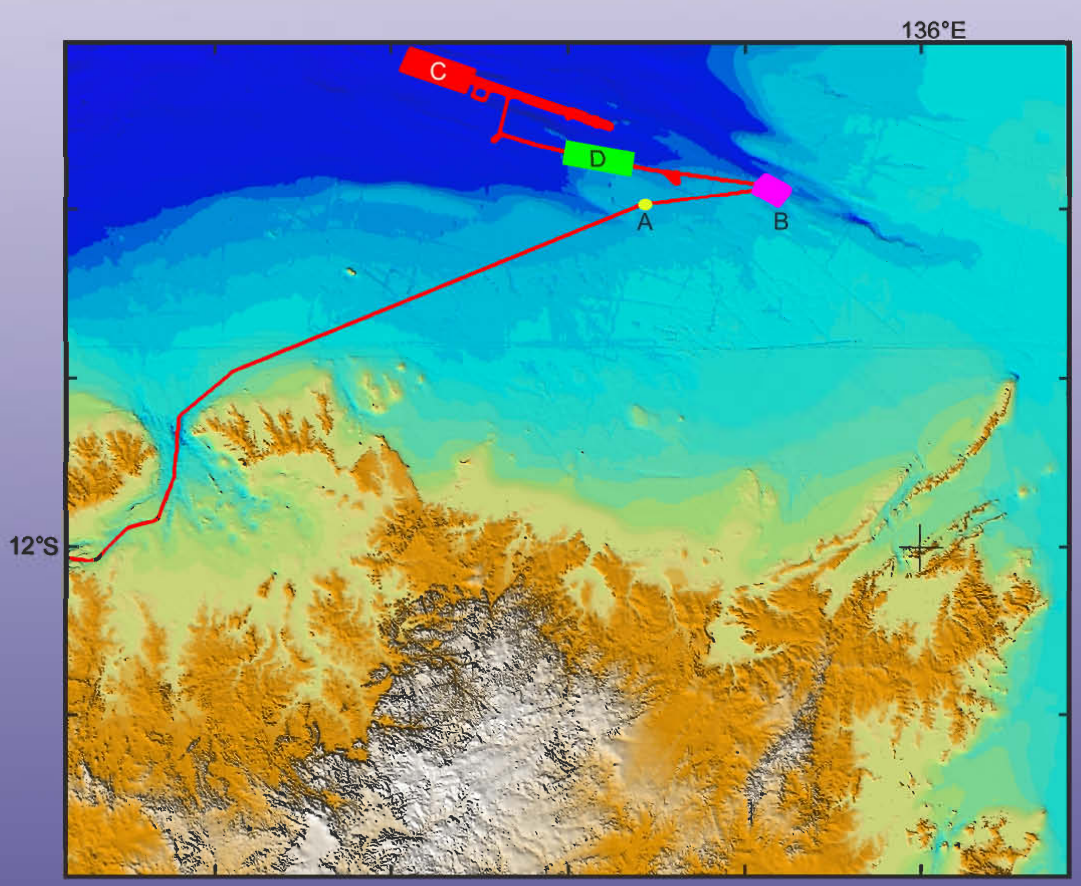
Biological Survey of the Arafura Sea

A National Oceans Office, Australian Museum, and CSIRO project



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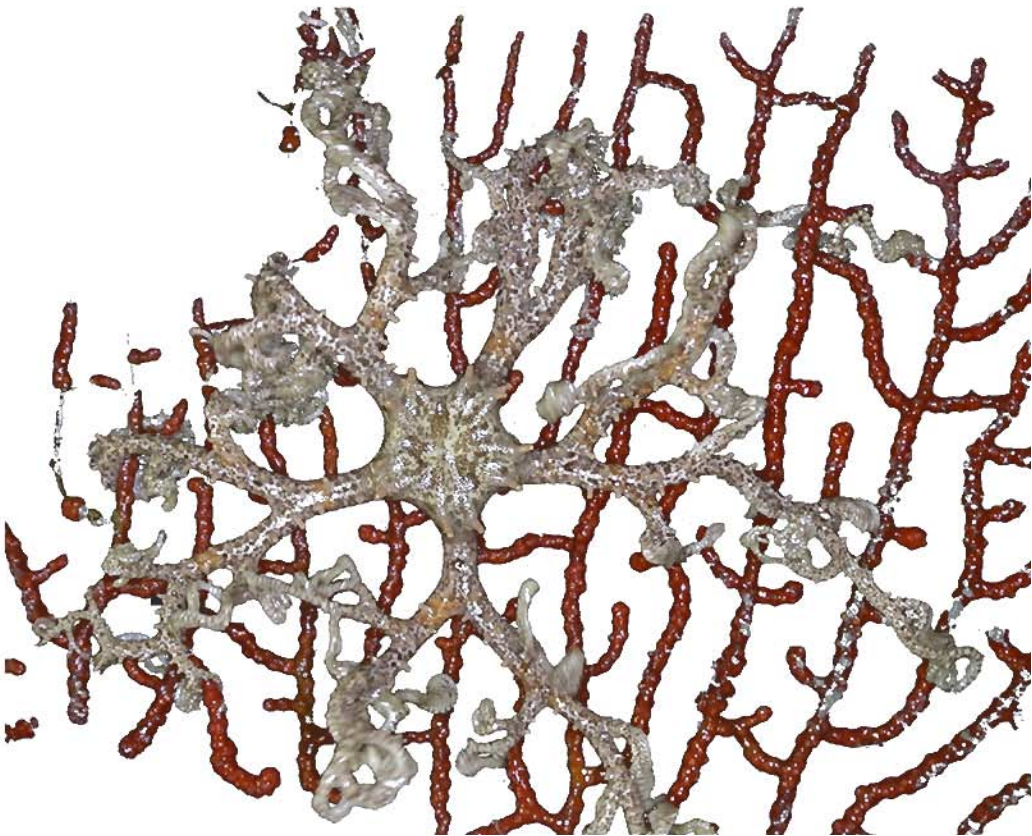

Arafura Sea Biological Survey[1]
Report on RV *Southern Surveyor* Expedition 05/2005
28 April - 28 May 2005

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Summary

In the first benthic biological survey of the Arafura Sea, a 2-person team collected 107 samples from 56 stations on *Southern Surveyor* voyage 05 of May 2005. This program was conducted opportunistically in conjunction with a Geoscience Australia geological survey of selected regions in the Arafura Sea. This survey only covers approximately 5% of the total Arafura Sea, but it provides a valuable shallow to deep transect across the region in depths ranging from 69 to 234 metres. At least 245 macroscopic species, including a diverse variety of invertebrates (e.g., sponges, corals, sea anemones, tunicates, worms, crustaceans, brittle stars, feather stars) and 6 small fish species, were photographed and documented with preliminary identifications. The sediments from many samples were washed using 300µm screens and the screened materials preserved for later identification. These sedimentary samples might contain hundreds of macrofaunal invertebrate species at millimetre and submillimetre scales and are currently being processed and documented. Species accumulation curves relative to sampling effort from the large animal data do not level off, which indicates that the survey has not captured all of the species richness in this region. This report includes two large appendices, one with the locality and sample data from the expedition and the second with digital images of the larger species extracted from the samples.

1 This report was prepared for the Department of the Environment and Heritage – National Oceans Office by the Australian Museum. The views expressed in this report are not necessarily those of the Commonwealth. The Commonwealth does not accept reponsibility for the contents of this document.

Introduction

This report describes a biological survey of the Arafura Sea by the RV *Southern Surveyor* (voyage SS 05/2005). The expedition was planned by Geoscience Australia (GA) Graham Logan and Andrew Heap as a survey of potential hydrocarbon seep sites and "environmental" geology. A collaborative partnership between Geoscience Australia, CSIRO and the Department of the Environment and Heritage (DEH) - National Oceans Office (NOO) involves chartering the National Facility RV *Southern Surveyor* for marine scientific research voyages. The biological survey in the Arafura Sea was part of a three-voyage marine science survey in northern Australian waters between 23 February and 28 May 2005. This third voyage, the "*Arafura Sea Natural Hydrocarbons Seeps and Benthic Mapping Survey*" focused on naturally occurring seepage of hydrocarbons in the sea-floor. The survey began in Darwin on 29 April 2005 and returned on 28 May, with the purpose of collecting seismic and oceanographic data, mapping the sea floor and taking geological samples over various habitats. While the voyage has a primary objective of geological and physical mapping and analysis, it presented a unique opportunity for collecting baseline information on the biodiversity of a smaller region within the Arafura Sea (approximately 5% of the total regional area). The biology team, consisting of Karen Gowlett-Holmes (CSIRO, Hobart) and George Wilson (Australian Museum), opportunistically extracted faunal samples during the geological program. This

