6t, v, 9, 12v, 16	32v
<i>Holothuria (Metriatyla) martensii</i> Semper, 1868	11		
<i>Holothuria (Metriatyla) scabra</i> Jaeger, 1833	2, 11, 23	16, 22	
<i>Holothuria (Semperothuria) cinerascens</i> (Brandt, 1835)	7, 14	6v, 12t, v, 16v	
<i>Holothuria (Stauropora) fuscocinerea</i> Jaeger, 1833		19	
<i>Holothuria (Stauropora) pervicax</i> Selenka, 1867	25v	19t, 22v	
<i>Holothuria (Thymiosycia) arenicola</i> Semper, 1868		9	
<i>Holothuria (Thymiosycia) hilla</i> Lesson, 1830	14, 28v	19t, v, 22v	
<i>Holothuria (Thymiosycia) impatiens</i> (Forskål, 1775)	10, 23, 25v, 28v	19t, 35t, v	
<i>Holothuria (Thymiosycia) sp.</i>		19	
<i>Holothuria</i> sp.			4
Family Stichopodidae			
<i>Stichopus chloronotus</i> Brandt, 1835	10v, 11v	3t, 6v, 16t, v, 35t, v	32t, v
<i>Stichopus horrens</i> Selenka, 1867	23, 31v	12t, 24t, v, 33t, v, 35t, v	
<i>Stichopus</i> sp. cf. <i>horrens</i> Selenka, 1867		29	
<i>Stichopus</i> sp. cf. <i>noctivagus</i> Cherbonnier, 1980		22	
Family Cucumariidae			
<i>Plesiocolochirus australis</i> (Ludwig, 1875)		22	
<i>Pseudocolochirus violaceus</i> (Théel, 1886)			15

Table 1 (cont.)	Intertidal	Depth 0-10 m	Depth >10 m
Family Phyllophoridae			
<i>Neothyonidium magnum</i> (Ludwig, 1882)		1t, 16t, v, 24t, v	27v, 32t, v
<i>Phyllophorus (Urodemella) brocki</i> Ludwig, 1888	20	29t, 33t, v	
cf. <i>Phyllophorus (Urodemella) proteus</i> Bell, 1884	31		
<i>Stolus conjungens</i> (Semper, 1868)		12	
Family Sclerodactylidae			
<i>Afrocucumis africana</i> (Semper, 1868)		8	
Family Synaptidae			
<i>Synaptula recta</i> Semper, 1868	5	12t, 22	
<i>Synaptula</i> sp. (spec. incomplete)	23		

Table 2 (cont.)

Station No.	Species	Nos in transect	Nos outside transect
	<i>Ophiothrix plana</i>		
	<i>Synaptula recta</i>		1
DA1/98/06	<i>Amphiura duncani</i>		
Haüy I., NW end	<i>Ophiactis luteomaculata</i>		
Dive	<i>Ophiactis savignyi</i>		
Max. depth 3.1m	<i>Macrophiothrix megapoma</i>		
	<i>Macrophiothrix</i> sp. juv.		
	<i>Ophiothrix ciliaris</i>		
	<i>Ophiothrix exigua</i>		
	<i>Ophiothrix plana</i>		
	<i>Ophionereis semoni</i>		
	<i>Ophioplocus imbricatus</i>		
	<i>Diadema setosum</i>	21	0
	<i>Peronella orbicularis</i>		
	<i>Actinopyga echinites</i>	1	0
	<i>Holothuria (Halodeima) atra</i>	5	0
	<i>Holothuria (Mertensiothuria) leucospilota</i>	1	0
	<i>Holothuria (Semperothuria) cinerascens</i>	0	1
	<i>Stichopus chloronotus</i>	0	1
DA1/98/07	<i>Gymnanthenea globigera</i>	No transect	1
Gidley I., W side	<i>Ophiactis fuscolineata</i>		
Intertidal	<i>Ophiothrix ciliaris</i>		
	<i>Ophiothrix exigua</i>		
	<i>Ophiothrix plana</i>		
	<i>Salmacis sphaeroides</i>		1
	<i>Holothuria (Halodeima) atra</i>		3
	<i>Holothuria (Semperothuria) cinerascens</i>		1
	<i>Holothuria (Mertensiothuria) leucospilota</i>		1
DA1/98/08	<i>Amphiura</i> sp.		
Angel I., W side	<i>Ophiactis luteomaculata</i>		
Dive	<i>Ophiactis savignyi</i>		
Max. depth 9.1m	<i>Macrophiothrix callizona</i>		
	<i>Macrophiothrix</i> sp.		
	<i>Ophiothela danae</i>		
	<i>Ophiothrix ciliaris</i>		
	<i>Ophiothrix plana</i>		
	<i>Ophiarachnella gorgonia</i>		
	<i>Ophiarachnella infernalis</i>		
	<i>Ophiodyscrita acosmeta</i>		
	<i>Ophioplocus imbricatus</i>		
	<i>Echinostrephus molaris</i>	3	0
	<i>Peronella</i> sp.	0	part only
	<i>Diadema setosum</i>	0	4
	<i>Holothuria edulis</i>	0	1
	<i>Holothuria (Lessonothuria) pardalis</i>		
	<i>Holothuria (Thymiosycia) arenicola</i>		
	<i>Afrocucumis africana</i>		
DA1/98/09	<i>Ophiactis luteomaculata</i>		1
Angel I., W side	<i>Macrophiothrix paucispina</i>		1
Dive	<i>Ophiothrix ciliaris</i>		1
Max. depth 5.0m	<i>Temnopleurus decipiens</i>	0	1
	<i>Holothuria (Halodeima) atra</i>		
	<i>Holothuria (Mertensiothuria) leucospilota</i>	0	many
	<i>Holothuria (Thymiosycia) arenicola</i>	0	1
	<i>Lamprometra palmata</i>	0	1
DA1/98/10	<i>Comanthina variabilis</i>	No transect	1
Channel between Angel & Gidley Is	<i>Oxycomanthus</i> sp.		1
	<i>Culcita schmideliana</i>		5

Station No.	Species	Nos in transect	Nos outside transect
Intertidal	<i>Ophiactis luteomaculata</i>		
	<i>Ophiactis modesta</i>		
	<i>Ophiactis savignyi</i>		
	<i>Macrophiothrix 'caenosa'</i>		2
	<i>Macrophiothrix paucispina</i>		
	<i>Ophiothrix (Keystonea) martensi</i>		
	<i>Ophiothrix (Keystonea) smaragdina</i>		
	<i>Ophiothrix ciliaris</i>		
	<i>Ophiothrix exigua</i>		
	<i>Ophiothrix plana</i>		
	<i>Ophiothrix</i> sp.		
	<i>Ophiocomella sexradiata</i>		
	<i>Ophionereis dubia</i>		
	<i>Tripneustes gratilla</i>		1
	<i>Holothuria (Halodeima) atra</i>		1
	<i>Holothuria (Mertensiothuria) leucospilota</i>		<5
<i>Holothuria (Thymiosycia) impatiens</i>		1	
<i>Stichopus chloronotus</i>		<4	
DA1/98/11	<i>Luidia maculata</i>	No transect	2
Dolphin I., W side Intertidal	<i>Pseudoreaster obtusangulus</i>		1
	<i>Amphiura</i> sp.		2?
	<i>Macrophiothrix paucispina</i>		1
	<i>Ophiothrix plana</i>		2?
	<i>Peronella orbicularis</i>		several
	<i>Lovenia elongata</i>		1
	<i>Holothuria (Halodeima) atra</i>		several
	<i>Holothuria (Mertensiothuria) leucospilota</i>		several
	<i>Holothuria (Metriatyta) martensii</i>		1
	<i>Holothuria (Metriatyta) scabra</i>		1
<i>Stichopus chloronotus</i>		several	
DA1/98/12	<i>Dorometra parvicirra</i>	0	1
Angel I., W side Dive Max. depth 6.6m	<i>Ophiactis luteomaculata</i>		
	<i>Ophiactis savignyi</i>		
	<i>Macrophiothrix 'caenosa'</i>	1	0
	<i>Ophiothrix (Keystonea) martensi</i>	0	1
	<i>Ophiothrix ciliaris</i>		
	<i>Ophiothrix exigua</i>		
	<i>Ophiothrix plana</i>		
	<i>Ophiodyscrita acosmeta</i>	0	1
	<i>Diadema setosum</i>	33	0
	<i>Echinostrephus molaris</i>	5	0
	<i>Holothuria (Halodeima) atra</i>	3	0
	<i>Holothuria (Mertensiothuria) leucospilota</i>	0	1
	<i>Holothuria (Semperothuria) cinerascens</i>	1	0
	<i>Stichopus horrens</i>	1	0
	<i>Stolus conjungens</i>		
	<i>Synaptula recta</i>	1	0
DA1/98/13	<i>Clarkcomanthus cf. littoralis</i>	3	0
Hammersley Shoal Dive Max. depth 16.9m	<i>Amphiura velox</i>		
	<i>Ophiactis luteomaculata</i>		
	<i>Ophiactis</i> sp. cf. <i>modesta</i>		
	<i>Ophiactis savignyi</i>		
	<i>Ophiothela danae</i>		
	<i>Ophiothrix ciliaris</i>		
	<i>Ophiothrix plana</i>		
	<i>Phyllacanthus longispinus</i>	1	0
	<i>Echinostrephus molaris</i>	7	0
	<i>Holothuria (Halodeima) edulis</i>	0	2
DA1/98/14	<i>Culcita schmideliana</i>	No transect	many
Channel between Unnamed & Gidley Is	<i>Pseudoreaster obtusangulus</i>		1
	<i>Macrophiothrix paucispina</i>		1

Table 2 (cont.)

Station No.	Species	Nos in transect	Nos outside transect	
Intertidal	<i>Ophiocoma dentata</i>		1	
	<i>Ophionereis dubia</i>		4	
	<i>Ophioplocus imbricatus</i>		2	
	<i>Tripneustes gratilla</i>		1	
	<i>Peronella orbicularis</i>		3	
	<i>Echinolampas ovata</i>		5 parts	
	<i>Holothuria (Halodeima) atra</i>		many	
	<i>Holothuria (Lessonthuria) pardalis</i>		1	
	<i>Holothuria (Mertensiothuria) leucospilota</i>		many	
	<i>Holothuria (Semperothuria) cinerascens</i>		many	
<i>Holothuria (Thymiosycia) hilla</i>		many		
DA1/98/15	<i>Oligometra carpenteri</i>	2	0	
Legendre I., NW end Dive Max. depth 17.5m	<i>Oligometra serripinna</i>	1	0	
	<i>Fromia</i> sp.	2	0	
	<i>Gomophia sphenisci</i>	7	0	
	<i>Linckia multifora</i>	2	1	
	<i>Ophiactis savignyi</i>			
	<i>Ophiothela danae</i>			
	<i>Ophiothrix (Keystonea) martensi</i>			
	<i>Ophiothrix (Keystonea) smaragdina</i>			
	<i>Ophiothrix ciliaris</i>			
	<i>Ophiothrix plana</i>			
	<i>Diadema setosum</i>	60	0	
	<i>Echinostrephus molaris</i>	3	0	
	<i>Holothuria (Halodeima) atra</i>	3	0	
	<i>Holothuria (Halodeima) edulis</i>	8	0	
	<i>Pseudocolochirus violaceus</i>	0	1	
	DA1/98/16	<i>Lamprometra palmata</i>	0	1
	Hammersley Shoal Dive Max. depth 3.4m	<i>Stephanometra indica</i>	3	0
<i>Culcita schmideliana</i>		0	1	
<i>Gymnanthenea globigera</i>		1	1	
<i>Acanthaster planci</i>		0	1	
<i>Ophiactis luteomaculata</i>				
<i>Ophiactis savignyi</i>				
<i>Ophiothrix plana</i>				
<i>Ophiocoma dentata</i>		0	1	
<i>Ophiocoma</i> sp. cf. <i>pusilla</i>				
<i>Ophiarachnella sphenisci</i>		0	4	
<i>Ophioplocus imbricatus</i>				
<i>Diadema setosum</i>		25	0	
<i>Echinostrephus molaris</i>		0	3	
<i>Holothuria (Halodeima) atra</i>		3	several	
<i>Holothuria (Halodeima) edulis</i>		0	several	
<i>Holothuria (Mertensiothuria) leucospilota</i>		3	several	
<i>Holothuria (Metriatyta) scabra</i>		0	1	
<i>Holothuria (Semperothuria) cinerascens</i>	?	?		
<i>Stichopus chloronotus</i>	1	0		
<i>Neothyonidium magnum</i>	2	0		
DA1/98/17	<i>Culcita schmideliana</i>	No transect	1	
Wilcox I. Intertidal	<i>Echinaster superbus</i>		1	
	<i>Ophiactis fuscolineata</i>			
	<i>Ophiactis savignyi</i>			
	<i>Ophiothrix ciliaris</i>		4	
	<i>Ophiothrix plana</i>			
	<i>Ophiarachnella</i> sp.		several	
	<i>Holothuria (Halodeima) edulis</i>		several	
DA1/98/18	<i>Acanthaster planci</i>	1	0	
Haüy I. Dive Max. depth 12.5m	<i>Diadema setosum</i>	28	0	
	<i>Ophiarachnella</i> sp.	2	0	
	<i>Holothuria (Halodeima) edulis</i>	1	0	

Station No.	Species	Nos in transect	Nos outside transect
DA1/98/19 Häüy I. Dive Max. depth 2.5m	<i>Macrophiothrix paucispina</i>	0	1
	<i>Ophiothrix ciliaris</i>		1
	<i>Ophiothrix exigua</i>		1
	<i>Ophiothrix plana</i>		1
	<i>Ophiarachnella</i> sp.	5	0
	<i>Diadema setosum</i>	1	0
	<i>Brynia desorii</i>	0	1
	<i>Holothuria (Halodeima) atra</i>	1	0
	<i>Holothuria (Halodeima) edulis</i>	1	0
	<i>Holothuria (Stauropora) fuscocinerea</i>		
	<i>Holothuria (Stauropora) pervicax</i>	5	0
	<i>Holothuria (Thymiosycia) hilla</i>	6	0
	<i>Holothuria (Thymiosycia) impatiens</i>	2	0
	<i>Holothuria (Thymiosycia) sp.</i>		
DA1/98/20 Collier Rocks Intertidal	<i>Ophiactis savignyi</i>	No transect	
	<i>Ophiothrix plana</i>		
	<i>Ophiarachnella infernalis</i>		1
	<i>Ophiarachnella sphenisci</i>		1
	<i>Peronella lesueuri</i>		1
	<i>Peronella orbicularis</i>		1
	<i>Phyllophorus (Urodemella) brocki</i>		1
DA1/98/21 Delambre I, NW point Dive Max. depth 16.9m	<i>Clarkcomanthus littoralis</i>	8	0
	<i>Fromia indica</i>	0	3
	<i>Linckia multifora</i>	0	1
	<i>Macrophiothrix 'caenosa'</i>	1	
	<i>Ophiothrix ciliaris</i>		
	<i>Ophiarachnella infernalis</i>		
	<i>Diadema setosum</i>	7	0
DA1/98/22 Delambre I., W side Dive Max. depth 5.6m	<i>Stephanometra indica</i>	0	1
	<i>Ophiactis macrolepidota</i>		
	<i>Ophiactis savignyi</i>		
	<i>Ophiactis</i> sp. cf. <i>savignyi</i>		
	<i>Ophiactis</i> sp.		
	<i>Macrophiothrix 'caenosa'</i>	0	3
	<i>Ophiothrix ciliaris</i>		
	<i>Ophiothrix</i> sp. cf. <i>ciliaris</i>		
	<i>Ophiothrix plana</i>		
	<i>Ophiomastix mixta</i>	0	3
	<i>Ophionereis intermedia</i>		
	<i>Ophiarachnella gorgonia</i>		
	<i>Ophiolepis unicolor</i>	0	1
	<i>Phyllacanthus longispinus</i>	1	0
	<i>Diadema setosum</i>	1	several
	<i>Echinostrephus molaris</i>	0	several
	<i>Holothuria (Halodeima) atra</i>	0	1
	<i>Holothuria (Metriatyta) scabra</i>	0	1
<i>Holothuria (Stauropora) pervicax</i>	1	several	
<i>Holothuria (Thymiosycia) hilla</i>	0	2	
<i>Stichopus noctivagus</i>	0	1	
<i>Plesiocolochirus australis</i>	0	1	
	<i>Synaptula recta</i>		
DA1/98/23 Dolphin I., E side Intertidal	<i>Astropecten subbawanus</i>	No transect	2
	<i>Amphipholis squamata</i>		
	<i>Ophiactis fuscolineata</i>		
	<i>Ophiactis savignyi</i>		
	<i>Macrophiothrix 'caenosa'</i>		2
	<i>Macrophiothrix megapoma</i>		1
	<i>Macrophiothrix paucispina</i>		
	<i>Ophiothrix (Keystonea) martensi</i>		
	<i>Ophiothrix plana</i>		
	<i>Salmacis</i> sp.		2

Table 2 (cont.)

