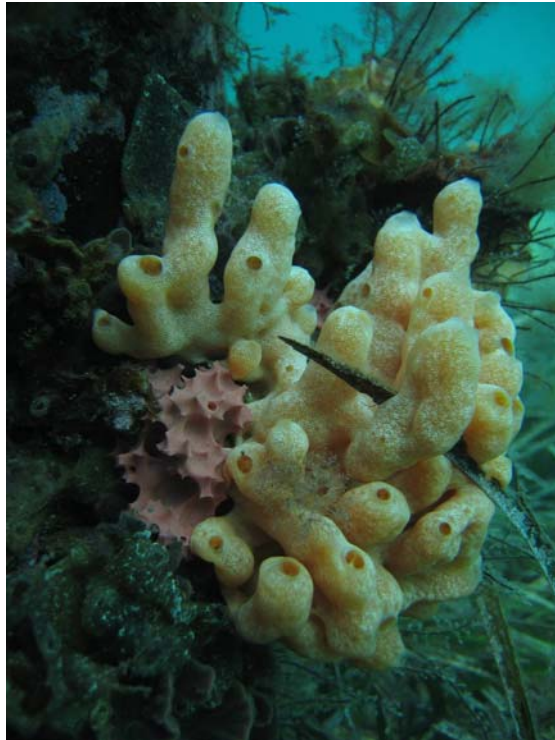


The distribution and diversity of sponges in Spencer Gulf

Report to Nature Foundation SA Inc.



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EXECUTIVE SUMMARY

During February 2007, SARDI researchers undertook the first gulf-wide survey to quantify the abundance and distribution of marine organisms on the seafloor of Spencer Gulf. This survey was designed to underpin a risk assessment for bycatch in the Spencer Gulf Prawn Fishery.

A total of 395 taxa including fish, benthic invertebrates, seagrasses and algae were documented. Sponges were well represented in this collection and included 105 taxa. Predictive modelling suggests that this species list is a small fraction of the total sponge fauna.

The 105 sponges described here fall into two classes, 10 orders and 30 families, although only 16 taxa could be given full species names. Descriptions and photographs of each taxon, along with distribution maps and biomass and abundance rankings are provided as an appendix.

The highest biomass of sponges was in the deeper southern stations of the gulf. Biomass was also high in the shallow northern end of the gulf, but the central section of the gulf showed lower biomass. This pattern was similar for both abundance and species richness data.

Spatial patterns of biomass, abundance and richness were inversely correlated with recent prawn trawling effort. These findings suggest that prawn trawling has a negative impact on the composition and diversity of the Spencer Gulf sponge fauna.

The importance of the ecological role of sponges is discussed in light of their conservation.

INTRODUCTION

An ecologically rated (ER) zoning scheme, based upon available knowledge and current understanding of the ecological variables, forms the cornerstone of the *Draft Spencer Gulf Management Plan* (DEH 2006). Under this zoning scheme, most gulf waters >10 m depth are classified as ER4 (areas for which the available scientific data are inadequate to identify their importance to the maintenance of biodiversity, ecological health and productivity of the system). Given that greater than 80% of Spencer Gulf waters occur between 10 m and 50 m depth, it is clear that the knowledge base is lacking for most of the marine realm under consideration in the plan.

During February 2007, SARDI researchers undertook the first gulf-wide survey to quantify the abundance and distribution of marine organisms on the seafloor of Spencer Gulf. This survey was designed to underpin a risk assessment for bycatch in the Spencer Gulf Prawn Fishery, and involved the collection, in trawl shots, of approximately four tonnes of marine biota from 120 depth-stratified sampling stations. The complete dataset includes information on the standing stock and distribution of 395 taxa including fish, benthic invertebrates, seagrasses and algae (Currie *et al.* in prep). Sponges were extremely well represented in this collection with 105 taxa.

The sponge fauna of South Australia is poorly understood. However, recent collections from the Great Australian Bight (GAB) Marine Park and the Investigator Islands on the west coast of the Eyre Peninsula (Sorokin *et al.* 2007 and Sorokin *et al.* 2008) have revealed high levels of biodiversity and endemism. This work has also shown that the sponge faunas of the GAB and west coast have few species in common, and appear to form relatively discrete (endemic) communities. It is likely that the sponge fauna of Spencer Gulf is different again from the open coastal reaches of the GAB and west coast.

In a previous bycatch study of 34 stations in northern Spencer Gulf, sponge biomasses of up to 125kg/station (30 minutes from one net) were recorded (Dixon *et al.* 2005). However, no species counts or identifications were made of these sponges. In order to assess the regional significance of the Spencer Gulf sponge fauna, it is imperative that the sponge identifications are accurately validated. Identification of sponges requires detailed histological preparations to examine the skeletal and spicule complement and comparison with voucher material.

The Spencer Gulf prawn fishery, based on the Western King Prawn (*Melicertus latisulcatus*), was established in 1968, but investigational trawling in the gulf started as early as 1909 (Zacharin *et al.* 2008). Prawn trawling can have significant direct and indirect effects on benthic habitats and fauna. Potential impacts may include direct disturbances to benthos and the removal of non-target species (Jennings and Kaiser 1998). Sponges are particularly susceptible to trawling, as they are sessile and

long-lived. By assessing the standing stock and composition of sponges in Spencer Gulf, some insights may be gained as to the cumulative effect of trawling.

This study aimed to: 1) document the identities of the Spencer Gulf sponge fauna, 2) quantify the standing-stock and distribution of each species, and 3) examine the cumulative effects of prawn trawling on sponge communities in the gulf.

METHODS

Sponges, and other bycatch, were collected from 120 Spencer Gulf survey stations (Figure 1). The survey was undertaken over four nights, from 16th to 19th February 2007, and spanned waters ranging between 12 and 55 m depth. One level Nally bin (96 L) of bycatch from each station was frozen for sample identification and processing. The samples were defrosted at SARDI, sorted, and the first sample of each species was given a unique species code, photographed and preserved in 70% ethanol as a reference specimen, although only the sponges are considered here. All samples were weighed and the collection station recorded. Tissue samples of the sponges were prepared for skeletal and spicule analysis according to Hooper (1997). Taxonomic keys (Hooper and van Soest 2002) were used to assign each sponge to genus.

A geographical information system ArcGIS (v 9.2, ESRI 2007) was employed to characterise and display spatial trends in sponge richness, abundance and biomass. Variations in sponge community structure between the 120 trawl survey stations were further examined using hierarchical agglomerative clustering on square root transformed data with Bray-Curtis (B-C) dissimilarity measures (Bray and Curtis 1957), using PRIMER (v5) (Clarke and Gorley 2001).

In an effort to evaluate the possible cumulative effects of prawn trawling on sponges in Spencer Gulf, one-way analysis of variance (ANOVA) was used to test differences in richness, abundance and biomass across three areas of the gulf subjected to low (0-1 hours fishing per km²), moderate (1-10 hours fishing per km²) and high (>10 hours fishing per km²) levels of trawling over the 5-year period (2003-2007) preceding this survey. This classification of fishing effort was based on information (hours fished per day per fisherman) provided by prawn license holders and summarised in the South Australian Governments' Wild Fisheries Database.

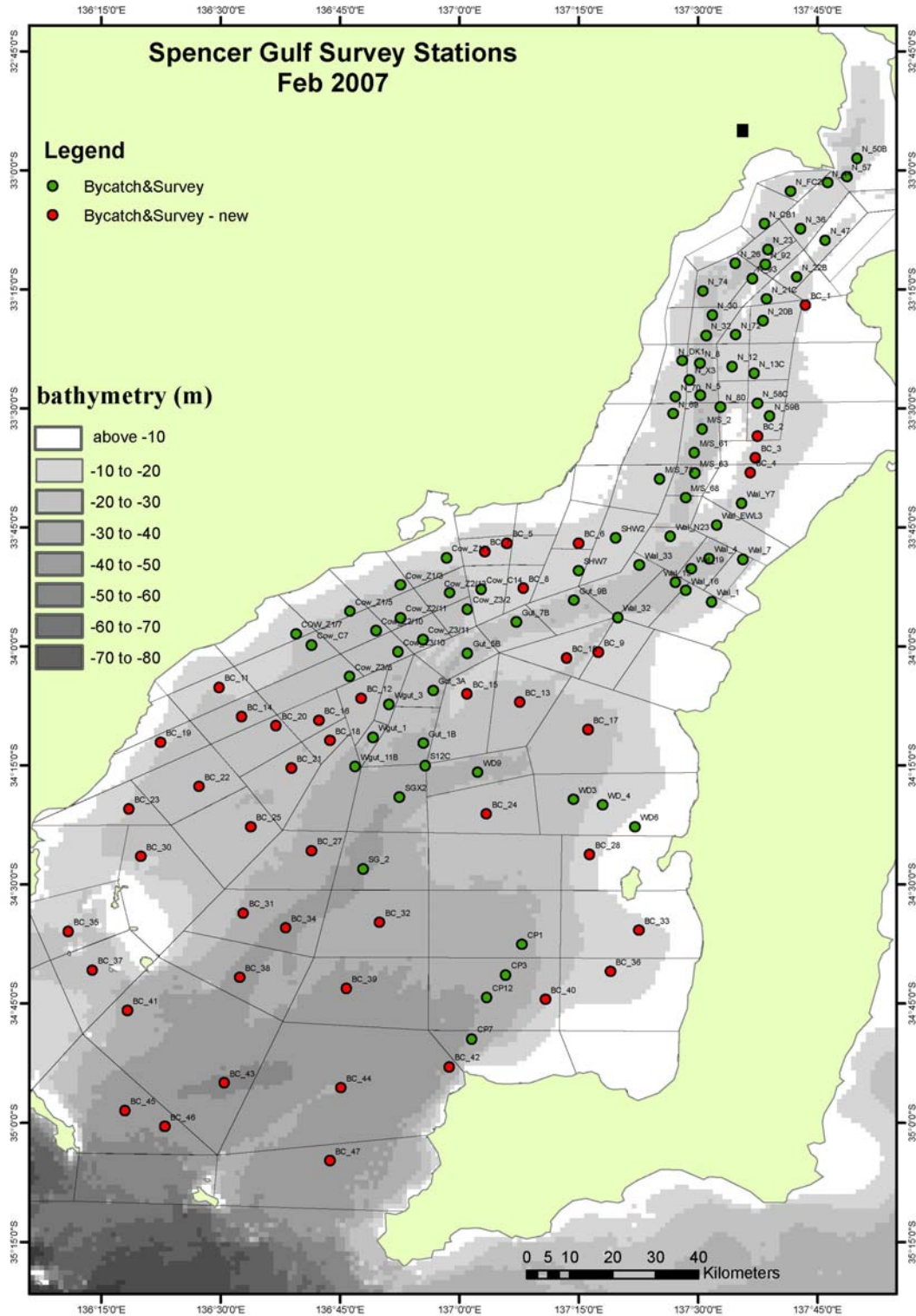


Figure 1 Spencer Gulf bycatch survey stations, including bathymetry. Boxed areas are prawn fishery reporting areas. Green filled circles are existing prawn survey shots (trawls). Red filled circles are additional SARDI survey shots.

RESULTS

Of the entire bycatch, sponges were ranked third in terms of biomass, following fish and Crustacea. Apart from the Crustacea, which included the target species of prawn, sponge biomass was substantially greater than the other invertebrates and plants (Figure 2).

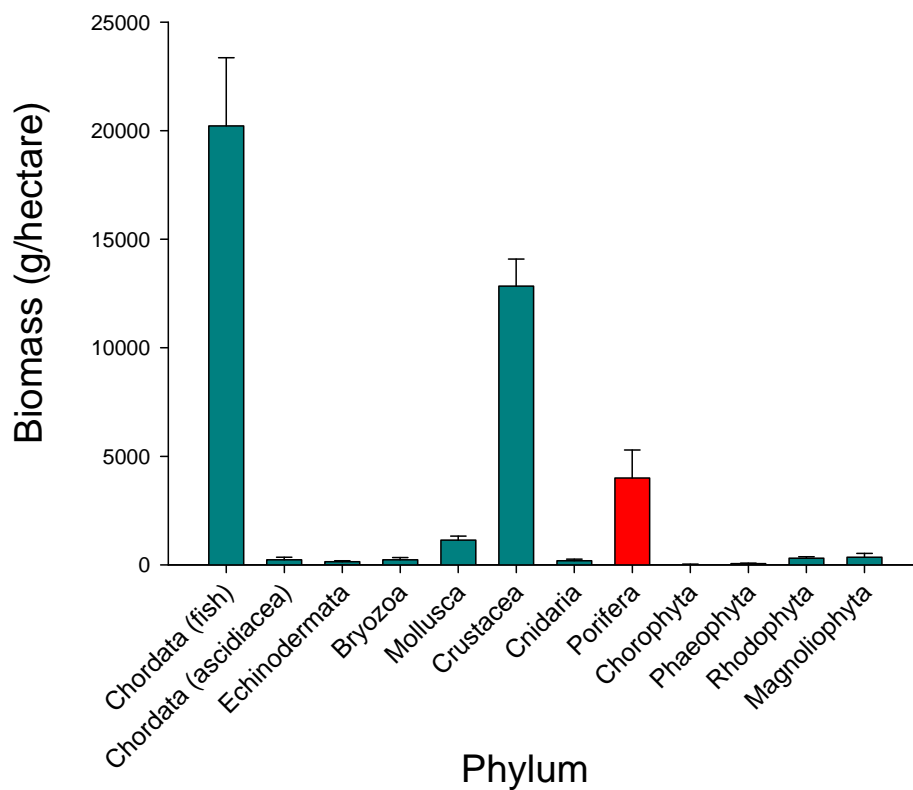


Figure 2 Distribution of bycatch biomass by Phyla in Spencer Gulf. Bars are \pm standard error.

Diversity

A total of 105 different sponge taxa were found, covering two classes, 10 orders and 30 families (Table 1). Descriptions of each taxon along with photographs and collection details (including distribution maps, comparative biomass and abundance ranks) are included in the catalogue in Appendix 1. Only 16 of the 105 sponges were identified to species. The most abundant sponge *Chondropsis* sp. BPZ 2 (Figure 54), which occurred at 51 of the 120 stations, also had the greatest biomass. The massive sponge *Sphaciospongia papillosa* had the second highest biomass but only occurred at one station. A species accumulation curve (Figure 3) did not reach its asymptote, showing that continued sampling in the gulf would uncover more sponge taxa.

To complete this catalogue of known sponges from Spencer Gulf, Appendix 2 lists 82 sponges from Spencer Gulf lodged at the South Australian Museum, of which 54 are unidentified: these are additional to the 105 from this study.

Table 1 Taxonomic list of sponge taxa found in the Spencer Gulf prawn stations, with species codes.

Order	Family	Species	Code
Calcinia	Leucettidae	Leucettid. sp.	S062
Undetermined		Demosponge sp. 1	S074
Astrophorida	Ancorinidae	<i>Ancorina</i> sp.	S006
		<i>Ecionemia</i> sp. 1	S028
		<i>Ecionemia</i> sp. 2	S060
		<i>Jaspis</i> cf. <i>stellifera</i>	S059
		<i>Jaspis</i> sp. 2	S091
		<i>Jaspis</i> sp. 3	S112
		<i>Stelletta</i> sp. 2	S111
		<i>Stelletta tuberculata</i>	S019
	Geodiidae	Geodiid sp.	S002
Chondrosida	Chondrillidae	<i>Chondrilla</i> sp.	S093
Hadromerida	Clionidae	<i>Cliona</i> sp.	S057
		<i>Spheciospongia papillosa</i>	S053
		<i>Spheciospongia</i> sp. 2	S076
	Suberitidae	<i>Caulospongia</i> sp. nov?	S045
	Tethyiidae	<i>Tethya ingalli</i>	S117
Poecilosclerida	Undetermined	Poecilosclerid sp. 1	S011
		Poecilosclerid sp. 2	S013
		Poecilosclerid sp. 3	S073
		Myxillinid. sp.	S017
	Acarinidae	<i>Acarinus</i> cf. <i>guentheri</i>	S015
	Chondropsidae	<i>Chondropsis</i> sp. 2	S007
		<i>Chondropsis</i> sp. 3	S102
		<i>Chondropsis</i> sp. BPZ 2	S004
		<i>Chondropsis</i> sp? (4)	S101
	Crellidae	<i>Crella (Pytheas)</i> sp.	S027
	Desmacellidae	<i>Biemna</i> sp.	S021
	Desmacidonidae	<i>Desmacidon</i> sp?	S065
	Microcionidae	Microcionid. sp. 1	S070
		Microcionid. sp. 2	S090
		<i>Clathria (Clathria)</i> cf. <i>rubens</i>	S084
		<i>Clathria (Isociella)</i> cf. <i>macropora</i>	S047
		<i>Clathria (Microcionia)</i> sp.	S071
		<i>Clathria (Wilsonella)</i> sp. 4	S048
		<i>Clathria (Wilsonella)</i> sp. 1	S001
		<i>Clathria (Wilsonella)</i> sp. 2	S022
		<i>Clathria (Wilsonella)</i> sp. 3	S032
		<i>Clathria</i> sp. 1	S100
		<i>Clathria</i> sp. 2	S115
		<i>Echinoclathria</i> sp.	S069
		<i>Echinoclathria</i> cf. <i>chalinoides</i>	S041
		<i>Echinoclathria leoporina</i>	S072
		<i>Holopsamma laminaefavosa</i>	S009
		<i>Holopsamma</i> sp. 2	S037
	Mycalidae	<i>Mycala (Arenochalina)</i> sp.	S116
		<i>Mycala</i> sp. 1	S067
		<i>Mycala</i> sp. 2	S080
	Raspailiidae	<i>Ceratopsion</i> sp.	S086
		<i>Echinodictyum mesenterium</i>	S052
		<i>Echinodictyum</i> sp. 2	S020
		<i>Echinodictyum</i> sp. 3	S088
		<i>Echinodictyum</i> sp. 4	S096
		<i>Rapailia (Clathriodendron)</i> cf. <i>cacticutis</i>	S051
	Tedaniidae	<i>Hemitedania anonyma</i>	S083
Halichondrida	Axinellidae	<i>Cymbastela</i> sp.	S038
		<i>Reniochalina</i> sp. 1	S012
	Desmoxyidae	<i>Higginisia</i> sp?	S106

Order	Family	Species	Code		
	Halichondriidae	<i>Halichondria (Halichondria) sp.</i>	S110		
Haplosclerida	Callyspongiidae	<i>Callyspongia (Callyspongia) sp. 1</i>	S016		
		<i>Callyspongia (Callyspongia) sp. 2</i>	S050		
		<i>Callyspongia (Callyspongia) sp. 3</i>	S105		
		<i>Callyspongia (Cavochalina) bilamellata</i>	S054		
		<i>Callyspongid sp?</i>	S008		
		<i>Dactylia sp. 1</i>	S077		
		<i>Dactylia sp. 2</i>	S114		
		<i>Siphonchalina sp.</i>	S046		
		Chalinidae	<i>Haliclona (Haliclona) sp. 1</i>	S026	
			<i>Haliclona (Haliclona) sp. 2</i>	S085	
			Niphatidae	<i>Cribrochalina sp.</i>	S056
			Petrosiidae	<i>Petrosid sp.</i>	S079
		Dictyoceratida	Dysideidae	<i>Dysidea sp.</i>	S081
				Irciniidae	<i>Ircinia sp. 1</i>
<i>Ircinia sp. 2</i>	S033				
<i>Ircinia sp. 3</i>	S035				
			<i>Psammocinia sp. 1</i>	S040	
			<i>Psammocinia sp. 2</i>	S104	
			<i>Psammocinia sp. 3</i>	S108	
			<i>Sarcotragus sp. 1</i>	S034	
			<i>Sarcotragus sp. 2</i>	S044	
	Spongiidae		<i>Hyattella sp?</i>	S068	
			<i>Leiosella sp. 1</i>	S024	
			<i>Leiosella sp. 2</i>	S092	
			<i>Leiosella sp. 3</i>	S113	
			<i>Spongia sp. 1</i>	S029	
	Thorectidae		<i>Aplysinopsis sp.</i>	S064	
			<i>Cacospongia sp?</i>	S087	
			<i>Fasciospongia sp.</i>	S089	
			<i>Fenestraspongia cf. intertexta</i>	S031	
			<i>Hyrtios sp?</i>	S075	
			<i>Lufferiella sp.</i>	S094	
			<i>Taonura sp. 1</i>	S023	
			<i>Taonura sp. 2</i>	S055	
			<i>Taonura sp?</i>	S014	
			<i>Thorecta sp. 1</i>	S018	
			<i>Thorecta sp. 2</i>	S063	
			<i>Thorectandra sp. 1</i>	S058	
			<i>Thorectandra sp. 2</i>	S082	
			<i>Thorectid sp. 1</i>	S005	
			<i>Thorectid sp. 2</i>	S066	
Dendroceratida	Darwinellidae		<i>Darwinella sp.</i>	S099	
			<i>Dendrilla sp.</i>	S118	
			<i>Dendroceratid sp? 1</i>	S025	
			<i>Dendroceratid. sp. 2</i>	S107	
Verongida	Aplysinidae	<i>Aplysina cf. lendenfeldi</i>	S043		

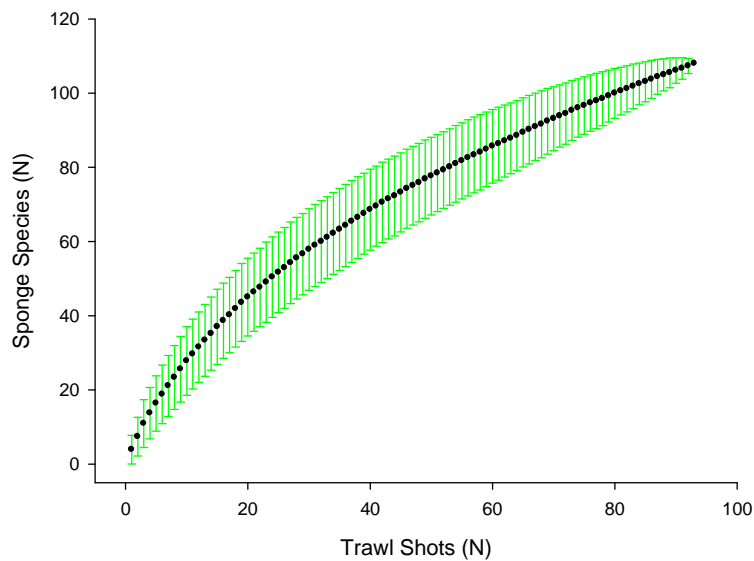


Figure 3 Species accumulation curve of sponges collected from Spencer Gulf. The curve is based on the 98 of the 120 stations where sponges occurred. Plotted values are means \pm SD of 999 randomised estimates.