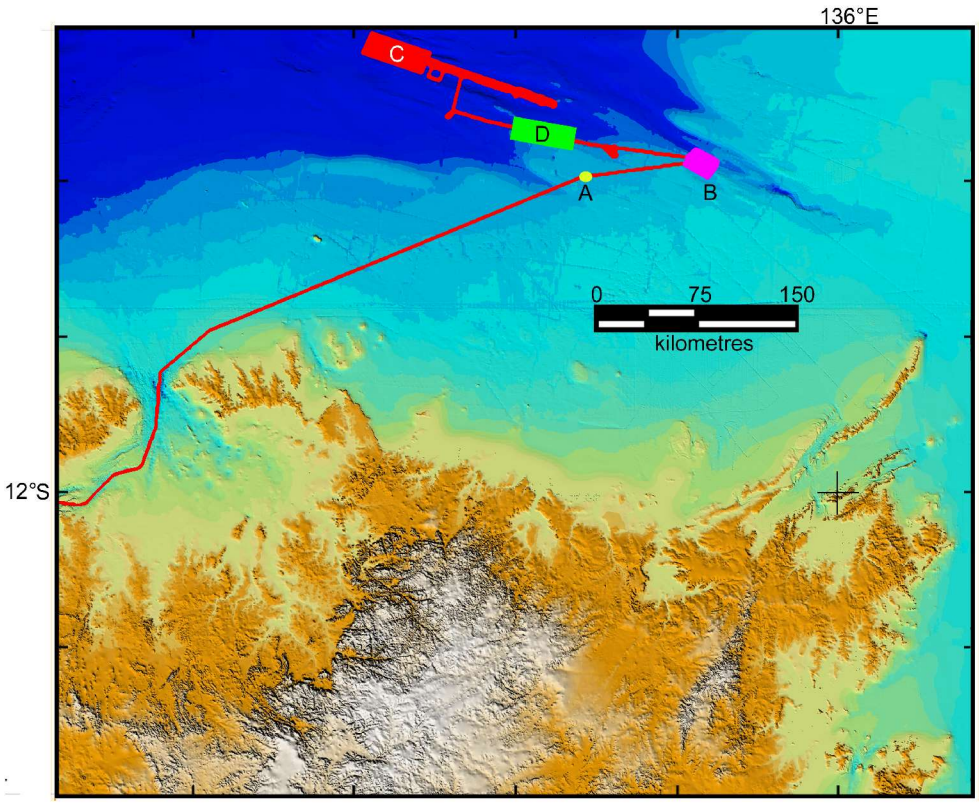

Figure 1 - Arafura Sea and general areas sampled during SS 05/2005. Red line indicates approximate expedition track. Source: Geoscience Australia

biological work is funded by NOO (DEH) and funds from the Natural Heritage Trust of Australia Reserve, DEH Marine Division, Marine Protected Areas Taskforce.

The general sampling pattern was developed by the GA staff prior to the voyage, and refined while underway based upon information received from the sea floor swath mapping and sub-bottom profiles. The voyage plan can be found on CSIRO's National Facility website (http://www.marine.csiro.au/nationalfacility/). Figure 1 shows the general sampling areas in the Arafura Sea investigated during the expedition, designated areas A through D. These areas are all within the Australian Exclusive Economic Zone (AEEZ) and represent approximately 5% of the Arafura Sea within the AEEZ. Area A, depth of 74mm was meant to be a sea floor sensor emplacement, but owing to equipment problems, only benthic samples were taken. Area B, depth 69-103m, included a sea floor emplacement, and a survey of geological "benthic environments." Area C, depths ranging from 87-234m, was an elongate polygon trending ESE-WNW and had the highest number of samples; this area was divided into sampling regions during the expedition (described below). Area D was added during the expedition because extra time was available for another sample series; it comprised primarily oozy hemipelagic sediments in 90-107 m depth.

Our aim for the post-expedition processing includes identifying the fauna to the lowest taxonomic category possible, preferably to the species level. The identifications will be done as collaboration with marine taxonomic colleagues in an Australian network of museum taxonomists, and will be the subject of later reports. Only preliminary, unverified identifications of approximately 245 species of macroscopic specimens (megafauna – visible to camera surveys, without magnification) are recorded herein from this expedition, along with digital images (see appendices). The preliminary findings and parallel research in nearby regions (Rainier, 1991) suggest that this region may have hundreds of unrecorded species from many phyla.

Prior Programs

This survey represents the first detailed benthic ecological study of the Arafura Sea. Prior to this survey, this region has had biological exploration related to fishery resources. The Soviets collected fishery data in Australian waters during 1963-1975, (Koslow et al., 1998). Trawling studies in the region by the RV *Soela* during 1980s collected primarily fish and by-catch invertebrates (CSIRO 1980). John Paxton (Australian Museum) recorded 55 fish records from one voyage, but added only a single record in the marine invertebrate database: *Portunus sanguinolentus* (a swimmer crab). Other more recent CSIRO voyages to this region primarily targeted fishes & sharks (e.g., the "Rachel" program: Stevens et al., 2000). RV *Southern Surveyor* voyages SS 02/1997, 08/1997 and 03/1998 obtained samples from shallower waters of this region during 1997-1998, under the leadership of John Salini as part of a bycatch sustainability project (CSIRO 1997, 1998). None of these programs have extensively sampled the invertebrate benthos of the Arafura Sea. Thus despite the opportunistic nature of our biological sampling, all data recovered on this region will be valuable.

Environmental Setting of the Arafura Sea

The Arafura Sea is a semi-enclosed continental shelf basin between northern Australia and Indonesian land masses. It is part of the Sahul shelf area that straddles the Indian Ocean-Australian continental plates. The geology of the region has been reviewed by Jongsma (1974) and Veevers (1971). The AEEZ region of the Arafura Sea visited by this expedition had depths ranging from 70-90 metres deepening toward the northwest to below 200m. The topography (Fig. 1; see also Grim & Edgar, 1998) includes the Arafura Channel, a submerged stream valley deepening toward the northwest at Area B, and an elongate ridge, Pillar Bank, along the same trend at Area C. Climatically, this sea is fully tropical and experiences the relatively stable trade winds during part of the year and intermittent monsoonal flows during the austral summer periods. It has a warm-water current flowing from the Pacific into the Indian Ocean called the Indonesian Throughflow (Tomczak and Godfrey, 1994). This current has a substantial influence on the climate of the entire region because it transports heat and moisture to the Indian Ocean and adjacent land masses. During the last glacial maximum, the shallower parts of the Sea were above sea-level and the Throughflow was cut off converting the Sea into a large embayment opening toward the West. From approximately 11,000-8,000 years before present, the region experienced a marine transgression that converted it from a shallow marine embayment to a shelf basin and shallow sea. As a result of this history and geography, the sediments of the Arafura Sea are calcium carbonate rich with substantial but varying fractions of carbonate sand and subfossil shell fragments. Many sediments sampled during the expedition had shells from shallow-water organisms, including oysters, a diverse assemblage of other tropical molluscs, corals, bryozoans, coralline algae and Foraminifera. These components possibly indicate previous shallow water environments, such as mangrove swamps, coral reefs, shallow lagoons or sea grass beds. The benthic boundary layer (from the seafloor to 30-50 metres above the bottom) at most sites was turbid, often well above the sediment interface, indicating ongoing sedimentary transport across the entire region. Although some current may be related to the Indonesian Throughflow, a large component of the flow at the sea floor may be influenced by the high tidal range of this region, exceeding a 5 metre vertically. Consequently, relatively high currents were observed at the sea floor, particularly at the hard grounds of Area B and ridges on Pillar Bank at Area C. Such areas had high populations of large sessile filter-feeding biota, such as sponges, octocorals and comatulacean crinoids. The deeper sites where the re-suspended fine sediments were apparently settling had high water-content hemipelagic oozes and had a minor megafaunal component in the samples. These contrasting sediment types should have substantially different invertebrate assemblages. The temperatures in the benthic boundary layer varied from 22-25°C in the shallower samples that were near the mixed layer above the strong thermocline (depth 70-90 metres), to 14-16°C in the deeper regions of Area C (depth 230 metres). Although these temperatures are not typical deep-sea temperatures (typically below 8°C), we observed the presence of some deep-water faunal elements, such as stalked crinoids, hexactinellid sponges and deep-water pedunculate barnacles.

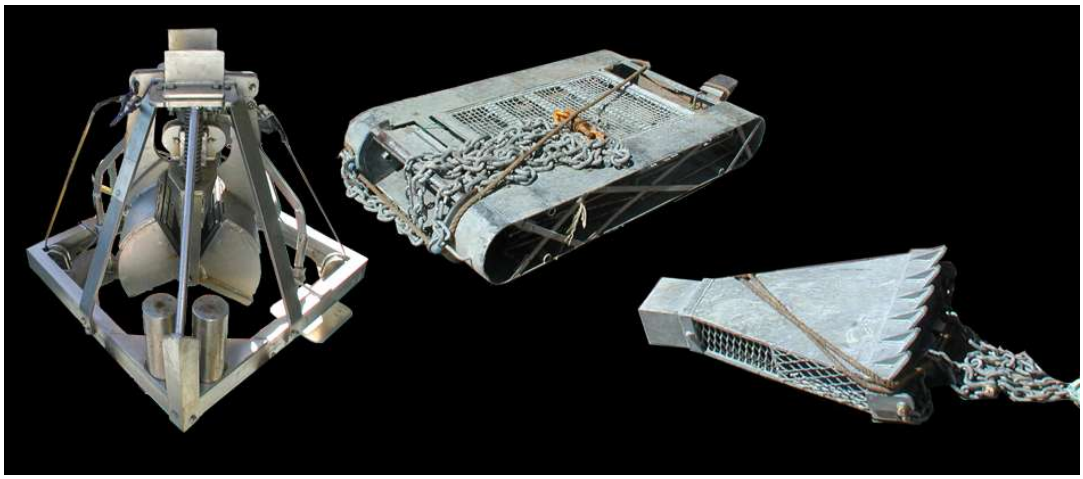

Figure 2 - samplers, left to right: Smith-Macintyre grab, small epibenthic sled, and Diamantina dredge (not to same scale). Source: G. Wilson

Sampling Methods

The sample pattern chosen by GA staff was based on geomorphology, with stations within each area being chosen using information from the swath map and sub-bottom profiler. Consequently, samples within each sampling area (see Appendix 1) cannot be considered statistically independent. This non-independence could affect some conclusions that might be made on the pattern and scale of the benthic assemblages. Nevertheless, as indicated above, the synoptic data on the fauna will be valuable.