Station No.	Species	Nos in transect	Nos outside transect
	<i>Nudechinus scotiopremnus</i>		2
	<i>Peronella lesueuri</i>		3
	<i>Peronella orbicularis</i>		15
	<i>Brynia desorii</i>		3 & parts
	<i>Schizaster</i> sp. cf. <i>compactus</i>		parts
	<i>Holothuria (Halodeima) atra</i>		
	<i>Holothuria (Metriatyla) sp. cf. scabra</i>		1
	<i>Holothuria (Thymiosycia) impatiens</i>		1
	<i>Stichopus horrens</i>		1
	<i>Stichopus</i> sp. cf. <i>noctivagus</i>		!
	<i>Holothuria fuscopunctata</i>		many
	<i>Synaptula</i> sp.		1
DA1/98/24			
Dolphin I., E side	<i>Neothyonidium magnum</i>	2	0
Dive, Max. depth 5.4m	<i>Stichopus horrens</i>	2	0
DA1/98/25			
Keast I., S end	<i>Comanthina variabilis</i>	No transect	1
Intertidal	<i>Stephanometra indica</i>		1
	<i>Culcita schmideliana</i>		1
	<i>Ophiactis savignyi</i>		
	<i>Macrophiothrix callizona</i>		
	<i>Ophiothrix ciliaris</i>		
	<i>Ophiothrix exigua</i>		
	<i>Ophiothrix plana</i>		
	<i>Diadema setosum</i>		several
	<i>Salmacis</i> sp.		2
	<i>Nudechinus scotiopremnus</i>		2
	<i>Peronella orbicularis</i>		several
	<i>Echinolampas ovata</i>		parts
	<i>Actinopyga echinites</i>		1
	<i>Holothuria (Halodeima) atra</i>		few
	<i>Holothuria (Mertensiothuria) leucospilota</i>		1
	<i>Holothuria (Stauropora) pervicax</i>		few
	<i>Holothuria (Thymiosycia) impatiens</i>		few
DA1/98/26			
Madeleine Shoals	<i>Stephanometra oxyacantha</i>	0	1
Dive	<i>Oligometra carpenteri</i>	2	0
Max. depth 24.0m	<i>Fromia indica</i>	1	0
	<i>Gomophia sphenisci</i>	6	0
	<i>Linckia multifora</i>	29	0
	<i>Acanthaster planci</i>	1	0
	<i>Echinaster varicolor</i>	1	0
	<i>Ophiactis savignyi</i>		
	<i>Ophiothrix ciliaris</i>		
	<i>Ophiothrix plana</i>		
	<i>Diadema setosum</i>	2	0
	<i>Echinostrephus molaris</i>	1	0
	<i>Holothuria (Halodeima) atra</i>	8	0
	<i>Holothuria (Halodeima) edulis</i>	4	0
		Half transect	
DA1/98/27			
Legendre I., N side	<i>Colobometra perspinosa</i>	2	0
Dive	<i>Oligometra carpenteri</i>	1	0
Max. depth 16.2m	<i>Culcita schmideliana</i>	0	1
	<i>Fromia indica</i>	1	0
	<i>Linckia multifora</i>		
	<i>Ophiactis</i> sp. cf. <i>modesta</i>		
	<i>Ophiactis savignyi</i>		
	<i>Ophiothela danae</i>	1	
	<i>Ophiothrix (Keystonea) martensi</i>		
	<i>Ophiothrix ciliaris</i>		
	<i>Ophiothrix exigua</i>		

Station No.	Species	Nos in transect	Nos outside transect
	<i>Ophiothrix plana</i>		
	<i>Diadema setosum</i>	10	0
	<i>Holothuria (Halodeima) edulis</i>	1	0
	<i>Neothyonidium magnum</i>	0	1
DA1/98/28	<i>Ophiactis modesta</i>	No transect	several
Dolphin I., NW tip	<i>Peronella orbicularis</i>		1
Intertidal	<i>Breynia desorii</i>		1
	<i>Holothuria (Lessonothuria) pardalis</i>		2
	<i>Holothuria (Thymiosycia) hilla</i>		3
	<i>Holothuria (Thymiosycia) impatiens</i>		1
DA1/98/29	<i>Comanthus wahlbergi</i>	1	0
Legendre I., S side	<i>Comatula purpurea</i>	2	0
Dive	<i>Dorometra parvicirra</i>	2	0
Max. depth 5.0m	<i>Amphipholis squamata</i>	several	0
	<i>Ophiocentrus dilatata</i>		
	<i>Ophiactis luteomaculata</i>		
	<i>Ophiactis savignyi</i>		
	<i>Ophiothrix ciliaris</i>		
	<i>Ophiothrix plana</i>		
	<i>Ophiomastix variabilis</i>		
	<i>Phyllacanthus longispinus</i>	0	1
	<i>Diadema setosum</i>	4	0
	<i>Stichopus</i> sp. cf. <i>horrens</i>	0	2
	<i>Phyllophorus (Urodemella) brocki</i>	1	1
DA1/98/30	<i>Zygometa punctata</i>	0	1
Burru Peninsula, NE tip	<i>Ophiomaza cacaotica</i>	0	3
Dive	<i>Phyllacanthus longispinus</i>	2	0
Max. depth 10.9m	<i>Temnotrema siamense</i>	2	0
DA1/98/31	<i>Comanthus parvicirrus</i>	No transect	1
Searipple Passage, E end	<i>Asterina</i> sp. nov.		1
Intertidal	<i>Ophiactis savignyi</i>		
	<i>Ophiactis</i> sp. cf. <i>savignyi</i>		
	<i>Macrophiothrix 'caenosa'</i>		
	<i>Macrophiothrix callizona</i>		
	<i>Macrophiothrix lineocaerulea</i>		
	<i>Macrophiothrix lorioli</i>		
	<i>Ophiothela danae</i>		
	<i>Ophiothrix (Keystonea) martensi</i>		1
	<i>Ophiothrix ciliaris</i>		several
	<i>Ophiothrix plana</i>		several
	<i>Peronella orbicularis</i>		3 in parts
	<i>Breynia desorii</i>		2 & parts
	<i>Stichopus horrens</i>		1
	<i>Phyllophorus (Urodemella) proteus</i>		1 damaged
	<i>Stichopus noctivagus</i>		1
DA1/98/32	<i>Culcita schmideliana</i>	1	0
Legendre I., N side	<i>Fromia indica</i>	1	0
Dive	<i>Acanthaster planci</i>	0	1
Max. depth 15.9m	<i>Amphipholis squamata</i>		
	<i>Ophiactis fuscolineata</i>		
	<i>Ophiactis</i> sp. cf. <i>modesta</i>		
	<i>Ophiactis savignyi</i>		
	<i>Macrophiothrix</i> sp. juv.		
	<i>Ophiothrix</i> sp. cf. <i>ciliaris</i>		
	<i>Diadema setosum</i>	32	0
	<i>Echinostrephus molaris</i>	3	0
	<i>Holothuria (Halodeima) atra</i>	0	1
	<i>Holothuria (Halodeima) edulis</i>	0	1
	<i>Holothuria (Mertensiothuria) leucospilota</i>	0	1
	<i>Stichopus chloronotus</i>	2	0
	<i>Neothyonidium magnum</i>	2	0

Table 2 (cont.)

Station No.	Species	Nos in transect	Nos outside transect
DA1/98/33	<i>Comanthina variabilis</i>	1	0
Angel I., NE tip	<i>Oligometra carpenteri</i>	0	2
Dive	<i>Petasometra helianthoides</i>	0	1
Max. depth 8.8m	<i>Amphioplus didymus</i>	1	0
	<i>Amphiura duncani</i>		
	<i>Amphiura velox</i>		
	<i>Ophiocentrus dilatata</i>		
	<i>Ophiocentrus</i> sp. aff. <i>dilatata</i>		
	<i>Ophiactis modesta</i>		
	<i>Ophiactis savignyi</i>		
	<i>Ophiothrix ciliaris</i>	1	0
	<i>Ophiothrix plana</i>		
	<i>Ophiodyscrita acosmeta</i>		
	<i>Culcita schmideliana</i>	1	0
	<i>Holothuria (Halodeima) atra</i>	0	1
	<i>Stichopus horrens</i>	1	0
	<i>Phyllophorus (Urodemella) brocki</i>	1	0
DA1/98/34	<i>Ophiactis savignyi</i>	No transect	
Tozer I.	<i>Brynia desorii</i>		2
Intertidal	<i>Holothuria (Mertensiothuria) leucospilota</i>		1
DA1/98/35	<i>Ophiactis savignyi</i>		
Legendre I., S side	<i>Macrophiothrix 'caenosa'</i>		
Snorkel	<i>Holothuria (Halodeima) atra</i>	0	1
	<i>Holothuria impatiens</i>	1	0
	<i>Stichopus chloronotus</i>	4	0
	<i>Stichopus horrens</i>	1	0

Table 3 Echinoderms from the Dampier Archipelago collected by the second diving expedition (DA3/99); station numbers and depth ranges at which they were collected or observed within the transect or elsewhere. (a = from algae; e = from echinoderms; s = from sponge; c = from coral; m = from mollusc; t = collected on transect; d = dead test or fragments; r = from rock crevice; v = visual or photographic record).

	Intertidal	Depth 0-10 m	Depth 11-20 m
ECHINODERMATA			
Class CRINOIDEA			
Family Comasteridae			
<i>Clarkcomanthus littoralis</i> (Carpenter, 1888)	48	36t, 47t	52t
<i>Comanthina variabilis</i> (Bell, 1882)		37t, 41, 68t	67t
<i>Comanthus alternans</i> (Carpenter, 1881)			55t
<i>C. briareus</i> (Bell, 1882)			65
<i>C. gisleni</i> Rowe <i>et al.</i> 1986		37t, 49t	65
<i>C. parvicirrus</i> (Müller, 1841)		36t, 37, 61t	65
<i>C. wahlbergii</i> (Müller, 1843)	45		65
<i>Comatella maculata</i> (Carpenter, 1888)		36t, 47t	
<i>C. stelligera</i> (Carpenter, 1888)		57	
<i>Comatula pectinata</i> (Linnaeus, 1758)		68	55t, 65t
<i>C. purpurea</i> (Müller, 1843)		49t	65t
Family Zygometridae			
<i>Zygometa comata</i> A.H. Clark, 1911			55t
<i>Z. microdiscus</i> (Bell, 1882)		41	
<i>Z. punctata</i> A.H. Clark, 1912			55t, 65t
Family Himerometridae			
<i>Amphimetra tessellata</i> (Müller, 1841)			55t
Family Mariametridae			
<i>Lamprometra palmata</i> (Müller, 1841)	42	47	
<i>Stephanometra indica</i> (Smith, 1876)		40t, 46	50t
<i>S. spinipinna</i> (Hartlaub, 1890)		40t, 68t	
Family Colobometridae			
cf. <i>Iconometra</i> sp.		56tv	55t
<i>Oligometra carpenteri</i> (Bell, 1884)			52, 55t, 65
<i>O. serripinna</i> (Carpenter, 1881)			65
Family Antedonidae			
<i>Dorometra parvicirra</i> (Carpenter, 1888)		47	
Class ASTEROIDEA			
Family Luidiidae			
<i>Luidia maculata</i> Müller and Troschel, 1842	51		
Family Astropectinidae			
<i>Astropecten granulatus</i> Müller and Troschel, 1842	38		
<i>A. polyacanthus</i> Müller and Troschel, 1842	38		
<i>A. sumbawanus</i> Döderlein, 1917		51, 54, 59v, 62v	
Family Goniasteridae			
<i>Iconaster longimanus</i> (Möbius, 1859)			55t
<i>Styphlaster notabilis</i> H.L. Clark, 1938			55t
Family Oreasteridae			
<i>Anthenea conjungens</i> Döderlein, 1935		57	65
<i>Culcita schmideliana</i> (Retzius, 1805)	45, 48	36, 37t, 56v, 57v, 58tv, 61v, 68v	43v, 52v, 65v, 67t
<i>Goniodiscaster acanthodes</i> H.L. Clark, 1938			65t
<i>Gymnanthenea globigera</i> (Döderlein, 1915)	45, 48		
<i>Pentacaster gracilis</i> (Lütken, 1871)			55v
<i>Protoreaster lincki</i> (Blainville, 1830)		47v	
<i>P. nodulosus</i> (Perrier, 1875)	51	61tv	
<i>Pseudoreaster obtusangulus</i> (Lamarck, 1816)	45v, 48v, 51, 54v	41	

Table 3 (cont.)

	Intertidal	Depth 0-10 m	Depth 11-20 m
Family Ophidiasteridae			
<i>Fromia indica</i> (Perrier, 1869)		57t	52t
<i>Fromia</i> sp. ?nov.			65t
<i>Gomophia sphenisci</i> (A.M. Clark, 1967)			52t
<i>Hacelia helicosticha</i> (Sladen, 1889)		57	52
<i>Linckia laevigata</i> (Linnaeus, 1758)		56v	43
<i>L. multiflora</i> (Lamarck, 1816)		40tv, 46, 50tv, 57tv	39t, 43tv, 52v, 67tv
<i>Nardoa galathea</i> (Lütken, 1865)		47v	43, 67v
<i>Ophidiaster</i> sp.	No locality		
<i>Ophidiaster</i> sp. juv.			55t
<i>Tamaria tumescens</i> (Koehler, 1910)			55t
<i>Tamaria</i> sp.			55
Family Pterasteridae			
<i>Euretaster insignis</i> (Sladen, 1882)	Near 48		
Family Asterinidae			
<i>Asterina anomala</i> H.L. Clark, 1921		64	
<i>A. sarasini</i> (de Loriol, 1897)	45		
Family Acanthasteridae			
<i>Acanthaster planci</i> (Linnaeus, 1758)		36tv, 40v, 44v, 46v, 49v, 50v	43v, 52tv, 67v
Family Echinasteridae			
<i>Echinaster superbus</i> H.L. Clark, 1916	No locality		
<i>E. varicolor</i> H.L. Clark, 1938		56t, 57	
Class OPHIUROIDEA			
Family Amphiuridae			
<i>Amphioplus</i> (A.) <i>stenaspis</i> H.L. Clark, 1938			67trs
<i>A. (Lymanella) depressa</i> (Ljungman, 1867)	54r	56r	
<i>Amphipholis</i> sp.	51		
<i>A. squamata</i> (Delle-Chiaje, 1828)	59r	53ts, 61trs	
<i>Amphiura</i> (A.) <i>acrisia</i> H.L. Clark, 1938			65ts
<i>Amphiura</i> (A.) <i>constricta</i> Lyman, 1879		49r	
<i>A. (A.) duncani</i> Lyman, 1882	6m	40tr, 41r, 53tr	65trs
<i>Amphiura</i> sp.		70ts	
Family Ophiactidae			
<i>Ophiactis</i> sp. cf. <i>brachyura</i> Döderlein, 1898		61trs	
<i>Ophiactis fuscolineata</i> H.L. Clark, 1938	59r, 62r	47	
<i>O. luteomaculata</i> H.L. Clark, 1915			52tr
<i>O. modesta</i> Brock, 1888	66m		52tr, 55s, 65tr, 67trs
<i>Ophiactis savignyi</i> (Müller and Troschel, 1842)	38c, 45, 48	37ts, 46, 49t, 53trs, 56ts, 60ts, 61trs	67trs
<i>O. versicolor</i> H.L. Clark, 1939			65tr
<i>Ophiactis</i> sp.		37tr, 40ts, 58ts	
<i>Ophiophane formata</i> Koehler, 1905		41, 68te	
Family Ophiotrichidae			
<i>Macrophiothrix</i> 'caenosa' sensu Hoggett, 1990	38, 42, 45	37t, 40t, 47, 49t, 64t	65tr
<i>M. callizona</i> H.L. Clark, 1938	42, 48	41trs, 61trs	
<i>M. lineocaerulea</i> (H.L. Clark, 1928)		68te	
<i>M. megapoma</i> H.L. Clark, 1938	42		
<i>M. paucispina</i> Hoggett, 1991	38, 42, 54		
<i>M. variabilis</i> (Duncan, 1887)	48		
<i>Macrophiothrix</i> sp.	48, 51	61trs	
<i>Ophiomaza cacaotica</i> Lyman, 1871		68te	
<i>Ophiopterion elegans</i> Ludwig, 1888		44a	
<i>Ophiothela danae</i> Verrill, 1869		41tg	43m, 65tr
<i>Ophiotrix (Keystonea) martensi</i> Lyman, 1874		41s, 46, 49t, 53tr, 68te	65ts
<i>O. (K.) smaragdina</i> Studer, 1882		56ts, 57ts	39s, 55ts, 65ts
<i>Ophiotrix ciliaris</i> (Lamarck, 1816)	38c, 48, 51	36trs, 37trs, 40ts, 41s, 47, 53ts, 56ts, 58ts, 60ts, 61trs, 70ts	55ts, 65ts, 67ts