Biogeographical affinities

Biogeographical data for the sponges that could be assigned species names is shown in Table 2. The Spencer Gulf sponge fauna is most similar to that from Victoria (data mostly from the Bass Strait). Four of the sponges in Spencer Gulf are also found in the tropics.

Table 2 Biogeographical distribution of Spencer Gulf sponges that could be identified to species (Information taken from Hooper and Wiedenmayer 1994 (updated 1999)).

Species	WA	SA	VIC	TAS	NSW	QLD	NT	Indo/Pac	NZ
<i>J. stellifera</i>		1	1	1		1 [^]		1 [^]	
<i>S. tuberculata</i>		1	1						
<i>S. papillosa</i>	1	1	1		1				
<i>T. ingalli</i>	1	1	1		1			1 [^]	?
<i>A. guentheri</i>		1	1						
<i>C. (C.) rubens</i>		1		1	1	1			
<i>C. (I.) macropora</i>		1*			1				
<i>E. chalinoides</i>		1	1						
<i>E. leoporina</i>		1	1	1	1	1			
<i>H. laminaefavosa</i>		1	1	1	1				
<i>M. (A.) mirabilis</i>	1	1	1	1	1	1		1 [^]	
<i>E. mesenterium</i>	1	1		1	1	1	1 [^]	1 [^]	
<i>R. (C.) cacticutis</i>		1	1	1					
<i>H. anonyma</i>		1	1		1				
<i>C. (C.) bilamellata</i>	1	1	1	1	1	1			
<i>F. intertexta</i>		1*	1						
<i>A. lendenfeldi</i>		1*	1		1				
No. of species	5	17	14	8	11	6	1	4	

* Possible new record for South Australia [^] Tropical

Distribution

Sponges were found at 98 of the 120 stations. The majority of the sponge biomass was found at the northern and the southern stations, with the highest biomass, up to 150kg/station, found at the deeper stations in the southern part of the gulf (Figure 4). A similar pattern was seen for abundances, with the highest abundance (up to 171 sponges/station) at the deeper stations in the southern area of the gulf (Figure 5). Similarly species richness was highest (up to 30 taxa per station) at the deeper southern stations, and up to 10 taxa/station at the northern section (Figure 6). There was low sponge biomass, abundance and richness in the central part of the gulf. Despite there being strong environmental gradients in the gulf, a cluster analysis showed that there were no significant groupings of sponge communities with respect to location in the gulf (Figure 7).

Effects of trawling

Spatial patterns in sponge species biomass, abundance and richness are summarized in Figures 4, 5 and 6 respectively. These maps include shading to indicate the degree of trawling effort over five years (2003-2007), and suggest that biomasses, abundances and the numbers of species represented are lower in areas of higher trawling effort. Summary plots (Figure 8) and associated ANOVA tests (Table 3) provide formal confirmation that all three sponge parameters (i.e. biomass, abundance and richness), are significantly lower in areas of Spencer Gulf that have received the highest levels of prawn trawling effort (10-25 hours fishing per km²) over recent years (2003-2007).

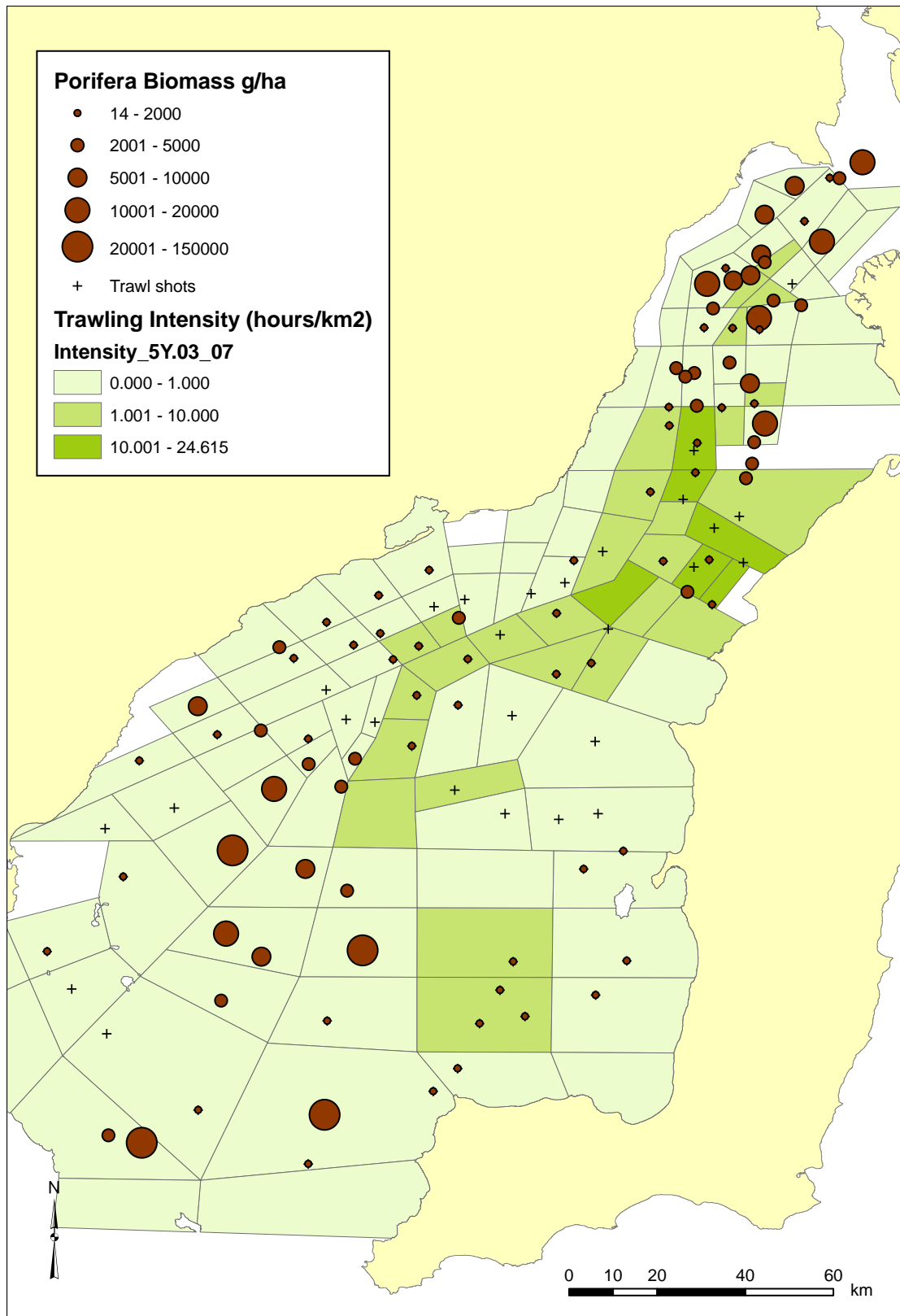


Figure 4 Distribution of sponge biomass across the Spencer Gulf survey stations. Biomass is standardised to g/hectare. Crosses (+) mark trawl shots where no sponges were found. Shading indicates trawling intensity over five years (2003-2007).

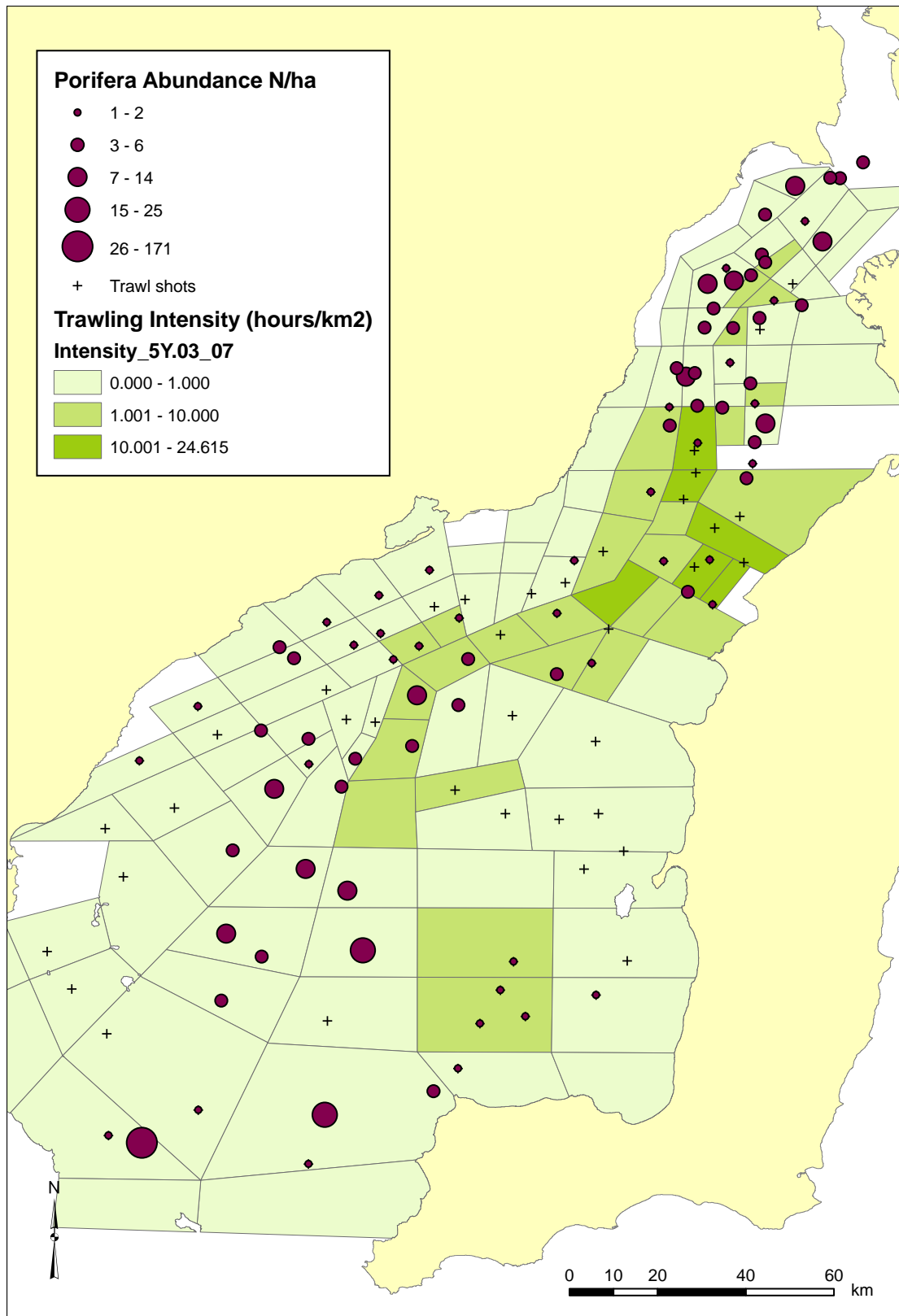


Figure 5 Distribution of sponge abundance across the Spencer Gulf survey stations. Abundance is standardised to N/hectare. Crosses (+) mark trawl shots where no sponges were found. Shading indicates trawling intensity over five years (2003-2007).

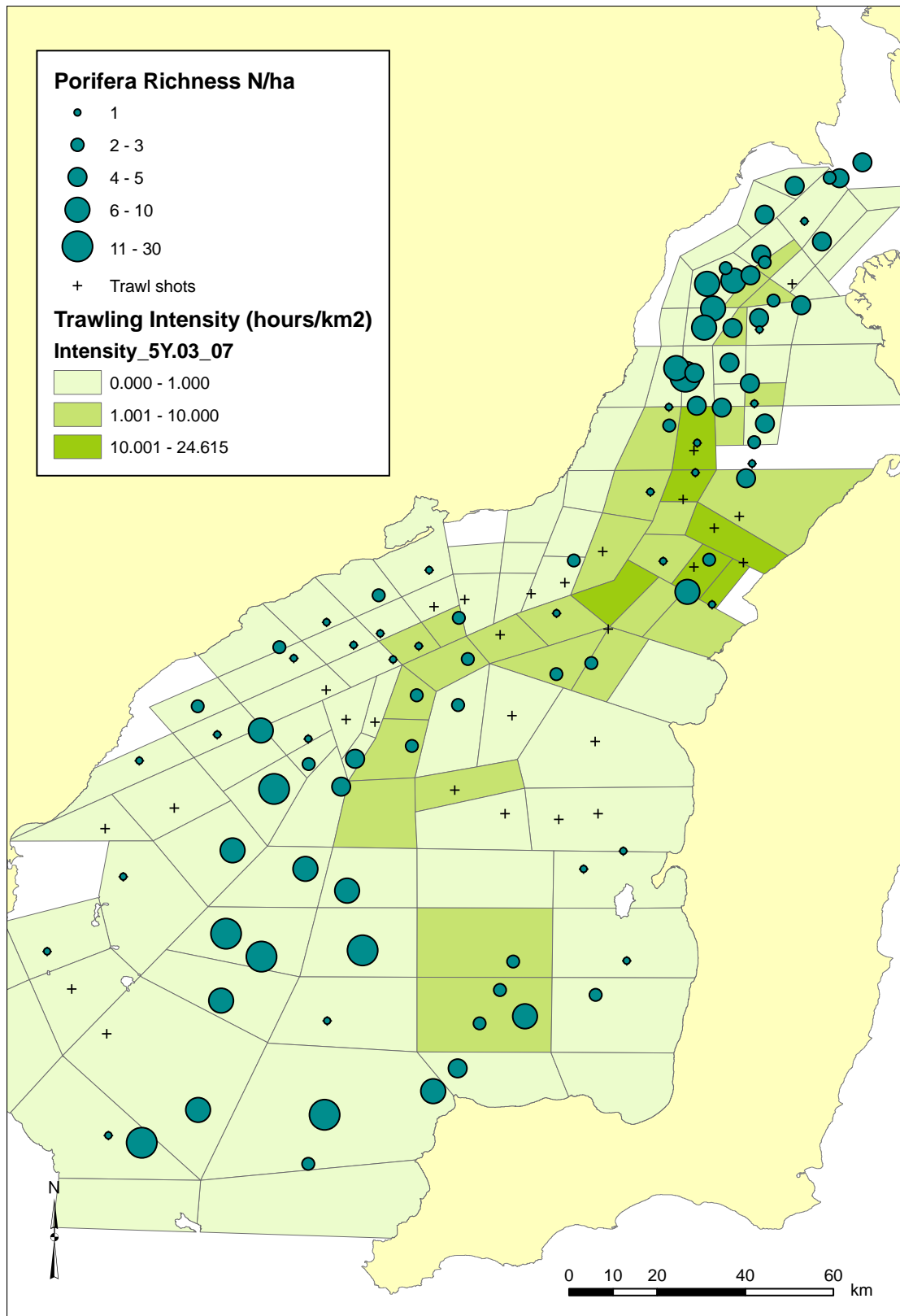


Figure 6 Distribution of sponge species richness across the Spencer Gulf survey stations. Species richness is represented as the total number per hectare. Crosses (+) mark trawl shots where no sponges were found. Shading indicates trawling intensity over five years (2003-2007).

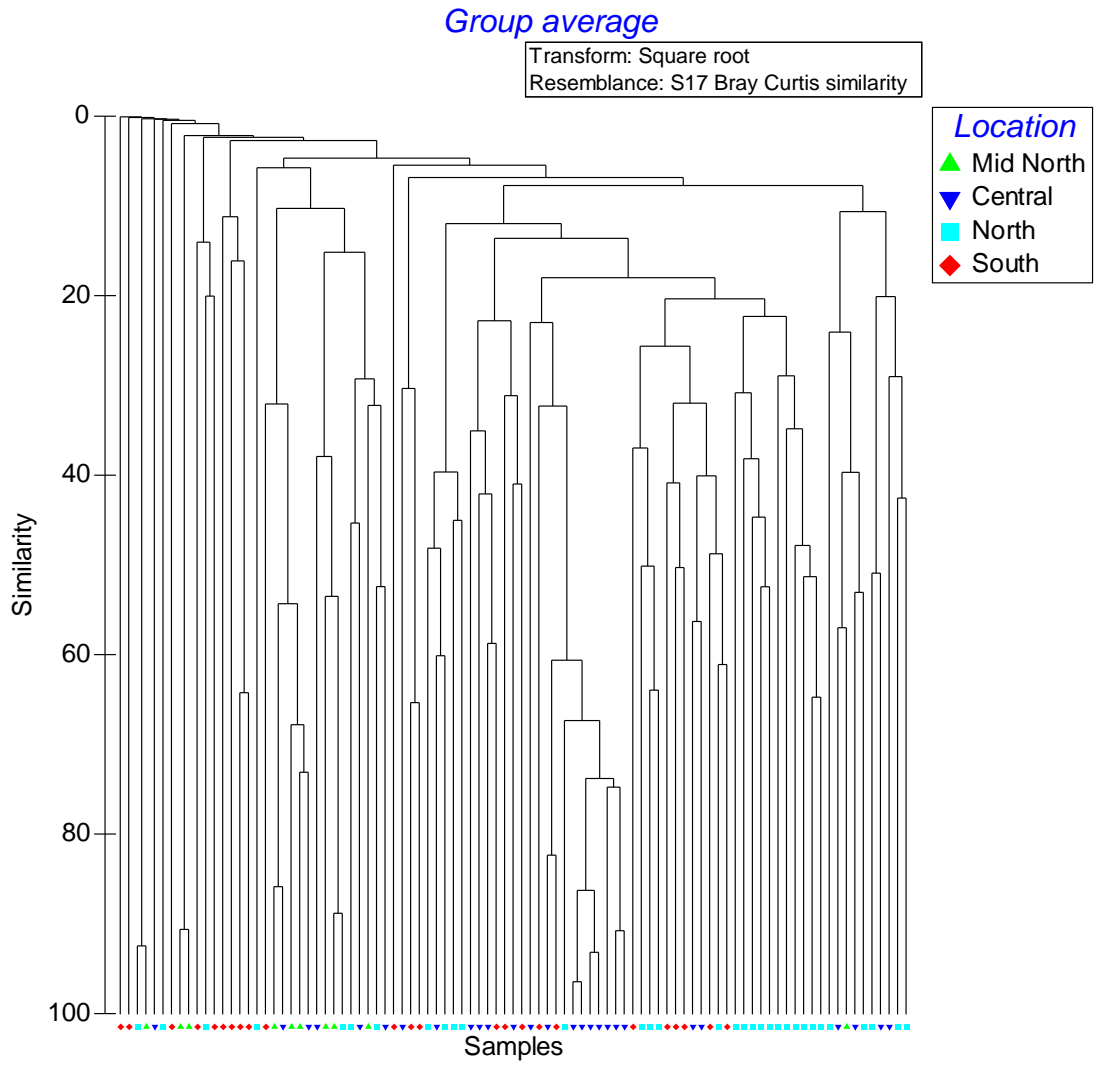


Figure 7 Dendrogram showing similarity of sponge taxa according to location north or south in the Spencer Gulf.

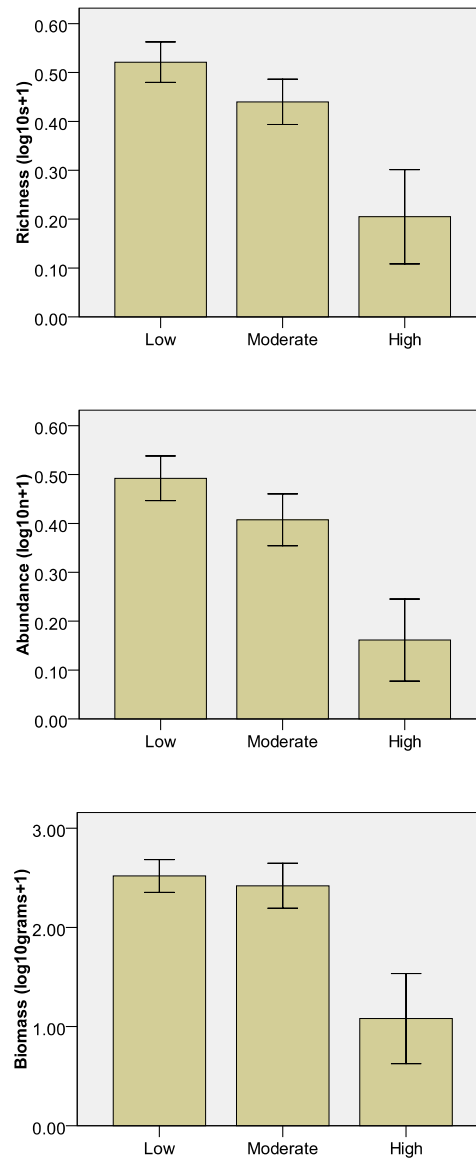


Figure 8 Bar graphs showing mean species richness, abundance and biomass of sponges collected from three areas of Spencer Gulf subject to low (<1 hour fishing per km², n = 83), moderate (1-10 hours fishing per km², n = 27) and high levels (>10 hours fishing per km², n = 10) of prawn trawling effort over the period 2003 to 2007. All estimates are standardised measures per hectare \pm s.e.

Table 3 Results of one-way ANOVA's on differences in sponge species richness, abundance and biomass across areas of Spencer Gulf subjected to low, moderate and high levels of prawn trawling over the period 2003 to 2007.