Our primary sampling devices (Fig. 2) were the Smith-Macintyre grab that captures a surface area of approximately 0.10 m^2, a small epibenthic sled (described in Poore et al., 1987), a Diamantina dredge and a standard rock dredge. The grab collected nearly quantitative[2] samples from relatively firm sediments. The grab did not operate in fine oozes. In such situations, the epibenthic sled was used to collected qualitative[3] surface samples. The dredges were used on rocky surfaces, with Diamantina dredge being particularly good at scraping fauna from hard grounds, but often clogged with deeper clayey mud. In addition, the GA program operated a tethered video camera that gave intermittent views of the sea floor and a large gravity corer for sedimentary properties. Additionally a CTD (tethered package with sensors for conductivity (salinity) temperature and depth, with a transmissometer for particulates in the water and closable bottles for various water samples) lowering was deployed several times during each sampling series. The data from these latter devices are not treated here.

The strategy for collecting biology samples was based on available time and the placement of the sampling stations. As mentioned above, four areas (A-D) were sampled during the expedition. Within each area, numerous stations were designated. At each station, the GA program collected the following types of samples: a CTD if it was the first or last of a sampling series, a grab sample for bulk sediments, additional

2 The Smith Macintyre grab cannot be considered completely quantitative, i.e., providing an unbiased sample from a known and well-defined area. The grab has significant bow wave that tends to deflect soft surface sediment away from the sampled area. The grab's quantitative ability is further diminished by losses of surface material after sample recovery owing to an inability to expose the undisturbed sample surface while still in the grab.

3 Qualitative samplers recover approximate species abundance relationships from an undefined or unknown surface area; such samples cannot be considered quantitative.

biology grabs (usually one extra), one or several gravity cores, a camera lowering and, depending on the site, either a dredge or a epibenthic sled. Because the stations within each area were spaced closely, the biology team decided to collect only one biology grab at each station for most of the stations. At many stations, the bulk geology grab sample was also processed for fauna after the geological subsample was removed. These latter samples can be considered only qualitative because the geological subsample was not of a consistent size. Epibenthic sleds or rock dredges were not collected at all sites because they recovered large amounts of material that required much time to process. Consequently, only 2-4 Stations within each Area were chosen for biological sleds or dredges. The epibenthic sled and grab samples specifically targeted the abundant and diverse macrofaunal biota at size scales below a few centimetres, whereas the dredges were useful for the larger sessile organisms. Large motile organisms were unlikely to be sampled owing to the relatively small coverage of the samples. As a result, few fish species were collected, although this region is known from previous surveys to have a relatively diverse ichthyofauna (Koslow et al., 1998).

Sample processing. We recorded and photographed macroscopic organisms larger than 2 cm, including a variety of sponges, echinoderms, octocorals, bryzoans, worms, molluscs, decapod crustaceans, and the occasional fish (see Appendix 2). Large organisms that were photographed were labelled and preserved individually for later study. Each container was given an index number along with the sample identification. The sediment samples were given two separate treatments depending on whether they were quantitative or not. The quantitative biology grab samples were fully processed for fauna. The non-quantitative samples were subsampled, primarily targeting high water content (oozy) material, where most of the organisms should be found. In some cases, the grab samples that had been used for the geological sample were rinsed into the elutriation bin and thick clayey subsurface sediment was discarded. The epibenthic sled often collected more material than could be practicably washed in the available time, so the material was subsampled, again collecting specifically surface oozes that were present. All biological sediment samples were lightly washed through fine mesh screens (0.3mm mesh) by elutriation (Fig. 3), wherein filtered sea water was used to lift the lighter specimens and silt from the heavier sediment. Many samples had large components of shells, shell gravel and sand. To recover as much of the fauna as possible, such samples were repeatedly elutriated and the wash water tipped into the screen. The heavy material was discarded after no specimens were found in the screen after a wash cycle. This procedure may lose heavy bodied invertebrates such as molluscs, so subsamples of of the coarse material were taken to assess the degree of loss. All specimens were preserved either in ~4% formaldehyde-seawater solution or 80% ethanol. Within 2-4 days on board the ship, the formaldehyde-

Figure 3 - Elutriating sediments during SS05/2005. Source: K. Gowlett-Holmes

seawater fixed samples were washed in fresh water and transferred to 80% ethanol. A few bulk samples were preserved in 100% ethanol for possible molecular DNA analysis. All containers were tightly sealed and packed for transport later to either the Australian Museum in Sydney or the Museum and Art Gallery of the Northern Territory.

Expedition Narrative

In the following, activities and results at each of the sites are described briefly. Each of the site descriptions is accompanied by a small diagram showing the distributional pattern of the samples.

Area A (Fig. 1). The first site (Station 001) was a level region around 74 m deep (09.9°S 134.5°E) and had sediments that were grey-green calcareous ooze. In such sediments, the grab didn't trigger on bottom contact because the sediment was not sufficiently stiff. We usually deploy a Van Veen grab in such circumstances, but the ship didn't have one. The epibenthic sled was used with the closures in the mouth tied open; the opening plates would not be depressed by the soft ooze, so disabling that feature was necessary. We got a good haul that took approximately 12 hours to process.

Area B - "BRUCE" emplacement site (Fig. 4). This site (station 002, part of Area B), at 92 m deep (09.8°S 134.5°E), was in the centre of a submerged gulley and had a sandy substrate. The grabs triggered easily, and we got 3 grabs in quick succession and a epibenthic sled haul. The sand proved to be easier to wash, so all samples were done within 12 hours. Despite seeing little in the camera lowering, we obtained quite a few animals in the samples, including a "frog" crab (Raninidae) and a possibly new species of "duckbill" eel in one of the grabs. Both sites A & B were in shallow water or exposed during the last glacial period, so they had many dead tropical mollusc shells of the sort that one would find on coral reefs or shallow sea grass beds. I saved a collection of the dead shells from the second sled lowering for the malacologists.

Area B - 3-5 May 2005 (Fig. 4). The biology sampling pattern included 2 grabs (1 geology, 1 biology) at most stations with 2 epibenthic sleds among the series. More sleds would have been difficult to process and might have been redundant in any case. Operations began on the afternoon of May 3 (local time) and over the next 2 days, we collected 9 biology grabs and one sled. The Smith-Macintyre grab refused to trigger at one station owing to very soft sediments. A support rod on the grab broke during the second to last station, and the backup grab did not work as efficiently. On the

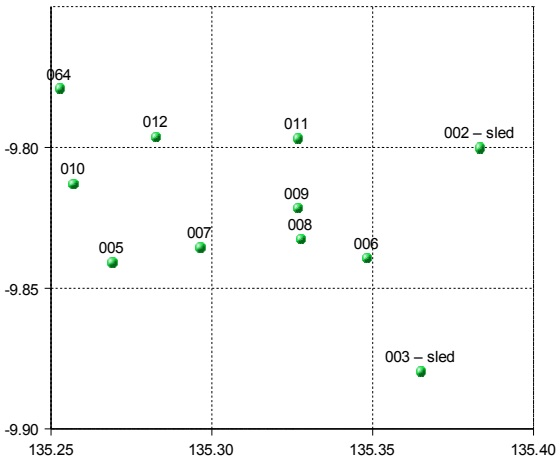

Figure 4 - Area B biology sites (Station number indicated at each position), y axis latitude S, x axis longitude E, in decimal degrees

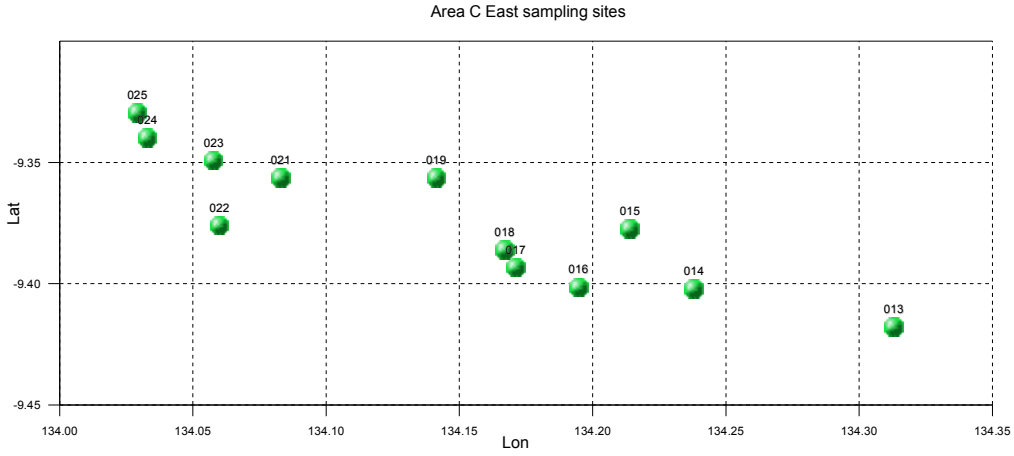

Figure 5 - Area C East biology sites (Station number indicated at each position), y axis latitude S, x axis longitude E, in decimal degrees

last station, the backup took one sample, but refused to fire on further lowerings. Because time was short, we took what we had for biology from the last 2 grabs that were taken for the sediment analysis. The rest of 5 May was spent processing the samples.