	Intertidal	Depth 0-10 m	Depth 11-20 m
<i>O. exigua</i> Lyman, 1874	42	40ts, 41s, 56ts, 57ts, 60ts, 70ts	55ts, 65ts
<i>O. plana</i> Lyman, 1874	51, 54r	36ts, 40ts, 46, 53, 64	43m, 52tr
<i>Ophiothrix</i> sp.	38	47	
Family Ophiocomidae			
<i>Ophiomastix mixta</i> Lütken, 1869		44tr	
Family Ophionereididae			
<i>Ophionereis dubia</i> (Müller and Troschel, 1842)	38c, 42, 45, 48, 66		
<i>O. intermedia</i> A.M. Clark, 1953	48	44tr, 46, 49t, 57ts	67t
<i>O. semoni</i> (Döderlein, 1896)		47	
Family Ophiodermatidae			
<i>Ophiarachnella gorgonia</i> (Müller and Troschel, 1842)	45	37tr, 44tr, 47, 49t	65tr
<i>O. infernalis</i> (Müller and Troschel, 1842)	42, 54r	49	
<i>Ophioconis cincta</i> Brock, 1888			67tr
<i>O. cupida</i> Koehler, 1905		47	
Family Ophiuridae			
<i>Ophiolepis unicolor</i> H.L. Clark, 1938	42, 48	47, 53t	65tr
<i>Ophioplocus imbricatus</i> (Müller and Troschel, 1842)	45, 48, 51	37tr, 46, 47, 53t	65tr
Class ECHINOIDEA			
Family Cidaridae			
<i>Phyllacanthus imperialis</i> (Lamarck, 1816)		46	
<i>P. longispinus</i> Mortensen, 1918		36d, 40d, 46d	39d, 50tv, 67tv
<i>Prionocidarid bispinosa</i> (Lamarck, 1816)	v, no locality		
Family Diadematidae			
<i>Diadema setosum</i> (Leske, 1778)	48v	36tv, 44tv, 49tv, 53tv, 57tv, 58tv, 60tv, 63tv, 64tv	50tv, 52tv, 65v, 67tv, 69tv
Family Temnopleuridae			
<i>Salmacis</i> sp. (incomplete)	62d		
<i>Temnopleurus</i> sp. (incomplete)	59d		
Family Echinometridae			
<i>Echinostrephus molaris</i> (Blainville, 1825)		40tv, 44, 46tv	43tv, 50tv, 52tv, 67v
Family Laganidae			
<i>Peronella lesueurii</i> (Valenciennes, 1841)	54v	41, 56tv, 68tv	55tv
<i>P. sp. cf. macroproctes</i> Koehler, 1922	38d, 45d, 54d, 66d	47d, 61d, 70d	65td, 69
<i>P. sp. cf. orbicularis</i> (Leske, 1778)	38d, 51d, 54d	47d	
<i>P. tuberculata</i> Mortensen, 1918	38d, 54d		65td
<i>Peronella</i> spp	38d, 62d	41d, 68d	
Family Echinolampadidae			
<i>Echinolampas ovata</i> (Leske, 1778)	38d, 42d	37td	
Family Fibulariidae			
<i>Fibularia</i> sp. cf. <i>acuta</i> Yoshiwara, 1898		49d	
<i>F. oblonga</i> Gray, 1851	d, no locality		
Family Schizasteridae			
<i>Schizaster compactus</i> (Koehler, 1914) juv.	No locality		
Family Brissidae			
<i>Brissus latecarinatus</i> (Leske, 1778)		68	
<i>Metalia sternalis</i> (Lamarck, 1816)		41d	
<i>Rhynobrissus hemiasteroides</i> A. Agassiz, 1879		68	
Family Loveniidae			
<i>Breynia desorii</i> Gray, 1851	38, 42d, 54d	37td, 41d	

Table 3 (cont.)

	Intertidal	Depth 0-10 m	Depth 11-20 m
Family Spatangidae			
<i>Nacospatangus (Pseudomaretia) interruptus</i> (Studer, 1880)	42d	57, 68d	
Class HOLOTHUROIDEA			
Family Holothuriidae			
<i>Actinopyga echinites</i> (Jaeger, 1833)	42v, 45v, 48, 66v	37tv, 40, 44tv, 47tv, 53v	
<i>Bohadschia marmorata</i> (Jaeger, 1833)		56t	
<i>Holothuria (Halodeima) atra</i> Jaeger, 1833	42, 45v, 48v, 51v, 66v	44v, 49tv, 56tv, 57tv, 64tv, 70tv	
<i>H. (Halodeima) edulis</i> Lesson, 1830	42v, 51v	36tv, 44tv, 47tv, 49tv, 58tv, 64tv	50tv, 52tv, 67tv
<i>H. (Lessonothuria) pardalis</i> Selenka, 1867	45, 51v, 59v, 62	36, 49tv, 53tv, 60tv, 63tv, 64tv	67
<i>H. (Lessonothuria) sp. juv.</i>	51, 59, 62		
<i>Holothuria (Mertensiothuria) leucospilota</i> (Brandt, 1835)	42v, 45v, 48v, 51v, 54v, 59v, 66v	37tv, 47tv, 56tv, 58tv, 64tv, 70tv	52tv
<i>H. (Metrityla) scabra</i> Jaeger, 1833	38v, 54		
<i>H. (Platyperona) difficilis</i> Semper, 1868	45		
<i>Holothuria (Semperothuria) cinerascens</i> (Brandt, 1835)	45, 48v		
<i>H. (Thymiosycia) hilla</i> Lesson, 1830	42, 45v, 62v	47v, 49tv	
<i>H. (Thymiosycia) impatiens</i> (Forskål, 1775)	38v, 42v, 45v, 48v, 54v	44tv	
<i>H. (Thymiosycia) sp.</i>	38		
Family Stichopodidae			
<i>Stichopus chloronotus</i> Brandt, 1835	42, 45v, 51	44tv, 56, 58tv	
<i>S. hermanni</i> Semper, 1868	54	57v	
<i>Stichopus sp. cf. horrens</i> Selenka, 1867	42, 45v, 51	44tv, 56tv, 61tv, 64tv	
<i>S. sp. cf. monotuberculatus</i> Quoy and Gaimard, 1833		41	
<i>S. variegatus</i> group	42		
<i>Stichopus sp.</i>		41, 56	
Family Cucumariidae			
<i>Actinocucumis typica</i> Ludwig, 1875	45		
<i>Cercodemus anceps</i> Selenka, 1867		68t	
<i>Colochirus crassus</i> Ekman, 1918		41	
<i>Leptopentacta grisea</i> H.L. Clark, 1938	45	47, 70t	
<i>Plesiocolochirus australis</i> (Ludwig, 1875)		53	
<i>Pseudocolochirus violaceus</i> (Théel, 1886)		57v	52v, 55tv, 65tv
Family Phyllophoridae			
<i>Neothyonidium magnum</i> (Ludwig, 1882)		37, 61tv	
<i>Phyllophorus (Urodemella) proteus</i> Bell, 1884	45		
Family Sclerodactylidae			
<i>Cladolabes schmeltzii</i> (Ludwig, 1875)	45		
Family Synaptidae			
<i>Synaptula macra</i> H.L. Clark, 1938		64t	
<i>S. recta</i> Semper, 1868	62	41, 56tv, 68tv	55t

Table 4 Echinoderms from the Dampier Archipelago collected by the second diving expedition (DA3/99); locality, depth, species and numbers collected or observed from each station. (v = visual or photographic record; d = dead specimen; juv = juvenile).

Station No.	Species	Nos in transect	Nos outside transect
DA3/99/36 N side of Malus I. Dive, Coll: S. Morrison 27/8/99 8.5m	<i>Clarkcomanthus littoralis</i>	1	
	<i>Comatella maculata</i>	2	
	<i>Comanthus parvicirrus</i>	2	Several
	Crinoid, black with yellow tips on pinnules	1(v)	
	<i>Culcita schmideliana</i>		1
	<i>Acanthaster planci</i>	1(v)	1
	<i>Ophiothrix ciliaris</i>	3	
	<i>Ophiothrix plana</i>	1	
	<i>Phyllacanthus longispinus</i> (d)		1
	<i>Diadema setosum</i>	62(v)	Hundreds(v)
<i>Holothuria edulis</i>	1(v)	1	
<i>Holothuria pardalis</i>	1		
DA3/99/37 NW side of Malus I. Dive, Coll: S. Morrison 27/8/99 3.5m	<i>Comanthus gisleni</i>	3	
	<i>Comanthina variabilis</i>	1	
	Crinoid, yellow	1(v)	
	<i>Culcita schmideliana</i>	1	
	<i>Ophiactis savignyi</i>	7	
	<i>Ophiactis</i> sp.	1	
	<i>Ophiothrix ciliaris</i>	11	
	<i>Macrophiothrix 'caenosa'</i>	2	
	<i>Ophiarachnella gorgonia</i>	1	
	<i>Ophioplocus imbricatus</i>	1	
	<i>Breynia dessorii</i> (d)	Several	
	<i>Echinolampas ovata</i> (d)	2	
	<i>Actinopyga echinites</i>	1(v)	
<i>Holothuria leucospilota</i>	1(v)		
<i>Neothyonidium magnum</i>	1		
DA3/99/38 N side of Malus I. Intertidal Coll: S. Morrison 27/8/99	<i>Astropecten polyacanthus</i>		Several
	<i>Astropecten granulatus</i>		Several
	<i>Ophiactis savignyi</i>		1
	<i>Macrophiothrix paucispina</i>		1
	<i>Macrophiothrix 'caenosa'</i>		1
	<i>Ophiothrix ciliaris</i>		1
	<i>Ophionereis dubia</i>		1
	<i>Breynia desorii</i>		1
	<i>Echinolampas ovata</i> (d)		1
	<i>Peronella tuberculata</i> (d)		1
	<i>Peronella</i> cf. <i>orbicularis</i> (d)		6
	<i>Peronella</i> cf. <i>macroproctes</i> (d)		2
	<i>Peronella</i> sp. (d)		12
	<i>Holothuria impatiens</i>		1(v)
<i>Holothuria scabra</i>		Several(v)	
<i>Holothuria</i> sp.		Several	
DA3/99/39 NNE of Brigadier I. Dive, Coll: S. Morrison 28/8/99 16m	Crinoid, yellow	1(v)	
	Crinoid, black	2(v)	
	<i>Linckia multifora</i>	7	Many
	<i>Ophiothrix smaragdina</i>		1
	<i>Phyllacanthus longispinus</i> (d)		1
DA3/99/40 W of Brigadier I. Dive, Coll: S. Morrison 28/8/99 8m	<i>Stephanometra indica</i>	2	2
	<i>Stephanometra spinipinna</i>	1	
	Crinoid, yellow		1(v)
	Crinoid, black	1(v)	
	<i>Linckia multifora</i>	5(v)	Several(v)
	<i>Acanthaster planci</i>		2(v)
	<i>Amphiura duncani</i>	2	
	<i>Ophiactis</i> sp.	1	
<i>Macrophiothrix 'caenosa'</i>	1		

Table 4 (cont.)

Station No.	Species	Nos in transect	Nos outside transect
	<i>Ophiothrix ciliaris</i>	1	
	<i>Ophiothrix exigua</i>	1	
	<i>Ophiothrix plana</i>	3	
	<i>Phyllacanthus longispinus</i> (d)		1
	<i>Echinostrephus molaris</i>	1(v)	Many(v)
	<i>Actinopyga echinites</i>		1
DA3/99/41	<i>Ophiodaphne materna</i> on <i>P. lesueuri</i>		1
S of Georgeff Reefs	<i>Bryenia desorii</i>		2
Dive, Coll: P. Berry	<i>Peronella lesueuri</i>		2
28/8/99	<i>Colochirus crassus</i>		1
	<i>Synaptula recta</i>		1
DA3/99/41	<i>Comanthina variabilis</i>		1
S of Georgeff Reefs	<i>Zygometa microdiscus</i>		1
Dive, Coll: S. Morrison	<i>Pseudoreaster obtusangulus</i>		1
29/8/99 3.5m	<i>Amphiura duncani</i>		1
	<i>Ophiothela danae</i>		9
	<i>Ophiothrix ciliaris</i>		16
	<i>Ophiothrix exigua</i>		22
	<i>Macrophiothrix callizona</i>	1	
	<i>Metalia sternalis</i> (d)		1
	<i>Peronella</i> sp.		Several
	<i>Stichopus</i> cf. <i>monotuberculatus</i>		1
	<i>Stichopus</i> sp.		1
DA3/99/42	<i>Macrophiothrix</i> 'caenosa'		1
Georgeff Reefs	<i>Macrophiothrix callizona</i>		1
Intertidal	<i>Macrophiothrix megapoma</i>		1
Coll: S. Morrison	<i>Macrophiothrix paucispina</i>		1
28/8/99	<i>Ophiothrix exigua</i>		1
	<i>Ophionereis dubia</i>		2
	<i>Ophiarachnella infernalis</i>		1
	<i>Ophiolepis unicolor</i>		1
	<i>Bryenia desorii</i>		Several
	<i>Nacospatangus interruptus</i>		Several
	<i>Echinolampas ovata</i> (d)		1
	<i>Actinopyga echinites</i>		1(v)
	<i>Holothuria atra</i>		Several
	<i>Holothuria edulis</i>		2(v)
	<i>Holothuria hilla</i>		Several
	<i>Holothuria impatiens</i>		Several(v)
	<i>Holothuria leucospilota</i>		Many(v)
	<i>Stichopus chloronotus</i>		Many
	<i>Stichopus</i> sp.		Several
DA3/99/43	Crinoid, cream and mustard, approx. 30 arms	1(v)	
Sailfish Reef	Crinoid, dark green, rough texture, many arms		1(v)
Dive, Coll: S. Morrison	<i>Linckia laevigata</i>		1
29/8/99 11m	<i>Linckia multifora</i>	8(v)	Many(v)
	<i>Culcita schmideliana</i>		Several(v)
	<i>Nardoa galatheae</i>		Several
	<i>Acanthaster planci</i>		2(v)
	<i>Ophiothrix plana</i>		
	<i>Ophiothela danae</i>		
	<i>Echinostrephus molaris</i>	40(v)	Many(v)
DA3/99/44	Crinoid, black with yellow tips on pinnules	1(v)	
SW side Rosemary I.	Crinoid, light brown with yellow speckles	3(v)	
Dive, Coll: S. Morrison	<i>Acanthaster planci</i>		1(v)
29/8/99 5m	<i>Ophiopteron elegans</i>	1	
	<i>Ophionereis intermedia</i>	1	
	<i>Ophiomastix mixta</i>	1	
	<i>Ophiarachnella gorgonia</i>	2	