Dependent	Source	Sum of Squares	df	MS	F	Sig.
Richness	Between Groups	0.939	2	0.47	3.902	0.023
	Within Groups	14.086	117	0.12		
	Total	15.025	119			
Biomass	Between Groups	18.513	2	9.256	4.502	0.013
	Within Groups	240.533	117	2.056		
	Total	259.046	119			
Abundance	Between Groups	1.029	2	0.514	3.587	0.031
	Within Groups	16.773	117	0.143		
	Total	17.801	119			

DISCUSSION

Diversity and distribution

The sponge community in Spencer Gulf differs markedly from recent collections made in the Great Australian Bight, with only 15 taxa in common (Sorokin *et al.* 2007); and from the Investigator Group on the west coast of the Eyre Peninsula, with only six taxa in common (Sorokin *et al.* 2008). Only two taxa are common between all three regions (*Stelletta tuberculata* and *Holopsamma laminaefavosa*). The Investigator sponges were collected from a very shallow rocky reef environment, and the GAB sponges were collected in deeper water at 40 to 200 m. Increased taxonomic resolution may increase the number of taxa in common, nevertheless, there appears to be some local endemism in the three geographical areas. Of the 16 taxa that could be identified to species, 14 are also found in Victoria. A few of the sponges are also found in the tropics.

Spencer Gulf displays strong geographical differences in depth, temperature and salinity. In particular, large gradients in temperature and salinity are evident between the north and south of the gulf (Richardson *et al.* 2005). Our sponge community data was largely homogeneous and did not vary in relation to latitude, and it appears that such environmental gradients have a limited influence on the composition and distribution of sponges in the gulf. Other studies on temperate sponges have shown an increase of richness with depth as well as a difference in type of sponges (Roberts and Davis 1996). Whether this homogeneity in sponge composition in Spencer Gulf is an artifact of trawling is unknown. Small, natural disturbances are needed to maintain heterogeneity in marine benthic systems, however, if human-induced change is greater than natural recovery, the heterogeneity can be reduced (Thrush and Dayton 2002).

Effects of trawling

Bottom fishing leads to wide-scale changes in benthic habitats (Kaiser *et al.* 2000). Sponges are particularly susceptible to damage by bottom trawling, and their destruction, along with other sessile benthos, may be the major effect of demersal trawls (Dayton *et al.* 1995). Studies in the north west of Australia showed that up to 90% of sponges could be removed in a single trawl (Sainsbury *et al.* 1999). On the Great Barrier Reef, repeated trawls resulted in the loss of 75% of sponges from previously untrawled areas (Burrige *et al.* 2003). No before-trawling surveys of the Spencer Gulf benthos have been undertaken, so it cannot be determined with certainty if current patterns in sponge distribution reflect the cumulative effects of prawn trawling in the gulf over the last 40 years. There is circumstantial evidence in our data that shows trawling had a substantial effect on sponges. Some sponge taxa occur in both the northern section of the gulf and the southern section, but do not appear in the bycatch from the central section, for example: *Clathria* (*M*) sp. (Figure 35), *Holopsamma laminaefavosa* (Figure 43), *Chondropsis* sp. BPZ2 (Figure 54), *Calyspongia* (*C*) sp. 1 (Figure 69) and *Thorectandra* sp. 1 (Figure 104). There is little documentation of earlier trawls, however there

is anecdotal evidence that some areas of the gulf off Wallaroo had abundant sponges in the early 1970s (Scoresby Shepherd pers. comm.), whereas few sponges occur there now.

Ecionemia sp. 1 shows high biomass in the northern section of the gulf. This sponge has previously been reported in high densities from Northern Spencer Gulf (Sorokin 2006). One possible explanation for this could be a clumping phenomenon that occurs naturally after storms (Battershill 1990). Sponges are physically broken up with the broken fragments subsequently growing into numerous individuals, usually in clumps. It is probable that damage from trawling may have a similar effect. This may also be why *Chondropsis* sp. BPZ2 is also found in high numbers, it is a small sponge that breaks easily due to high sand content. Repeated disturbance over a long time will select for species that have responses capable of dealing with changing environment (Thrush and Dayton 2002).

The importance of conserving sponges

Functional and ecosystem roles of benthic organisms need to be better understood to estimate the effects of fishing disturbance (Thrush and Dayton 2002). Sponges have several important functions in the marine environment, and their significance is often under-appreciated in conservation programs (Bell 2008). These functions include substrate stabilisation and consolidation; coupling between the benthic and pelagic areas (e.g. carbon, silicon and nitrogen cycling); and habitat formation (i.e. food and shelter for other organisms). In addition to the natural role of sponges in the marine environment, they have properties that can be exploited for humankind. The production of chemicals by sponges (to prevent settlement of other species, to use in spatial competition against neighbours, and to act as feeding deterrents for potential predators) is of increasing significance to humans as these bioactive chemicals have potential in the development of pharmaceuticals and antifouling paints (Capon 2001). The immense filtering properties of sponges have the potential to provide natural bioremediation of microorganism concentrations in the water caused by aquaculture (Milanese *et al.* 2003, Stabili *et al.* 2008) and pollution (Gifford *et al.* 2007). The latter may be of increased relevance as the population and industries around Spencer Gulf continue to grow.

ACKNOWLEDGEMENTS

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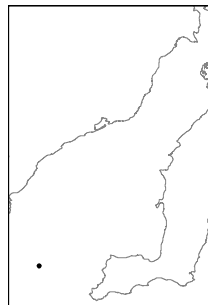
APPENDIX 1 – Catalogue of sponges

The sponges described below are housed, along with the photographs and histological slides, at SARDI Aquatic Sciences, West Beach, Adelaide. All sponges are briefly described here, however, if the species name is already known from previous collections the sample was not examined microscopically. Descriptions of the sponges are written in notation form. Sizes of spicules are used when it is necessary for identification. Spicule sizes are examples, not averages. Terminology used for spicules and skeletal layout follows the glossary by Boury-Esnault and Rutzler (1997). Gravid specimens are noted in the text. Sponge names are presented as Genus species (Order, Family). The sponges are arranged by class, then taxonomically by order then alphabetically by family and genus. Where a species name is given, a reference is cited and the Code for Australian Aquatic Biota (CAAB) is given, as determined by Australia's Commonwealth Scientific and Industrial Research Organisation (see Rees *et al.* 1999). Average biomasses and abundances are derived from the 120 sampling stations in Spencer Gulf.

CLASS: CALCAREA

ORDER: CALCINEA

Figure 9 SG-S062 Leucettid. sp. (*Calcinea*, Leucettidae)



Depth range = 44 m
 Stations = BC46
 Average biomass = 3.379 g/ha
 Rank biomass = 64
 Average abundance = 0.045/ha
 Rank abundance = 33
 Growth form – Thick erect lobe, 7.5 x 6 x 2 cm.
 Colour – Brown; turns ethanol brown.
 Oscules – On top of lobe, 5 mm diam.
 Texture – Firm, incompressible.
 Surface ornamentation – Ridged.

Ectosome – Dense layer of triactines.

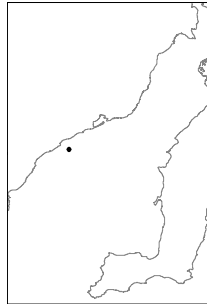
Choanosome – Small tri and tetractines overlain by large triactines.

Megascleres – Triactines.

Microscleres – None.

CLASS: DEMOSPONGIAE

Figure 10 SG-S074 Demosponge sp. 1

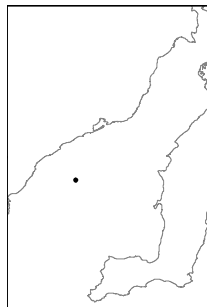


Depth range = 24 m
 Stations = Z1/7
 Average biomass = 5.854 g/ha
 Rank biomass = 52
 Average abundance = 0.012/ha
 Rank abundance = 73
 Growth form – Solid, irregular, massive.
 Colour – Beige.
 Texture – Firm.
 Surface ornamentation – Arenaceous.
 Remarks – Voucher specimen of this sponge was

misaid during sorting, so no histology was performed. However distribution data is presented.

ORDER: ASTROPHORIDA

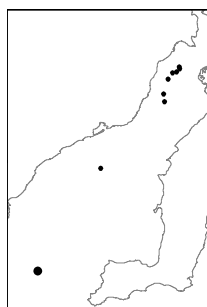
Figure 11 SG-S006 *Ancorina* sp. (Astrophorida, Ancorinidae)



Depth range = 22 m
 Stations = BC18
 Average biomass = 12.446 g/ha
 Rank biomass = 43
 Average abundance = 0.003/ha
 Rank abundance = 102
 Growth form – Spherical, solid.
 Colour – Dark brown; turns ethanol cloudy and dark brown.
 Oscules – Pinprick sized.
 Texture – Firm, barely compressible.

Surface ornamentation – Rugose.
 Ectosome – Cortex 1.5 mm thick. Dermal layer of spiny microhabds over a sand armour and small paratangential oxeas.
 Choanosome – Small oxeas and chiasters surround the canals.
 Megascleres – Oxeas in 2 size categories.
 Microscleres – Chiasters, spiny microhabds.

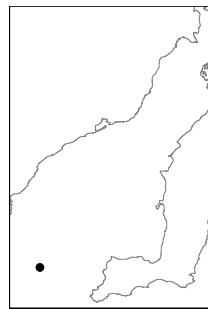
Figure 12 SG-S028 *Ecionemia* sp. 1 (Astrophorida, Ancorinidae)



Depth range = 14 - 44 m
 Stations = 23, 30, 3A, 5, 8, 92, 93, 94, BC46
 Average biomass = 243.166 g/ha
 Rank biomass = 4
 Average abundance = 0.126/ha
 Rank abundance = 5
 Growth form – Spherical, solid.
 Colour – Dark ruddy brown; turns ethanol cloudy and dark brown.
 Oscules – Rare, 1 mm diam.
 Texture – Firm, compressible.

Surface ornamentation – None, smooth.
 Ectosome – No cortex, microhabds are in a loose perpendicular arrangement at surface.
 Choanosome – Tracts of large oxeas, smaller oxeas scattered.
 Megascleres – Oxeas in 2 size categories, only 1 triaene in section.
 Microscleres – Chiasters, spiny microhabds.
 Remarks – Compare with S1000 from SAM, Sorokin (2005).

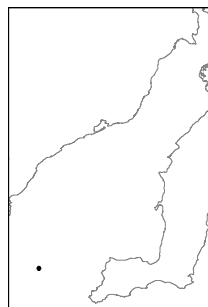
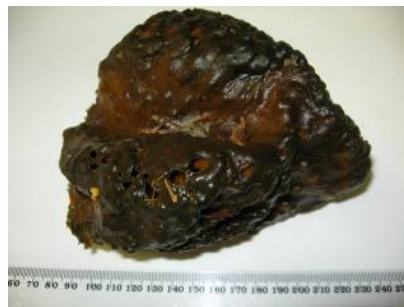
Figure 13 SG-S060 *Ecionemia* sp. 2 (Astrophorida, Ancorinidae)



Depth range = 44 m
 Stations = BC46
 Average biomass = 111.164 g/ha
 Rank biomass = 10
 Average abundance = 0.045/ha
 Rank abundance = 33
 Growth form – Specimen is only part of the sponge, sub-spherical.
 Colour – Brown, beige internally; turns ethanol golden yellow.
 Oscules – Inconspicuous.

Texture – Firm, incompressible.
 Surface ornamentation – None, smooth.
 Ectosome – Triaxones form surface layer.
 Choanosome – Large oxeas scattered and form tracts closer to the surface.
 Megascleres – Oxeas in 2 size categories, Triaxones numerous.
 Microscleres – Chiasters, spiny microrhabds.

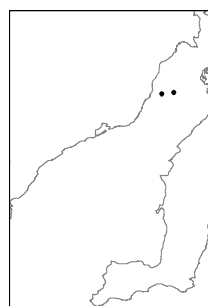
Figure 14 SG-S059 *Jaspis* cf. *stellifera* (Carter, 1879) (Astrophorida, Ancorinidae)



CAAB Taxon Code: 10 011003
 Depth range = 44 m
 Stations = BC46
 Average biomass = 35.750 g/ha
 Rank biomass = 23
 Average abundance = 0.045/ha
 Rank abundance = 33
 Growth form – Sub-spherical, 14 x 11 cm.
 Colour – Brown externally, yellow internally; turns ethanol cloudy and golden brown. The deep yellow colour of this sponge is still very

bright on the skeletal slide section.
 Oscules – Large, 4-8 mm diam.
 Texture – Firm, barely compressible.
 Surface ornamentation – Verrucose.
 Ectosome – Paratangential crisscross of oxeas forms a thick layer at the surface, many sub-dermal spaces.
 Choanosome – Single or groups of oxeas in a haphazard arrangement.
 Megascleres – Oxeas in 3 size categories.
 Microscleres – Oxyasters.
 Remarks – Gravid. Compare Kennedy, 2000.

Figure 15 SG-S091 *Jaspis* sp. 2 (Astrophorida, Ancorinidae)



Depth range = 14.5 - 17.8 m
 Stations = 12, DK1
 Average biomass = 2.911 g/ha
 Rank biomass = 67
 Average abundance = 0.008/ha
 Rank abundance = 85
 Growth form – Massive, 12 cm – 13 cm.
 Colour – Grey; turns ethanol beige.
 Oscules – Inconspicuous.
 Texture – Easy to cut – no fibres.
 Surface ornamentation – Rugose, verrucose.

Ectosome – Patchy sand crust, some parts of the subectosome are lacunose.
 Choanosome – Some tracts of oxeas, some single oxeas in haphazard arrangement. Euasters are numerous around canals.
 Megascleres – Oxeas.
 Microscleres – Chiasters.

Figure 16 SG-S112 *Jaspis* sp. 3 (Astrophorida, Ancorinidae)



Depth range = 19 m
 Stations = BC20
 Average biomass = 13.824 g/ha
 Rank biomass = 42
 Average abundance = 0.007/ha
 Rank abundance = 88

Growth form – Spherical, solid.
 Colour – Beige; turns ethanol cloudy and brown.
 Oscules – 5 mm diam.
 Texture – Very firm, barely compressible.

Surface ornamentation – Rugose.

Ectosome – Sand crust over oxeas perpendicular to the surface, euasters are not numerous.

Choanosome – Large oxeas in tracts, euasters are scattered.

Megascleres – Oxeas.

Microscleres – Oxyasters and chiasters.

Figure 17 SG-S019 *Stelletta tuberculata* (Carter, 1886) (Astrophorida, Ancorinidae)



CAAB Taxon Code: 10 009020
 Depth range = 13.5 - 32 m
 Stations = 11B, 12, 21B, CB1, FC2
 Average biomass = 142.787 g/ha
 Rank biomass = 7
 Average abundance = 0.050/ha
 Rank abundance = 22

Growth form – Large, massive, 30 x 12 cm.
 Colour – Reddy grey; turns ethanol cloudy and dark brown.
 Oscules – 1-3 mm diam. in clusters.

Texture – Compressible.

Surface ornamentation – Verrucose.

Ectosome – Sand crust and euaster layer.

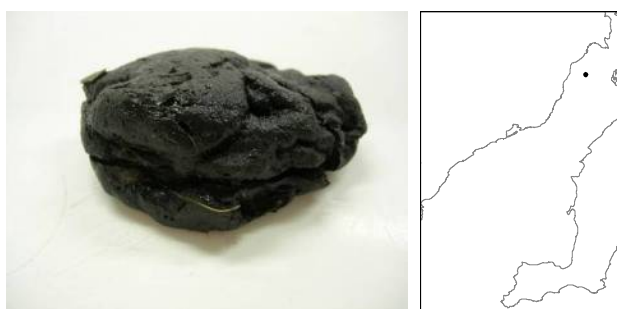
Choanosome – Single and grouped oxeas.

Megascleres – Large oxeas some with stepped ends; thin oxeas.

Microscleres – Euasters.

Remarks – Gravid. Compare Kennedy 2000, p. 467. Other specimens in SAM S900, S1027.

Figure 18 SG-S111 *Stelletta* sp. 2 (Astrophorida, Ancorinidae)



Depth range = 20.5 m
 Stations = 94
 Average biomass = 0.953 g/ha
 Rank biomass = 89
 Average abundance = 0.007/ha
 Rank abundance = 87

Growth form – Small, solid, 6.4 x 4.5 x 2 cm
 Colour – Black; turns ethanol pale copper red.
 Oscules – None seen
 Texture – Firm, compressible, cuts very easily
 Surface ornamentation – Smooth

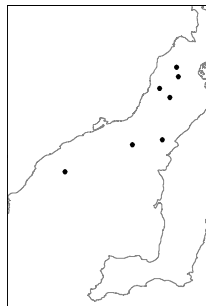
Ectosome – Surface of clad ends of triaenes. Many subdermal spaces.

Choanosome – Oxeas in tracts around large canals. Euasters in tissue, but not concentrated around canals.

Megascleres – Oxeas, plagiotriaenes.

Microscleres – Euasters – 2 categories

Figure 19 SG-S002 Geodiid sp. (Astrophorida, Geodiidae)



Depth range = 14.5 - 25 m
 Stations = 16, 21C, 80, 93, 9B, BC14, DK1
 Average biomass = 71.573 g/ha
 Rank biomass = 15
 Average abundance = 0.048/ha
 Rank abundance = 23
 Growth form – Spherical, solid, 15 cm x 12 cm.
 Colour – Dark grey with lighter beige patches;
 turns ethanol pale yellow.
 Oscules – Large central oscule.

Texture – Hard, incompressible.

Surface ornamentation – Smooth.

Ectosome – Cortex is 4 mm thick. There are many sub-dermal spaces. Large oxeas reach the surface in tracts. Sterrasters and thick tissue make up the surface layer of the cortex.

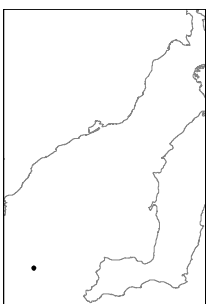
Choanosome – Below the cortex, the tissue is thinner with groups of oxeas and triaenes perpendicular to the surface. The surrounding tissue has scattered euasters particularly around the canals.

Megascleres – Oxeas, triaenes.

Microscleres – Sterrasters, euasters, microrhabds.

ORDER: HADROMERIDA

Figure 20 SG-S057 *Cliona* sp. (Hadromerida, Clionaidae)



Depth range = 44 m
 Stations = BC46
 Average biomass = 17.786 g/ha
 Rank biomass = 35
 Average abundance = 0.045/ha
 Rank abundance = 33
 Growth form – Small solid piece 5 x 4.5 cm.
 Colour – Orange; turns ethanol orange.
 Oscules – Sieve like.
 Texture – Hard, arenaceous, difficult to cut.
 Surface ornamentation – Smooth.

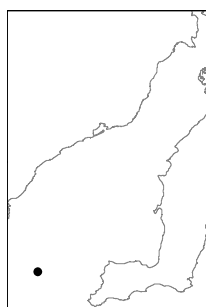
Ectosome – Crisscross palisade of styles.

Choanosome – Sand and styles.

Megascleres – Styles, some subtylote, some sinuous.

Microscleres – None.

Figure 21 SG-S053 *Spheciospongia papillosa* (Ridley & Dendy, 1886) (Hadromerida, Clionaidae)



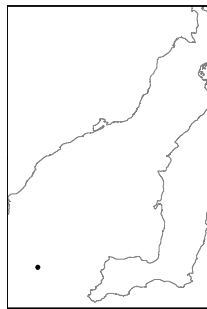
CAAB Taxon Code: 10 026016
 Depth range = 44 m
 Stations = BC46
 Average biomass = 415.754 g/ha
 Rank biomass = 2
 Average abundance = 0.045/ha
 Rank abundance = 33
 Growth form – Massive.
 Colour – Beige/Brown.
 Oscules – Small, pinched together at top of sponge.

Texture – Firm.

Surface ornamentation – Verrucose.

Remarks – Compare Wiedenmayer 1989 p. 35. This known species is easily recognisable, and as such no skeletal/spicule preparations were made of this specimen. This sponge is widespread in the Great Australian Bight (Sorokin et al, 2007).

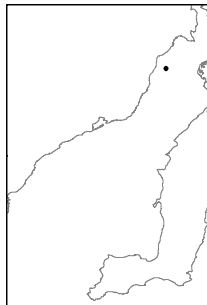
Figure 22 SG-S076 *Spherospongia* sp. 2 (Hadromerida, Clionaidae)



Depth range = 44 m
 Stations = BC46
 Average biomass = 2.312 g/ha
 Rank biomass = 74
 Average abundance = 0.045/ha
 Rank abundance = 33
 Growth form – Solid.
 Colour – Red; turns ethanol yellow.
 Oscules – Inconspicuous.
 Texture – Very firm, incompressible.
 Surface ornamentation – Smooth.

Ectosome – Tylostyles and streptasters densely packed.
 Choanosome – Tylostyles and streptasters less dense than ectosome.
 Megascleres – Tylostyles.
 Microscleres – Streptasters

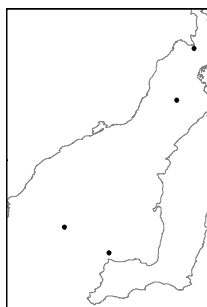
Figure 23 SG-S117 *Tethya ingalli* Bowerbank, 1858 (Hadromerida, Tethyiidae)



CAAB Taxon Code: 10 029007
 Depth range = 23 m
 Stations = 74
 Average biomass = 0.189 g/ha
 Rank biomass = 100
 Average abundance = 0.009/ha
 Rank abundance = 81
 Growth form – Spherical, solid
 Colour – Pale pink; turns ethanol beige.
 Oscules – Inconspicuous
 Texture – Firm

Surface ornamentation – Smooth.
 Ectosome – Cortex is 2.2 mm wide, made up of a surface layer of chiasters above a dense layer of mainly Spherasters in thick tissue, bundles of oxeas pierce through the cortex and sometimes pierce the surface, the bundles only fan out just under the surface (not throughout the cortex).
 Choanosome – Spherasters, oxeas and chiasters continue through the sponge but without the thick tissue seen in the cortex.
 Megascleres – Oxeas.
 Microscleres – Spherasters (2 sizes), chiasters
 Remarks – Compare Sara and Sara 2004, p. 139.