Area C – East, 10-12 May 2005 (Fig. 5). After a few days of swath mapping, we completed 2 intensive days of sampling. Fourteen stations were sampled, bringing our sample total up to 46 Smith-Macintyre grabs, 4 epibenthic sleds and 7 Diamantina dredge hauls. The eastern end of Area C includes mixed grounds with a large gulley running approximately from ESE deepening to WNW. The most eastern area is heavily impacted with currents and has substantial exposures of rocky or hard grounds. A dredge in this area collected substantial numbers of sessile epifauna. Other sites ranged from gravelly sand, subfossil coral rubble, to fine oozy marine sediments at the deeper stations. The biology effort documented more than 130 distinct species, with the number of cnidarian filter feeders captured jumping abruptly after the first dredge haul (DR001). That sample alone contained around 67 species that were large enough to photograph, with many different types of octocorals. Karen Gowlett-Holmes commented that some species appear to be similar to those in Darwin Harbour, so some may be typically shallow water fauna. Several different species of crinoid ("feather stars" Echinodermata) were collected and our ophiuroid ("brittle star", Echinodermata) species list became longer.

Area C Centre, 12-14 May 2005 (Fig. 6). The central part of Area C included 6 stations that were deeper than the eastern series, ranging from 112-187 metres. The first 4 stations to the south of the centre were in areas of higher current. The first 4 sites had varying amounts of calcareous sand, subfossil broken shells and coral rubble. All camera lowerings showed poor visibility, suggesting recent resuspension of the oozy surface layer. Some coral bits were identified as belonging to species known from Darwin Harbour. Some shells, echinoderms & coral skeletons, may have been more recent, part of the local community – just not alive. At the 4 south central stations, we only took grabs because the sediments appeared to be reasonably productive with tiny specimens. The fifth and sixth stations were in a somewhat

featureless area in the northern part of this region. Attempts with Smith-Macintyre grabs were unsuccessful, probably owing to soft sediment not being stiff enough to trigger the grabs. We used epibenthic sleds for these to get surface sediment.

During this series, we removed an active ophiuroid (brittle star), possibly family Ophiodermatidae, from grab 48. This species played dead when it was taken to the lab for photography, but after settling under the camera, a touch of its arm caused it to jump quickly away. To our surprise, it also emitted bright blue-green flashes from the underside of its arms just before it jumped. We were not aware that ophiuroids had this bioluminescent ability (although we have subsequently learned that bioluminescense is known among some shallow water species: M. Byrne & T. O'Hara, pers. comm.). Some biology samples consisted of only large organisms recovered from the geology grab samples, but we also processed the sediment from many of these, too. Two dredge hauls were rich in large sessile filter feeders. These yielded many large specimens that could be tentatively identified. Octocorals (Cnidaria) appear to have at least 36 species, mostly from the dredge hauls across hard grounds. The ophiuroids (Echinodermata) include 15 species, but we also collected many decapod crustaceans, including 5 species of snapping shrimp (Alpheidae) and 6 species of thalassanidean ghost shrimp. The latter are probably responsible for many of the burrows we see in the camera images.

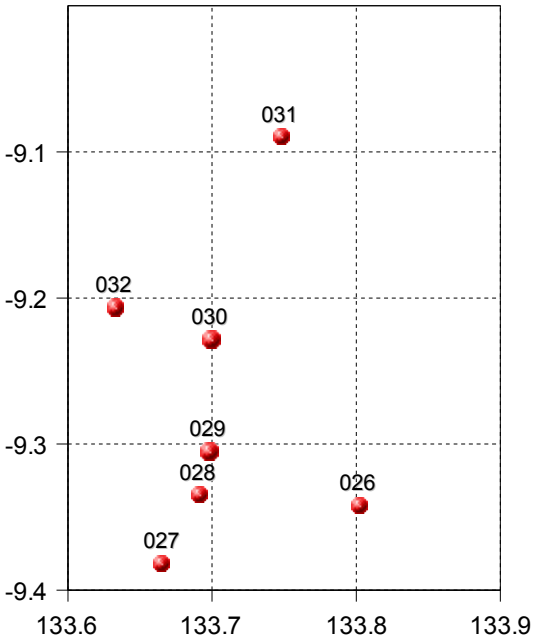

Figure 6 - Area C Centre biology sites (Station number indicated at each position), y axis latitude S, x axis longitude E, in decimal degrees

Swath Mapping, 16 May 2005. This non-sampling period was spent collating data and notes, and transferring most of the previous formalin-seawater samples to ethanol.

Area C – West, 17-20 May 2005 (Fig. 7). These sites were mostly north and west of Pillar Bank with one station on the ridge; together they covered a range of habitats from oozy marine sediments grading through sandy or shell gravelly muds to hard rocky sea floor. Because of the large number of stations in this region, the sampling periods were divided into two groups, referred to as "West" and West II," with a period of swath mapping for one day separating the two groups. The Smith-Macintyre grab broke again on hard grounds during the series and lost a spring. Fortunately, the GA mechanics were able to fix it within a few hours by using parts from the backup grab, so we resumed collecting grabs toward the end of the series. The rocky and hard substrates had quite a few interesting attached filter feeders including octocorals, anemones, sponges and crinoids ("feather stars"; Echinodermata), some of which we

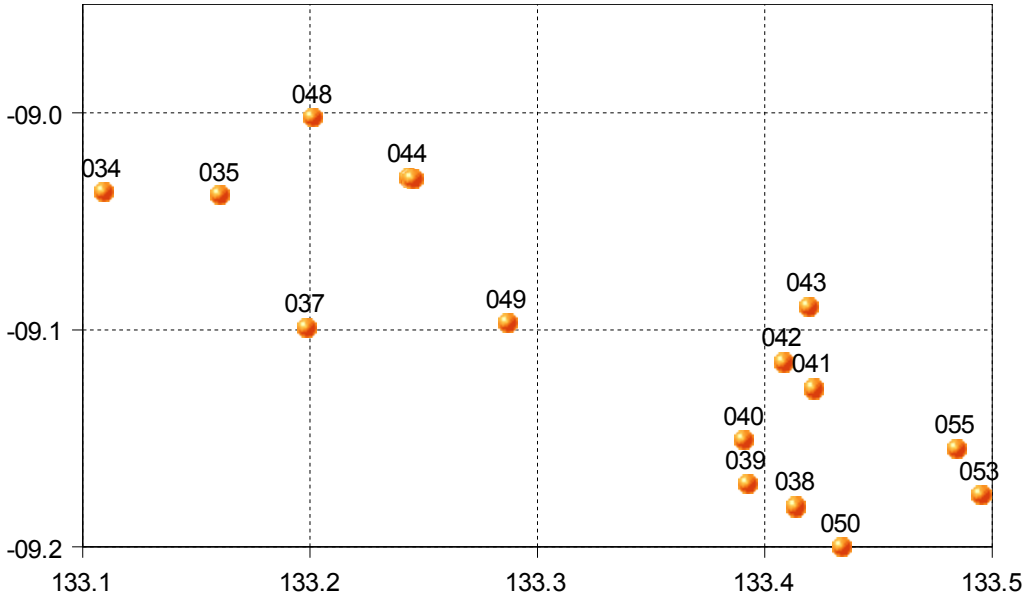

Figure 7 - Area C West biology sites (Station number indicated at each position), y axis latitude S, x axis longitude E, in decimal degrees

recovered from grabs and dredges. The Biology Team identified stalked crinoids ("deep-sea lilies"; family Pentacrinitidae?) in camera lowerings and collected a few sections of dead stalks in the samples (see photo in Appendix 25021801-043GR069B-003-Pentacrinitidae-sp1.tif). Other members of the deep-water fauna present include possible hexactinellid sponges and primitive pedunculate barnacles.

Area C South, 21-22 May 2005 (Fig. 8). A small series of samples was taken on the south side of Pillar Bank. Because the deep hemipelagic sediments south of the bank were too soft to trigger the Smith-Macintyre grab, we obtained several epibenthic sled hauls, two of which were reasonably good. Initial hauls were poor because the ropes that held the doors in the mouth of the sled open had come undone. I replaced them with a strong nylon rope, so all subsequent hauls have been large. In addition, I requested that the sled be recovered more slowly (30m/min) so the washing on recovery is much less; the 80-90m/min recovery rate of the big winch puts enough hydrodynamic pressure on the ooze to just push it through the mesh of the bag. Seas have been favourable, so loss by surge has not been a problem.