Station No.	Species	Nos in transect	Nos outside transect
	<i>Diadema setosum</i>	7(v)	Few
	<i>Echinostrephus molaris</i>		1
	<i>Actinopyga echinites</i>	10(v)	Many(v)
	<i>Holothuria edulis</i>	7	Several(v)
	<i>Holothuria atra</i>		Few(v)
	<i>Holothuria impatiens</i>	1(v)	
	<i>Stichopus chloronotus</i>	16(v)	Many
	<i>Stichopus horrens</i>	5(v)	
DA3/99/45	<i>Comanthus wahlbergi</i>		2
Tish Reef, Rosemary I.	<i>Culcita schmidelaina</i> juv.		Few
Intertidal	<i>Pseudoreaster obtusangulus</i>		Few(v)
Coll: S. Morrison	<i>Gymnanthenea globigera</i>		Several
30/8/99	<i>Asterina sarasini</i>		1
	<i>Ophiactis savignyi</i>		1
	<i>Macrophiothrix 'caenosa'</i>		1
	<i>Ophionereis dubia</i>		4
	<i>Ophiarachnella gorgonia</i>		2
	<i>Ophioplocus imbricatus</i>		1
	<i>Peronella cf. macroproctes</i> (d)		1
	<i>Actinopyga echinites</i>		Many(v)
	<i>Holothuria atra</i>		Several(v)
	<i>Holothuria cinerascens</i>		Many
	<i>Holothuria difficilis</i>		Many
	<i>Holothuria hilla</i>		Many(v)
	<i>Holothuria impatiens</i>		Many(v)
	<i>Holothuria leucospilota</i>		Several(v)
	<i>Holothuria pardalis</i>		1
	<i>Stichopus chloronotus</i>		Many(v)
	<i>Stichopus horrens</i>		Few(v)
	<i>Cladolabes schmeltzii</i>		1
	<i>Actinocucumis typica</i>		Several
	<i>Leptopentacta grisea</i>		Few
DA3/99/46	<i>Stephanometra indica</i>		1
NW Kendrew I.	<i>Linckia multifora</i>		Many(v)
Dive, Coll: S. Morrison	<i>Acanthaster planci</i>		2(v)
30/8/99 5m	<i>Ophiactis savignyi</i>		9
	<i>Ophiothrix martensi</i>		1
	<i>Ophiothrix plana</i>		1
	<i>Ophionereis intermedia</i>		1
	<i>Ophioplocus imbricatus</i>		1
	<i>Phyllacanthus imperialis</i>		1
	<i>Phyllacanthus longispinus</i> (d)		1
	<i>Echinostrephus molaris</i>	5(v)	Many(v)
DA3/99/47	<i>Comatella maculata</i>	1	Several
SE Kendrew I.	<i>Clarkcomanthus littoralis</i>	8	Several
Dive, Coll: S. Morrison	<i>Lamprometra palmata</i>		Several
30/8/99 4m	Crinoid, black and orange	1(v)	
	Crinoid, black, many arms	8(v)	Several(v)
	<i>Protoreaster lincki</i>		1
	<i>Pentaceraster gracilis</i>		1
	<i>Nardoa galatheae</i>		1
	<i>Ophiactis cf. fuscolineata</i>		1
	<i>Ophiothrix</i> sp.		1
	<i>Macrophiothrix 'caenosa'</i>		1
	<i>Ophiothrix ciliaris</i>		2
	<i>Ophionereis semoni</i>		1
	<i>Ophioconis cupida</i>		1
	<i>Ophioplocus imbricatus</i>		1
	<i>Peronella cf. macroproctes</i> (d)		4
	<i>Peronella cf. orbicularis</i> (d)		2
	<i>Actinopyga echinites</i>	28(v)	
	<i>Holothuria edulis</i>	1(v)	

Table 4 (cont.)

Station No.	Species	Nos in transect	Nos outside transect
	<i>Holothuria leucospilota</i>	1(v)	Few
	<i>Holothuria hilla</i>		1(v)
	<i>Leptopentacta grisea</i>		1
30/8/99 (not a station)	<i>Euretaster insignis</i>		1
NE Goodwyn I. Coll. C. Bryce	<i>Gymnanthenea globigera</i>		1
DA3/99/48	<i>Clarkcomanthus littoralis</i>		1
N Goodwyn I.	Crinoid, yellow and green, many hooked arms		1(v)
Intertidal	Crinoid, small and brown, 9 arms		1(v)
Coll: P. Morrison	<i>Culcita schmideliana</i>		1
31/8/99	<i>Gymnanthenea globigera</i>		1
	<i>Pseudoreaster obtusangulus</i>		1(v)
	<i>Ophiactis savignyi</i>		1
	<i>Macrophiothrix callizona</i>		2
	<i>Macrophiothrix variabilis</i>		1
	<i>Macrophiothrix</i> sp.		1
	<i>Ophionereis dubia</i>		3
	<i>Ophionereis intermedia</i>		1
	<i>Diadema setosum</i>		1(v)
	<i>Actinopyga echinites</i>		1
	<i>Holothuria atra</i>		1(v)
	<i>Holothuria cinerascens</i>		1(v)
	<i>Holothuria impatiens</i>		1(v)
	<i>Holothuria leucospilota</i>		1(v)
DA3/99/49	<i>Comanthus gisleni</i>	1	
S Goodwyn I.	<i>Comatula purpurea</i>	1	
Dive, Coll: P. Morrison	<i>Acanthaster planci</i>		1(v)
31/8/99 5m	<i>Ophiactis savignyi</i>	2	
	<i>Macrophiothrix</i> 'caenosa'	2	
	<i>Ophiothrix martensi</i>	1	
	<i>Ophionereis intermedia</i>	3	
	<i>Ophiarachnella gorgonia</i>	1	
	<i>Diadema setosum</i>	92(v)	
	<i>Fibularia</i> cf. <i>acuta</i> (d)	1	
	<i>Holothuria atra</i>	1(v)	
	<i>Holothuria edulis</i>	1(v)	
	<i>Holothuria hilla</i>	4(v)	
	<i>Holothuria pardalis</i>	3(v)	
DA3/99/50	<i>Stephanometra indica</i>	2	
E side of Bare Rock	Crinoid, bright green and yellow	1(v)	
Dive, Coll: P. Morrison	<i>Linckia multifora</i>	10(v)	
31/8/99 15m	<i>Acanthaster planci</i>		1(v)
	<i>Phyllacanthus longispinus</i>	5(v)	
	<i>Diadema setosum</i>	1(v)	
	<i>Echinostrephus molaris</i>	2(v)	
	<i>Holothuria edulis</i>	1(v)	
DA3/99/51	<i>Luidia maculata</i>		1
N side Enderby I.	<i>Astropecten sumbawanus</i>		1
Intertidal	<i>Protoreaster nodulosus</i>		Many
Coll: S. Morrison	<i>Pseudoreaster obtusangulus</i>		several
1/9/99	<i>Amphipholis</i> sp.		1
	<i>Macrophiothrix</i> sp.		1(v)
	<i>Ophiothrix ciliaris</i>		1
	<i>Ophiothrix plana</i>		1
	<i>Ophioplocus imbricatus</i>		2
	<i>Peronella</i> cf. <i>orbicularis</i> (d)		5
	<i>Holothuria atra</i>		Many(v)
	<i>Holothuria edulis</i>		Few(v)
	<i>Holothuria leucospilota</i>		Many(v)

Station No.	Species	Nos in transect	Nos outside transect
	<i>Holothuria (Lessonothuria) sp. juv.</i>		1
	<i>Holothuria pardalis</i>		1(v)
	<i>Stichopus chloronotus</i>		Few
	<i>Stichopus horrens</i>		Few
DA3/99/52	<i>Clarkcomanthus littoralis</i>	1	
NW Roly Rock	<i>Oligometra carpenteri</i>		1
Dive, Coll: R. Peart	Crinoid, yellow-green	3(v)	
1/9/99 15m	Crinoid, black		Several(v)
	<i>Culcita schmideliana</i>	1	
	<i>Acanthaster planci</i>	3	
	<i>Fromia indica</i>	1	
	<i>Gomophia sphenisci</i>	1	
	<i>Linckia multifora</i>		1(v)
	<i>Hacelia helicosticha</i>		1
	<i>Ophiactis luteomaculata</i>	1	
	<i>Ophiactis modesta</i>	13	
	<i>Ophiothrix plana</i>	3	
	<i>Diadema setosum</i>	57(v)	
	<i>Echinostrephus molaris</i>	45(v)	
	<i>Holothuria edulis</i>	4(v)	
	<i>Holothuria leucospilota</i>	1(v)	
	<i>Pseudocolchirus violaceus</i>		1(v)
DA3/99/53	Crinoid, black	1(v)	
NE Enderby I.	Crinoid, black with yellow tips on pinnules	1(v)	
Dive, Coll: R. Peart	<i>Amphipholis squamata</i>	1	
1/9/99 5m	<i>Amphiura duncani</i>	1	
	<i>Ophiactis savignyi</i>	7	
	<i>Ophiothrix ciliaris</i>	6	
	<i>Ophiothrix martensi</i>	1	
	<i>Ophiolepis unicolor</i>	1	
	<i>Ophioplocus imbricatus</i>	1	
	<i>Diadema setosum</i>	101(v)	
	<i>Actinopyga echinites</i>		1(v)
	<i>Holothuria pardalis</i>	1	
	<i>Plesiocolochirus australis</i>	1	
DA3/99/54	<i>Astropecten sumbawanus</i>		Several
E Enderby I/ Intertidal	<i>Pseudoreaster obtusangulus</i>		1(v)
Coll: S. Morrison	<i>Amphioplus depressus</i>		1
2/9/99	<i>Macrophiothrix paucispina</i>		2
	<i>Ophiothrix plana</i>		1
	<i>Ophiarachnella infernalis</i>		1
	<i>Peronella lesueuri</i>		Few(v)
	<i>Peronella cf. macroproctes</i> (d)		10
	<i>Peronella cf. orbicularis</i> (d)		3
	<i>Peronella tuberculata</i> (d)		1
	<i>Bryonia desorii</i> (d)		Few
	<i>Holothuria scabra</i>		Many
	<i>Holothuria leucospilota</i>		Few(v)
	<i>Holothuria impatiens</i>		1(v)
	<i>Stichopus hermanni</i>		1
DA3/99/55	<i>Comanthus alternans</i>	3	
Enderby/Lewis channel	<i>Comatula pectinata</i>	Several	
Dive, Coll: S. Morrison	<i>Zygometa comata</i>	10	
2/9/99 17m	<i>Zygometa punctata</i>	Many	
	<i>Oligometra carpenteri</i>	>400	
	cf. <i>Iconometra</i> sp.	4	
	<i>Amphimetra cf. tessellata</i>	32	
	<i>Iconaster longimanus</i>	3	
	<i>Tamaria tumescens</i>	1	
	<i>Styphlaster notabilis</i>	1	
	<i>Ophidiaster</i> sp. juv.	1	

Table 4 (cont.)

Station No.	Species	Nos in transect	Nos outside transect
	<i>Pentacaster gracilis</i>	1(v)	
	<i>Ophiothrix ciliaris</i>	3	
	<i>Ophiothrix exigua</i>	17	
	<i>Ophiothrix smaragdina</i>	1	
	<i>Peronella lesueuri</i>	1(v)	
	<i>Pseudocolchirus violaceus</i>	11(v)	
	<i>Synaptula recta</i>	4	
DA3/99/56	cf. <i>Iconometra</i> sp.	2	
NW tip Eaglehawk I.	<i>Culcita schmideliana</i>		1(v)
Dive Coll: R. Peart	<i>Linckia laevigata</i>		1(v)
3/9/99 9m	<i>Echinaster varicolor</i>	1	
	<i>Ophiactis savignyi</i>	5	
	<i>Ophiothrix ciliaris</i>	2	
	<i>Ophiothrix exigua</i>	14	
	<i>Ophiothrix smaragdina</i>	2	
	<i>Peronella lesueuri</i>	1(v)	1(v)
	<i>Bohadschia marmorata</i>	1	
	<i>Holothuria atra</i>	1(v)	
	<i>Holothuria leucospilota</i>	1(v)	
	<i>Stichopus horrens</i>	1(v)	2(v)
	<i>Stichopus</i> sp.		1
	<i>Synaptula recta</i>	2(v)	Many
DA3/99/57	<i>Comatella stelligera</i>	3	
NE of NW Reefs	<i>Culcita schmideliana</i>		1(v)
Dive, Coll: R. Peart	<i>Fromia indica</i>	2	
3/9/99 9m	<i>Linckia multifora</i>	5(v)	
	<i>Hacelia helicosticha</i>		
	<i>Anthenea conjungens</i>		2
	<i>Ophiothrix exigua</i>	1	
	<i>Ophiothrix smaragdina</i>	1	
	<i>Ophionereis intermedia</i>	1	
	<i>Diadema setosum</i>	26(v)	
	<i>Nacospatangus interruptus</i>		4
	<i>Holothuria atra</i>	2(v)	
	<i>Stichopus hermanni</i>		1(v)
	<i>Pseudocolchirus violaceus</i>		1(v)
DA3/99/58	<i>Culcita schmideliana</i>	1(v)	
NE side Enderby I.	<i>Ophiactis</i> sp.	1	
Dive, Coll: P. Morrison	<i>Ophiothrix ciliaris</i>	6	
3/9/99 3.5m	<i>Diadema setosum</i>	10(v)	
	<i>Nacospatangus interruptus</i> (d)	3	
	<i>Holothuria edulis</i>	1(v)	
	<i>Holothuria leucospilota</i>	1(v)	
	<i>Stichopus chloronotus</i>	1(v)	
DA3/99/59	<i>Astropecten</i> cf. <i>sumbawanus</i>		1(v)
NW side W Lewis I.	<i>Amphipholis squamata</i>		2
Intertidal	<i>Ophiactis</i> cf. <i>fuscolineata</i>		1
Coll: S. Morrison	<i>Temnopleurus</i> sp.		1
4/9/99	<i>Holothuria leucospilota</i>		Few(v)
	<i>Holothuria pardalis</i>		Several(v)
	<i>Holothuria (Lessonothuria)</i> sp. (juv)		1
DA3/99/60	<i>Ophiactis savignyi</i>	1	
N West Lewis I.	<i>Ophiothrix ciliaris</i>	1	
Dive, Coll: P. Morrison	<i>Ophiothrix exigua</i>	1	
4/9/99 2.5m	<i>Diadema setosum</i>	49(v)	
	<i>Holothuria pardalis</i>	3(v)	

Station No.	Species	Nos in transect	Nos outside transect
DA3/99/61	<i>Comanthus parvicirrus</i>	1	
E West Lewis I.	<i>Culcita schmideliana</i>		1(v)
Dive, Coll: P. Morrison	<i>Protoreaster nodulosus</i>	1(v)	
4/9/99 5m	<i>Amphipholis squamata</i>	2	
	<i>Ophiactis cf. brachyura</i>	1	
	<i>Ophiactis savignyi</i>	1	
	<i>Macrophiothrix callizona</i>	1	
	<i>Macrophiothrix sp. juv.</i>	1	
	<i>Ophiothrix ciliaris</i>	2	
	<i>Peronella cf. macroproctes</i>	1	
	<i>Stichopus horrens</i>	4(v)	
	<i>Neothyonidium magnum</i>	1(v)	
DA3/99/62	<i>Astropecten cf. sumbawanus</i>		Few(v)
S East Lewis I.	<i>Ophiactis cf. fuscolineata</i>		7
Intertidal	<i>Salmacis sp. (d)</i>		1
Coll: S. Morrison	<i>Peronella sp. (d)</i>		Few
5/9/99	<i>Holothuria hilla</i>		1(v)
	<i>Holothuria pardalis</i>		Several
	<i>Holothuria (Lessonothuria) sp. juv.</i>		Several
	<i>Synaptula recta</i>		2
DA3/99/63	<i>Diadema setosum</i>	52(v)	
SW East Lewis I.	<i>Holothuria pardalis</i>	1(v)	
Dive, Coll: P. Morrison			
5/9/99 1.5m			
DA3/99/64	<i>Asterina anomala</i>	3	
S West Lewis I.	<i>Macrophiothrix 'caenosa'</i>	1	
Dive, Coll: P. Morrison	<i>Diadema setosum</i>	4(v)	
6/9/99 5m	<i>Holothuria atra</i>	1(v)	
	<i>Holothuria edulis</i>	5(v)	
	<i>Holothuria leucospilota</i>	3(v)	
	<i>Holothuria pardalis</i>	1(v)	
	<i>Stichopus horrens</i>	1(v)	
	<i>Synaptula macra</i>	1	
DA3/99/65	Crinoid, small, few arms	38(v)	
SW Enderby I.	Crinoid, hooks on pinnules	18(v)	
Dive, Coll: P. Morrison	<i>Comanthus briareus</i>		Many
6/9/99 14m	<i>Comanthus gisleni</i>		2
	<i>Comanthus parvicirrus</i>		1
	<i>Comatula pectinata</i>	3	
	<i>Comatula purpurea</i>	2	
	<i>Zygometra punctata</i>	6	
	<i>Oligometra carpenteri</i>		5
	<i>Oligometra serripinna</i>		1
	<i>Fromia sp.</i>	1	
	<i>Culcita schmideliana</i>		1(v)
	<i>Goniodiscaster acanthodes</i>	2	4
	<i>Anthenea conjungens</i>		2
	<i>Amphiura acrisia</i>	1	
	<i>Amphiura duncani</i>	3	
	<i>Ophiactis modesta</i>	8	
	<i>Ophiactis versicolor</i>	2	
	<i>Macrophiothrix 'caenosa'</i>	1	
	<i>Ophiothela danae</i>	9	
	<i>Ophiothrix ciliaris</i>	14	
	<i>Ophiothrix exigua</i>	21	
	<i>Ophiothrix martensi</i>	1	
	<i>Ophiothrix smaragdina</i>	4	
	<i>Ophiarachnella gorgonia</i>	1	
	<i>Ophiolepis unicolor</i>	2	
	<i>Ophioplocus imbricatus</i>	1	
	<i>Peronella cf. macroproctes (d)</i>	3	

Table 4 (cont.)