Figure 24 SG-S042a *Caulospongia* sp. nov? (Hadromerida, Suberitidae) - 2 specimens kept



Depth range = 15 - 43 m
 Stations = 44, 58C, BC34, CP7
 Average biomass = 2.073 g/ha
 Rank biomass = 75
 Average abundance = 0.020/ha
 Rank abundance = 48
 Growth form – Bunch of joined convoluted small lobes
 Colour – Ruddy brown; turns ethanol brown.
 Oscules – 1-2 mm diam.
 Texture – Soft, tears easily.

Surface ornamentation – Convoluted lobes, smooth on surface.
 Ectosome – Rounded mesh of tylostyles.
 Choanosome – Primary tracts of tylostyles perpendicular to surface joined by short secondary tracts. Very little tissue in between.
 Megascleres – Tylostyles with flat nail-like heads, straight, curved and some subtylote (220x6 µm, 200x6 µm, 230x7 µm, 180x2 µm). Microscleres – None.
 Remarks – Is not the same in form as *C. venosa* Fromont, 1998 p. 80, which was also collected from the trawl grounds in Spencer Gulf.

Fig. 24 cont.



SG-S042b

Growth form – Flat branching small flattened cavernous lobes, 8 cm high x 13 cm across x 0.4 cm thick.

Colour – Beige; turns ethanol dark yellow.

Oscules – 1-2 mm diam.

Texture – Firm, compressible.

Surface ornamentation – Slightly rough.

Ectosome – Fans of tylostyles.

Choanosome – Primary fibres of tylostyles, joined by thinner secondary fibres with tylostyles.

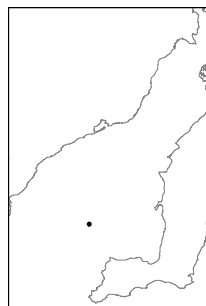
Megascleres – Tylostyles with flat nail-like heads (160x2 µm, 190x3 µm, 190x2 µm) Styles (170x3 µm, 125x5 µm).

Microscleres – None.

Remarks – As above. In this specimen, the fibres are thick and more distinct than in specimen S042. (This specimen was originally designated the code SG-S045.)

ORDER: CHONDROSIA

Figure 25 SG-S093 *Chondrilla* sp. (Chondrosida, Chondrillidae)



Depth range = 34 m

Stations = BC32

Average biomass = 5.527 g/ha

Rank biomass = 53

Average abundance = 0.016/ha

Rank abundance = 65

Growth form – Thick encrusting.

Colour – Dark grey externally, orange internally; turns ethanol orange.

Oscules – Pinprick sized.

Texture – Incompressible.

Surface ornamentation – Smooth.

Ectosome – Dense with spherasters.

Choanosome – Scattered with spherasters, no fibres, smaller spherasters line the canals.

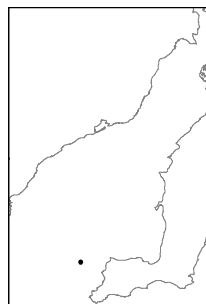
Megascleres – None.

Microscleres – Spherasters in 2 categories.

Remarks – This species is in the SAM collection, collected at 40 m off Cowell, Spencer Gulf (no registration number).

ORDER: POECILOSCLERIDA - MICROCIONINA

Figure 26 SG-S011 *Poeciloscerid* sp. 1



Depth range = 41.5 m

Stations = BC44

Average biomass = 22.801 g/ha

Rank biomass = 29

Average abundance = 0.010/ha

Rank abundance = 79

Growth form – May have been a large fan, but specimen is only a small piece 2.8 cm thick.

Colour – Orange externally, yellow internally (turns ethanol pale yellow).

Oscules – 5-8 mm on edge of 'fan'.

Texture – Firm, compressible.

Surface ornamentation – Thin skin can see sponge network below surface.

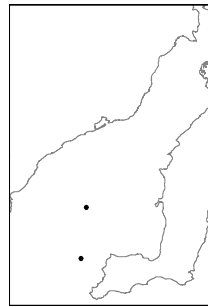
Ectosome – Not specialised – sand filled fibres as in choanosome.

Choanosome – Fibres packed with debris in a reticulate (not rounded) mesh. Sponge is lacunose/porous the fibres weave around the canals in a loose mesh.

Megascleres – Thin strongyles, oxeas. Microscleres – None.

Remarks – It is uncertain whether the few megascleres in this sample are true to the sponge or incidental. The sturdy oxeas suggest haplosclerid, but the sponge's colour and strongyles suggest it may be a myxillid-poecilosclerid.

Figure 27 SG-S013 Poecilosclerid sp. 2



Depth range = 40 - 41.5 m
 Stations = BC44, SG2
 Average biomass = 4.492 g/ha
 Rank biomass = 58
 Average abundance = 0.021/ha
 Rank abundance = 46
 Growth form – Stem-like, maybe just the base of a larger sponge.
 Colour – Beige; turns ethanol pale yellow.
 Oscules – 2-3 mm diam.
 Texture – Very firm.

Surface ornamentation – Fibrous.

Ectosome – Undiscernible in slide, much of the surface is damaged.

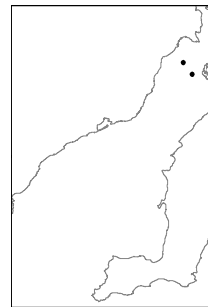
Choanosome – Large laminated fibres packed with debris.

Megascleres – Small strongyles.

Microscleres – C-sigmias (rare).

Remarks – The specimen in the photograph appears to be just a base of a much larger sponge and in addition, it has lost much of its surface layer.

Figure 28 SG-S073 Poecilosclerid sp. 3



Depth range = 12 - 22 m
 Stations = 23, BC1
 Average biomass = 2.823 g/ha
 Rank biomass = 68
 Average abundance = 0.020/ha
 Rank abundance = 50
 Growth form – Open network of anastomosing
 Colour – Beige; turns ethanol pale yellow.
 Oscules – Inconspicuous.
 Texture – Firm, compressible.
 Surface ornamentation – Rough, porous.

Ectosome – Unspecialised.

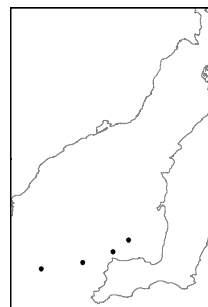
Choanosome – Reticulate fibres (some rounded) – some are clear and some are cored with debris.

Megascleres – None seen.

Microscleres – None seen.

Remarks – Possibly a poecilosclerid (*Echinochalina?*).

Figure 29 SG-S015 *Acarinus* cf. *guentheri* (Dendy, 1896) (Poecilosclerida, Acarnidae)



CAAB Taxon Code: not available
 Depth range = 26 - 44 m
 Stations = BC40, BC44, BC46, CP7
 Average biomass = 17.423 g/ha
 Rank biomass = 36
 Average abundance = 0.062/ha
 Rank abundance = 17
 Growth form – Massive lump.
 Colour – Red sponge material, grey sand (turn ethanol golden).
 Oscules – Occasional, 5-8 mm diam.

Texture – Stony, crunchy, arenaceous.

Surface ornamentation – Uneven honeycomb.

Ectosome – Walls of the honeycomb arrangement invested with sand and megascleres.

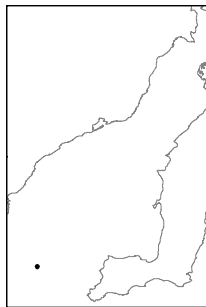
Choanosome – Sand in tracts towards the surface, but otherwise the sand does not appear organised.

Megascleres – Tylostyles; cladotyloles (with moderate spining, 90x3 µm).

Microscleres – Toxas; (chelae not seen).

Remarks – Hooper (2002, p.415) notes that *Microtylotella guentheri* Dendy 1896 (collections from Port Phillip Bay) has reduced speculation and has 'ectosomal and choanosomal skeletal tracts permeated with sand and with a reduced spicule skeleton'. Other specimen of *A.* cf. *guentheri* in SAM collection = S886.

Figure 30 SG-S070 *Microcionid. sp. 1* (Poecilosclerida, Microcionidae)



Depth range = 44 m
 Stations = BC46
 Average biomass = 8.271 g/ha
 Rank biomass = 49
 Average abundance = 0.045/ha
 Rank abundance = 33
 Growth form – Irregular, lamellate.
 Colour – Brown; turns ethanol red.
 Oscules – Channels leading to oscules, 2 mm diam.
 Texture – Firm, compressible.

Surface ornamentation – Porous.

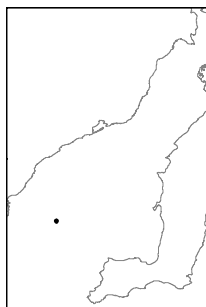
Ectosome – Bunches of styles emerge from thick fibres, that are perpendicular and tangential to the surface – the reticulation continues at the surface.

Choanosome – Reticulate mesh of thick (knotty) fibres cored with styles, sparsely echinated by acanthostyles.

Megascleres – Styles, some sinuous; acanthostyles; tornotes.

Microscleres – None.

Figure 31 SG-S100 *Clathria sp. 1* (Poecilosclerida, Microcionidae)



Depth range = 32 m
 Stations = BC31
 Average biomass = 0.722 g/ha
 Rank biomass = 91
 Average abundance = 0.006/ha
 Rank abundance = 91
 Growth form – Small, bushy.
 Colour – Beige; turns ethanol beige.
 Oscules – Surface details obscured by heavy zoanthid encrustation.
 Texture – Firm.

Surface ornamentation – Heavily encrusted by white zoanthid.

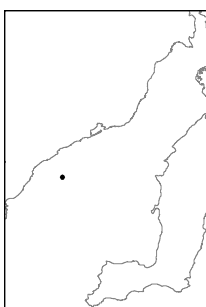
Ectosome – Masked by sand from zoanthid.

Choanosome – Dense, reticulate to rounded thick fibres, sparsely cored by styles, moderately echinated by acanthostyles.

Megascleres – Subtylostyles (310 x 2 µm), acanthostyles (40 x 3 µm), Styles (130 x 3 µm, 340 x 3 µm).

Microscleres – Wing-shaped toxas (6 µm).

Figure 32 SG-S115 *Clathria sp. 2* (Poecilosclerida, Microcionidae)



Depth range = 23 m
 Stations = BC14
 Average biomass = 10.527 g/ha
 Rank biomass = 95
 Average abundance = 0.003/ha
 Rank abundance = 101
 Growth form – Uneven lobes arising from wide base.
 Colour – Red (paler surface layer): turns ethanol pale yellow.
 Oscules – 0.5 mm diam.

Texture – Compressible.

Surface ornamentation – There is a surface ‘skin’, through which the porous appearance of the sponge is visible underneath.

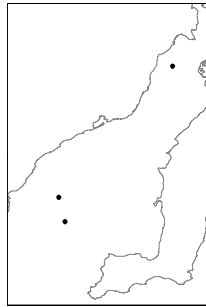
Ectosome – Palisade or paratangential layer of subtylostyles.

Choanosome – Thick fibres echinated by acanthostyles. Fibres appear to be fasciculated in some areas.

Megascleres – Mycalostyles (210 x 6 µm); acanthostyles.

Microscleres – Palmate isochelae, toxas.

Figure 33 SG-S084 *Clathria (Clathria) cf rubens* (Poecilosclerida, Microcionidae)



CAAB Taxon Code 10 066044
 Depth range = 20.5 - 43 m
 Stations = 94, BC25, BC34
 Average biomass = 16.353 g/ha
 Rank biomass = 37
 Average abundance = 0.019/ha
 Rank abundance = 52
 Growth form – Arborescent, 30 cm high.
 Colour – Reddish brown; turns ethanol orange.
 Oscules – 0.5-1 mm diam. In small groupings,

almost stellate.

Texture – Soft to firm, easily compressible.

Surface ornamentation – Small depressions, (lines near oscules).

Ectosome – Plumose bundles of styles, some styles paratangential to surface.

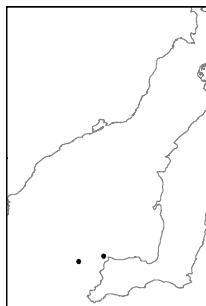
Choanosome – Neat reticulate network of fibres that are sparsely echinated by small acanthostyles. Echinations are heavier in the sub-ectosome. Primary fibres are paucispicular, secondary lines are unispicular.

Megascleres – Styles (135 x 5, 150 x 1 µm); acanthooxea (55 x 4 µm); acanthostyles (45 x 5); oxeas (170 x 5 µm).

Microscleres – Palmate isochelae (rare, small 7µm), toxas (135 µm).

Remarks – Compare Hooper, 1996 p. 151.

Figure 34 SG-S047 *Clathria (Isociella) cf. macropora* Lendenfeld, 1886 (Poecilosclerida, Microcionidae)



CAAB Taxon Code: 10 066058
 Depth range = 41 - 41.5 m
 Stations = BC42, BC44
 Average biomass = 1.691 g/ha
 Rank biomass = 79
 Average abundance = 0.012/ha
 Rank abundance = 72
 Growth form – Connected crinkled blades, blades are 2 mm wide.
 Colour – Orange; turns ethanol dark yellow
 Oscules – 1 mm diam.

Texture – Soft, compressible.

Surface ornamentation – Porous.

Ectosome – Spicules tangential to surface except where emerging in bunches from fibres.

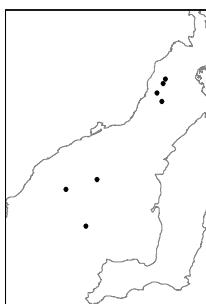
Choanosome – Reticulate mesh of fibres cored by styles, not echinated.

Megascleres – Styles (215 x 4 µm); oxeas.

Microscleres – Tiny palmate isochelae (8 µm).

Remarks – Compare Hooper 1996 p.271.

Figure 35 SG-S071 *Clathria (Microciona) sp.* (Poecilosclerida, Microcionidae)



Depth range = 14.5 - 34 m
 Stations = 1B, 30, 32, 5, BC21, BC32, DK1
 Average biomass = 15.595 g/ha
 Rank biomass = 38
 Average abundance = 0.058/ha
 Rank abundance = 19
 Growth form – Irregular, lobate.
 Colour – Orange externally, beige internally; turns ethanol yellow.
 Oscules – Occasional, 1-3 mm diam.
 Texture – Compressible.

Surface ornamentation – Has a skin that is peeling off the sponge.

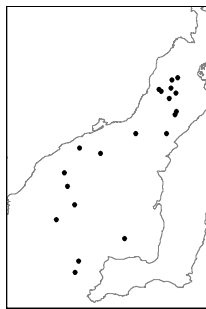
Ectosome – Tangential layer of styles.

Choanosome – Plumose tracts of thin fibres cored with styles, fibres are sparsely echinated by acanthostyles.

Megascleres – Styles (220 x 3 µm), acanthostyles - sparse spining (100 x 5 µm), subtylostyles (210 x 3 µm).

Microscleres – Chelae (3 µm).

Figure 36 SG-S001 *Clathria (Wilsonella)* sp. 1 (Poecilosclerida (Microcinina), Microcionidae)



Depth range = 13 - 44.5 m
 Stations = 12, 13C, 21C, 4, 72, 80, BC14, BC21, BC27, BC3, BC31, BC4, BC40, BC44, BC47, BC6, DK1, X3, Z1/5, Z3/11
 Average biomass = 124.382 g/ha
 Rank biomass = 9
 Average abundance = 0.136/ha
 Rank abundance = 4
 Growth form – Arbourescent, densely layered flat branches that spread out from a smaller base, but not a stalk.

Colour – Red; turns ethanol pale brown.

Oscules – Slightly raised, 2 mm diam.

Texture – Firm.

Surface ornamentation – None, porous.

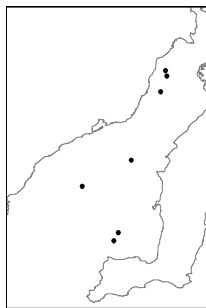
Ectosome – Thick fibres; chelae are numerous at the subectosomal level. Bouquets of spicules overlain by a tangential layer of single spicules at surface.

Choanosome – Thick fibres, some with detritus.

Megascleres – Styles; acanthostyles.

Microscleres – Palmate isochelae.

Figure 37 SG-S022 *Clathria (Wilsonella)* sp. 2 (Poecilosclerida, Microcionidae)



Depth range = 16.5 - 37 m
 Stations = 11B, 30, 74, BC10, CP12, CP3, X3
 Average biomass = 22.861 g/ha
 Rank biomass = 28
 Average abundance = 0.043/ha
 Rank abundance = 42
 Growth form – Arbourescent, blunt thick branches.
 Colour – Beige; turns ethanol pale yellow.
 Oscules – 1-2 mm diam.
 Texture – Firm, compressible.

Surface ornamentation – None, smooth.

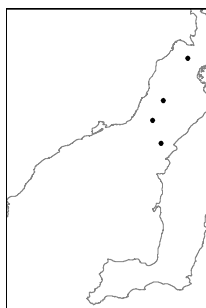
Ectosome – Sand layer pierced by bunches of subtylostyles, some styles tangential to sand layer.

Choanosome – Fibres cored with sand and spicules.

Megascleres – Acanthostyles, subtylostyles.

Microscleres – Palmate isochelae.

Figure 38 SG-S032 *Clathria (Wilsonella)* sp. 3 (Poecilosclerida, Microcionidae)



Depth range = 17 - 26 m
 Stations = 16, 36, 5, 78
 Average biomass = 3.695 g/ha
 Rank biomass = 63
 Average abundance = 0.023/ha
 Rank abundance = 45
 Growth form – Thick, lamellar, uneven (20 x 10 cm piece).
 Colour – Deep red; turns ethanol yellow.
 Oscules – Slightly raised 2-3 mm diam.
 Texture – Soft to firm, cake-like consistency.

Surface ornamentation – None, porous.

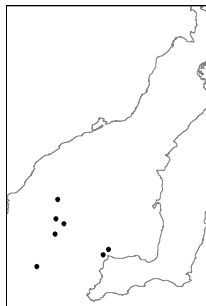
Ectosome – Tangential loose spicules on surface.

Choanosome – Reticulate fibres cored with sand, difficult to see the spicules, sparsely echinated with acanthostyles.

Megascleres – Subtylostyles, acanthostyles.

Microscleres – Palmate isochelae, oxborn toxas (with deep bend).

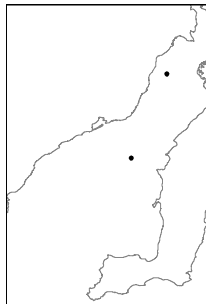
Figure 39 SG-S048 *Clathria (Wilsonella)* sp 4 (Poecilosclerida, Microcionidae)



Depth range = 28 - 44 m
 Stations = BC25, BC31, BC34, BC38, BC42, BC46, CP7
 Average biomass = 39.004 g/ha
 Rank biomass = 21
 Average abundance = 0.070/ha
 Rank abundance = 15
 Growth form – Flat wide (lamellate) complanar branches.
 Colour – Red; turns ethanol orange.

Oscules – Small, 0.5 mm diam.
 Texture – Firm, compressible.
 Surface ornamentation – None, smooth.
 Ectosome – Tangential layer of styles and Subtylostyles. and sand/foreign spicules. Many sub-dermal spaces.
 Choanosome – Fibres cored by styles and subtylostyles, echinated by acanthostyles. In some fibres debris replaces megascleres.
 Megascleres – Styles, Subtylostyles, acanthostyles (head is spined, but shaft is sparsely spined or not spined).
 Microscleres – Palmate isochelae, and arcuate chelae.
 Remarks – This specimen is gravid (orange eggs).

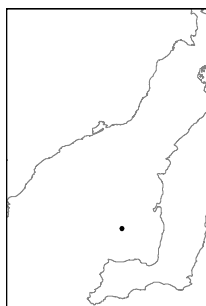
Figure 40 SG-S041 *Echinoclathria cf. chalinoides* (Carter, 1885) (Poecilosclerida, Microcionidae)



CAAB Taxon Code: 10 066126
 Depth range = 19.3 - 21.5 m
 Stations = 30, BC10
 Average biomass = 5.359 g/ha
 Rank biomass = 54
 Average abundance = 0.014/ha
 Rank abundance = 70
 Growth form – Arborescent, many branches close together, arising from one stem.
 Colour – Red (turns ethanol bronze-red).
 Oscules – 1 – 1.5 mm diam.

Texture – Firm.
 Surface ornamentation – Rugose.
 Ectosome – Tangential layer of auxiliary styles over laying the ends of fibres from which styles emerge beyond the surface.
 Choanosome – Evenly reticulate fibres cored with styles. No echinating spicules.
 Megascleres – Styles. Microscleres – None.
 Remarks – Compare Hooper, 1996, p. 446.

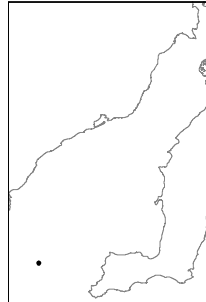
Figure 41 SG-S072 *Echinoclathria leporina* (Lamarck, 1814) (Poecilosclerida, Microcionidae)



CAAB Taxon Code: 10 066131
 Depth range = 33 m
 Stations = CP1
 Average biomass = 0.174 g/ha
 Rank biomass = 101
 Average abundance = 0.003/ha
 Rank abundance = 103
 Growth form – Stalked, complanate foliaceous branches.
 Colour – Red; turns ethanol bright orange.
 Oscules – Rare, 0.5 mm diam.

Texture – Soft, compressible.
 Surface ornamentation – Smooth.
 Ectosome – Surface pierced by single or 2 or 3 spicules emerging from fibres.
 Choanosome – Mesh of thin reticulate fibres cored by styles, secondary fibres only one spicule long.
 Megascleres – Styles; subtylostyles. Microscleres – None seen.
 Remarks – Compare Hooper, 1996 p. 463. Other sample in SAM = S908.