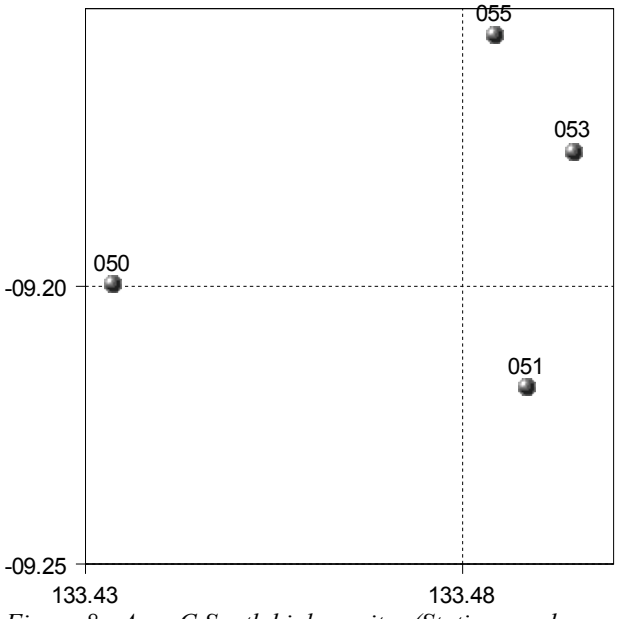

Figure 8 - Area C South biology sites (Station number indicated at each position), y axis latitude S, x axis longitude E, in decimal degrees

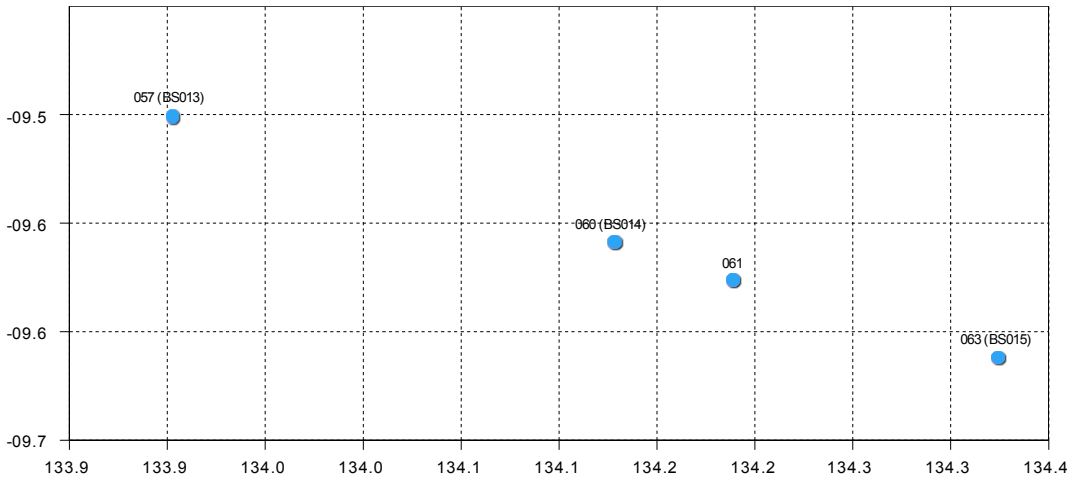

Figure 9 - Area D biology sites (Station number indicated at each position), y axis latitude S, x axis longitude E, in decimal degrees

The hemipelagic muds (water-column derived sediments with some terrigeneous material) have all been a greenish-grey, somewhat gelatinous ooze with little sand or shell grit. Such areas are obvious in the acoustic subbottom profiler because the surface layer is thick (>100 metres), is relatively homogeneous with few internal layers and does not return as strong an acoustic return as harder subbottom layers. During this series, previously identified large epifaunal species that we have observed elsewhere on the bank were recovered in a large dredge haul. A tubular hexactinellid sponge was seen in one camera lowering, but not collected.

Area D, 24-25 May 2005 (Fig. 9). A fourth area was added late in the expedition because we had extra time; no days were lost to bad weather, and the failure of the air gun system early in the voyage meant that little time was spent on seismic profiling. Sites were investigated in an approximately rectangular area south of the eastern end of Area C. Stations were designated in an approximate diagonal across the area, and the standard series of samples were taken at each station. Because the soft sediments did not trip the grab, we took 3 epibenthic sled samples, one at each end of the diagonal and one in the centre of the area. Additionally, the grab worked once out of the 28-30 tries at area D, so we washed what remained from that sample after the geologists took out the bulk geology subsample. At all sites, the sediment were fine high water content greenish-grey oozes with some fine sandy grit that was near 300 microns, clogging the sieves. Many polychaete worms were seen in the sieves.

Results

Observations made during the expedition

Various observations are Reported here that were made regarding several of the sites, which should not be considered summaries of those sites (see next section).

Area A & B. Although we cannot evaluate the tiny preserved specimens in the containers, the larger specimens could be partially identified and documented on board. From areas A and B, which are around the same depth range 70-90m, we

collected more than 50 distinct taxa in the 2-10 cm range from all lowerings, all documented photographically. Some specimens were too small to document; these were preserved separately from the main samples. Given these figures, the sedimentary invertebrate fauna could be nearly an order of magnitude more diverse than these larger organisms, somewhere around 500 species. A rough "back of the envelope" calculation, made in the biology proposal for this project, suggested that this area could have as many as 1000 invertebrate species. If the order of magnitude "rule of thumb" is the case, these sites took our program half way toward that goal.

Here are a few examples of the biology results, all of which are now documented with digital photographs and detailed accompanying data. We have collected 3 small (3cm) stomatopod crustacean species ("mantis shrimps) that appear to represent two different families. The thallassanidean crustaceans ("ghost shrimp") were abundant in these two areas and and may be a major bioturbator of the sediment, given the high density of burrows that we saw in the video camera lowerings. The thalassanideans may include 5 distinct species in two different families (Callianassidae, Upogebiidae), and additional species may be found after the samples are processed. The Ophiuroidea ("brittle stars", Echinodermata) top these with at least 6 species recovered from this site, probably belonging to at least 3 different families. Two species of the ophiuroids are unusual because their central disk is tiny (only 2-3 mm wide) but the arms are long (30-40 mm!) and thick, almost like octopus arms. The polychaetous annelids ("bristle worms") are the dominant group of marine benthos, but are typically too small to document on board ship. Nevertheless, we have digital images of 4 large species, including an elongate polynoid ("scale worm"). Because the Arafura Sea is poorly surveyed, many of these 50 species could be new, unknown to science.

Area C East. Although this region is below the mixed layer (ending at the thermocline 70-80m), we observed substantial currents below 100 metres depth. As a result, whenever we encountered hard substrates, the filter feeding megafauna were in abundance, especially at the upper margin of ridges where the current is most intense, providing the best position for filter feeders.

Area C West. Stalked crinoids, seen at this area, are an Palaeozoic relict group found only in the deep sea. They are known from southern deep waters around Australia but these observations may represent a new record for this region. We did not collect live specimens, but their presence was noted in the camera lowerings and in the several samples where individual stem sections were recovered. Because other known deep-sea taxa such as deep-water hermatypic corals and stalked barnacles were seen in the same area, the deeper regions of the shelf may be partially in the bathyal biogeographic zone.

Area C Centre. This part of Area C included shallower sections on Pillar Bank with few fines in the sediment ranging to hemipelagic oozes in deeper regions to the North. The grabs failed to trigger in the latter. The deepest site, however, was adjacent to the slope of the bank and had sediment with a substantial fraction of shell gravel. The benthic boundary layer of this subregion was extremely turbid in all camera lowerings.

Area C South. This area was sited on the southern flank of Pillar Bank, and had depths ranging from 136-182 metres. The shallower stations were higher on the bank and consisted of coarser sediments with several grabs and a rock dredge that collected oyster shells, coral and bryozoan fragments. The deeper sites, as elsewhere consisted of soft bioturbated sediments with few epifauna.

Area D. This area was placed closer to land and shoaler on the continental slope so samples had depths ranging from 90 to 107 metres. The entire area had featureless a muddy sea floor with some bioturbation and burrows. Samples here yielded few large specimens.

General Observations

Tables 1 & 2 list the number of samples obtained, their geographic coverage, and the number of lots and phyla collected. We obtained many samples (either in grabs or epibenthic sleds) from the oozy marine sediments, so study of the preserved materials at the Australian Museum and other Museums will be informative. The submillimetre fauna preserved from the sediments may be an order of magnitude more speciose than

Table 1 – Depth, location and number of samples recovered during SS2005/05.

	A	B	C East	C Centre	C West	C West II	C South	D
Depth (m)	74	69-103	87-140	112-187	124-220	161-234	136-182	90-107
mean Latitude	-09.900	-09.802	-09.373	-09.277	-09.136	-09.058	-09.181	-09.612
mean Longitude	134.501	135.281	134.139	133.700	133.347	133.262	133.489	134.19
Stations	1	12	13	7	8	6	5	4
Biol. Samples	1	26	29	11	16	14	6	4

Table 2. Number of lots (individual containers) of specimens or sample fractions collected at each Area during SS2005/05.