Station No.	Species	Nos in transect	Nos outside transect
	<i>Peronella tuberculata</i> (d)	1	
	<i>Diadema setosum</i>		1(v)
	<i>Pseudocolochirus violaceus</i>	2(v)	
DA3/99/66	<i>Ophionereis dubia</i>		2
S Enderby I., mangrove	<i>Peronella</i> cf. <i>macroproctes</i> (d)		2
Intertidal	<i>Actinopyga echinites</i>		Few(v)
coll: P. Morrison	<i>Holothuria atra</i>		Few(v)
6/9/99	<i>Holothria leucospilota</i>		Few(v)
DA3/99/67	Crinoid, black, hooks on pinnules	1(v)	
N Nelson Rocks	<i>Comanthina variabilis</i>	1	
Dive, Coll: P. Morrison	<i>Linckia multifora</i>	6(v)	
7/9/99 17m	<i>Acanthaster planci</i>		Several(v)
	<i>Nardoa</i> cf. <i>galatheae</i>	1(v)	1(v)
	<i>Culcita schmideliana</i> (juv.)	2	1
	<i>Amphioplus stenaspis</i>	1	
	<i>Ophiactis modesta</i>	1	
	<i>Ophiactis savignyi</i>	1	
	<i>Ophiothrix ciliaris</i>	1	
	<i>Ophioconis cincta</i>	1	
	<i>Ophionereis intermedia</i>	1	
	<i>Phyllacanthus longispinus</i>	3	
	<i>Diadema setosum</i>	10(v)	
	<i>Echinostrephus molaris</i>		Few(v)
	<i>Holothuria edulis</i>	2(v)	
DA3/99/68	<i>Comanthina variabilis</i>	2	
SSW Nelson Rocks	<i>Stephanometra spinipinna</i>	1	
Dive, Coll: P. Morrison	Crinoid, black and white, swam	1(v)	
7/9/99 6.5m	Crinoid, black, hooks on pinnules	6(v)	
	<i>Astropecten</i> sp.?	1(v)	
	<i>Culcita schmideliana</i> juv.		1(v)
	<i>Macrophiothrix lineocaerulea</i>	1	
	<i>Ophiomaza cacaotica</i>	1	
	<i>Ophiothrix martensi</i>	1	
	<i>Ophiodaphne formata</i>	1	
	<i>Peronella lesueuri</i>	7(v)	
	<i>Peronella</i> sp. (d)	1	
	<i>Nacospatangus interruptus</i> (d)	6	
	<i>Brissus latecarinatus</i>	1	
	<i>Rhynobrissus hemiasteroides</i>		5
	<i>Cercodemus anceps</i>	1	
	<i>Synaptula recta</i>	5(v)	
DA3/99/69	Crinoid, green with yellow tips, white under pinnules, hooks	8(v)	
Pipe-line	Crinoid, as above, but brown	3(v)	
Dive, Coll: P. Morrison	Crinoid, as above, but light green	1(v)	
8/9/99 14m	<i>Diadema setosum</i>	13(v)	
	<i>Peronella</i> cf. <i>macroprotes</i>		4
DA3/99/70	Crinoid, green, many arms, hooks	2(v)	
SW Nelson Rocks	Crinoid, black	4(v)	
Dive, Coll: M. Hewitt	Crinoid, black with yellow tips	1(v)	
8/9/99 6m	Crinoid, orange with yellow tips	1(v)	
	<i>Amphiura</i> sp.	1	
	<i>Ophiothrix ciliaris</i>	2	
	<i>Ophiothrix exigua</i>	1	
	<i>Peronella</i> cf. <i>macroproctes</i> (d)	2	
	<i>Holothuria atra</i>	2(v)	
	<i>Holothuria leucospilota</i>	1(v)	
	<i>Leptopentacta grisea</i>	1	

Table 5 Echinoderms from the Dampier Archipelago collected by the dredging expedition (DA2/99); species, station numbers and depth range at which they were collected. (v = visual or photographic record; d = dead specimen).

	Depth 5-10 m	Depth 11-20 m	Depth 21-30 m	Depth 31-40m
ECHINODERMATA				
Class CRINOIDEA				
Family Comasteridae				
<i>Clarkcomanthus littoralis</i> (Carpenter, 1888)				9, 57
<i>Comanthina nobilis</i> (Carpenter, 1884)	18			
<i>C. variabilis</i> (Bell, 1882)	62	13, 33, 41, 99	58	9
<i>Comanthus alternans</i> (Carpenter, 1881)		13		
<i>C. parvicirrus</i> (Müller, 1841)		13, 37, 49, 73	50, 85	6, 9
<i>C. wahlbergi</i> (Müller, 1843)	15	99		
<i>Comanthus</i> sp. juv.		13		
<i>Comaster</i> sp.				6
<i>Comatula pectinata</i> (Linnaeus, 1758)	15	13, 41, 42, 69, 73, 99	8, 50, 58	7, 9
<i>C. purpurea</i> (Müller, 1843)	15, 70	13, 42	8, 10, 50, 58	4, 6, 9
<i>C. rotalaria</i> Lamarck, 1816		21		6, 12, 23
<i>C. solaris</i> Lamarck, 1816	18, 68	21, 41, 46, 73		24
Family Zygometridae				
<i>Zygometa elegans</i> (Bell, 1882)	18	60, 69		5, 9
<i>Z. microdiscus</i> (Bell, 1882)		32, 99		6, 12, 23, 24
<i>Z. punctata</i> A.H. Clark, 1912		13, 99	50	
Family Himerometridae				
<i>Heterometra crenulata</i> (Carpenter, 1882)		31	44	
<i>Himerometra robustipinna</i> (Carpenter, 1881)		99		
Family Colobometridae				
<i>Oligometra carpenteri</i> (Bell, 1884)	15	13, 41		
<i>Oligometrides adeonae</i> (Lamarck, 1816)		13		6, 7
Family Antedonidae				
<i>Toxometra</i> sp.		13		
Crinoidea spp indet.		32v, 38v, 49v	30v, 43v, 47v, 48v	25v, 26v, 52v, 54v, 55, 56v
Class ASTEROIDEA				
Family Luidiidae				
<i>Luidia hardwicki</i> (Gray, 1840)		17, 36, 39, 40, 60, 65, 75, 83, 84	30, 47	25, 26, 55
<i>L. maculata</i> Müller and Troschel, 1842		21, 32v, 40v, 42v	58v	5, 7, 24v, 26, 51v, 52v, 54, 55, 56v
Family Astropectinidae				
<i>Astropecten granulatus</i> Müller and Troschel, 1842	1, 67, 68, 91	34, 35, 36, 38, 39, 40, 59, 60, 75		
<i>A. monacanthus</i> Sladen, 1883		41	28	12, 22
<i>A. polyacanthus</i> Müller and Troschel, 1842		33, 34, 59		
<i>A. vappa</i> Müller and Troschel, 1843	91	21, 40, 49		54, 56
<i>A. velitaris</i> von Martens, 1865	71	41, 46, 49, 60, 83	8v, 28, 29, 30, 44, 47, 48	4, 12, 22, 23, 26, 54, 56
<i>A. zebra</i> Sladen, 1883	1, 70, 71, 72	21, 34, 38, 39, 41, 46, 69, 73, 83	28, 29	3, 4, 54, 55
Family Archasteridae				
<i>Archaster angulatus</i> Müller and Troschel, 1842	70	46, 49, 74, 76	58	
Family Goniasteridae				
<i>Iconaster longimanus</i> (Möbius, 1859)		78		
<i>Stellaster equestris</i> (Retzius, 1805)	18v, 19v, 71, 72	32, 33, 38, 39, 40, 41, 74	44	6, 22, 26, 27, 55
<i>S. inspinosus</i> H.L. Clark, 1916		32	44	12, 87

Table 5 (cont.)

	Depth 5-10 m	Depth 11-20 m	Depth 21-30 m	Depth 31-40m
<i>S. princeps</i> Sladen, 1889		21v, 33, 40, 69	8v	4, 7, 9, 12, 57, 81
<i>S. squamulosus</i> (Studer, 1884)			58	55, 57
Family Oreasteridae				
<i>Anthenea conjungens</i> Döderlein, 1935		75, 99		
<i>A. elegans</i> H.L. Clark, 1938		41		
<i>Anthenea</i> sp. juv.			10	
<i>Goniodiscaster acanthodes</i> H.L. Clark, 1938	72, 91	33, 73, 76		57
<i>G. australiae</i> Tortonese, 1937		33	10	5, 12, 82
<i>Gymnanthenea globigera</i> (Döderlein, 1915)		84	45	
<i>Pentacaster gracilis</i> (Lütken, 1871)			18v	5, 6, 12, 23
<i>P.</i> sp. cf. <i>regulus</i> Müller and Troschel, 1842 juv.			58	
<i>Pentacaster</i> sp. juv.			8v	57
<i>Pseudoreaster obtusangulus</i> (Lamarck, 1816)		32, 74		
Family Ophidiasteridae				
<i>Hacelia helicosticha</i> (Sladen, 1889)		75		
<i>Tamaria hirsuta</i> (Koehler, 1910)				7
<i>T. tumescens</i> (Koehler, 1910)	72	73		
Family Pterasteridae				
<i>Euretaster insignis</i> (Sladen, 1882)	72	69, 73, 75		
Family Asterinidae				
<i>Anseropoda rosacea</i> (Lamarck, 1816)	62, 70	73		
<i>Nepanthia belcheri</i> (Perrier, 1875)		37, 39, 59, 75		9
<i>N. maculata</i> Gray, 1840		34, 73		
Family Echinasteridae				
<i>Echinaster varicolor</i> H.L. Clark, 1938	70	75		
<i>Metrodira subulata</i> Gray, 1840	18, 71, 72	32, 33, 41, 73, 74, 75		4, 5, 6, 55, 57
Class OPHIUROIDEA				
Family Euryalidae				
<i>Euryale asperum</i> Lamarck, 1816				5, 7, 9
Family Amphiuridae				
<i>Amphioplus</i> (<i>Amphioplus</i>) sp. cf. <i>didymus</i> H.L. Clark, 1938				88
<i>A. (A.)</i> sp. cf. <i>lucidus</i> Koehler, 1922	96			54, 55
<i>Amphioplus</i> (<i>Lymanella</i>) <i>depressa</i> (Ljungman, 1867)	67, 91	69		
<i>Amphioplus</i> sp.				4, 7
<i>Amphiura</i> (<i>Amphiura</i>) <i>catephes</i> H.L. Clark, 1938	96			
<i>A. (A.)</i> sp. cf. <i>duncani</i> Lyman, 1882		77		
<i>A. (A.)</i> sp. aff. <i>velox</i> Koehler, 1910		76	10	
<i>A. (A.) morosa</i> Koehler, 1905	91	94		54, 57, 81
<i>A. (A.) phrixocantha</i> A.M. and C.M. Clark, 1976				4, 54, 55, 56, 79, 81
<i>Amphiura</i> sp.		21		
<i>Dougaloplus echinatus</i> (Ljungman, 1867)	96			
<i>Ophiocentrus dilatata</i> (Koehler, 1905)			8	9
Family Ophiacanthidae				
Gen. and sp. indet.				54
Family Ophiactidae				
<i>Ophiactis brevis</i> H.L. Clark, 1938		13		
<i>O. luteomaculata</i> H.L. Clark, 1915		49		
<i>O. macrolepidota</i> Marktanner-Turneretscher, 1887	18			9, 57

	Depth 5-10 m	Depth 11-20 m	Depth 21-30 m	Depth 31-40m
<i>O. modesta</i> Brock, 1888		75		
<i>O. savignyi</i> (Müller and Troschel, 1842)	18, 68, 70	37, 42, 65, 76, 77, 84, 99	8, 10, 50, 58	6, 9, 22
<i>Ophiactis</i> sp.		13		
<i>Ophiophane formata</i> Koehler, 1905			47	
<i>O. scripta</i> (Koehler, 1904)		46		
Family Ophiotrichidae				
<i>Macrophiothrix</i> 'caenosa' sensu Hoggett, 1990	18	13, 33, 37, 42, 77, 99	8, 50, 58	82, 90
<i>M. lineocerulea</i> (H.L. Clark, 1928)	18, 68, 91	37, 73, 75, 99	10, 58, 85	79, 90
<i>M. megapoma</i> H.L. Clark, 1938	68, 70, 91, 95	13, 37, 60, 73, 75, 76, 77, 84, 99	8, 10, 50, 58	6
<i>M. melanosticta</i> (Grube, 1868)	62	21, 46, 49, 78	43, 44, 48	6, 22, 23, 25, 26, 27, 54, 56
<i>M. microplax</i> Bell, 1884	70			
<i>M. variabilis</i> (Duncan, 1887)	68, 91	76, 77, 84		6, 9, 82
<i>Macrophiothrix</i> sp. cf. <i>variabilis</i> (Duncan, 1887) juv.		42		
<i>Macrophiothrix</i> sp. juv.		73, 42		
<i>Ophiocnemis marmorata</i> (Lamarck, 1816)		42, 49, 73	30, 43, 47	4, 23, 79, 82
<i>Ophiomaza cacaotica</i> Lyman, 1871		21, 41	58	6, 24, 26
<i>Ophiothela danae</i> Verrill, 1869	67	77		7
<i>Ophiothrix</i> (<i>Ophiothrix</i>) <i>ciliaris</i> (Lamarck, 1816)	18, 62, 68, 70, 72, 91, 95	13, 31, 33, 37, 39, 41, 42, 59, 60, 65, 73, 75, 77, 84, 94, 98, 99	8, 10, 29, 48, 58, 85	4, 6, 9, 55
<i>O. (O.)</i> sp. cf. <i>comata</i> Müller and Troschel, 1842		31		
<i>O. (O.) exigua</i> Lyman, 1874	18, 70, 95	37, 39, 65, 73, 84	8	4
<i>O. (O.) plana</i> Lyman, 1874	18	37, 39, 65, 84	8	82
<i>O. (O.) plana</i> group		99		4
<i>Ophiothrix</i> (<i>O.</i>) sp. juv.	18	49, 69, 75	8	5, 9
<i>O. (Acanthophiothrix)</i> sp. cf. <i>armata</i> Koehler, 1905				9
<i>O. (A.)</i> sp. juv.		39, 69		
<i>O. (A.) viridialba</i> von Martens, 1867		46	43, 45, 47	
<i>O. (Keystonea) martensi</i> Lyman, 1874	91, 95	31, 73, 74, 77, 84, 99	43, 58, 85	6, 22, 90
<i>O. (K.) smaragdina</i> Studer, 1882	62, 95	13, 31, 59, 65, 75, 77, 84, 98, 99	8, 10, 50, 58, 85	88
Family Ophionereididae				
<i>Ophionereis dubia</i> (Müller and Troschel, 1842)		73		
Family Ophiodermatidae				
<i>Ophiarachnella gorgonia</i> (Müller and Troschel, 1842)		13		
<i>O. megaloplax</i> Bell, 1884	18, 62, 70	21, 49, 73, 78	30	6, 9, 12, 23, 24 88
<i>O. similis</i> (Koehler, 1905)				7
<i>Ophiarachnella</i> sp. ? nov.				7
<i>Ophioclasma stellata</i> (Ljungman, 1867)		33, 69, 74	85	4, 6, 7, 22, 23, 24, 25, 26, 52, 54, 55, 56, 57, 81, 90
<i>Ophioconis cincta</i> Brock, 1888		13, 77		
<i>Ophiopsammus yoldii</i> (Lütken, 1856)	70	33, 34, 73, 75	45	6, 25, 26
<i>Ophiopsammus</i> sp. cf. <i>yoldii</i> (Lütken, 1856)		69	8	7
Family Ophiuridae				
<i>Dictenophiura stellata</i> (Studer, 1882)	68	41, 42, 69		
<i>Ophiolepis unicolor</i> H.L. Clark, 1938		99		4
<i>Ophiura kinbergi</i> (Ljungman, 1866)		41		
Class ECHINOIDEA				
Family Cidaridae				
<i>Phyllacanthus longispinus</i> Mortensen, 1918				57d, 88d

Table 5 (cont.)