Figure 42 SG-S069 *Echinoclathria* sp. (Poecilosclerida, Microcionidae)



Depth range = 44 - 44 m
 Stations = BC46
 Average biomass = 0.889 g/ha
 Rank biomass = 90
 Average abundance = 0.045/ha
 Rank abundance = 33
 Growth form – Small piece of lamellar sponge 8 x 8 cm.
 Colour – Red; turns ethanol orange.
 Oscules – Small 0.5 mm diam.

Texture – Firm.

Surface ornamentation – Ridged veins.

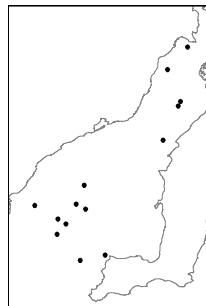
Ectosome – Larger styles emerging from ends of fibres in bunches (raspailiid-like).

Choanosome – Principal styles coring reticulate fibres, echinated by smooth smaller styles.

Megascleres – Styles (200 x 10 µm, 160 x 4 µm, 75 x 3 µm) oxeas (175 x 10 µm).

Microscleres – Toxas (130 µm, 140 µm), palmate isochelae (15 µm).

Figure 43 SG-S009 *Holopsamma laminaefavosa* Carter, 1885 (Poecilosclerida, Microcionidae)



CAAB Taxon Code: 10 066142
 Depth range = 13 - 43 m
 Stations = 11B, 16, 59B, 74, BC2, BC27, BC30, BC31, BC34, BC38, BC42, BC44, FC2, SG2
 Average biomass = 49.273 g/ha
 Rank biomass = 20
 Average abundance = 0.125/ha
 Rank abundance = 6
 Growth form – Honeycomb.
 Colour – Dark grey (turns ethanol pale yellow).
 Oscules – Inconspicuous.

Texture – Crunchy, hard.

Surface ornamentation – Honeycomb.

Ectosome – Sand under a thin tissue layer.

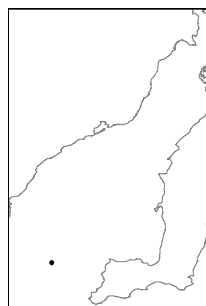
Choanosome – Sand tracts.

Megascleres – Subtylostyles.

Microscleres – None.

Remarks – Compare Hooper, 1996 p. 496. Other specimens in the SAM collection = S826 from the Great Australian Bight, there are also others in the Museum that may be *H. laminaefavosa* (as *Echinoclathria* sp.), from West Beach and Noarlunga).

Figure 44 SG-S037 *Holopsamma* sp 2 (Poecilosclerida, Microcionidae)



Depth range = 54.5 m
 Stations = BC43
 Average biomass = 0.095 g/ha
 Rank biomass = 103
 Average abundance = 0.003/ha
 Rank abundance = 105
 Growth form – Honeycomb lobes.
 Colour – Cream.
 Oscules – Inconspicuous.
 Texture – Soft.
 Surface ornamentation – Honeycomb.

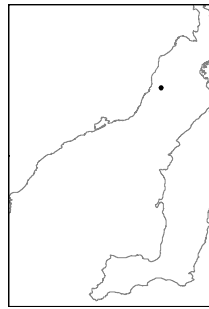
Ectosome – Thin tissue layer over sand.

Choanosome – Large thin fibres cored with debris sand, some fibres are clear - not cored with debris.

Megascleres – None.

Microscleres – None.

Figure 45 SG-S090 *Microcionid. sp. 2* (Poecilosclerida, Microcionidae)



Depth range = 14.5 m
 Stations = DK1
 Average biomass = 0.029 g/ha
 Rank biomass = 106
 Average abundance = 0.006/ha
 Rank abundance = 97
 Growth form – Fern like, very delicate, exquisite.
 Colour – Beige; turns ethanol pale yellow.
 Oscules – Inconspicuous.
 Texture – Thin, firm.
 Surface ornamentation – Lace with conules, lace-

like tracts of sand in middle of the branches.

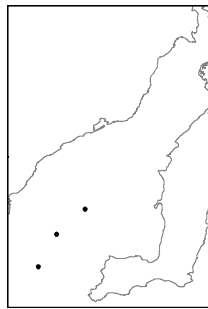
Ectosome – Some spicule bouquets at tips of branches.

Choanosome – Fibres (200 wide) are cored with sand grains and styles.

Megascleres – Styles (70x2 µm); subtylotes with strongylote ends (120x2 µm).

Microscleres – Chelae (only one seen 20 µm); palmate isochelae (several seen, 12 µm).

Figure 46 SG-S052 *Echinodictyum mesenterinum* (Lamarck, 1814) (Poecilosclerida, Raspailiidae)



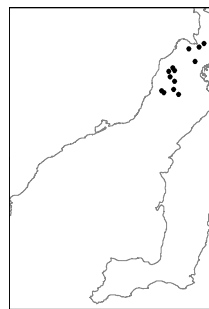
CAAB Taxon Code: 10 067020
 Depth range = 40 - 44 m
 Stations = BC38, BC46, SG2
 Average biomass = 14.376 g/ha
 Rank biomass = 2
 Average abundance = 0.058/ha
 Rank abundance = 33
 Growth form – Bilamellar on stalk, 40 x 20 cm.
 Colour – Brown; turns ethanol dark golden brown.
 Oscules – On inward facing side of fan, 0.6 mm diam.

Texture – Firm, compressible.

Surface ornamentation – Ridges on porous side, smooth on oscular side.

Remarks – This known species is easily recognisable, and as such no skeletal/spicule preparations were made of this specimen. Other specimens in SAM = S875 from the Great Australian Bight. Compare Hooper, 1991 p. 1382.

Figure 47 SG-S020 *Echinodictyum sp. 2* (Poecilosclerida, Raspailiidae)



Depth range = 13.5 - 23 m
 Stations = 12, 13C, 26, 30, 47B, 50B, 57, 72, 74, 94, DK1, FC2, X3
 Average biomass = 66.313 g/ha
 Rank biomass = 16
 Average abundance = 0.116/ha
 Rank abundance = 9

Growth form – Arborescent, branches are kinked and anastomose.

Colour – Beige; turns ethanol pale brown.

Oscules – Inconspicuous.

Texture – Firm, compressible.

Surface ornamentation – None, porous.

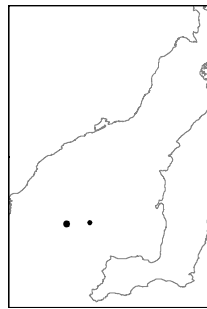
Ectosome – Unspecialised.

Choanosome – Near circular meshes of fibres packed with oxeas and echinated by acanthostyles.

Megascleres – Oxeas, acanthostyles.

Microscleres – None.

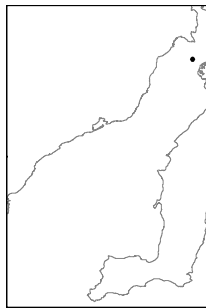
Figure 48 SG-S088 *Echinodictyum* sp. 3 (Poecilosclerida, Raspailiidae)



Depth range = 34 - 43 m
 Stations = BC32, BC34
 Average biomass = 52.303 g/ha
 Rank biomass = 18
 Average abundance = 0.018/ha
 Rank abundance = 56
 Growth form – Complanate, branched, with kinked branches.
 Colour – Beige; turns ethanol pale yellow.
 Oscules – Inconspicuous.

Texture – Branches are soft, but stems are firm.
 Surface ornamentation – Porous.
 Ectosome – Unspecialised.
 Choanosome – Very thick fibres cored with oxeas and sparsely echinated by acanthostyles.
 Megascleres – Oxeas, acanthostyles.
 Microscleres – None.

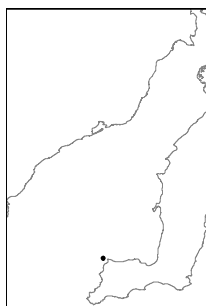
Figure 49 SG-S096 *Echinodictyum* sp. 4 (Poecilosclerida, Raspailiidae)



Depth range = 13.5 m
 Stations = 47B
 Average biomass = 1.963 g/ha
 Rank biomass = 77
 Average abundance = 0.016/ha
 Rank abundance = 61
 Growth form – Flat lamellate branches/lobes arising from a short stalk, sponge is 16 cm high.
 Colour – Beige.
 Oscules – Shallow, 2 mm diam.
 Texture – Firm, compressible

Surface ornamentation – Porous.
 Ectosome – Unspecialised.
 Choanosome – Thick fibres, cored by oxeas and echinated by acanthostyles.
 Megascleres – Oxeas (thick with stepped ends (180x9 µm) (bent 150x4 µm) (straight 165x3 µm); acanthostyles (80x6 µm).
 Microscleres – None.

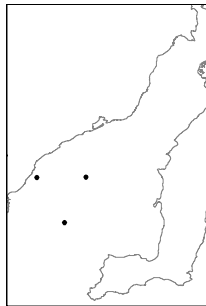
Figure 50 SG-S051 *Raspailia (Clathriodendron) cf. cacticutis* (Carter) (Poecilosclerida, Raspailiidae)



CAAB Taxon Code: not available
 Depth range = 41 m
 Stations = BC42
 Average biomass = 0.010 g/ha
 Rank biomass = 108
 Average abundance = 0.002/ha
 Rank abundance = 108
 Growth form – Small fan with veins.
 Colour – Beige.
 Oscules – 0.5 mm diam.
 Texture – Easily compressible.

Surface ornamentation – Conulose at tips of branches, ribbed, veins.
 Ectosome – Fibres parallel to surface have echinations on the surface side of the fibre. Where some fibre tips meet the surface large styles emerge.
 Choanosome – Most fibres look uncored, but where the fibres are cored the compliment is paucispicular and the spicules are large and barely fit into the fibre.
 Megascleres – Heavily spined (hooks) acanthostyles (75 µm); styles (510x9 µm); long thin tylostyles.
 Microscleres – None.
 Remarks – Compare Hooper 1991 p.1230.

Figure 51 SG-S086 *Ceratopsion* sp. (Poecilosclerida, Raspailiidae)



Depth range = 23 - 43 m
 Stations = BC19, BC34, WG1
 Average biomass = 1.688 g/ha
 Rank biomass = 80
 Average abundance = 0.018/ha
 Rank abundance = 56
 Growth form – Arbourescent, with sparse branching; 27 cm high, 9cm across branches, branches are 0.6 cm thick.
 Colour – Red, with white encrusting zoanthsids;

turns ethanol red.

Oscules – 0.8 mm diam.

Texture – Easily compressible (but not soft).

Surface ornamentation – Slightly rugose, there are lines of encrusting zoantheid along all branches

Ectosome – Bunches of styles emergent from ends of fibres.

Choanosome – Reticulate fibres, sparsely cored by styles.

Megascleres – Tylotes (rare, may be incidental 295x5 µm); various styles (325x10 µm, 125x1 µm, 155x4 µm, 105x5 µm); Oxeas (310x10 µm). Note larger spicules are possibly the content of the debris from the zoanthsids as these are not found in the skeletal section. Microscleres – None.

ORDER: POECILOSCLERIDA - MYXILLINA

Figure 52 SG-S065 *Desmacidon* sp? (Poecilosclerida, Desmacidonidae)



Depth range = 44 m
 Stations = BC46
 Average biomass = 181.687 g/ha
 Rank biomass = 6
 Average abundance = 0.045/ha
 Rank abundance = 33
 Growth form – Large irregular mass.
 Colour – Cream/beige; turns ethanol orange.
 Oscules – 3 mm diam.
 Texture – Very soft, spongy.
 Surface ornamentation – Porous, surface skin

falls away in ethanol.

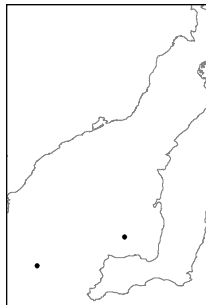
Ectosome – Not specialised.

Choanosome –Tracts of compact tornotes making reticulate mesh.

Megascleres – Tornotes (220x4 µm); acanthoxea spined each end (one only).

Microscleres – Occasional chelae or reduced chelae (looks a bit like a c-sigma).

Figure 53 SG-S017 Myxillinid. sp. (Poecilosclerida)



Depth range = 26 - 44 m
 Stations = BC40, BC46
 Average biomass = 21.676 g/ha
 Rank biomass = 31
 Average abundance = 0.047/ha
 Rank abundance = 24
 Growth form – Amorphous lump of sand/sponge 8 x7 x 4 cm.
 Colour – Orange (sponge material) grey (sand); turns ethanol pale yellow/brown.
 Oscules – 2-3 mm diam.

Texture – Firm, slightly compressible, friable.

Surface ornamentation – Sand interspersed by sponge material seen as a smooth ‘skin’.

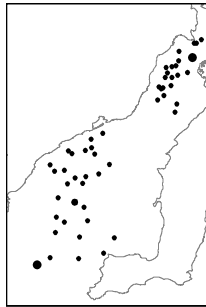
Ectosome – Tangential layer of spicules over sand.

Choanosome – Trichodragma-like bundles, and tracts of Subtylostyles (parallel to surface), tracts of sand perpendicular to surface.

Megascleres – Subtylostyles (230x1 µm). Microscleres – Chelae? (40 µm).

Remarks – Amphipod habitat.

Figure 54 SG-S004a *Chondropsis* sp. BPZ 2 (Poecilosclerida, Chondropsidae) – 2 specimens kept



Depth range = 12 - 54.5 m
 Stations = 11B, 12, 1B, 21C, 23, 30, 32, 44, 47B, 5, 50B, 57, 69, 72, 74, 8, 93, 94, BC1, BC11, BC14, BC15, BC18, BC2, BC20, BC21, BC25, BC27, BC31, BC32, BC34, BC38, BC39, BC4, BC42, BC43, BC44, BC46, C7, CB1, CP12, DK1, SG2, WG1, X3, Z1/1, Z1/3, Z1/7, Z2/10, Z2/11, Z3/10
 Average biomass = 673.514 g/ha
 Rank biomass = 1
 Average abundance = 0.530/ha

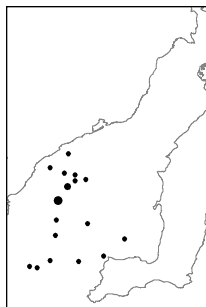
Rank abundance = 1
 Growth form – Arborescent lobes.
 Colour – Grey/cream; turns ethanol pale brown.
 Oscules – 5-10 mm diam. on top of lobes.
 Texture – Soft, distinctive networking pattern seen when cut.
 Surface ornamentation – Smooth. Thin ‘skin’ the choanosome network can be seen under the ectosome.
 Ectosome – Dense sand layer, below which are canals. Strongyles are interspersed – many perpendicular to, and piercing, the surface.
 Choanosome – Thick tracts of sand and debris and spicules.
 Megascleres – Strongyles (130x1 µm).
 Microscleres – C, S & J-sigmas (no chelae).
 Remarks – Other specimen in SAM = S835 from the Great Australian Bight.



SG-S004b
 Growth form – Arenaceous lump.
 Colour – Salmon pink sponge tissue, otherwise grey. sand; turns ethanol golden brown.
 Oscules – Pinpricks, one per small crater.
 Texture – Hard, friable.
 Surface ornamentation – Porous.
 Ectosome – Distinct crust of sand, occasional strongyles perpendicular to, and piercing the surface.
 Choanosome – Wide tracts of sand.

Megascleres – Strongyles.
 Microscleres – C, S & J-sigmas (no chelae).
 Remarks – (This specimen was originally assigned the code SG-S103.)

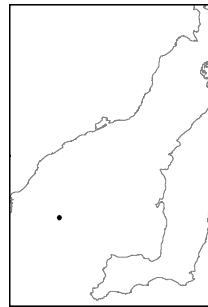
Figure 55 SG-S007 *Chondropsis* sp. 2 (Poecilosclerida, Chondropsidae)



Depth range = 19 - 54.5 m
 Stations = BC14, BC16, BC18, BC20, BC21, BC25, BC31, BC32, BC38, BC40, BC42, BC43, BC44, BC45, BC46, WG1, Z1/7
 Average biomass = 327.017 g/ha
 Rank biomass = 3
 Average abundance = 0.172/ha
 Rank abundance = 2
 Growth form – Solid lump.
 Colour – Brown; turns ethanol pale brown.
 Oscules – 2-5 mm diam.

Texture – incompressible, but friable when crushed due to arenaceous nature.
 Surface ornamentation – Sand grains closely bound together.
 Ectosome – Sand bound by tissue; sigmas and chelae in tissue.
 Choanosome – Sand and strongyles in loose tracts.
 Megascleres – Strongyles (140x1 µm).
 Microscleres – Chelae (15 µm), s-sigmas (30 µm).

Figure 56 SG-S102 *Chondropsis* sp. 3 (Poecilosclerida, Chondropsidae)



Depth range = 32 m
 Stations = BC31
 Average biomass = 0.631 g/ha
 Rank biomass = 92
 Average abundance = 0.006/ha
 Rank abundance = 91
 Growth form – Irregular – massive, solid, with lobes.
 Colour – Beige; turns ethanol cloudy and golden brown.
 Oscules – Shallow, 1 mm diam.

Texture – Very firm, barely compressible.

Surface ornamentation – Skin over arenaceous endosome.

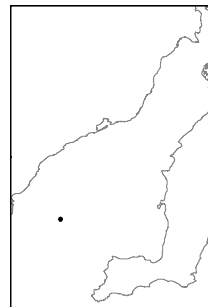
Ectosome – Distinct crust of sand.

Choanosome – Narrow wispy tracts strongyles and wide tracts of sand, otherwise sand and foreign and true spicules scattered in tissue.

Megascleres – Strongyles (200x1 µm).

Microscleres – Sigmas (30 µm, 35 µm), Chelae (15 µm, 16 µm).

Figure 57 SG-S101 *Chondropsis* sp? (4)



Depth range = 32 m
 Stations = BC31
 Average biomass = 1.301 g/ha
 Rank biomass = 86
 Average abundance = 0.006/ha
 Rank abundance = 91
 Growth form – Irregular – massive, solid with lobes.
 Colour – Beige; turns ethanol golden brown.
 Oscules – Shallow, 1 mm diam.

Texture – Firm, compressible.

Surface ornamentation – Thin 'skin'.

Ectosome – Crust of debris.

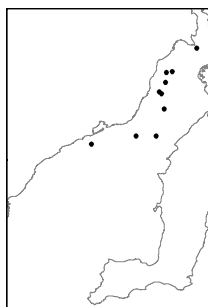
Choanosome – No fibres.

Megascleres – Strongyles?

Microscleres – None.

Remarks – Gravid.

Figure 58 SG-S027a *Crella* (*Pytheas*) sp. (Poecilosclerida, Crellidae) – 2 specimens kept



Depth range = 14.5 - 25 m
 Stations = 2, 32, 57, 74, 94, BC6, DK1, N23, X3, Z1/3
 Average biomass = 18.905 g/ha
 Rank biomass = 34
 Average abundance = 0.073/ha
 Rank abundance = 14
 Growth form – Blunt branches arising from semi-lamellate form, no stalk obvious.
 Colour – Beige; turns ethanol yellow.
 Oscules – Rare, 0.5 mm diam.

Texture – Easily compressible.

Surface ornamentation – None, smooth.

Ectosome – Acanthostyles form a tangential surface layer over bundles of tornotes.

Choanosome – Fibres echinated by acanthostyles.

Megascleres – Tornotes; acanthostyles.

Microscleres – Arcuate chelae.

Fig. 58 cont.



SG-S027b

Growth form – Arbourescent, blunt anastomosing flattened branches.

Colour – Orange; turns ethanol beige.

Oscules – Rare, 2 mm diam.

Texture – Firm, compressible.

Surface ornamentation – None, porous ('skin' has been eroded off in some places).

Ectosome – Acanthostyles form a tangential surface layer over bundles of tornotes. Some fibres are parallel to the surface.

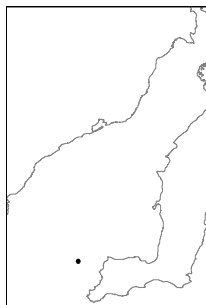
Choanosome – Reticulate mesh of fibres that are cored by tornotes and echinated by acanthostyles.

Megascleres – Acanthostyles, Styles oxeas.

Microscleres – Palmate isochelae.

Remarks – (This specimen was originally assigned the code SG-S036.)

Figure 59 SG-S083 *Hemitodania anonyma* (Carter, 1886) (Poecilosclerida, Tedaniidae)



CAAB Taxon Code: 10 079001

Depth range = 41.5 m

Stations = BC44

Average biomass = 4.394 g/ha

Rank biomass = 60

Average abundance = 0.010/ha

Rank abundance = 79

Growth form – Massive.

Colour – Beige with red tinges; turns dark ruddy brown in ethanol.

Oscules – Occasional, 1-2 mm.

Texture – Firm, compressible.

Surface ornamentation – Slightly rugose.

Ectosome – Bouquets of oxeas.

Choanosome – Oxeas in tracts and thick fibres.

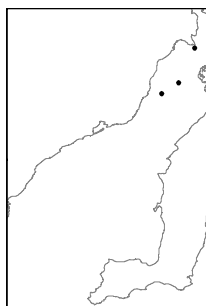
Megascleres – Oxeas (200x6 µm, 280x5 µm).

Microscleres – Onychaetes (160 µm, 140 µm, 35 µm).

Remarks – Compare Van Soest 2002, p. 626. Other sample of *H. anonyma* in SAM is S830

ORDER: POECILOSCLERIDA - MYCALINA

Figure 60 SG-S021 *Biemna* sp? (Poecilosclerida, Desmacellidae)



Depth range = 14 - 16.5 m

Stations = 20B, 44, X3

Average biomass = 3.977 g/ha

Rank biomass = 63

Average abundance = 0.018/ha

Rank abundance = 54

Growth form – Large branching lobes 30 x 20 cm.

Colour – Beige; turns ethanol brown.

Oscules – 2 mm diam.

Texture – Very compressible, spongy.

Surface ornamentation – Furry, porous.

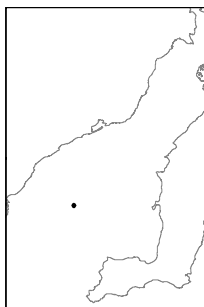
Ectosome – Undefined, surface furry due to large fibres at surface.