Area	Sample Fractions	Annelida	Brachiopoda	Bryozoa	Chordata	Cnidaria	Crustacea	Echinodermata	Echiura	Mollusca	Nemertea	Porifera	Sipuncula	**Total**
A	4	2					3	1		2				**8**
B	20	11		2	5	14	30	10		6			3	**81**
C-Centre	13			1		1	4	2		1	1			**10**
C-East	28	8	5	9	2	56	27	23		5	1	4		**140**
C-South	6	1		1		5	3	2		2		9		**23**
C-West	32	8	1	5	1	32	10	21	1	4		17		**100**
D	5				2	1		1						**4**
Total	**108**	**30**	**6**	**18**	**10**	**109**	**77**	**60**	**1**	**20**	**2**	**30**	**3**	**474**

the large megafaunal specimens documented in the appendices, so study at the Museums should substantially improve our understanding of the fauna of the Arafura Sea. These will be covered in later reports.

The region sampled by this program is an important consideration because one may not be justified in extrapolating our results to the entire Arafura Sea within the AEEZ.

1. The areal coverage was small; all samples in aggregate only subsume approximately 5% of the total area of the Arafura Sea AEEZ.
2. The region sampled possibly didn't cover all potentially different ecosystems. The expedition sampled a diagonal swath following the Arafura Channel and Pillar Bank, and did not sample along the outer shelf to the northeast (near the Arafura Sill) nor to the southwest of the region (near the Timor Sea). Because the region has an East to West gradient defined by the Indonesian Throughflow, we also might expect to see some species turnover.

Many species may ultimately prove to occur along the entire outer shelf, but the test of this assertion will require another survey from parts of the Arafura Sea not sampled by this expedition. The transect, however, does provide the first information of this type from the Arafura Sea, so these results will be useful for formulating hypotheses about the biogeographic relationships of the Sea with other regions around Australia.

For the larger documented species (see appendices), the question arises as to how well we have sampled these larger organisms. We recovered many (245) of these larger species from 107 samples, so one could suspect that we have good sample of the fauna from the region. Species accumulation curves provide a non-parametric way of assessing this question. As more and more samples are collected from a region or province, new species encountered should decline; a cumulative curve of species and sampling effort should tend toward an asymptote, or levelling off as the sampling effort increases. For the purposes of this study, the sampling effort is shown in 4 different ways (Fig. 10, counterclockwise from upper left): by Stations over all samples (each including a dredge, an epibenthic sleds and/or 1-2 grab samples each), by dredges, by epibenthic sleds and by grabs. The station curve is inconsistent because each station could have a dredge, an epibenthic sleds and/or 1-2 grab samples each, and thus might have greatly differing quantities of sample. A good example was DR001, which recovered 67 species alone, while stations without such dredges would recover substantially fewer specimens and species. Nevertheless, the station curve rises with increasing number of stations and does not appear to level off. The dredge sample curve jumps abruptly, because individual dredge samples were inconsistent and captured highly differing numbers of specimens. Nevertheless the curve, after a few sudden jumps, appears to rise continuously in the later samples. The epibenthic sled samples appears to level off but this may be an artifact. The epibenthic sled samples collected in the latter part of the expedition were only from oozy hemipelagic sediments, which tended to have few large specimens. Thus the levelling off is owing to the absence of large specimens, rather than a lack of new species encountered. This effect is observed in diversity studies where the screen size is relatively large (1-5 mm and above): because oozy sediments are dominated by mostly submillimetre infauna (such as polychaetes and small crustaceans), the measured “diversity” is low compared to coarser sediments. In actuality, the reverse is the case if the tiny

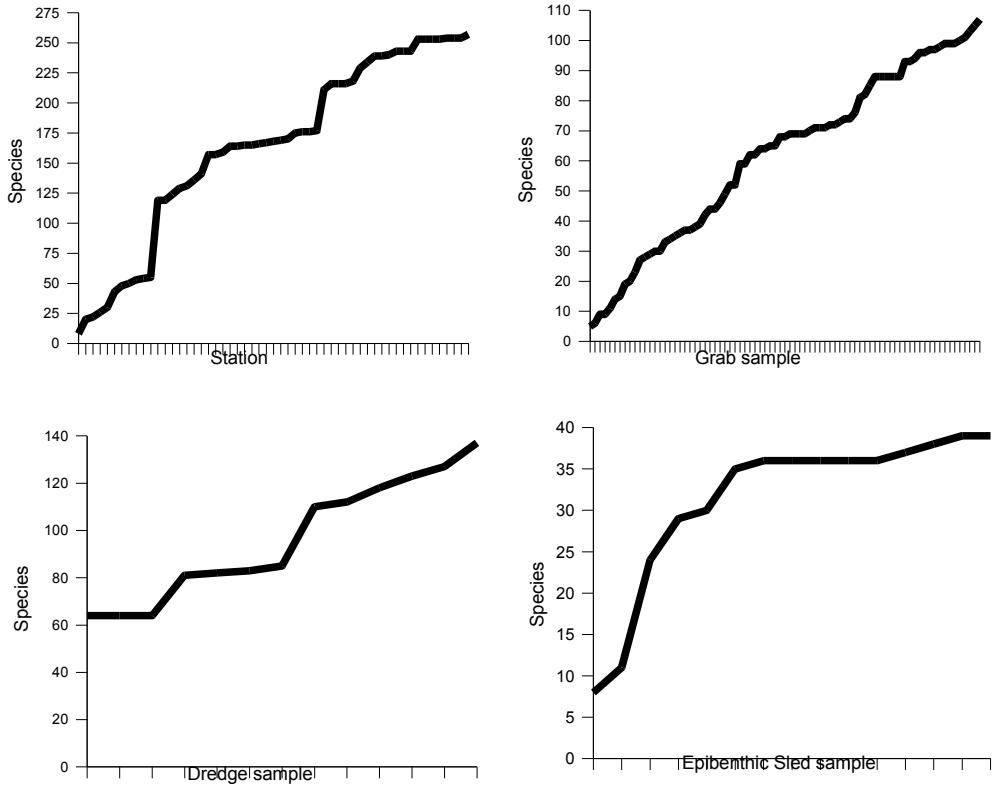

Figure 10 - Species accumulation curves for different sampling effort types from voyage SS05/2005. Samples arranged chronologically.

submillimetre part of the fauna is included (see discussion in Just & Wilson, 2004). The grab species accumulation curve is approximately linear because for the large specimens, grabs are more quantitative than for the less consistent sized dredge and epibenthic sled samples. We were able to recover all large specimens from each grab, regardless of whether it was used for geology or not. The grab also captures a consistent area (when it does trigger). The grab also selected against soft sediments because it failed to trigger, so it lacks the seemingly low diversity samples found in the epibenthic sleds from such sediments. The grab curve rises relatively evenly without break or inflection and does not appear to reach a leveling-off region. From even the well-sampled and relatively small Area B, the last few grab samples were still recovering new species not previously encountered. From these considerations, I conclude that we have not discovered all large species present in the subregion sampled from the Arafura Sea and, indeed, we may have only recovered a small fraction of the total megafaunal biodiversity. On the other hand, we now know of more species than we have prior to this cruise.

Description of the Data

Appendices that follow this report contain the data and images collected on this expedition. Appendix 1 contains a description of the sample numbering format, locality data for all samples collected, a listing of all specimens and samples with

index numbers, and an index of each large species identified and documented photographically. Appendix 2 contains a photographic summary of the digital images of all 245 species. The images are arranged by taxon according to the CSIRO CAAB (Codes for Australian Aquatic Biota) system (Yearsley et al. 1997; Rees et al. 1999); these codes are a continuously maintained and expanding 8-digit system for aquatic organisms in the Australian region maintained by CSIRO Division of Marine Research, and has recently been expanded to cover all phyla.

Conclusions

On the voyage SS05/2005, the biology team collected and preserved hundreds of species from the Arafura Sea, many of which may be new undescribed species, as well as many lots of macrofaunal samples, derived from the elutriation of benthic samples. We emphasise that this is a preliminary program, especially in view of the megafaunal species accumulation curve for grab samples, which does not level off, and because the sampling pattern cannot represent the entire Arafura Sea owing to its limitation to the areas around the Arafura Channel and Pillar Bank. Nevertheless this shallow to deep transect afforded by the geological sample pattern provides information that heretofore has not been available for this region. The data derived from the ongoing study of the sedimentary macrofauna, now in progress, will provide an excellent first step toward a much richer understanding of the distribution of benthic biodiversity in the Arafura Sea, and how it relates to other regional diversity hotspots around the Australian continent.

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I would firstly like to thank Karen Gowlett-Holmes for her consistent and helpful collaboration in this expedition, and for her detailed and excellent documentation of the larger specimens that we collected. Her cheerful demeanor and experience on the RV *Southern Surveyor* (plus many interesting stories) made a strenuous voyage much more tolerable. I am grateful to expedition leaders Graham Logan and Andrew Heap giving us space on their geological survey of the Arafura Sea. The staff of Geoscience Australia and the crew of the RV *Southern Surveyor* are thanked for their deck assistance with the biological samples and recording of the locality data. The National Oceans Office, Sally Troy and Andrew Zacharek are recognised for their advice and support of the program through a contract to the Australian Museum. We are also grateful for financial support for this project from NOO (DEH) and the Natural Heritage Trust of Australia Reserve, DEH Marine Division, Marine Protected Areas Taskforce.