	Depth 5-10 m	Depth 11-20 m	Depth 21-30 m	Depth 31-40m
<i>Prionocidaris baculosa</i> (Lamarck, 1816)	96d	33d, 35d	29d, 58	3d, 4d, 5d, 7d, 12d, 88d
<i>P. bispinosa</i> (Lamarck, 1816)	1, 91, 96d	21, 32, 35d, 69, 73, 75	10	3d, 4, 5d, 7, 9, 22, 57, 81d, 87d
Family Diadematidae				
<i>Chaetodiadema granulatum</i> Mortensen, 1903				55
Family Temnopleuridae				
<i>Salmacis belli</i> Döderlein, 1902				6, 52
<i>S. sphaeroides</i> (Linnaeus, 1758)	62, 71	21, 75		
<i>Temnopleurus alexandri</i> (Bell, 1884)		35		56
<i>Temnopleurus decipiens</i> (de Meijere, 1904)	62, 91			
<i>Temnotrema siamense</i> Mortensen, 1904	62	40, 60		
Family Toxopneustidae				
<i>Nudechinus darnleyensis</i> (Tenison-Woods, 1878)	62, 91	21, 73, 76		
Family Clypeasteridae				
<i>Clypeaster latissimus</i> (Lamarck, 1816)			48	4, 5, 12, 56
<i>C. telurus</i> H.L. Clark, 1914	71, 72	32, 41, 49, 76	58	6, 9, 23
Family Laganidae				
<i>Peronella lesueuri</i> (Valenciennes, 1841)	1, 18, 71, 72d, 95	32, 35, 37, 39, 40, 41, 49, 60d, 69, 75	29, 47	4d, 22v, 53d
<i>P. macroproctes</i> Koehler, 1922	72	73, 76, 78	29	12
<i>P. tuberculata</i> Mortensen, 1918	1, 18, 72, 91, 95	40, 41, 49, 69	29, 47	
<i>Peronella</i> sp. cf. <i>orbicularis</i> (Leske, 1778)	19d	2d	47d	12, 26d, 27d
<i>Peronella</i> sp. (incomplete)	68d, 70d, 71d, 96d	17d, 34d, 46d, 49, 83d	47d	4d, 7d, 9d, 22d
<i>Peronella</i> sp.		49		7
Family Aatriclypeidae				
<i>Echinodiscus auritus</i> Leske, 1778	18, 71	41, 46, 49	48	
Family Echinolampadidae				
<i>Echinolampas ovata</i> (Leske, 1778)		46, 78d		
Family Schizasteridae				
<i>Schizaster (Schizaster) compactus</i> (Koehler, 1914)		61d		55d, 57
Family Brissidae				
<i>Brissopsis</i> sp. aff. <i>persica</i> Mortensen, 1940		83		
<i>Metalia sternalis</i> (Lamarck, 1816)	91			
cf. <i>Rhynobrissus</i> sp.	1	46		12
Family Loveniidae				
<i>Breynia desorii</i> Gray, 1851	1, 66, 68d, 70, 71, 72, 91	33d, 36d, 37, 39, 59, 60d, 69, 75, 76, 94		
<i>Lovenia elongata</i> (Gray, 1845)	71, 91, 96	31, 46, 78, 83	47	4, 7, 24, 51, 52, 53
Family Spatangidae				
<i>Nacospatangus (Pseudomaretia) interruptus</i> (Studer, 1880)	62	33d, 46, 49, 76	58, 89	57
Class HOLOTHUROIDEA				
Family Holothuriidae				
<i>Actinopyga echinites</i> (Jaeger, 1833)		77		
<i>Holothuria Halodeima</i> edulis Lesson, 1830		75		
<i>Holothuria (Metriatyla)</i> sp. aff. <i>albiventer</i> Semper, 1868				57
<i>Holothuria (Metriatyla) scabra</i> Jaeger, 1833		13v, 16v, 20v, 34v, 40v		

	Depth 5-10 m	Depth 11-20 m	Depth 21-30 m	Depth 31-40m
<i>H. (Metriatyla) timana</i> Lesson, 1830		74		
<i>H. (Stauropora)</i> sp. cf. <i>modesta</i> Ludwig, 1875	70	49		
<i>H. (Theelothuria) michaelseni</i> Erwe, 1913	70, 96			
<i>H. (Theelothuria) spinifera</i> Théel, 1886		21, 36		5, 27
<i>H. (Thymiosycia)</i> sp.		75		57
Family Stichopodidae				
<i>Stichopus chloronotus</i> Brandt, 1835		75		
<i>S. horrens</i> Selenka, 1867	71	49		6
<i>Stichopus</i> sp. juv.		49		
Family Cucumariidae				
<i>Actinocucumis typica</i> Ludwig, 1875	72	31, 59		7
<i>Cercodemas anceps</i> Selenka, 1867	1, 18, 67, 70	21, 33, 39, 59, 75	50	4, 12, 25v
<i>Colochirus crassus</i> Ekman, 1918		21, 75	8, 10, 50	55, 57
<i>C. quadrangularis</i> Troschel, 1846	18, 70	37, 39, 59, 65, 69, 75	8, 10, 58v	6, 9
<i>Leptopentacta grisea</i> H.L. Clark, 1938				57
<i>Leptopentacta</i> sp.				57
<i>Loisettea amphictena</i> Rowe and Pawson, 1985	96	21, 33, 75		4, 6, 24
<i>L. gazellae</i> (Lampert, 1889)			44, 45v, 47v	56v
<i>Mensamaria intercedens</i> (Lampert, 1885)	70	59	10, 44	4
<i>Plesiocolochirus australis</i> (Ludwig, 1875)	72		8, 10, 50	6, 9
<i>P. challengerii</i> (Théel, 1886)		21	44	6, 12, 22, 79
<i>Pseudocolochirus violaceus</i> (Théel, 1886)		39v, 49v	50	
Family Phyllophoriidae				
<i>Havelockia versicolor</i> (Semper, 1868)		65, 75, 94	8, 10, 50	4
<i>Hemithyone semperi</i> (Bell, 1884)		59	10	
<i>Phyllophorus (Phyllophorella) spiculata</i> Chang, 1935				6
<i>P. (Urodemella) brocki</i> Ludwig, 1888		59, 94		
<i>P. (Urodemella) proteus</i> Bell, 1884	70	33, 37, 65	50	
<i>Phyrella</i> sp. cf. <i>trapeza</i> (H.L. Clark, 1932)		69		
<i>Stolus buccalis</i> (Stimpson, 1855)	68	39, 42, 65, 69, 75, 98		
<i>S. canescens</i> (Semper, 1868)		37		4, 6, 9, 57, 79
<i>S. conjungens</i> (Semper, 1868)			8	
<i>Thyone dura</i> Koehler and Vaney, 1908				57
<i>T. grisea</i> H.L. Clark, 1938		39		55
<i>Thyone papuensis</i> Théel, 1886			10	
<i>Thyone</i> sp. cf. <i>papuensis</i> Théel, 1886				55
<i>Thyone</i> sp. aff. <i>theeli</i> Rowe, 1995				26
<i>Thyone</i> sp.				4, 12
Gen. and sp. indet. (1)			10	
Gen. and sp. indet. (2)		21		
Family Sclerodactylidae				
<i>Cladolabes schmeltzii</i> (Ludwig, 1875)	72			88
Family Caudinidae				
<i>Acaudina leucoprocta</i> (H.L. Clark, 1938)	1, 19, 96	16, 34, 49, 61		24
<i>A. sp. cf. molpadioides</i> (Semper, 1868)		41		
Family Molpadiidae				
<i>Molpadia scabrum</i> (Sluiter, 1901)		34, 35	28	23, 55, 90
Family Synaptidae				
<i>Synaptula recta</i> (Semper, 1868)	62, 68, 72	37, 39, 59, 65, 75	8, 10	6, 9
<i>Synaptula</i> sp.	68			
Gen. and sp. indet. (incomplete specimen)	91			

Table 6 Diving expedition (DA1/98, DA3/99) sites with the highest number of echinoderm species.

Depth	Site no.	Nos species	Habitat
Intertidal	45	24	Loose igneous rocks on sand, brown algae, seagrass in pools.
Intertidal	10	21	Passage between islands, corals and algae.
Intertidal	23	19	Silty flat with live and dead coral.
0-10 m	22	23	Hard corals, coral rubble and sand.
0-10 m	47	22	Sand covered pavement with brown and green algae, a few hard corals.
0-10 m	16	21	Coral rubble, algae, some live coral.
11-30 m	65	31	Sand covered pavement with sponges, gorgonians, hard and soft corals.
11-30 m	52	18	Steep rock slope with hard and soft corals and gorgonians.
11-30 m	55	18	Silty sand with sponges, soft corals and gorgonians. Strong current.

Table 7 Dredging expedition (DA2/99) sites with the highest number of echinoderm species.

Depth	Site no.	Nos species	Habitat
5-10 m	70	20	Gravel and rocks with gorgonians, tunicates, corals.
5-10 m	18	19	Grey muddy sand with hydroids and gorgonians.
5-10 m	91	18	Sandy mud with shell rubble, algae, gorgonians and tunicates.
11-20 m	75	29	Muddy sand and rock, brown algae, sponges, gorgonians and soft corals.
11-20 m	73	23	Coarse sand and rocks, sponges, free-living corals.
11-20 m	49	22	Rock, coarse sand, green and brown algae, sponges, tunicates.
21-30 m	8	21	Fine sand, shelly gravel, limestone rocks, sponges, gorgonians, soft corals and tunicates.
21-30 m	10	19	Coarse shelly sand and limestone rocks, sponges, gorgonians and soft corals.
21-30 m	58	19	Coarse shelly gravel, rocks, red and brown algae, hydroids.
31->40 m	6	29	Coarse muddy sand, limestone rocks, sponges, gorgonians.
31->40 m	4	25	Muddy shelly sand, rubble, limestone rocks, sponges and gorgonians.
31->40 m	9	24	Coarse sand, limestone rocks, sponges, gorgonians, soft corals and tunicates.

Table 8 Total number of echinoderm species from each station of the diving expeditions, DA1/98 (stns 1-35) and DA 3/99 (stns 36-70), grouped by depth range.

Intertidal																																
Station No.	2	5	7	10	11	14	17	20	23	25	28	31	34	38	42	45	48	51	54	59	62	66										
Number of species	6	5	9	21	12	14	7	7	19	18	6	17	3	15	19	24	18	17	15	7	9	5										
0-10 m																																
Station No.	1	3	6	8	9	12	13	16	18	19	22	24	29	33	35	36	37	40	41	46	47	49	53	56	57	58	60	61	63	64	68	70
Number of species	11	18	17	18	8	17	11	21	3	13	23	1	13	16	6	12	15	15	17	11	22	14	13	15	14	8	5	12	2	9	17	11
11-30 m																																
Station No.	4	15	21	26	27	30	32	39	43	44	50	52	55	65	67	69																
Number of species	16	15	7	14	15	4	16	5	10	15	8	18	18	31	16	5																

Table 9 Total number of echinoderm species from each station of the dredging expedition (DA2/99) grouped by depth range.

5-10 m																																				
Station No.	1	15	18	19	62	66	67	68	70	71	72	91	95	96																						
Number of species	9	4	19	3	12	1	4	13	20	12	16	18	7	10																						
11-20 m																																				
Station No.	2	13	16	17	20	21	31	32	33	34	35	36	37	38	39	40	41	42	46	49	59	60	61	65	69	73	74	75	76	77	78	83	84	94	98	99
Number of species	1	19	2	2	1	19	7	10	18	8	6	4	15	4	17	10	19	11	13	22	13	9	2	11	18	23	7	29	11	11	6	6	10	5	3	15
21-30 m																																				
Station No.	8	10	18	28	29	30	43	44	45	47	48	50	58	85	89																					
Number of species	21	19	1	4	7	5	5	8	4	12	6	14	19	6	1																					
31-43 m																																				
Station No.	3	4	5	6	7	9	12	22	23	24	25	26	27	51	52	53	54	55	56	57	79	81	82	87	88	90										
Number of species	3	25	11	29	17	24	17	11	10	9	6	11	4	3	5	2	11	17	10	19	5	5	5	2	6	5										

	DA 1/98	DA 2/99	DA 3/99
ECHINODERMATA			
Class CRINOIDEA			
Family Comasteridae			
<i>Clarkcomanthus littoralis</i> (Carpenter, 1888)	4, 13, 21	9, 57	36, 47, 48, 52
<i>Comanthina nobilis</i> (Carpenter, 1884)		18	
<i>C. variabilis</i> (Bell, 1882)	10, 25, 33	9, 13, 33, 41, 58, 62, 99	37, 41, 67, 68
<i>Comanthus alternans</i> (Carpenter, 1881)			55
<i>C. briareus</i> (Bell, 1882)			65
<i>C. gisleni</i> Rowe <i>et al.</i> , 1986			37, 49, 65
<i>C. parvicirrus</i> (Müller, 1841)	31	6, 9, 13, 49, 50, 73, 85	36, 61
<i>C. wahlbergi</i> (Müller, 1843)	29	15	45, 65
<i>Comanthus</i> sp.		13	
<i>Comaster</i> sp.		6	
<i>Comatella maculata</i> (Carpenter, 1888)			36, 47
<i>C. stelligera</i> (Carpenter, 1888)			57
<i>Comatula pectinata</i> (Linnaeus, 1758)		7, 8, 13, 15, 41, 42, 50, 58, 69, 73, 99	55, 65
<i>C. purpurea</i> (Müller, 1843)	29	4, 6, 8, 9, 10, 13, 15, 42, 50, 58, 70	49, 65
<i>C. rotalaria</i> Lamarck, 1816		6, 12, 21, 23	
<i>C. solaris</i> Lamarck, 1816		18, 21, 24, 41, 46, 68, 73	
<i>Oxycomanthus</i> sp.	10		
Family Zygometridae			
<i>Zygometra comata</i> A.H. Clark, 1911			55
<i>Z. elegans</i> (Bell, 1882)		5, 9, 18, 60, 69	
<i>Z. microdiscus</i> (Bell, 1882)		6, 12, 23, 24, 32, 99	41
<i>Z. punctata</i> A.H. Clark, 1912	30	13, 50, 99	55, 65
Family Himerometridae			
<i>Amphimetra tessellata</i> (Müller, 1841)			55
<i>Heterometra crenulata</i> (Carpenter, 1882)		31, 44	
<i>Himerometra robustipinna</i> (Carpenter, 1881)		99	
Family Mariametridae			
<i>Lamprometra palmata</i> (Müller, 1841)	9, 16		47
<i>Stephanometra indica</i> (Smith, 1876)	16, 22, 25		40, 46, 50
<i>S. oxyacantha</i> (Hartlaub, 1890)	26		
<i>S. spinipinna</i> (Hartlaub, 1890)			40, 68
Family Colobometridae			
<i>Colobometra perspinosa</i> (Carpenter, 1881)	26		
cf. <i>Iconometra</i> sp.			55
<i>Oligometra carpenteri</i> (Bell, 1884)	15, 26, 27, 33	41	52, 55, 65
<i>O. serripinna</i> (Carpenter, 1881)	15		65