Choanosome – Thick fibres sparsely cored with oxeas.

Megascleres – Oxeas (170x4 µm); Styles.

Microscleres – C-sigmas (30 µm, 45 µm).

Figure 61 SG-S114 *Mycale* (*Arenochalina*) sp. (Poecilosclerida, Mycalidae)



Depth range = 23 m
 Stations = BC14
 Average biomass = 0.321 g/ha
 Rank biomass = 314
 Average abundance = 0.003/ha
 Rank abundance = 323
 Growth form – Joined hollow tubes, 18 cm high, 12 cm across.
 Colour – Beige; turns ethanol pale yellow.
 Oscules – At end of open tubes.

Texture – Very soft.
 Surface ornamentation – Sponge has fallen apart in preservation, leaving golden fibres.
 Ectosome – Unspecialised.
 Choanosome – Thick fibres cored with styles.
 Megascleres – Mycalostyles.
 Microscleres – None.

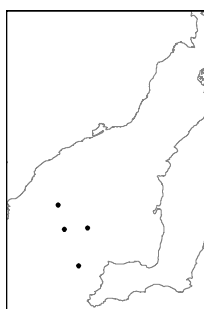
Figure 62 SG-S067 *Mycale* sp. 1 (Poecilosclerida, Mycalidae)



Depth range = 44 m
 Stations = BC46
 Average biomass = 4.536 g/ha
 Rank biomass = 57
 Average abundance = 0.045/ha
 Rank abundance = 33
 Growth form – Pedunculate lobe.
 Colour – Walnut brown; turns ethanol golden brown
 Oscules – 1.5 – 2 mm diam.
 Texture – Soft, open, compressible.

Surface ornamentation – Smooth.
 Ectosome – Bouquets of styles.
 Choanosome – Styles in plumo-reticulate tracts.
 Megascleres – Mycalostyles in 2 size categories.
 Microscleres – C-sigmas, aniso-chelae (30 µm).

Figure 63 SG-S080 *Mycale* sp. 2 (Poecilosclerida, Mycalidae)

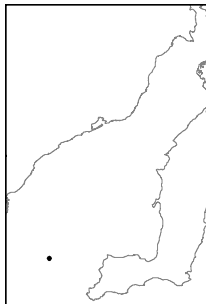


Depth range = 28 - 43 m
 Stations = BC25, BC32, BC34, BC44
 Average biomass = 23.558 g/ha
 Rank biomass = 27
 Average abundance = 0.036/ha
 Rank abundance = 43
 Growth form – Arborescent, complanate flat branches.
 Colour – Beige with red tinge; turns ethanol pale yellow.
 Oscules – Hard to see as sponge surface skin is

split.
 Texture – Very soft, squashes easily, springy.
 Surface ornamentation – Surface layer splits.
 Ectosome – Surface bouquets of mycalostyles.
 Choanosome – Mycalostyles in fibres. Fibres include debris.
 Megascleres – Mycalostyles (175x4 µm, 130x4 µm, 200x4 µm).
 Microscleres – Large anisochelae (25 µm), c-sigmas (50 µm).

ORDER: HALICHONDRIDA

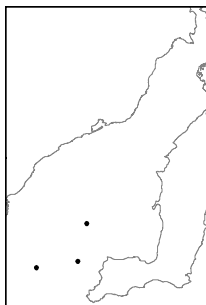
Figure 64 SG-S038 *Cymbastela* sp. (Halicondrida, Axinellidae)



Depth range = 54.5 m
 Stations = BC43
 Average biomass = 0.018 g/ha
 Rank biomass = 107
 Average abundance = 0.003/ha
 Rank abundance = 105
 Growth form – Small stalked lobe, 6.5 cm high, lobe is 2.5 cm wide, stalk is 4 mm diam.
 Colour – Brown; turns ethanol rusty brown.
 Oscules – Small, 0.5 mm diam.
 Texture – Firm.

Surface ornamentation – None, smooth.
 Ectosome – Plumose bundles/bouquets of oxeas.
 Choanosome – Isodictyal arrangement of oxeas.
 Megascleres – Bent oxeas (170x8 µm, 110x3 µm)
 Microscleres – None.

Figure 65 SG-S012a *Reniochalina* sp. 1 (Halicondrida, Axinellidae) – 3 specimens kept



Depth range = 34 - 44 m
 Stations = BC32, BC44, BC46
 Average biomass = 52.433 g/ha
 Rank biomass = 17
 Average abundance = 0.115/ha
 Rank abundance = 10
 Growth form – Bi-lobed fan 10 x 5 x 0.5.
 Colour – Brown; turns ethanol yellow.
 Oscules – Various sizes 1-4 mm diam.
 Texture – Firm, barely compressible.
 Surface ornamentation – Forked spatulate

projections along ridges.
 Ectosome – Not specialised, sponge tissue – with spicules reaching the surface at the ends of tracts but not breaking through the tissue dermal layer.
 Choanosome – Plumoreticulate fibres cored by spicules.
 Megascleres – Styles with stepped ends (250x6 µm), Anisoxeas with stepped ends (310x4 µm), Strongyles (310x7 µm), some spicules with tyles close to end of tip.
 Microscleres – none

Remarks – There is only one species of *Reniochalina* noted in Southern Australia *R. scitilis* Wiedenmayer, 1989, however the spicules of our specimens do not fit his sponge.



SG-S012b
 Growth form – Foliaceous
 Colour – Beige; turns ethanol golden yellow.
 Oscules – Rare, 1.5 mm diam.
 Texture – Firm.
 Surface ornamentation – Forked spatulate projections along ridges.
 Ectosome –Sponge tissue – with spicules reaching the surface at the ends of tracts but not breaking through the tissue dermal layer.
 Choanosome – Plumoreticulate fibres cored by spicules.
 Megascleres – Anisoxeas (340x7 µm); styles (400x8 µm, 270x8 µm).
 Microscleres – None.

Remarks – (This specimen was originally given the code SG-S061)

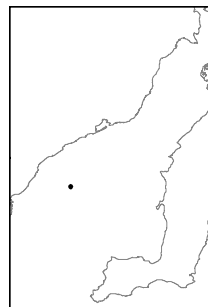
Fig. 65 cont.



SG-S012c
 Growth form – Fan, thick base and axis.
 Colour – Orange.
 Oscules – 1 mm diam.
 Texture – Firm.
 Surface ornamentation – Forked spatulate projections along ridges.
 Ectosome – Sponge tissue – with spicules reaching the surface at the ends of tracts but not breaking through the tissue dermal layer.
 Choanosome – Plumoreticulate fibres cored by spicules.
 Megascleres – Anisoxeas (350x4 µm, 300x7 µm); styles (340x7 µm).
 Microscleres – None.

Remarks – (This specimen was originally given the code SG-S095)

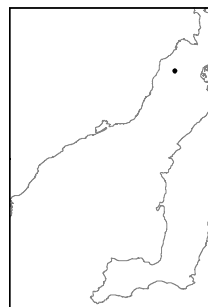
Figure 66 SG-S106 *Higginsia* sp? (Halichondrida, Desmoxyidae)



Depth range = 25 m
 Stations = BC21
 Average biomass = 0.286 g/ha
 Rank biomass = 96
 Average abundance = 0.006/ha
 Rank abundance = 95
 Growth form – Massive, 9 x 4 cm piece.
 Colour – Red; turns ethanol dark golden brown
 Oscules – 0.5 mm diam.
 Texture – Soft, compressible.
 Surface ornamentation – Rugose/papillose.

Ectosome – Tangential row of oxeas.
 Choanosome – Buddles of large oxeas and some large oxeas piercing the surface of the sponge. Smaller oxeas and micro acantho-oxeas scattered.
 Megascleres – Large and small oxeas; acanthooxeas.
 Microscleres – Micro acanthooxeas.

Figure 67 SG-S110 *Halichondria* (*Halichondria*) sp. (Halichondrida, Halichondriidae)

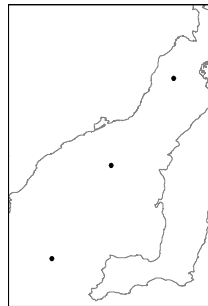


Depth range = 20.5 m
 Stations = 94
 Average biomass = 4.447 g/ha
 Rank biomass = 49
 Average abundance = 0.007/ha
 Rank abundance = 87
 Growth form – Convoluted mass.
 Colour – Grey; turns ethanol cloudy brown.
 Oscules – 1 mm diam.
 Texture – Friable, spicules easily seen on broken sponge pieces.

Surface ornamentation – Rugose.
 Ectosome – Tangential crust of oxeas, sub-dermal spaces.
 Choanosome – Plumose tracts or halichondrid arrangement of oxeas.
 Megascleres – Oxeas (90x5 µm, 280x9 µm, 340x7 µm).
 Microscleres – None.
 Remarks – Algal cells throughout – concentrated at surface.

ORDER: HAPLOSCLERIDA

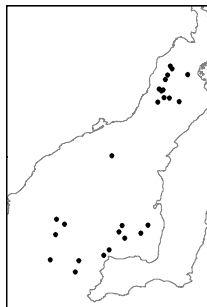
Figure 68 SG-S008 *Callyspongid* sp? (Haplosclerida)



Depth range = 17 - 54.5 m
 Stations = 72, BC15, BC43
 Average biomass = 1.376 g/ha
 Rank biomass = 85
 Average abundance = 0.017/ha
 Rank abundance = 58
 Growth form – Branching, anastomosing.
 Colour – Dark beige; turns ethanol pale yellow.
 Oscules – At the end of branches 2-4 mm (same width as branch).
 Texture – Soft, easily compressible.

Surface ornamentation – Smooth.
 Ectosome – Larger fibres divide into small fibres parallel to the primary fibres, no spicules.
 Choanosome – Reticulate fibre network with aspiculate fibres.
 Megascleres – None. Microscleres – None.

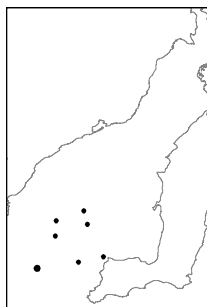
Figure 69 SG-S016 *Callyspongia* (*Callyspongia*) sp. 1 (Haplosclerida, Callyspongiidae)



Depth range = 12 - 54.5 m
 Stations = 26, 30, 32, 5, 59B, 5B, 69, 8, 80, 94, BC1, BC31, BC33, BC34, BC36, BC38, BC40, BC42, BC43, BC44, BC47, CP1, CP3, CP7, DK1, X3
 Average biomass = 34.638 g/ha
 Rank biomass = 24
 Average abundance = 0.148/ha
 Rank abundance = 3
 Growth form – Branching.
 Colour – Beige; turns ethanol pale yellow.

Oscules – Shallow oscules 2 mm diam.
 Texture – Soft, easily compressible.
 Surface ornamentation – None.
 Ectosome – Flat surface with a polygonal mesh.
 Choanosome – Reticulate mesh (sub-ectosomally) of aspiculate fibres.
 Megascleres – Only a few very thin broken spicules seen in mount. Microscleres – None.

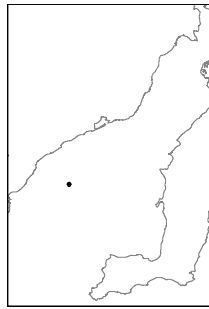
Figure 70 SG-S050 *Callyspongia* (*Callyspongia*) sp. 2 (Haplosclerida, Callyspongiidae)



Depth range = 32 - 44 m
 Stations = BC31, BC32, BC38, BC42, BC44, BC46, SG2
 Average biomass = 86.005 g/ha
 Rank biomass = 13
 Average abundance = 0.092/ha
 Rank abundance = 12
 Growth form – Arborescent, long bifurcating branches 33 cm high, branches 1.5 cm thick..
 Colour – Beige; turns ethanol pale yellow.

Oscules – 1.5 mm diam.
 Texture – Soft, compressible.
 Surface ornamentation – Smooth.
 Ectosome – Brushed ends of tracts, overlaid with a tangential spicule layer.
 Choanosome – Ample spongin. Multi-spicular primary fibres joined by paucispicular secondary fibres more than one spicule long.
 Megascleres – Oxeas (70x2 µm).
 Microscleres – None.

Figure 71 SG-S105 *Calyspongia* (*Calyspongia*) sp. 3 (Haplosclerida, Calyspongiidae)



Depth range = 25 m
 Stations = BC21
 Average biomass = 0.137 g/ha
 Rank biomass = 102
 Average abundance = 0.006/ha
 Rank abundance = 95
 Growth form – Branching, specimen is a piece broken off a larger sponge.
 Colour – Brown; turns ethanol pale yellow.
 Oscules – 2 mm diam. On one side of branches.
 Texture – Soft, springy, spongy.

Surface ornamentation – Smooth.

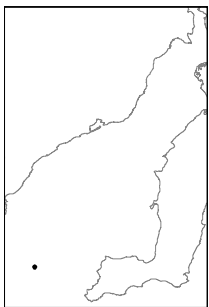
Ectosome – Condensed reticulation just below surface.

Choanosome – Ample spongin in primary fibres, which are sparsely cored by small oxeas. Secondary fibres divide towards surface.

Megascleres – Oxeas (75x2 µm).

Microscleres – None.

Figure 72 SG-S054 *Calyspongia* (*Cavochalina*) *bilamellata* Carter, 1885 (Haplosclerida, Calyspongiidae)



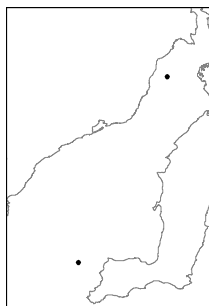
CAAB Taxon Code: 10 098010
 Depth range = 44 m
 Stations = BC46
 Average biomass = 2.935 g/ha
 Rank biomass = 5
 Average abundance = 0.045/ha
 Rank abundance = 11
 Growth form – Stalked, bilamellar.
 Colour – Brown; turns ethanol dark golden brown.
 Oscules – Pinprick sized.

Texture – Firm.

Surface ornamentation – Ridged on porous (outer lamellar) side, smooth on inner oscular side.

Remarks – This species is easily recognisable, and as such no skeletal/spicule preparations were made of this specimen. Compare Desqueyroux-Faundez & Valentine 2002 p. 841. Other sample of *C. (C) bilamellata* in SAM= S852

Figure 73 SG-S077 *Dactylia* sp. 1 (Haplosclerida, Calyspongiidae)



Depth range = 21.5 - 41.5 m
 Stations = 30, BC44
 Average biomass = 2.344 g/ha
 Rank biomass = 73
 Average abundance = 0.016/ha
 Rank abundance = 65
 Growth form – Arborescent.
 Colour – Dull green; turns ethanol yellow.
 Oscules – Scattered on branches, mainly on one side, 1-2 mm diam.

Texture – Firm to soft, compressible, tears easily.

Surface ornamentation – Almost smooth.

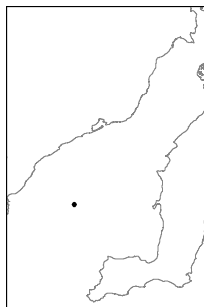
Ectosome – Surface raised slightly by perpendicular columns of detritus in fibres, otherwise not specialised.

Choanosome – Fibres in a reticulate mesh especially just below the surface. Fibres are aspicate or cored with detritus.

Megascleres – None.

Microscleres – None.

Figure 74 SG-S114 *Dactylia* sp. 2 (Haplosclerida, Callyspongia)



Depth range = 33 m
 Stations = BC27
 Average biomass = 0.479 g/ha
 Rank biomass = 93
 Average abundance = 0.009/ha
 Rank abundance = 82
 Growth form – Thin tangled branches.
 Colour – Dark beige.
 Oscules – 0.8 mm diam.
 Texture – Soft, easy to tear.

Surface ornamentation – Smooth.

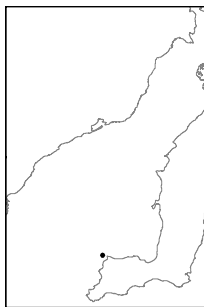
Ectosome – Reticulated fibres cored with sand.

Choanosome – Reticulate fibre mesh. Fibres cored with sand, and occasionally oxeas. Sub-ectosomal condensation.

Megascleres – Oxeas (110x2 µm).

Microscleres – None.

Figure 75 SG-S046 *Siphonchalina* sp (Haplosclerida, Callyspongiidae)



Depth range = 41 m
 Stations = BC42
 Average biomass = 0.201 g/ha
 Rank biomass = 99
 Average abundance = 0.004/ha
 Rank abundance = 99
 Growth form – Arbourescent, tubular.
 Colour – Beige; turns ethanol pale yellow.
 Oscules – At top of branches.
 Texture – Soft.
 Surface ornamentation – Smooth.

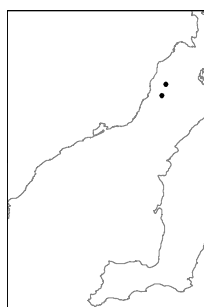
Ectosome – Fine reticulate mesh just below the surface.

Choanosome – Fibres on slide are aspiculate.

Megascleres – Bent oxeas (150x8 µm) only a few on slide.

Microscleres – None.

Figure 76 SG-S026 *Haliclona* (*Haliclona*) sp. 1 (Haplosclerida, Chalinidae)



Depth range = 16.5 - 22.5 m
 Stations = 32, X3
 Average biomass = 1.393 g/ha
 Rank biomass = 84
 Average abundance = 0.011/ha
 Rank abundance = 75
 Growth form – Branching open tubes.
 Colour – Dark beige; turns ethanol pale brown.
 Oscules – At the end of branches.
 Texture – Soft, springy.
 Surface ornamentation – Smooth.

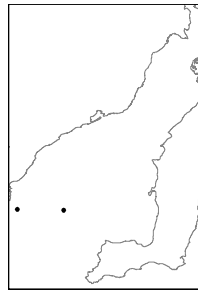
Ectosome – Brushes of oxeas.

Choanosome – Anisotropic reticulation of multi to pauci-spicular primary tracts joined by uni-pauci secondary tracts.

Megascleres – Straight oxeas (60 x 6 µm, 55 x 3 µm).

Microscleres – None.

Figure 77 SG-S085 *Haliclona* (*Haliclona*) sp. 2 (Haplosclerida, Chalinidae)



Depth range = 22 - 43 m
 Stations = BC34, BC35
 Average biomass = 1.027 g/ha
 Rank biomass = 88
 Average abundance = 0.005/ha
 Rank abundance = 98
 Growth form – Arborescent, 30 cm high, branches are 2 cm thick.
 Colour – Greenish grey; turns ethanol dark golden brown.
 Oscules – 3 mm diam. slightly raised.

Texture – Firm, compressible.
 Surface ornamentation – Smooth.
 Ectosome – Unispicular mesh.
 Choanosome – Ample spongin – primary fibres uni-paucispicular, secondary fibres unispicular. Sub-ectosomal condensation of reticulate mesh.
 Megascleres – Cigar type oxeas.
 Microscleres – None.

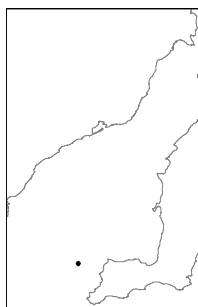
Figure 78 SG-S056 *Cribrochalina* sp. (Haplosclerida, Niphatidae)



Depth range = 44 m
 Stations = BC46
 Average biomass = 2.757 g/ha
 Rank biomass = 71
 Average abundance = 0.045/ha
 Rank abundance = 33
 Growth form – Lamellate, 12 x 8 x 0.3 cm.
 Colour – Brown; turns ethanol dark golden brown.
 Oscules – 0.5 mm diam. on one side only.
 Texture – Firm, compressible.

Surface ornamentation – Smooth with some concentric rings.
 Ectosome – Layer of oxeas over bunches of oxeas. Evenly reticulate subectosomal mesh. Ectosomal features (condensed reticulate mesh) is repeated in layers further down the sponge.
 Choanosome – Anisotropic reticulate mesh. Multispicular primary and secondary fibres.
 Megascleres – Oxeas (70 x 3 µm, 65 x 4 µm, 250 x 5 µm).
 Microscleres – None.

Figure 79 SG-S079 *Petrosid* sp. (Haplosclerida, Petrosiidae)

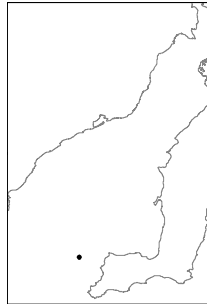


Depth range = 41.5 m
 Stations = BC44
 Average biomass = 3.006 g/ha
 Rank biomass = 65
 Average abundance = 0.021/ha
 Rank abundance = 47
 Growth form – Cylindrical (hole through centre of sponge).
 Colour – Beige; turns ethanol brown.
 Oscules – 2 mm around top ridge.
 Texture – Hard, arenaceous.

Surface ornamentation – Conulose, rugose.
 Ectosome – Masked by sand.
 Choanosome – Sand, oxeas in fibres.
 Megascleres – Oxeas (150 x 4 µm).
 Microscleres – None.

ORDER: DICTYOCERATIDA

Figure 80 SG-S081 *Dysidea* sp. (Dictyoceratida, Dysideidae)



Depth range = 41.5 m
 Stations = BC44
 Average biomass = 2.052 g/ha
 Rank biomass = 76
 Average abundance = 0.010/ha
 Rank abundance = 79
 Growth form – Foliose.
 Colour – Grey; turns ethanol rusty red.
 Oscules – 4-6 mm diam.
 Texture – Soft, compressible, fibrous.
 Surface ornamentation – Armoured with sand,

ridges (not truly conulose).

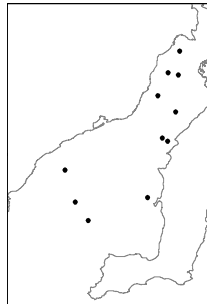
Ectosome –Armoured with large sand grains.

Choanosome – Heavily cored fibred parallel to surface of sponge. Cellular matrix in mesohyl is very light.

Fibres – Laminated, cored (300 µm diam. with debris).