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Appendices

Appendix 1 – DATA: Sample localities, specimen data, and specimens photographed

Appendix 1

Introduction

Arafura Sea Biological Survey
R/V Southern Surveyor cruise 05/05
Geosciences Australia Cruise number 282

Station numbers will be sequential starting at 001
samples by sequential numbers & gear type
- CTD001... - CTD
- GR001... - Smith-Macintyre Grab
- CAM001... - Tethered Video Camera
- GC001... - Large Gravity Core, used for several purposes
- BS001... - Epibenthic Sled (half size WHOI Epibenthic Sled)
- DR001... - Diamantina Rock Dredge or standard rock dredge

Area of SM grab 0.1073 m^2 measured CSIRO Nat. Facility version

Sample numbers are sequential within sample type
Grab & other samples may have trailing letter indicating type of sample

NB: presence of one letter does not necessarily indicate that other subsamples were taken

A - Geology bulk sediment sample
B – Biology sample (only these samples are recorded here)
C - Geochemistry sample

Biology samples have a 3 digit index number for each container, starting at 001, that are associated with either bulk samples or individual specimens. Description of these contents are in the specimen log. An associated photo log will have lists of images taken of each species, but not of each specimen

Area A was to be the ADCP benthic emplacement site, BS only

Area B was the Bruce emplacement site; selection based on holocene sedimentary profiles in the 1.5kHz subbottom profile data; stations given names of scientific party

Area C was the main survey site, and consists of three general areas that were sampled

Area C had a variety of station names; SAR anomaly sites were stations selected owing to possible hydrocarbon slick presence based on synthetic aperature radar satellite data

Area D was an additional site added in the last week of the cruise; with also SAR anomaly sites and pockmarked sea floor features.

See Geosciences Australia cruise plan for more information on the sample sites

Station data that follows are only samples relevant to biological sampling; other samples were recorded by GA

Information from camera lowerings from each station included in comments on main biological samples; camera lowerings crossed over each sampling site and so are relatively good representation of the general environment

For sample containers & specimen data, see specimen log and photographic log

Data transcribed by G. Wilson; specimen & photographic logs kept by K. Gowlett-Holmes

Appendix 1 **Station Data**

Station Number	001	002	002	002	002	003	003	005	005	006	006
Sample Number	BS001	GR001	GR002	GR003	BS002	GR004	GR005	GR006	GR007	GR008	GR009
Gear	Small Epibenthic Sled	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Small Epibenthic Sled	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab
Location	Arafura Sea site A	Arafura Sea – Area B	Arafura Sea – Area B	Arafura Sea – Area B	Arafura Sea – Area B	Arafura Sea – Area B	Arafura Sea – Area B	Arafura Sea – Area B	Arafura Sea – Area B	Arafura Sea – Area B	Arafura Sea – Area B
Location nickname	ADCP site	"BRUCE" site	"BRUCE" site	"BRUCE" site	"BRUCE" site	"George"	"George"	"Kriton"	"Kriton"	"Kurley"	"Kurley"
Date (GMT)	1 May 2005	1 May 2005	1 May 2005	1 May 2005	1 May 2005	4 May 2005	4 May 2005	4 May 2005	4 May 2005	4 May 2005	4 May 2005
Julian Day	121	122	122	122	122	124	124	124	124	124	124
Sea State	3-4	3-4	3-4	3-4	3-4			3	3	4	4
Wind Direction (deg)	110	092	092	092	094	099		109	109	102	102
Wind Speed (kt)	23	10	15	10	18.8	23		24	24	19.2	20.7
Ship's Heading	110	078	078	078	079			108	108	104	108
Begin sample											
Time (GMT)	11:16:00	00:14:56	00:24:27	00:31:45	01:31:59	07:03:00	07:10:00	13:34:00	13:40:00	16:17:08	16:25:27
Time Local (AEST)	21:16:00	10:14:56	10:24:27	10:31:45	11:31:59	17:03:00	17:10:00	23:34:00	23:40:00	02:17:08	02:25:27
Latitude deg	09	09	09	09	09	09	09	09	09	09	09
Latitude min	54.010	47.992	47.986	47.986	47.947	52.775	52.788	50.466	50.470	50.361	50.356
Latitude Decimal	-09.90017	-09.79987	-09.79977	-09.79977	-09.79912	-09.87958	-09.87980	-09.84110	-09.84117	-09.83935	-09.83927
Longitude deg	134	135	135	135	135	135	135	135	135	135	135
Longitude min	30.040	22.001	22.007	22.997	22.024	21.884	21.891	16.099	16.099	20.904	20.888
Longitude Decimal	134.50067	135.36668	135.36678	135.38328	135.36707	135.36473	135.36485	135.26832	135.26832	135.34840	135.34813
Depth (m)	74	92	91.2	91.2	92	70	69	80	80	87	87
Wire Out (m)	150	nr	nr	nr	nr						
End sample		NA	NA	NA		NA	NA	NA	NA	NA	NA
Time (GMT)	11:27:00				01:34:16						
Time Local	21:27:00				11:34:16						
Latitude deg	09				09						
Latitude min	54.002				47.985						
Latitude Decimal	-09.9000				-09.7998						
Longitude deg	134				135						
Longitude min	30.086				22.074						
Longitude Decimal	134.5014				135.3679						
Depth (m)	74				92						
Sample Description	Greenish grey mud with calcareous particles	Moderately sorted calcareous slightly muddy medium to fine sand (5GT10/1)	Moderately sorted calcareous slightly muddy medium to fine sand (5GT10/1)	Moderately sorted calcareous slightly muddy medium to fine sand (5GT10/1)	Moderately sorted calcareous slightly muddy medium to fine sand (5GT10/1)	Sandy Mud 5Y4/3	Sandy Mud 5Y4/3	Muddy Sand GLEY1 4/10Y	Muddy Sand GLEY 1 4/10Y	Muddy Sand - calcareous poorly-sorted muddy fine sand; 5GY 5/1	Muddy Sand - calcareous poorly-sorted muddy fine sand; 5GY 5/1
Comments	geological sample taken	Mostly forams and dead mollusc shells; geology sample taken; semiquantitative	Mostly forams and dead mollusc shells; sample elutriated, heavy fraction discarded	Mostly forams and dead mollusc shells, heavy fraction discarded	CAM001: irregular ripples, relatively barren with no obvious biota	large specimens recovered from 5mm screen wash	CAM002: current ripples with floculant brown sediment in swales; large burrows, some seen expelling sediment	large specimens recovered from 5mm screen wash	elutriated, heavy fraction discarded; CAM004, 77m: bottom soft sediments, many burrows, heavily bioturbated	large specimens recovered from 5mm screen wash	elutriated, heavy fraction discarded;mostly forams and mollusc fragments. CAM005 showed silty sandy surface with small ripples
Sample containers	specimen containers 001-008, sample containers 009-012 total samples	specimen containers 001-002,005; sample 003-004 107	specimens 001-002,004; sample 002	specimens 001; sample 002	specimens 001-003; sample 004-005	specimens 001-004	specimens 001-003; sample 004	specimens 001-003	sample 001; specimens 002-004	specimens 001-002	specimens 001-003, 005-006; sample 004