<i>Oligometrides adeonae</i> (Lamarck, 1816)		6, 7, 13	
<i>Petasometra helianthoides</i> A.H. Clark, 1912	33		
Family Antedonidae			
<i>Dorometra parvicirra</i> (Carpenter, 1888)	12, 29		47
<i>Toxometra</i> sp.		13	
Class ASTEROIDEA			
Family Luidiidae			
<i>Luidia hardwicki</i> (Gray, 1840)		17, 25, 26, 30, 36, 39, 40, 47, 60, 65, 75, 83, 84	
<i>L. maculata</i> Müller and Troschel, 1842	11	5, 7, 21, 26, 54, 55	51
Family Astropectinidae			
<i>Astropecten granulatus</i> (Müller and Troschel, 1842)		1, 3, 4, 35, 36, 38, 39, 40, 59, 60, 68, 75, 91	38
<i>A. monacanthus</i> Sladen, 1883		12, 22, 28, 41	
<i>A. polyacanthus</i> Müller and Troschel, 1842		33, 34, 59	38
<i>A. sumbawanus</i> Döderlein, 1917	2, 23		51, 54
<i>A. vappa</i> Müller and Troschel, 1843		21, 40, 49, 54, 56, 91	
<i>A. velitaris</i> von Martens, 1865		4, 12, 22, 23, 26, 28, 29, 30, 41, 44, 46, 47, 48, 49, 54, 56, 60, 71, 83	
<i>A. zebra</i> Sladen, 1883		1, 3, 4, 28, 29, 34, 38, 39, 41, 46, 54, 55, 69, 70, 71, 72, 73, 83	
Family Archasteridae			
<i>Archaster angulatus</i> Müller and Troschel, 1842		49, 58, 70, 74, 76	
Family Goniasteridae			
<i>Iconaster longimanus</i> (Möbius, 1859)	4	78	55
<i>Stellaster equestris</i> (Retzius, 1805)		6, 22, 26, 27, 32, 33, 38, 40, 41, 44, 55, 71, 72, 74	
<i>S. inspinosus</i> H.L. Clark, 1916		12, 32, 44, 81	
<i>S. princeps</i> Sladen, 1889		4, 7, 9, 12, 33, 40, 57, 69, 81	
<i>S. squamulosus</i> (Studer, 1884)		55, 57, 58	
<i>Styphlaster notabilis</i> H.L. Clark, 1938			55
Family Oreasteridae			
<i>Anthenea conjungens</i> Döderlein, 1935		75, 99	57, 65
<i>A. elegans</i> H.L. Clark, 1938		41	
<i>Anthenea</i> sp. juv.		10	
<i>Culcita schmideliana</i> (Retzius, 1805)	3, 4, 10, 14, 16, 17, 25, 27, 32, 33		36, 37, 43, 45, 48, 52, 56, 57, 58, 61, 65, 67, 68
<i>Goniodiscaster acanthodes</i> H.L. Clark, 1938		33, 57, 72, 73, 76, 91	65
<i>G. australiae</i> Tortonese, 1937		5, 10, 12, 33, 82	
<i>Gymnanthenea globigera</i> (Döderlein, 1915)	7, 16	45, 84	45, 48
<i>Pentaceraster gracilis</i> (Lütken, 1871)		5, 6, 12, 18, 23	
<i>P. sp. cf. regulus</i> (Müller and Troschel, 1842)		58	
<i>Pentaceraster</i> sp. juv.		57	

	DA 1/98	DA 2/99	DA 3/99
<i>Protoreaster lincki</i> (Blainville, 1830)			47
<i>P. nodulosus</i> (Perrier, 1875)			51, 61
<i>Pseudoreaster obtusangulus</i> (Lamarck, 1816)	11, 14	32, 74	41, 45, 48, 51, 54
Family Ophidiasteridae			
<i>Fromia indica</i> (Perrier, 1869)	21, 26		52, 57
<i>Fromia</i> sp. ? nov.	15		65
<i>Gomophia sphenisci</i> (A.M. Clark, 1967)	15, 26		52
<i>Hacelia helicosticha</i> (Sladen, 1889)		75, 82	52, 57
<i>Linckia laevigata</i> (Linnaeus, 1758)			43, 56
<i>L. multifora</i> (Lamarck, 1816)	3, 4, 15, 21, 26, 27		39
<i>Nardoa galathea</i> (Lütken, 1865)			43, 47, 67
<i>Ophidiaster</i> sp.			no loc.
<i>Tamaria hirsuta</i> (Koehler, 1910)		7	
<i>T. tumescens</i> (Koehler, 1910)		72, 73	55
<i>Tamaria</i> sp.			55
Family Pterasteridae			
<i>Euretaster insignis</i> (Sladen, 1882)		69, 172, 73, 75	no loc.
Family Asterinidae			
<i>Anseropoda rosacea</i> (Lamarck, 1816)		62, 70, 73	
<i>Asterina anomala</i> H.L. Clark, 1921			64
<i>A. sarasini</i> (de Loriol, 1879)			45
<i>Asterina</i> sp. ? nov.	31		
<i>Nepanthia belcheri</i> (Perrière, 1875)		9, 37, 39, 59, 75	
<i>N. maculata</i> Gray, 1840		34, 73	
Family Acanthasteridae			
<i>Acanthaster planci</i> (Linnaeus, 1758)	4, 16, 18, 26, 32		36, 40, 43, 44, 46, 49, 50, 52, 67
Family Echinasteridae			
<i>Echinaster superbus</i> H.L. Clark, 1916	17		no loc.
<i>E. varicolor</i> H.L. Clark, 1938	26	62, 70, 75	56, 57
<i>Metrodira subulata</i> (Gray, 1840)		4, 5, 6, 18, 32, 33, 41, 55, 57, 71, 72, 73, 74, 75	
Class OPHIUROIDEA			
Family Euryalidae			
<i>Euryale asperum</i> Lamarck, 1816		5, 7, 9	
Family Amphiuridae			
<i>Amphioplus</i> (<i>Amphichilus</i>) <i>ochroleuca</i> (Brock, 1888)	3		

A. (<i>Amphioplus</i>) <i>didymus</i> H.L. Clark, 1938	33		
A. (<i>Amphioplus</i>) sp. cf. <i>didymus</i> H.L. Clark, 1938		88	
A. (<i>Amphioplus</i>) <i>lucidus</i> Koehler, 1922		54, 55	
A. (<i>Amphioplus</i>) <i>stenaspis</i> H.C. Clark, 1938			67
A. (<i>Lymanella</i>) <i>depressa</i> (Ljungman, 1867)		67, 69, 91	54, 56
A. (<i>Lymanella</i>) sp.		4	
<i>Amphipholis squamata</i> (Delle-Chiaje, 1828)	23, 29, 32		53, 59, 61
<i>Amphiura</i> (<i>Amphiura</i>) <i>acrisia</i> H.L. Clark, 1938			65
A. (<i>Amphiura</i>) <i>bidentata</i> H.L. Clark, 1938	1		
A. (<i>Amphiura</i>) <i>catephes</i> H.L. Clark, 1938		96	
A. (<i>Amphiura</i>) <i>constricta</i> Lyman, 1879			49
A. (<i>Amphiura</i>) <i>diacritica</i> H.L. Clark, 1938	3		
A. (<i>Amphiura</i>) <i>duncani</i> Lyman, 1882	6, 33		40, 41, 53, 65, 66
A. (<i>Amphiura</i>) <i>morosa</i> Koehler, 1905		54, 57, 94	
A. (<i>Amphiura</i>) sp. cf. <i>morosa</i> Koehler, 1905		91	
A. (<i>Amphiura</i>) <i>phrixocantha</i> Clark and Clark, 1976		4, 54, 55, 56, 79, 81	
A. (<i>Amphiura</i>) <i>velox</i> Koehler, 1910	1, 3, 4, 13, 33		
A. (<i>Amphiura</i>) sp. aff. <i>velox</i> Koehler, 1910		10, 76	
A. (<i>Amphiura</i>) sp.	8, 11	21	70
<i>Dougaloplus echinatus</i> (Ljungman, 1867)	4	96	
<i>Ophiocentrus dilatata</i> (Koehler, 1905)	29, 33	8, 9	
<i>O.</i> sp. cf. <i>dilatata</i> (Koehler, 1905)	33		
Family Ophiactidae			
<i>Ophiactis</i> sp. cf. <i>brachyura</i> Döderlein, 1898			61
<i>O. brevis</i> H.L. Clark, 1938		13	
<i>O. fuscolineata</i> H.L. Clark, 1938	2, 7, 17, 23		59
<i>Ophiactis</i> sp. cf. <i>fuscolineata</i> H.L. Clark, 1938			47, 62
<i>O. luteomaculata</i> H.L. Clark, 1915	6, 8, 9, 10, 12, 13, 16, 29, 32	47	52
<i>O. macrolepidota</i> Marktanner-Turneretscher, 1887	22	9, 18, 57	
<i>O. modesta</i> Brock, 1888	10, 28, 31, 33	75	52, 55, 65, 66, 67
<i>Ophiactis</i> sp. cf. <i>modesta</i> Brock, 1888	13, 27, 32		
<i>O. savignyi</i> (Müller and Troschel, 1842)	1, 3, 4, 5, 6, 8, 10, 12, 13, 15, 16, 17, 20, 22, 23, 25, 26, 27, 29, 31, 32, 33, 34, 35	6, 8, 9, 10, 18, 22, 37, 42, 50, 58, 65, 68, 70, 76, 77, 84, 99	37, 38, 45, 46, 48, 49, 53, 56, 60, 61, 67
<i>Ophiactis</i> sp. cf. <i>savignyi</i> (Müller and Troschel, 1842)	22, 31		
<i>O. versicolor</i> H.L. Clark, 1939			65
<i>Ophiactis</i> sp.	1, 22		37, 40, 58
<i>Ophiophne formata</i> (Koehler, 1905)		47	41, 68
<i>O. scripta</i> (Koehler, 1904)		46	

	DA 1/98	DA 2/99	DA 3/99
Family Ophiotrichidae			
<i>Macrophiothrix caenosa sensu</i> Hoggett, 1990	3, 10, 12, 21, 22, 12, 31, 35	8,13, 33, 37, 42, 50, 58, 77, 82, 90, 98, 99	37, 38, 40, 42, 45, 47, 49, 64, 65
<i>M. callizona</i> H.L. Clark, 1938	8, 25, 31		41, 42, 61
<i>M. lineocaerulea</i> (H.L. Clark, 1928)	31	10, 18, 37, 58, 68, 73, 75, 79, 85, 80, 91, 99	68
<i>M. lorioli</i> A.M. Clark, 1968	3, 31		
<i>M. megapoma</i> H.L. Clark, 1938	6, 23	6, 10, 13, 37, 50, 58, 60, 68, 70, 73, 75, 76, 77, 84, 91, 95, 99	42
<i>M. melanosticta</i> (Grube, 1868)		6, 21, 22, 23, 25, 26, 27, 43, 44, 46, 48, 49, 54, 56, 62, 78 70	
<i>M. microplax</i> Bell, 1884			
<i>M. paucispina</i> Hoggett, 1991	9, 10, 11, 14, 19		38, 42, 54
<i>M. variabilis</i> (Duncan, 1887)		6, 9, 68, 76, 77, 82, 84	48
<i>Macrophiothrix</i> sp. juv.	3, 6, 8, 32	42, 73	48, 61
<i>Ophiocnemis marmorata</i> (Lamarck, 1816)		4, 23, 30, 42, 43, 47, 49, 73, 79, 82	
<i>Ophiomaza cacaotica</i> Lyman, 1871	30	6, 21, 26, 41, 58	68
<i>Ophiopteron elegans</i> Ludwig, 1888			44
<i>Ophiothela danae</i> Verrill, 1869	8, 13, 15, 27, 31	7, 67, 77	41, 43, 65
<i>Ophiothrix (Ophiothrix) ciliaris</i> (Lamarck, 1816)	1, 3, 4, 6, 7, 8, 9, 10, 12, 13, 15, 17, 19, 21, 22, 25, 26, 27, 29, 31, 32, 33	4, 6, 8, 9, 10, 13, 18, 29, 31, 33, 37, 39, 41, 42, 48, 55, 58, 59, 60, 62, 65, 68, 70, 72, 73, 75, 84, 85, 91, 98, 99	36, 37, 38, 40, 41, 47, 48, 51, 53, 55, 56, 58, 60, 61, 65, 67, 70
<i>O. (Ophiothrix) sp. cf. comata</i> Müller and Troschel, 1842		31	
<i>O. (Ophiothrix) exigua</i> Lyman, 1874	3, 5, 7, 10, 12, 13, 19, 25, 27, 31	4, 8, 18, 37, 39, 65, 70, 73, 84, 95	40, 41, 42, 55, 56, 57, 60, 65, 70
<i>O. (Ophiothrix) plana</i> Lyman, 1874	5, 6, 7, 8, 10, 11, 12, 13, 15, 16, 17, 19, 20, 22, 23, 25, 26, 27, 29, 31, 33	8, 37, 39, 65, 82, 84	36, 40, 43, 46, 51, 52, 53, 54, 64
<i>Ophiothrix (Ophiothrix) sp. juv.</i>	1, 10	69	47
<i>O. (Acanthophiothrix) sp. cf. armata</i> Koehler, 1905		9	
<i>O. (Acanthophiothrix) viridialba</i> von Martens, 1867		43, 45, 46, 47	
<i>Ophiothrix (Keystonea) martensi</i> Lyman, 1874	10, 12, 15, 23, 27, 31	6, 22, 31, 43, 58, 73, 74, 77, 84, 85, 90, 91, 95, 99	41, 46, 49, 53, 65
<i>O. (Keystonea) smaragdina</i> Studer, 1882	10, 15	8, 10, 13, 31, 50, 58, 59, 62, 65, 75, 77, 84, 88, 95, 98, 99	39, 55, 56, 57, 65
Family Ophiocomidae			
<i>Ophiocoma dentata</i> Müller and Troschel, 1842	14, 16		
<i>O. sp. cf. pusilla</i> (Brock, 1888)	16		
<i>Ophiocomella sexradia</i> (Duncan, 1887)	1, 10		
<i>Ophiomastix mixta</i> Lütken, 1869	1, 22		44
<i>O. variabilis</i> Koehler, 1905	1, 29		
Family Ophionereididae			
<i>Ophionereis dubia</i> (Müller and Troschel, 1842)	10, 14	73	38, 42, 45, 48, 66