Remarks – Same as SAM specimen S853 from the Great Australian Bight.

Figure 81 SG-S003 *Ircinia* sp. 1 (Dictyoceratida, Irciniidae)



Depth range = 12 - 34 m
 Stations = 1, 16, 21C, 30, 70, BC14, BC27, BC32, BC4, CB1, WD6
 Average biomass = 109.990 g/ha
 Rank biomass = 11
 Average abundance = 0.085/ha
 Rank abundance = 13
 Growth form – Vasiform with thick walls, cup of vase is shallow. Sponge is 10 cm high, 5cm across inside of cup.
 Colour – Light grey; turns ethanol dark yellow

Oscules – 2-6 mm diam.

Texture – Meaty, hard to cut.

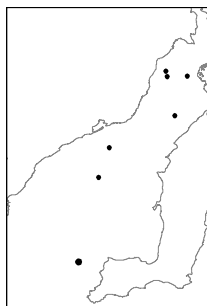
Surface ornamentation – Conulose.

Ectosome – Thin layer of filaments.

Choanosome – Matrix not dense. Many canals.

Fibres – Fasciculate, cored primary fibres. Irciniid filaments.

Figure 82 SG-S010a *Ircinia* sp. 2 (Dictyoceratida, Irciniidae) – 2 specimens kept



Depth range = 12 - 41.5 m
 Stations = 1B, 30, 74, BC1, BC4, BC44, Z3/2
 Average biomass = 103.116 g/ha
 Rank biomass = 12
 Average abundance = 0.065/ha
 Rank abundance = 16
 Growth form – Only small piece (5 x 3 x 1.5 cm) in sample.
 Colour – Grey; turns ethanol pale yellow.

Oscules – None seen on sample.

Texture – Very hard to cut, tough.

Surface ornamentation – Conulose.

Ectosome – Dense layer of filaments.

Choanosome – Many canals, but matrix is dense..

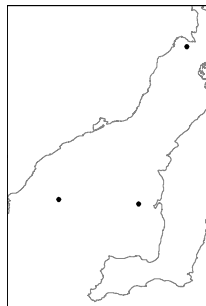
Fibres – Extremely dense Irciniid fibres.

Fig. 82 cont.



SG-S010b
 Growth form – Massive, irregular 20 x 11 cm.
 Colour – Beige; turns ethanol dark yellow.
 Oscules – 10-15 mm diam. at top of ridges.
 Texture – Soft, easily compressible.
 Surface ornamentation – Conulose.
 Ectosome – Dense layer of filaments.
 Choanosome – Dense matrix.
 Fibres – Lightly cored, fasciculate primary fibres. Irciniid filaments.
 Remarks – (This specimen was originally given the code SG-S033)

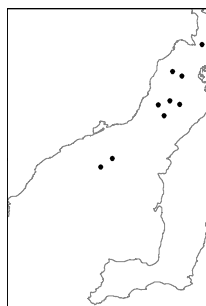
Figure 83 SG-S035 *Ircinia* sp. 3 (Dictyoceratida, Irciniidae)



Depth range = 13.5 - 28 m
 Stations = BC25, BC28, FC2
 Average biomass = 24.062 g/ha
 Rank biomass = 26
 Average abundance = 0.024/ha
 Rank abundance = 44
 Growth form – Massive, encrusting on hammer oyster.
 Colour – Beige; turns ethanol brown.
 Oscules – Inconspicuous.
 Texture – Soft, compressible.

Surface ornamentation – Crinkled, conulose.
 Ectosome – Layer of filaments.
 Choanosome – Moderately dense matrix. Large canals.
 Fibres – Cored, highly fasciculated primary fibres. Secondary fibres clear of debris. Irciniid filaments.

Figure 84 SG-S040a *Psammocinnia* sp 1 (Dictyoceratida, Irciniidae) – 2 specimens kept



Depth range = 13 - 33 m
 Stations = 21B, 3A, 50B, 59B, 5B, 63, 69, 80, 94
 Average biomass = 35.787 g/ha
 Rank biomass = 22
 Average abundance = 0.116/ha
 Rank abundance = 8
 Growth form – Uneven round mass, the sponge is full of bivalves.
 Colour – Beige.
 Oscules – Occasional, 1-4 mm diam.
 Texture – Very firm, meat-like.

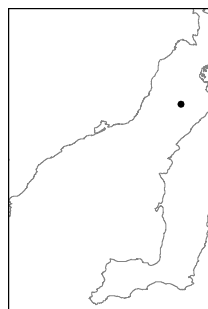
Surface ornamentation – Low conules.
 Ectosome – Thin layer of sand over layer of filaments.
 Choanosome – Matrix open with lots of spaces.
 Fibres – Heavily cored, large primary fibres. Irciniid filaments.

Fig. 84 cont.



SG-S040b
 Growth form – Roundish.
 Colour – Beige; turns ethanol dark brown.
 Oscules – 1-3 mm diam.
 Texture – Firm, just compressible.
 Surface ornamentation – Low blunt conules.
 Ectosome – Thick layer of sand.
 Choanosome – Moderately thick matrix.
 Fibres – Irciniid filaments.
 Remarks – (This specimen was originally given the code SG-S098.)
 Bivalves heavily infest specimen S040. There are 2 other specimens of this sponge (also with bivalves) in the South Australian Museum collection. One from Gulf St. Vincent and one from Outer Harbour, Adelaide (no registration numbers).

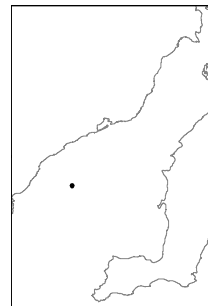
Figure 85 SG-S104 *Psammocinia* sp. 2 (Dictyoceratida, Irciniidae)



Depth range = 13 m
 Stations = 59B
 Average biomass = 82.895 g/ha
 Rank biomass = 14
 Average abundance = 0.016/ha
 Rank abundance = 62
 Growth form – Large.
 Colour – Dark grey; turns ethanol dark brown.
 Oscules – 3-4 mm diam.
 Texture – Very firm, compressible.

Surface ornamentation – Blunt conules, armoured with sand.
 Ectosome – Neat layer of sand.
 Choanosome – Much sand within the matrix.
 Fibres – Irciniid filaments.

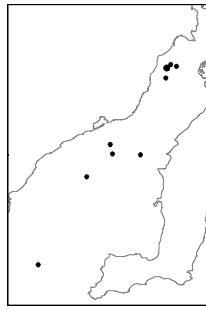
Figure 86 SG-S108 *Psammocinia* sp. 3 (Dictyoceratida, Irciniidae)



Depth range = 25 m
 Stations = BC21
 Average biomass = 0.273 g/ha
 Rank biomass = 98
 Average abundance = 0.006/ha
 Rank abundance = 95
 Growth form – Small thick encrusting lobe, 8 x 3 x 3 cm.
 Colour – Beige; turns ethanol golden yellow.
 Oscules – Large, 5 mm diam.
 Texture – Compressible, tough.

Surface ornamentation – Armoured with sand, blunt conules.
 Ectosome – Sand layer of large grains, not a neat arrangement.
 Choanosome – Tracts of large sand grains.

Figure 87 SG-S034 *Sarcotragus* sp. 1 (Dictyoceratida, Irciniidae)



Depth range = 15 - 44 m
 Stations = 26, 32, 5B, 74, 93, BC46, BC9, WG1, Z3/2
 Average biomass = 130.334 g/ha
 Rank biomass = 8
 Average abundance = 0.123/ha
 Rank abundance = 7
 Growth form – Amorphous lobe 21 x 9 x 6 cm.
 Colour – Beige (stains surfaces dark brown); turns ethanol cloudy and brown.
 Oscules – Rare, 3 mm diam.

Texture – Firm.

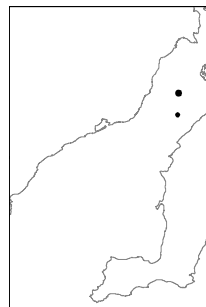
Surface ornamentation – Conulose.

Ectosome – Dermal layer of dense tissue.

Choanosome – Dense matrix of filaments.

Fibres – Lightly cored, fasciculate primary fibres. The fasciculated fibres are throughout the sponge making it difficult to discern between what are primary fibres and what may be secondary fibres. Very fine filaments.

Figure 88 SG-S044 *Sarcotragus* sp. 2 (Dictyoceratida, Irciniidae)



Depth range = 13.5 - 17 m
 Stations = 13C, BC4
 Average biomass = 49.960 g/ha
 Rank biomass = 19
 Average abundance = 0.015/ha
 Rank abundance = 67
 Growth form – Large open network, in an almost spherical form.
 Colour – Beige; turns ethanol cloudy and dark brown
 Oscules – Inconspicuous.

Texture – Firm, compressible.

Surface ornamentation – Ridged, with nodules rather than conules.

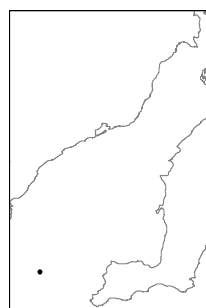
Ectosome – Dense filaments.

Choanosome – Moderately dense matrix of fine filaments.

Fibres – Lightly cored fasciculate primary fibres. Very fine filaments.

Remarks – Called *Sarcotragus* to distinguish from *Ircinia*, due to the very fine filaments, but the distinction between the primary fibres is very difficult.

Figure 89 SG-S068 *Hyattella* sp? (Dictyoceratida, Spongiidae)



Depth range = 44 m
 Stations = BC46
 Average biomass = 2.757 g/ha
 Rank biomass = 71
 Average abundance = 0.045/ha
 Rank abundance = 33
 Growth form – Cavernous, irregular, 10 x 4 cm piece.
 Colour – Beige; turns ethanol golden yellow.
 Oscules – Inconspicuous.
 Texture – Springy.

Surface ornamentation – Not smooth, but no projections, feels like a thick hide.

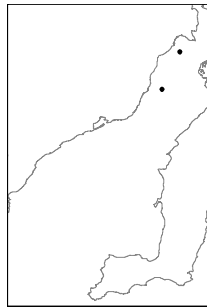
Ectosome – Unarmoured, matrix at surface with sub dermal spaces.

Choanosome – Some areas are clear of fibres.

Fibres – Uncored even fibres in a 3-D network. Primary and secondary fibres not that different in size.

Remarks – This sponge has a microcionid sponge attached, a part of which can be seen in the skeletal preparation.

Figure 90 SG-S024 *Leiosella* sp. 1 (Dictyoceratida, Spongiidae)



Depth range = 16.5 - 44 m
 Stations = CB1, X3
 Average biomass = 24.065 g/ha
 Rank biomass = 25
 Average abundance = 0.018/ha
 Rank abundance = 57
 Growth form – Undulating, uneven sphere
 Colour – Beige; turns ethanol pale brown
 Oscules – Small 0.2 mm diam.
 Texture – Firm, compressible.
 Surface ornamentation – Low blunt conules.

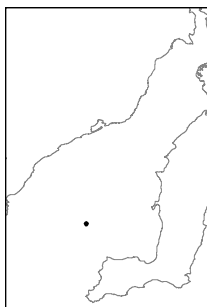
Ectosome – Armoured with sand.

Choanosome – Dense network of secondary fibres.

Fibres – Primary fibres occasional and cored with debris. Secondary fibres even. Linked by pseudo-secondary/tertiary fibres.

Remarks – Similar to S115, although this sponge has blunt conules and S115 has a smooth surface.

Figure 91 SG-S092 *Leiosella* sp. 2 (Dictyoceratida, Spongiidae)



Depth range = 34 m
 Stations = BC32
 Average biomass = 7.161 g/ha
 Rank biomass = 50
 Average abundance = 0.016/ha
 Rank abundance = 65
 Growth form – Tangled thick branches.
 Colour – Beige.
 Oscules – 2-3 mm diam.
 Texture – Firm, compressible.
 Surface ornamentation – Variable, smooth to

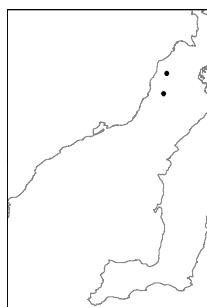
rugose.

Ectosome – Layer of large sand grains.

Choanosome – Dense with 3-D network of secondary fibres.

Fibres – Primary fibres cored and rare, secondary fibres clear and numerous.

Figure 92 SG-S113 *Leiosella* sp. 3 (Dictyoceratida, Spongiidae)



Depth range = 23 - 25 m
 Stations = 74, 8
 Average biomass = 1.084 g/ha
 Rank biomass = 87
 Average abundance = 0.014/ha
 Rank abundance = 69
 Growth form – Large hollow turrets, thick (2-5 cm).
 Colour – Grey.
 Oscules – Rare, 1-2 mm diam.
 Texture – Firm, only just compressible.

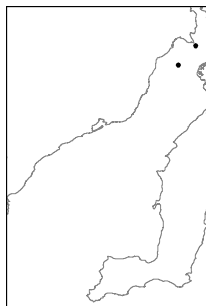
Surface ornamentation – Smooth.

Ectosome – Armoured with fine sand grains.

Choanosome – Moderate fibre network, fine sand grains throughout the tissue.

Fibres – Primary fibres cored, secondary fibres are clear, some are connected by tertiary fibres.

Figure 93 SG-S029 *Spongia* sp. 1 (Dictyoceratida, Spongiidae) – 2 specimens kept



Depth range = 14 - 18.5 m
 Stations = 57, 92
 Average biomass = 4.293 g/ha
 Rank biomass = 61
 Average abundance = 0.019/ha
 Rank abundance = 51
 Growth form – large, spherical, tightly bunched branches form a springy ball.
 Colour – Brown; turns ethanol cloudy and brown.

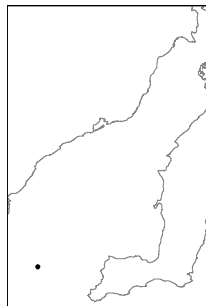
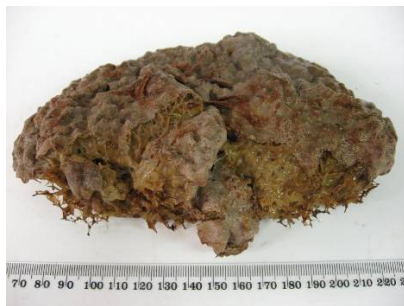
Oscules – Inconspicuous.
 Texture – Compressible, springy.
 Surface ornamentation – Tips of branches are conulose.
 Ectosome – Unspecialised.
 Choanosome – Network of fibres.
 Fibres – Primary fibres are rare and cored, secondary fibres clear of debris, Tertiary fibres clear.



SG-S029
 Growth form – Cauliflower like.
 Colour – Beige; turns ethanol yellow.
 Oscules – 4 mm diam.
 Texture – Firm.
 Surface ornamentation – Fine conules give the sponge surface a furry appearance.
 Ectosome – Thin sand armour.
 Choanosome – Network of fibres.
 Fibres – Primary, secondary and tertiary fibres – none cored.
 Remarks – (This specimen was originally given the code SG-097)

Although resembling the open network of *Hippospongia*, there are no valid species of *Hippospongia* recorded from Australia (Bergquist & Cook 2002a). The genus in Australia is to be revised (Bergquist & Cook 2001).

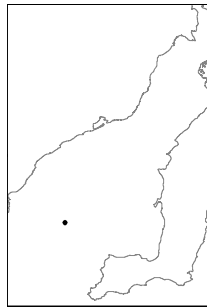
Figure 94 SG-S064 *Aphysinopsis* sp. (Dictyoceratida, Thorectidae)



Depth range = 44 m
 Stations = BC46
 Average biomass = 6.848 g/ha
 Rank biomass = 51
 Average abundance = 0.045/ha
 Rank abundance = 33
 Growth form – Large lobe (piece is 8x8x3 cm).
 Colour – Grey externally, beige internally; turns ethanol brown.
 Oscules – Occasional, 2 mm diam.

Texture – Firm, compressible.
 Surface ornamentation – Armoured with sand, verrucose.
 Ectosome – Armoured with sand and spicules, some organisation of sand with groups of larger sand grains below finer sand grains – maybe where primary fibres meet the surface.
 Choanosome – Fibres are ~4 mm apart. Collagenous mesohyl.
 Fibres – Laminated, scarce, primaries (200 µm diam.).

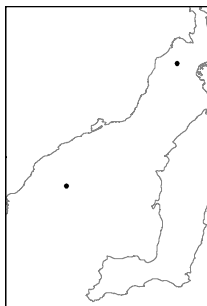
Figure 95 SG-S087 *Cavospongia* sp? (Dictyoceratida, Thorectidae)



Depth range = 43 m
 Stations = BC34
 Average biomass = 11.833 g/ha
 Rank biomass = 44
 Average abundance = 0.002/ha
 Rank abundance = 108
 Growth form – Uneven, lobose.
 Colour – Black.
 Oscules – At end of lobes, 4-9 mm diam.
 Texture – Firm, compressible.
 Surface ornamentation – Low, blunt conules.

Ectosome – Moderately armoured with sand.
 Choanosome – Primary and secondary fibres sparse.
 Fibres – Laminated, primary (110 µm diam.) cored, secondary (80 µm diam.) clear.

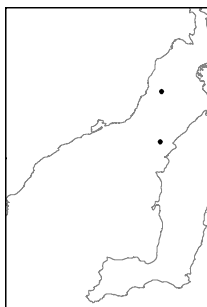
Figure 96 SG-S089 *Fasciospongia* sp. (Dictyoceratida, Thorectidae)



Depth range = 22 - 25 m
 Stations = 23, BC21
 Average biomass = 11.193 g/ha
 Rank biomass = 45
 Average abundance = 0.014/ha
 Rank abundance = 68
 Growth form – Spherical.
 Colour – Dark grey; turns ethanol cloudy and dark brown.
 Oscules – 2 mm diam.
 Texture – Firm, barely compressible.

Surface ornamentation – Conulose.
 Ectosome – Large primary fibres emerge through the surface.
 Choanosome – Lacunose.
 Fibres – Extremely large, fasciculate, cored primary fibres.

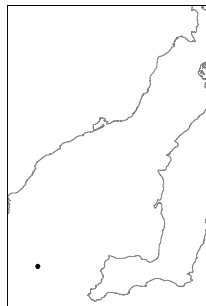
Figure 97 SG-S031 *Fenestraspongia* cf *intertexta* (Carter, 1885) (Dictyoceratida, Thorectidae)



CAAB Taxon Code: 10 113011
 Depth range = 22 - 25 m
 Stations = 16, 8
 Average biomass = 20.855 g/ha
 Rank biomass = 32
 Average abundance = 0.011/ha
 Rank abundance = 74
 Growth form – Lobate.
 Colour – Brown; turns ethanol brown.
 Oscules – Scattered 1-2 mm diam.
 Texture – Firm, barley compressible, below the

soft ridges.
 Surface ornamentation – Small ridges joined to make a pseudo-honeycomb surface.
 Ectosome – Microscopically smooth surface with areas raised where large primary fibres end.
 Choanosome – Light sponge matrix, with no debris.
 Fibres – Large, laminated, lightly fasciculated primary fibres that are not cored. Secondary and tertiary fibres also uncured.

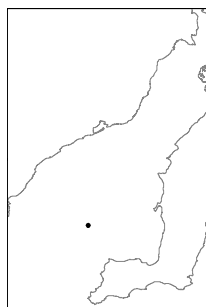
Figure 98 SG-S075 *Hyrtios* sp? (Dictyoceratida, Thorectidae)



Depth range = 44 m
 Stations = BC46
 Average biomass = 1.423 g/ha
 Rank biomass = 88
 Average abundance = 0.045/ha
 Rank abundance = 33
 Growth form – Creeping lobe, 8 x 2 cm
 Colour – Dark brown.
 Oscules – 3-4 mm along side of lobe.
 Texture – Firm, compressible.

Surface ornamentation – Ridges ending in conules, Ectosome – Patchy sand armour.
 Choanosome – Fibres are rare.
 Fibres – Laminated. Primary fibres cored with sand.

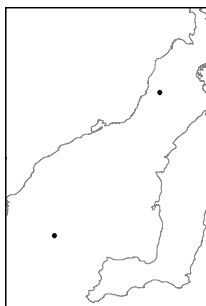
Figure 99 SG-S094 *Lufferiella* sp. (Dictyoceratida, Thorectidae)



Depth range = 34 m
 Stations = BC32
 Average biomass = 1.635 g/ha
 Rank biomass = 82
 Average abundance = 0.016/ha
 Rank abundance = 65
 Growth form – Massive
 Colour – Dark brown
 Oscules – 2 mm diam.
 Texture – Firm, compressible.
 Surface ornamentation – Conulose (spiky).

Ectosome – Tertiary fibres condensed towards surface of sponge.
 Choanosome – Secondary fibres in loose network
 Fibres – Laminated clear secondary fibres. Tertiary fibres at edge of sponge.

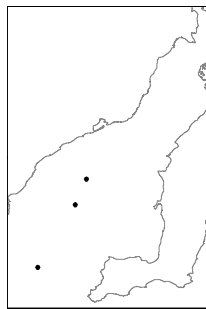
Figure 100 SG-S023 *Taonura* sp. 1 (Dictyoceratida, Thorectidae)



Depth range = 16.5 - 43 m
 Stations = BC38, X3
 Average biomass = 1.814 g/ha
 Rank biomass = 25
 Average abundance = 0.009/ha
 Rank abundance = 57
 Growth form – Stalked, thick lamellate. Base is attached to two bivalve shells.
 Colour – Ruddy brown; turns ethanol orange
 Oscules – Rare, 1-4 mm diam.
 Texture – Firm, compressible.

Surface ornamentation – Small ridges, conules.
 Ectosome – Tips of fibres forming conules, which have a small amount of sand at tip.
 Choanosome – Fibres are only occasional, otherwise a matrix with canals.
 Fibres – Cored primary fibres, clear secondary fibres.
 Remarks – Gravid.

Figure 101 SG-S055 *Taonura* sp. 2 (Dictyoceratida, Thorectidae)



Depth range = 28 - 44 m
 Stations = BC27, BC46, WG1
 Average biomass = 21.704 g/ha
 Rank biomass = 30
 Average abundance = 0.058/ha
 Rank abundance = 18
 Growth form – Stalked, vasiform (wide and almost bilamellar), 1-2 cm thick.
 Colour – Dull yellow; turns ethanol rusty brown.
 Oscules – Rare, 1-3 mm diam.
 Texture – Soft, compressible.

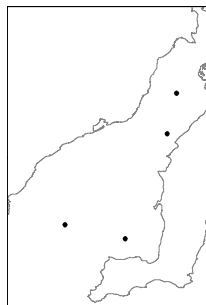
Surface ornamentation – Microconulose.

Ectosome – Very lightly armoured in some areas with spicules and small sand grains. Sub-dermal lacunae.

Choanosome – Sponge matrix is not dense. Fibres are occasional only.

Fibres – Laminated, secondary fibres not cored.

Figure 102 SG-S014 *Taonura* sp? (Dictyoceratida, Thorectidae)



Depth range = 17 - 43 m
 Stations = 13C, 4, BC34, BC40
 Average biomass = 1.650 g/ha
 Rank biomass = 81
 Average abundance = 0.020/ha
 Rank abundance = 49
 Growth form – Repent like a runner with small branching growing vertically off the 'runner'.
 Colour – Beige with ruddy tips; turns ethanol pale yellow.
 Oscules – None seen (only small sample of

sponge was kept).

Texture – Axially compressed, firm, compressible.

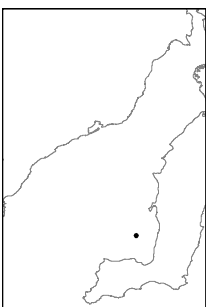
Surface ornamentation – Microconules.

Ectosome – Solid matrix at surface.

Choanosome – matrix more open. Fibres common.

Fibres – Thick laminated, cored primary fibres. Secondary fibres clear.

Figure 103 SG-S018 *Thorecta* sp. 1 (Dictyoceratida, Thorectidae)



Depth range = 17.5 m
 Stations = BC36
 Average biomass = 2.792 g/ha
 Rank biomass = 69
 Average abundance = 0.002/ha
 Rank abundance = 106
 Growth form – Large stalked lobe, 2 – 3 cm thick.
 Colour – Black; turns ethanol cloudy and dark brown.

Oscules – 3-5 mm diam.

Texture – Firm, compressible.

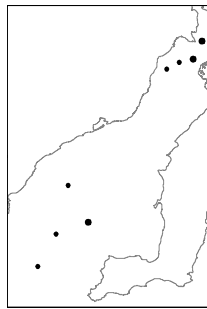
Surface ornamentation – Smooth, undulating (not conulose).

Ectosome – Layer of large sand grains.

Choanosome – Isotropic network of fibres. Space between primary fibres 0.6 – 0.8 mm.

Fibres – Laminated, primary cored, secondary not cored.

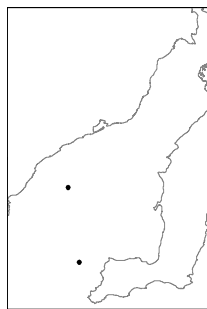
Figure 104 SG-S058 *Thorectandra* sp. 1 (Dictyoceratida, Thorectidae)



Depth range = 13.5 - 44 m
 Stations = 23, 47B, 50B, 74, BC21, BC32, BC38, BC46
 Average biomass = 239.275 g/ha
 Rank biomass = 5
 Average abundance = 0.113/ha
 Rank abundance = 11
 Growth form – Thick fan/lobe.
 Colour – Dark grey; turns ethanol cloudy and dark brown.

Oscules – One x 30 mm diam. on top of lobe.
 Texture – Spongy, compressible.
 Surface ornamentation – Ridges and fine conules.
 Ectosome – Layer of sand embedded in tissue.
 Choanosome – Space between primary fibres is 2 mm. Space between secondary fibres 1 mm.
 Fibres – Laminated, primaries cored, secondaries not cored.

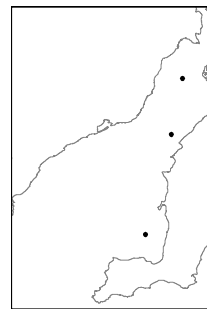
Figure 105 SG-S082 *Thorectandra* sp. 2 (Dictyoceratida, Thorectidae)



Depth range = 25 – 41.5 m
 Stations = BC21, BC44
 Average biomass = 14.375 g/ha
 Rank biomass = 41
 Average abundance = 0.017/ha
 Rank abundance = 59
 Growth form – Stalked thick flabellate.
 Colour – Grey externally, cream choanosome; turns ethanol pale brown.
 Oscules – Sunken, 10 mm diam.
 Texture – Compressible, stalk is fibrous and

hard.
 Surface ornamentation – Convoluted surface.
 Ectosome – Heavily armoured with sand. Thick layer of medium sized grains.
 Choanosome – Dense tissue.
 Fibres – Laminated fibres. 1° fibres cored (20-320 µm diam.), 2° fibres (100 µm diam.) clear (with signs of filamentous algae).

Figure 106 SG-S005a Thorectid sp. 1 (Dictyoceratida, Thorectidae) – 2 specimens kept



Depth range = 15 - 21.5 m
 Stations = 21C, 4, BC36
 Average biomass = 14.842 g/ha
 Rank biomass = 39
 Average abundance = 0.013/ha
 Rank abundance = 71
 Growth form – Massive, undulating.
 Colour – Beige; turns ethanol brown.
 Oscules – Numerous, 2-3 mm diam.
 Texture – Firm; easy to cut; fibrous.

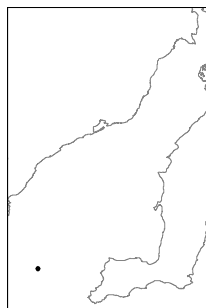
Surface ornamentation – Bristle-like conules.
 Ectosome – Unspecialised.
 Choanosome – Fibres sparse.
 Fibres – Thickly laminated, primary and secondary fibres are clear of debris.

Fig. 106 cont.



SGS005b
 Growth form – Thick lobes arising from a wide base.
 Colour – Ruddy brown; turns ethanol cloudy and dark brown.
 Oscules – Scattered, 2-3 mm diam.
 Texture – Firm compressible.
 Surface ornamentation – Bristly.
 Ectosome – Unspecialised.
 Choanosome – Fibres sparse.
 Fibres – Laminated. Primary and secondaries uncored.
 Remarks – (This specimen was originally assigned the code SG-S030.)

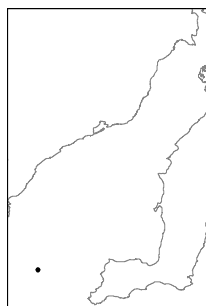
Figure 107 SG-S066 Thorectid sp. 2 (Dictyoceratida, Thorectidae)



Depth range = 44 m
 Stations = BC46
 Average biomass = 2.490 g/ha
 Rank biomass = 72
 Average abundance = 0.045/ha
 Rank abundance = 33
 Growth form – Uneven lamellar, 7 x 10 x 0.8 cm.
 Colour – Beige; turns ethanol yellow.
 Oscules – On one surface, 1-2 mm diam.
 Texture – Firm, compressible.

Surface ornamentation – Almost smooth on porous side (not conulose).
 Ectosome – Not armoured.
 Choanosome – Thick fascicular fibres that are cored with debris.
 Fibres – Matrix is webbed.

Figure 108 SG-S063 *Thorecta* sp. 2 (Dictyoceratida, Thorectidae)

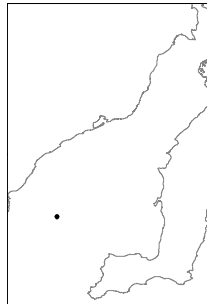


Depth range = 44 m
 Stations = BC46
 Average biomass = 9.960 g/ha
 Rank biomass = 47
 Average abundance = 0.045/ha
 Rank abundance = 33
 Growth form – Has roots; uneven vasiform.
 Colour – Dark grey; turns ethanol dark golden brown.
 Oscules – On inside surface of vase, 1-2.5 mm diam.

Texture – Firm, compressible.
 Surface ornamentation – Smooth.
 Ectosome – Armoured cortex - 0.8 mm width;
 Choanosome – Matrix in mesohyl moderately dense.
 Fibres – Laminated. Primaries cored, secondaries clear of debris.

ORDER: DENDROCERATIDA

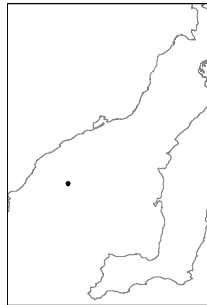
Figure 109 SG-S099 *Darwinella* sp. (Dendroceratida, Darwinellidae)



Depth range = 32 m
 Stations = BC31
 Average biomass = 0.090 g/ha
 Rank biomass = 104
 Average abundance = 0.006/ha
 Rank abundance = 91
 Growth form – Encrusting.
 Colour – Blue; turns ethanol pale yellow.
 Oscules – Inconspicuous.
 Texture – Firm, compressible.
 Surface ornamentation – Large conules.

Ectosome – Thick tissue rising into conules where fibres come to the surface.
 Choanosome – Matrix of medium density, with many canals.
 Fibres – Laminated. Fibres clear of debris. Some fibrous spicules.

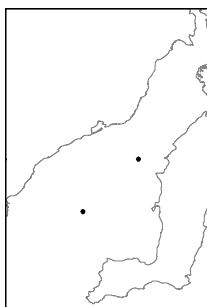
Figure 110 SG-S107 Dendroceratid. sp. 2 (Dendroceratida)



Depth range = 25 m
 Stations = BC21
 Average biomass = 0.050 g/ha
 Rank biomass = 105
 Average abundance = 0.006/ha
 Rank abundance = 95
 Growth form – Scraggly, open mesh.
 Colour – Beige; turns ethanol pale yellow.
 Oscules – Inconspicuous.
 Texture – Soft.
 Surface ornamentation – Conulose.

Ectosome – Not specialised.
 Choanosome – Fibres 5 mm apart.
 Fibres – Cored.

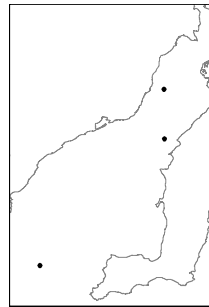
Figure 111 SG-S118 *Dendrilla* sp. (Dendroceratida, Darwinellidae)



Depth range = 17.3 - 40 m
 Stations = BC9, SG2
 Average biomass = 0.392 g/ha
 Rank biomass = 94
 Average abundance = 0.018/ha
 Rank abundance = 53
 Growth form – Erect branching
 Colour – Red
 Oscules – Inconspicuous
 Texture – Soft
 Surface ornamentation – Surface has fallen away

from fibres.
 Ectosome – No histological slides prepared
 Choanosome – No histological slides prepared

Figure 112 SG-S025a *Dendroceratid* sp? 1 (*Dendroceratida*) – 2 specimens kept



Depth range = 16.5 - 44 m
 Stations = 16, BC46, X3
 Average biomass = 9.355 g/ha
 Rank biomass = 48
 Average abundance = 0.058/ha
 Rank abundance = 21
 Growth form – Amorphous lobe, 10 x 10 cm (1 cm thick).
 Colour – Dark grey; turns ethanol cloudy and bronze.
 Oscules – 3-4 mm diam.

Texture – Easily compressible.
 Surface ornamentation – Small conules.
 Ectosome – Smooth surface layer – raised where peaks of fascicules reach the surface.
 Choanosome – Fibrous.
 Fibres – Primary fibres are fasciculated and cored. Diactinal fibrous spicules.

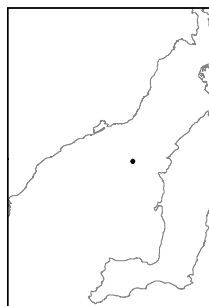


SG-S025b
 Growth form – Thick flabellate, 16 x 12 x 2.5 cm
 Colour – Grey; turns ethanol yellow.
 Oscules – Raised, mostly on one side of sponge 3-4 mm diam.
 Texture – Firm, but easily compressible.
 Surface ornamentation – Microconules.
 Ectosome – Smooth surface layer – raised where tops of fascicules reach the surface.
 Choanosome – Fibrous.
 Fibres – Primary fibres are fasciculated and cored. Diactinal fibrous

spicules.
 Remarks – (This specimen was originally designated the code S078.)

ORDER: VERONGIDA

Figure 113 SG-S043 *Aplysina* cf *lendenfeldi* Bergquist, 1980 (*Verongida*, *Aplysinidae*)



CAAB Taxon Code: 10 125007
 Depth range = 19.3 m
 Stations = BC10
 Average biomass = 0.282 g/ha
 Rank biomass = 97
 Average abundance = 0.008/ha
 Rank abundance = 84
 Growth form – Lobe 8 cm x 2.5 cm.
 Colour – Black (may have oxidised); turns ethanol brown.
 Oscules – One, on top of lobe, 1 mm diam.

Texture – Firm to hard, barely compressible.
 Surface ornamentation – None, smooth.
 Ectosome – Sub-dermal spaces.
 Choanosome – Dense tissue.
 Fibres – Laminated, pithed not cored.
 Remarks – Compare Wiedenmayer (1989) p. 155. Bergquist & Cook (2002b) state that some *Aplysina* will be moved to *Suberea* following revision.

APPENDIX 2 – List of Spencer Gulf sponges lodged at the South Australian Museum (additional to the 105 sponges documented in this report).

CLASS Order	Species	Location	Reg no.	Collection details
CALCAREA				
Clathrinida	<i>Clathrina</i>	Port Victoria Jetty, 3-4 m		K.Gowlett-Holmes, 3/5/1998
Leucosolenida	<i>Sycon</i>	Port Victoria Jetty, 4-6 m, with amphipods		K. Gowlett-Holmes, W. Zeidler, 14/12/1994
	<i>Sycon</i>	Port Victoria Jetty, 4-5 m		K. Gowlett-Holmes, 16/5/2006
	<i>Sycon</i>	Point Turton Jetty		K. Gowlett-Holmes, 31/12/1993
DEMOSPONGIAE				
Astrophorida	<i>Asteropus</i>	Boston Island, Fanny Point, 1.5-8m	S692	W.Zeidler, K.Gowlett-Holmes, 17/11/1988
	<i>Jaspis</i>	off Cowell, 20 ftms		B. Mills, 16/4/1982
Hadromerida	<i>Suberites</i>	off Cowell, in prawn trawl		P. Aerfeldt, October, 1982
	<i>Tethya</i>	Reevesby Island, Turfeys Rocks		E.Spuno, 27/1/1986
	<i>Chondrilla</i>	off Cowell, 40m		B. Mills, 16/4/1982
	<i>Tethya</i>	upper Spencer Gulf, 33.05'S,137.40'E, 13 m		E.Oks, February, 1986
	<i>Tethya</i>	upper Spencer Gulf, 32.55'S,137.51'E, 11m		E.Oks, February, 1987
Poecilosclerida	<i>Tethya</i>	upper Spencer Gulf, 32.41'18"S, 137.49'E, 15m		E.Oks, September, 1987
	<i>Clathria cactiformis</i>	Spencer Gulf, 12 km from Whyalla, Stn 8 24 m	S700	N. Carrick, 29/11/1981
	<i>Echinoclathria favus</i>	Point Maclaren, 3 ftms	S792	K. Sheard, 1938
	<i>Holopsamma laminaefavosa</i>	Wedge Island, 8-10m		K. Gowlett-Holmes, 20/5/1989
Haplosclerida	<i>Psammoclema</i>	Wedge Island and Gambier Island		SAORI, 29/12/1963
	<i>Calyspongia</i>	S.A. off Cowell, 20 ftms, in prawn trawl		B.Mills, 16/4/1992
	<i>Calyspongia</i>	Wedge Island, 80 feet		SAORI, 29/12/1963
Dictyoceratida	<i>Calyspongia</i>	Boston Island, Kangaroo Reef, off Maria Point Rock		W. Zeidler, K. Gowlett-Holmes, 17/2/1988
	<i>Spongia</i>	off Cowell		P. Aerfeldt, October, 1982
Dendroceratida	<i>Taonura</i>	Wedge Island, 27m		SAORI, 29/12/1963
	<i>Igernella</i>	Cowell, 20ftms in prawn trawl		B.Mills, 16/4/1982
Verongida	<i>Dendrilla rosea</i>	Point Turton Jetty, 3-4 m		K. Gowlett-Holmes, W. Zeidler, 16/3/1994
	<i>Dendrilla rosea</i>	Point Turton Jetty, 3-4 m		K. Gowlett-Holmes, W. Zeidler, 16/3/1994
	<i>Aphysilla rosea</i>	Port Hughes Jetty, 5-7 m		K. Gowlett-Holmes, 19/5/2006
Verongida	<i>Aphysilla rosea</i>	Point Turton Jetty, 3-4 m		K. Gowlett-Holmes, W. Zeidler, 16/3/1994
	<i>Aphysilla sulphurea</i>	Point Turton Jetty, 3-4 m		K. Gowlett-Holmes, W. Zeidler, 16/3/1994
	<i>Aphysilla sulphurea</i>	Port Lincoln Town Jetty, 2-3 m		K. Gowlett-Holmes, 13/3/2001
	Unidentified	Off Cowell		P. Aerfeldt, October, 1982
	Unidentified	Port Lincoln Town Jetty		K. Gowlett-Holmes, 15/3/2001
	Unidentified	Off Cowell		B.Mills, 16/4/1982
	Unidentified	Point Riley, Stn 2, 22 m		K.Gowlett-Holmes, 1/5/1989
	Unidentified	Point Turton Jetty		W. Zeidler, 4/3/1996
	Unidentified	Port Hughes Jetty, 5-7 m		K.Gowlett-Holmes, 13/5/2006
	Unidentified x 2	Port Hughes Jetty, 5-7 m		K.Gowlett-Holmes, 19/5/2006
Unidentified x 4	Port Lincoln Town Jetty, 2-3 m		K.Gowlett-Holmes, 15/3/2001	

CLASS Order	Species	Location	Reg no.	Collection details
	Unidentified	Point Turton, 3-4 m		K.Gowlett-Holmes, 19/2/1994
	Unidentified	Point Victoria Jetty, 4-5 m		K.Gowlett-Holmes, W.Zeidler, 14/2/1994
	Unidentified	Point Turton, 3-4 m		K.Gowlett-Holmes, W.Zeidler, 5/11/1992
	Unidentified	Point Turton, 3-4 m		K.Gowlett-Holmes, 25/1/1992
	Unidentified	Point Turton, 3-4 m		K.Gowlett-Holmes, 16/3/1994
	Unidentified	Point Turton, 3-4 m		K.Gowlett-Holmes, 28/11/1993
	Unidentified	Point Victoria Jetty, 4-6 m		K.Gowlett-Holmes, W.Zeidler, 14/12/1994
	Unidentified	Point Turton, 3-4 m		K.Gowlett-Holmes, 19/2/1994
	Unidentified	Point Turton, 3-4 m		K.Gowlett-Holmes, 16/3/1998
	Unidentified	Spencer Gulf, Western Shoal, near Mt.Young		Fisheries, 19/3/1938
	Unidentified	Point Turton Jetty, 3-4 m		W.Zeidler, K.Gowlett-Holmes, 16/3/1994
	Unidentified	Off Cowell, in prawn trawl		P. Aerfeldt, October, 1982
	Unidentified	Off Cowell, in prawn trawl		P. Aerfeldt, October, 1982
	Unidentified	Off Cowell, in prawn trawl		P. Aerfeldt, October, 1982
	Unidentified	Point Turton, 3-4 m		W.Zeidler, K.Gowlett-Holmes, 16/3/1994
	Unidentified	Wedge Island		SAORI, 29/12/1963
	Unidentified	Point Riley, 33.57'S, 137.14E, SW of Pt Riley, 25 m		K.Gowlett-Holmes, 2/5/1989
	Unidentified	Western Shoal near Mt. Young		Fisheries, 19/3/1938
	Unidentified	Port Victoria Jetty, 3-5 m		W.Zeidler, K. Gowlett-Holmes, 17/3/1994
	Unidentified	Pondalow Bay, 3-8 m		W. Zeidler, K. Gowlett-Holmes, 7/11/1976
	Unidentified x 2	Middle Beach, 30'		Fisheries, 10/3/1938
	Unidentified	Boston Island, 3-8 m		K.Gowlett-Holmes, W.Zeidler, 17/2/1988
	Unidentified	Spencer Gulf, Tipara Reef 2 m		S.A. Sheperd, 13/5/1982
	Unidentified	Daly Heads		I.C. Kowanko, W.Zeidler, 9/11/1976
	Unidentified	Arno Bay Jetty		W. Zeidler, K. Gowlett-Holmes, 9/11/1976
	Unidentified	Tumby Bay, 1-5 m		W. Zeidler, K. Gowlett-Holmes, 21/2/1988
	Unidentified	Arno Bay		W. Zeidler, K. Gowlett-Holmes, 22/2/1988
	Unidentified	Point Riley, 33.48'S, 137.33'E, 22 m		K.Gowlett-Holmes, P. Tudorovis, 2/5/1989
	Unidentified	9 Nm WNW of Point Riley, 33.50'S, 137.27'E		K.Gowlett-Holmes, P. Tudorovis, 2/5/1989
	Unidentified	Thorny Passage, Grindal Island		K. Branden, 27/9/1989
	Unidentified	Thorny Passage, Taylor Island		K. Branden, Oct/1989
	Unidentified	Thorny Passage, Hopkins Island		K. Branden, L. Hobbs, 1/10/1989
	Unidentified	Arno Bay		W. Zeidler, K. Gowlett-Holmes, 22/2/1988
	Unidentified	Spencer Gulf, Middle Beach		Fisheries, 10/3/1938
	Unidentified	Boston Island		W. Zeidler, K. Gowlett-Holmes, 12/2/1988
	Unidentified	Thorny Passage, Hopkins Island		L. Hobbs, K. Branden, 1/10/1989
	Unidentified x 5	Thorny Passage, Taylor Island		L. Hobbs, 29/9/1989