<i>O. intermedia</i> A.M. Clark, 1953	22		44, 45, 46, 48, 49, 57, 67
<i>O. semoni</i> (Döderlein, 1896)	6		47
Family Ophiidermatidae			
<i>Ophiarachnella gorgonia</i> (Müller and Troschel, 1842)	8	13	37, 44, 45, 47, 48, 49, 65
<i>O. infernalis</i> (Müller and Troschel, 1842)	8, 20, 21		42, 49, 54
<i>O. megaloplax</i> Bell, 1884		6, 9, 12, 18, 21, 23, 24, 30, 49, 62, 70, 73, 78	
<i>O. similis</i> (Koehler, 1905)		88	
<i>O. sphenisci</i> (Bell, 1894)	16, 20		
<i>Ophiarachnella</i> sp. 1			
<i>Ophiochasma stellata</i> (Ljungman, 1867)		4, 6, 7, 22, 23, 25, 26, 33, 52, 54, 55, 56, 57, 69, 74, 85, 90	
<i>Ophioconis cincta</i> Brock, 1888		13, 77	67
<i>O. cupida</i> Koehler, 1905			47
<i>Ophiodyscrita acosmeta</i> H.L. Clark, 1938	8, 12, 33		
<i>Ophiopsammus yoldii</i> (Lütken, 1856)		6, 7, 8, 25, 26, 33, 34, 45, 70, 73, 75	
<i>Ophiopsammus</i> sp. cf. <i>yoldii</i> (Lütken, 1856)		69	
Family Ophiuridae			
<i>Dictenophiura stellata</i> (Studer, 1882)		42, 68, 69	
<i>Ophiolepis unicolor</i> H.L. Clark, 1938	22	4, 99	42, 47, 48, 53, 65
<i>Ophioplocus imbricatus</i> (Müller and Troschel, 1842)	4, 6, 8, 14, 16		37, 45, 46, 47, 48, 51, 53, 65
<i>Ophiura kinbergi</i> (Ljungman, 1866)		41	
Class ECHINOIDEA			
Family Cidaridae			
<i>Phyllacanthus imperialis</i> (Lamarck, 1816)			46
<i>P. longispinus</i> Mortensen, 1918	13, 22, 29, 30	57, 88	36, 39, 40, 46, 50, 67
<i>Prionocidaris baculosa</i> (Lamarck, 1816)		3, 4, 5, 7, 12, 29, 33, 35, 58, 88, 96	
<i>P. bispinosa</i> (Lamarck, 1816)		1, 3, 4, 5, 7, 9, 10, 21, 22, 32, 35, 57, 69, 73, 75, 81, 87, 91, 96	
Family Diadematidae			
<i>Chaetodiadema granulatum</i> Mortensen, 1903		55	
<i>Diadema setosum</i> (Leske, 1778)	1, 3, 4, 6, 8, 12, 15, 16, 18, 19, 21, 22, 26, 27, 29, 32		36, 44, 48, 49, 50, 52, 53, 57, 58, 60, 63, 64, 65, 67, 69
Family Temnopleuridae			
<i>Salmacis belli</i> Döderlein, 1902		6, 52	
<i>S. sphaeroides</i> (Linnaeus, 1758)	7	21, 62, 71, 75	
<i>Salmacis</i> sp.	23, 25		62
<i>Temnopleurus alexandri</i> (Bell, 1884)		35, 56	
<i>T. decipiens</i> (de Meijere, 1904)	9	60, 91	
<i>Temnopleurus</i> sp.			59
<i>Temnotrema siamense</i> Mortensen, 1904	30	40, 62	

	DA 1/98	DA 2/99	DA 3/99
Family Toxopneustidae			
<i>Nudechinus darnleyensis</i> (Tenison-Woods, 1878)	23	73, 76, 91	
<i>N. scotiopremnus</i> H.L. Clark, 1912	25		
<i>Tripneustes gratilla</i> (Linnaeus, 1758)	10, 14		
Family Echinometridae			
<i>Echinostrephus molaris</i> (Blainville, 1825)	3, 4, 8, 12, 13, 15, 16, 22, 26, 32		40, 43, 44, 46, 50, 52, 67
Family Clypeasteridae			
<i>Clypeaster latissimus</i> (Lamarck, 1816)		4, 5, 12, 48, 56	
<i>C. telurus</i> H.L. Clark, 1914		6, 9, 23, 32, 41, 49, 58, 71, 72, 76	
Family Laganidae			
<i>Peronella lesueuri</i> (Valenciennes, 1841)	20	1, 4, 18, 29, 32, 35, 37, 39, 40, 41, 47, 49, 53, 60, 69, 71, 72, 75, 95	41
<i>P. macroproctes</i> Koehler, 1922		12, 29, 72, 73, 76, 78	38, 45, 47, 61, 65, 66, 70
<i>P. orbicularis</i> (Leske, 1778)	11, 14, 20, 23, 25, 31	12, 19, 26, 27, 47	38, 47
<i>P. sp. cf. orbicularis</i> Leske, 1778)			51, 54
<i>P. tuberculata</i> Mortensen, 1918		1, 18, 29, 40, 41, 47, 49, 69, 72, 91, 95	38, 54, 65
<i>Peronella minuta</i> (de Meijere, 1904)		7, 72	
<i>Peronella</i> sp. (incomplete)		4, 7, 9, 17, 22, 34, 46, 47, 49, 68, 70, 71, 83, 96	38, 41, 62, 68
Family Aatriclypeidae			
<i>Echinodiscus auritus</i> Leske, 1778		18, 41, 46, 48, 49, 71	
Fam. Echinolampadidae			
<i>Echinolampas ovata</i> (Leske, 1778)	14	46, 78	37, 38, 42
Family Fibulariidae			
<i>Fibularia</i> sp. cf. <i>acuta</i> Yoshiwara, 1898			49
<i>F. oblonga</i> Gray, 1851			no loc.
Family Schizasteridae			
<i>Schizaster</i> (<i>Schizaster</i>) <i>compactus</i> (Koehler, 1914)	23	55, 61	no loc.
Family Brissidae			
<i>Brissopsis</i> sp. aff. <i>persica</i> Mortensen, 1940		83	
<i>Brissus latecarinatus</i> (Leske, 1778)			68
<i>Metalia sternalis</i> (Lamarck, 1816)		91	41
<i>Rhynobrissus hemiasteroides</i> A. Agassiz, 1879			68
cf. <i>Rhynobrissus</i> sp. (incomplete)		1, 12, 46	

Family Loveniidae			
<i>Breynia desorii</i> Gray, 1851	19, 28, 31	1, 33, 36, 37, 39, 59, 60, 66, 68, 69, 70, 71, 72, 75, 76, 91, 94	37, 38, 41, 42, 54
<i>Lovenia elongata</i> (Gray, 1845)	11	4, 7, 24, 31, 46, 47, 51, 52, 53, 71, 78, 83, 91, 96	
Family Spatangidae			
<i>Nacospatangus (Pseudomaretia) interruptus</i> (Studer, 1880)		33, 46, 49, 57, 58, 62, 76, 89	42, 57, 68
Class HOLOTHUROIDEA			
Family Holothuriidae			
<i>Actinopyga echinites</i> (Jaeger, 1833)	3, 4, 6, 25	77	37, 40, 42, 44, 45, 47, 48, 53, 66 56
<i>Bohadschia marmorata</i> (Jaeger, 1833)			
<i>Holothuria (Cystipus) inhabilis</i> Selenka, 1867	31		
<i>H. (Halodeima) atra</i> Jaeger, 1833	9, 25, 26		42, 44, 45, 49, 51, 56, 57, 64, 66, 70
<i>H. (Halodeima) edulis</i> Lesson, 1830	4, 17	75	36, 42, 44, 47, 49, 50, 51, 52, 58, 64, 67
<i>H. (Lessonothuria) pardalis</i> Selenka, 1867	8, 14, 28		36, 45, 49, 51, 53, 59, 60, 62, 63, 64, 67 51, 59, 62
<i>H. (Lessonothuria) sp. juv.</i>			
<i>H. (Mertensiothuria) leucospilota</i> (Brandt, 1835)	3, 9		37, 42, 45, 47, 48, 51, 54, 56, 58, 59, 64, 66, 70
<i>H. (Metriatyla) sp. aff. albiventer</i> Semper, 1868		57	
<i>H. (Metriatyla) martensii</i> Semper, 1868	11		
<i>H. (Metriatyla) scabra</i> Jaeger, 1833	2, 11, 16, 22, 23	13, 16, 20, 34, 40	38, 54
<i>H. (Metriatyla) timana</i> Lesson, 1830		74	
<i>H. (Platyperona) difficilis</i> Semper, 1868			45
<i>H. (Semperothuria) cinerascens</i> (Brandt, 1835)	6, 7, 8, 12, 14, 16		45, 48
<i>H. (Stauropora) fuscocinerea</i> Jaeger, 1833	19		
<i>H. (Stauropora) modesta</i> Ludwig, 1875		49, 70	
<i>H. (Stauropora) pervicax</i> Selenka, 1867	19, 22, 25		
<i>H. (Theelothuria) michaelsoni</i> Erwe, 1913		70, 96	
<i>H. (Theelothuria) spinifera</i> Théel, 1886		5, 21, 27, 36	
<i>H. (Thymiosycia) arenicola</i> Semper, 1868	9		
<i>H. (Thymiosycia) hilla</i> Lesson, 1830	14, 19, 22, 28		42, 45, 47, 49, 62
<i>H. (Thymiosycia) impatiens</i> (Forskål, 1775)	10, 19, 23, 25, 28, 35		38, 42, 44, 45, 48, 54
<i>H. (Thymiosycia) sp.</i>	19	57, 75	38
<i>Holothuria sp.</i>	4		
Family Stichopodidae			
<i>Stichopus chloronotus</i> Brandt, 1835	3, 6, 10, 11, 16, 32, 35	75	42, 44, 45, 51, 56, 58
<i>S. hermanni</i> Semper, 1868			54, 57
<i>S. horrens</i> Selenka, 1867	12, 23, 24, 31, 33, 35	6, 49, 71	
<i>S. sp. cf. horrens</i> Selenka, 1867	29		42, 44, 45, 51, 56, 61, 64
<i>S. sp. cf. monotuberculatus</i> Quoy and Gaimard, 1833			41
<i>S. sp. cf. noctivagus</i> Cherbonnier, 1980	22		
<i>S. variegatus</i> group			42

	DA 1/98	DA 2/99	DA 3/99
<i>Stichopus</i> sp. juv.		49	56
Family Cucumariidae			
<i>Actinocucumis typica</i> Ludwig, 1875		7, 31, 59, 72	45
<i>Cercodemus anceps</i> Selenka, 1867		1, 4, 12, 18, 21, 25, 33, 39, 50, 59, 67, 70, 75	68
<i>Colochirus crassus</i> Ekman, 1918		8, 10, 21, 50, 55, 57, 75	41
<i>C. quadrangularis</i> Troschel, 1846		8, 9, 10, 18, 37, 39, 59, 65, 68, 69, 70, 75	
<i>Leptopentacta grisea</i> H.L. Clark, 1938		57	45, 47, 70
<i>Leptopentacta</i> sp.			
<i>Loisettea amphictena</i> Rowe and Pawson, 1985		4, 6, 21, 24, 33, 75, 96	
<i>L. gazellae</i> (Lampert, 1889)		44, 45, 47, 56	
<i>Mensamaria intercedens</i> (Lampert, 1885)		4, 10, 44, 59, 70	
<i>Plesiocolochirus australis</i> (Ludwig, 1875)	22	6, 8, 9, 10, 50, 72	53
<i>P. challenger</i> (Théel, 1886)		6, 12, 21, 22, 44, 79	
<i>Pseudocolochirus violaceus</i> (Théel, 1886)	15	39, 49, 50	52, 55, 57, 65
Family Phyllophoriidae			
<i>Havelockia versicolor</i> (Semper, 1868)		4, 8, 10, 50, 75, 94	
<i>Hemithyone semperi</i> (Bell, 1884)		10, 59	
<i>Neothyonidium magnum</i> (Ludwig, 1882)	1, 16, 24, 27, 32		37, 61
<i>Phyllophorus (Phyllophorella) spiculata</i> Chang, 1935		6	
<i>P. (Urodemella) brocki</i> Ludwig, 1888	20, 29	59, 94	-
<i>P. (Urodemella) proteus</i> Bell, 1884	31	33, 37, 50, 65, 70	45
<i>Phyrella</i> sp. cf. <i>trapeza</i> (H.L. Clark, 1932)		69	
<i>Stolus buccalis</i> (Stimpson, 1855)		39, 42, 65, 68, 69, 75, 98	
<i>S. canescens</i> (Semper, 1868)		4, 6, 9, 37, 57, 79	
<i>S. conjungens</i> (Semper, 1868)	12	8	
<i>Thyone dura</i> Koehler and Vaney, 1908		57	
<i>T. grisea</i> H.L. Clark, 1938		39, 55	
<i>Thyone papuensis</i> Théel, 1886		10	
<i>Thyone</i> sp. cf. <i>papuensis</i> Théel, 1886		55	
<i>Thyone</i> sp. aff. <i>theeli</i> Rowe, 1995		26	
<i>Thyone</i> sp.		4, 12	
Gen. and sp. indet. (1)		10	
Gen. and sp. indet. (2)		21	
Family Sclerodactylidae			
<i>Afroccucumis africana</i> (Semper, 1868)	8		
<i>Cladolabes schmeltzii</i> (Ludwig, 1875)		72, 88	45
Family Caudinidae			

<i>Acaudina leucoprocta</i> (H.L. Clark, 1938)		1, 16, 19, 24, 34, 49, 61, 96	
<i>A. sp. cf. molpadioides</i> (Semper, 1868)		41	
Family Molpadiidae			
<i>Molpadia scabrum</i> (Sluiter, 1901)		23, 28, 34, 35, 55, 90	
Family Synaptidae			
<i>Synaptula macra</i> (H.L. Clark, 1938)			64
<i>S. recta</i> (Semper, 1868)	5, 12, 22	6, 8, 9, 10, 37, 39, 59, 62, 65, 68, 72, 75	41, 55, 62
<i>Synaptula sp.</i> (incomplete)	23		

Appendix 2 Echinoderm species not found during the WA Museum-Woodside Survey but recorded from specimens in the WA Museum from earlier work in the Dampier Archipelago, to ~ 40 m depth.

Class CRINOIDEA

Family Comasteridae

Capillaster multiradiatus (Linnaeus, 1758)
19 m, E of Delambre I.

Class ASTEROIDEA

Family Oreasteridae

Anthenea godeffroyi Doderlein, 1915
37 m, between Gidley and Rosemary Is
18 m, between Malus and Gidley Is
Anthenea pentagonula (Lamarck, 1816)
9 m, Mermaid Strait
Anthenea sibogae Doderlein, 1915
42 m, 2 n. miles W of Legendre I.

Family Ophidiasteridae

Linckia guildingi Gray, 1840

Family Echinasteridae

Echinaster luzonicus (Gray, 1840)
18 m, 3-4 n. miles E of Delambre I.

Class OPHIUROIDEA

Family Gorgonocephalidae

Astrochalcis tuberculatus Koehler, 1905
40 m, 8 n. miles N of Delambre I.

Family Amphiuridae

Amphioplus (Lymanella) hastatus (Ljungman, 1867)
7-9 m, W of Conzinc I.; 1-2 m, Norbill Bay,
Rosemary I.
Amphiura (Amphiura) leucaspis H.L. Clark, 1938
1-2 m, Norbill Bay, Rosemary I.
A. (Amphiura) micra H.L. Clark, 1938
12 m, W of Gidley I.; 13-16 m SW of Hamersley
Shoal
A. (Amphiura) cf. microsoma H.L. Clark, 1915
Intertidal, Rosemary I.
A. (Amphiura) stictacantha H.L. Clark, 1938
Intertidal, Rosemary I.
A. (Fellaria) octacantha (H.L. Clark, 1915)
0-10 m, Rosemary I.
A. (Ophiopeltis) tenuis (H.L. Clark, 1938)
0-1 m, Hearson Cove, Burrup Peninsula

Family Ophiotrichidae

Gymnolophus obscura (Ljungman, 1867)
1-10 m, Kendrew I.

Family Ophiocomidae

Ophiocoma erinaceus Müller and Troschel, 1842
0-1 m, Kendrew I.
Ophiocoma pica Müller and Troschel, 1842
0-1 m, Kendrew I.

Family Ophiodermatidae

Cryptopelta callista H.L. Clark, 1938
Inter-tidal, Kendrew I.
Ophiochaeta hirsuta Lütken, 1869
0-1 m, Kendrew I.

Class ECHINOIDEA

Family Echinothuriidae

Asthenosoma ijimai Yoshiwara, 1897
32-36 m, NW of Delambre I.

Family Diadematidae

Astropyga radiata (Leske, 1778)
43 m, 11 n. miles NNE of Legendre I.
Diadema savignyi (Michelin, 1845)
6 m, Kendrew I.
Echinothrix calamaris (Pallas, 1774)
6 m, Kendrew I.

Family Echinometridae

Echinometra mathaei (Blainville, 1825)
Intertidal, Delambre I.; Kendrew I.

Class HOLOTHUROIDEA

Family Holothuriidae

Labidodemas semperianum Selenka, 1867
0-1 m, Kendrew I.

Family Synaptidae

Rynkatorpa sp. cf. *bisperforata* (H.L. Clark, 1938)
0-1 m, Rosemary I.