Appendix 1 **Station Data**

Station Number	007	007	007	008	008	009	009	010	010	011
Sample Number	GR010	GR011	BS003	GR012	GR013	GR014	GR015	GR016	GR017	GR018
Gear	Smith-Macintyre Grab	Smith-Macintyre Grab	Small Epibenthic Sled	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab
Location	Arafura Sea – Area B	Arafura Sea – Area B	Arafura Sea – Area B	Arafura Sea – Area B	Arafura Sea – Area B	Arafura Sea – Area B	Arafura Sea – Area B	Arafura Sea – Area B	Arafura Sea – Area B	Arafura Sea – Area B
Location nickname	"John"	"John"	"John"	"Karen"	"Karen"	"Michele"	"Michele"	"Heapy"	"Heapy"	"Franz"
Date (GMT)	4 May 2005	4 May 2005	4 May 2005	4 May 2005	4 May 2005	4 May 2005	4 May 2005	5 May 2005	5 May 2005	5 May 2005
Julian Day	124	124	124	124	124	124	124	125	125	125
Sea State	4	4	4	4	4	4	4	4	4	2
Wind Direction (deg)	110	110	123	114	114	119	119	125	125	123
Wind Speed (kt)	17.5	17.5	17	17	17	17	17	15.7	15.8	17
Ship's Heading	187	187	111	111	111	107	107	137	100	109
Begin sample										
Time (GMT)	18:56:45	19:05:04	20:28:15	21:09:59	21:15:45	23:10:59	23:18:17	02:59:00	03:19:00	04:02:00
Time Local (AEST)	04:56:45	05:05:04	06:28:15	07:09:59	07:15:45	09:10:59	09:18:17	12:59:00	13:19:00	14:02:00
Latitude deg	09	09	09	09	09	09	09	09	09	09
Latitude min	50.118	50.126	50.035	49.952	49.933	49.279	49.294	48.760	48.774	47.768
Latitude Decimal	-09.83530	-09.83543	-09.83392	-09.83253	-09.83222	-09.82132	-09.82157	-09.81267	-09.81290	-09.79613
Longitude deg	135	135	135	135	135	135	135	135	135	135
Longitude min	17.762	17.766	17.740	19.638	19.656	19.582	19.599	15.398	15.412	16.935
Longitude Decimal	135.29603	135.29610	135.29567	135.32730	135.32760	135.32637	135.32665	135.25663	135.25687	135.28225
Depth (m)	83	83	82.8	83	83	83	83	81	82	84
Wire Out (m)										
End sample	NA	NA		NA	NA	NA	NA	NA	NA	NA
Time (GMT)										
Time Local			10:00:00							
Latitude deg			09							
Latitude min			50.580							
Latitude Decimal			-09.8430							
Longitude deg			135							
Longitude min			17.785							
Longitude Decimal			135.2964							
Depth (m)			82.8							
Sample Description	calcareous poorly-sorted muddy fine sand 5GY 5/1	calcareous poorly-sorted muddy fine sand 5GY 5/1		5GY 6/1; poorly sorted calcareous muddy fine sand; some calcareous gravel; mostly mollusc & foram fragments; organic material	5GY 6/1; poorly sorted calcareous muddy fine sand; some calcareous gravel; mostly mollusc & foram fragments; organic material	5Y 4/2; poorly-sorted calcareous muddy medium sand; mostly mollusc & forma fragments; some organic fragments	5Y 4/2; poorly-sorted calcareous muddy medium sand; mostly mollusc & forma fragments; some organic fragments	sandy mud GLEY 1 4/10Y	sandy mud GLEY 1 4/10Y	muddy sand; GLEY 1 4/10Y
Comments	large specimens recovered from 5mm screen wash	minor amounts of gravel; mollusc & foram fragments mostly; some organic matter	CAM006 showed scallop, burrows, possible sponge, sea pens	large specimens recovered from 5mm screen wash	elutriated, heavy fraction discarded;CAM007 showed small sand ripples & burrows with some rubble; relatively sparse biota	biology subsample, large specimens recovered	elutriated, heavy fraction discarded; CAM008 showed sediment in suspension; sandy irregular ripples; relatively sparse biota	biology subsample taken	elutriated, heavy fraction discarded. CAM009: irregular ripples, poorly defined; large burrows obvious; biota sparse	~1 kg sediment removed for geology; elutriated, heavy fraction discarded. CAM010: rippled sandy bed; ripples spread ~20cm & ~2-3 cm deep; bioturbation & burrows lower density than other sites; burrowseen expelling sand
Sample containers	specimens 001-003	sample 001; specimens 002-005	sample 001; specimens 002-015; shells in ethanol 016	specimens 001-002, 004-005; small sieved subsample	specimens 001; sample 002	specimen 001; small sieved subsample 002	sample 001; specimens 002-003	specimen 001	sample 001; specimens 002-004	sample 001; specimens 002-003

Appendix 1 **Station Data**

Station Number	012	013	013	013	014	015	015	015	016	016
Sample Number	GR019	GR020	GR021	DR001	GR023	GR024	GR025	BS004	GR026	GR027
Gear	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Diamentina Dredge	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Small Epibenthic Sled	Smith-Macintyre Grab	Smith-Macintyre Grab
Location	Arafura Sea – Area B	Arafura Sea – Area B	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C East
Location nickname	"Craig"	"Green"	"Green"	"Green"	"SAR-1"	"SAR-2"	"SAR-2"	"SAR-2"	"Black"	"Black"
Date (GMT)	5 May 2005	10 May 2005	10 May 2005	10 May 2005	10 May 2005	10 May 2005	10 May 2005	10 May 2005	10 May 2005	10 May 2005
Julian Day	125	130	130	130	130	130	130	130	130	130
Sea State	2	2	2	2	2	2	2	3	3	3
Wind Direction (deg)	124	141	140	113	120	116	116	117	105	105
Wind Speed (kt)	18	16	16	12		15	15	14.1	13.5	13.5
Ship's Heading		115	119		013	115	115		149	149
Begin sample										
Time (GMT)	05:49:00	05:55:00	06:14:00	08:21:00	09:26:00	14:20:00	14:30:00	18:57:55	19:40:19	19:49:18
Time Local (AEST)	15:49:00	15:55:00	16:14:00	18:21:00	19:26:00	00:20:00	00:30:00	04:57:55	05:40:19	05:49:18
Latitude deg	09	09	09	09	09	09	09	09	09	09
Latitude min	47.593	25.080	25.081	24.933	24.141	22.631	22.630	22.660	24.100	24.097
Latitude Decimal	-09.79322	-09.41800	-09.41802	-09.41802	-09.40235	-09.37718	-09.37717	-09.37767	-09.40167	-09.40162
Longitude deg	135	134	134	134	134	134	134	134	134	134
Longitude min	16.636	18.780	18.779	18.619	14.268	12.802	12.830	12.870	11.660	11.675
Longitude Decimal	135.27727	134.31300	134.31298	134.31032	134.23780	134.21337	134.21383	134.21450	134.19433	134.19458
Depth (m)	85	87	88	89	97	106	106	105	87.2	87.2
Wire Out (m)										
End sample	NA	NA	NA		NA	NA	NA		NA	NA
Time (GMT)				08:23:00				19:00:06		
Time Local				18:23:00				05:00:06		
Latitude deg				09				09		
Latitude min				25.005				22.638		
Latitude Decimal				-09.4168				-09.3773		
Longitude deg				134				134		
Longitude min				18.700				12.842		
Longitude Decimal				134.3117				134.2140		
Depth (m)				89						
Sample Description	muddy sand; GLEY 1 4/10Y	Bioclastic sand 5Y 5/2	Bioclastic sand 5Y 5/2	Dredge mostly animals with few muddy sand balls	muddy silt GLEY 1 4/10Y	sandy mud 5Y 5/3	sandy mud 5Y 5/3	sandy mud	poorly sorted calcareous muddy fine to medium sand; some gravel, carbonate clasts; molluc & foram fragments; fresh to intermediat preservation; 5Y 5/4	poorly sorted calcareous muddy fine to medium sand; some gravel, carbonate clasts; molluc & foram fragments; fresh to intermediat preservation; 5Y 5/4
Comments	~1 kg sediment removed for geology; elutriated, heavy fraction discarded. no camera lowering	geology sediment sample, few animals removed	elutriated, heavy fraction discarded. CAM011: hard grounds with many sessile fauna (octocorals, crinoids, anemones)	Large sample of many sessile megafaunal individuals; CAM011 – hard grounds with many sessile fauna (octocorals, crinoids, anemones)	CAM012: softy muddy substrate with some mounds, fecal pellets rolling in current, no megafauna	CAM013: silty sea floor, heavily bioturbated with burrows, occasional mounds and a few fish. Sample nonquantitative – only washed ooze & topwater	sample elutriated, heavy fraction discarded. CAM013: silty sea floor, heavily bioturbated with burrows, occasional mounds and a few fish	small haul; only one bin of material	biology subsample from geology sample	sample elutriated, heavy fraction discarded. CAM014: patchy hard places among silty bioturbated sand; occasionaly large macrofauna – octocorals, antipatherians, sea fans, sea whips, fish, possible diffuse hydroids
Sample containers	sample 001; specimens 002-3	specimen 001-002	specimen 001; sample 002	specimens001-018, 020-067; sample 019	sample 001	sample 001; specimen 002	sample 001; specimen 002	sample 001; specimens 002-007	specimens 001-004	sample 001; specimens 002-003

Appendix 1

Station Data

Station Number	017	017	018	018	018	019	019	019	020
Sample Number	GR028	GR029	GR030	GR031	DR002	GR032	GR033	DR003	GR035
Gear	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Diamentina Dredge	Smith-Macintyre Grab	Smith-Macintyre Grab	Diamentina Dredge	Smith-Macintyre Grab
Location	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C East
Location nickname	"Blue"	"Blue"	"SAR-3"	"SAR-3"	"SAR-3"	"Pink"	"Pink"	"Pink"	"Purple"
Date (GMT)	10 May 2005	10 May 2005	11 May 2005	11 May 2005	11 May 2005	11 May 2005	11 May 2005	11 May 2005	11 May 2005
Julian Day	130	130	131	131	131	131	131	131	131
Sea State	3	3	2	2	2	1	1	1	1
Wind Direction (deg)	129	129	129	129	134	nr	nr	132	143
Wind Speed (kt)	10.9	10.9	12	12	12	13	13	14	13
Ship's Heading	138	138	134	134	285	nr	nr	nr	nr
Begin sample									
Time (GMT)	23:35:50	23:43:12	03:45:00	03:51:00	06:52:00	08:40:00	08:46:00	09:51:00	11:07:00
Time Local (AEST)	09:35:50	09:43:12	13:45:00	13:51:00	16:52:00	18:40:00	18:46:00	19:51:00	21:07:00
Latitude deg	09	09	09	09	09	09	09	09	09
Latitude min	23.600	23.610	23.171	23.170	23.106	22.990	22.990	22.910	21.370
Latitude Decimal	-09.39333	-09.39350	-09.38618	-09.38617	-09.38510	-09.38317	-09.38317	-09.38183	-09.35617
Longitude deg	134	134	134	134	134	134	134	134	134
Longitude min	10.370	10.300	10.043	10.040	10.122	9.780	9.780	9.840	7.086
Longitude Decimal	134.17283	134.17167	134.16738	134.16733	134.16870	134.16300	134.16300	134.16400	134.11810
Depth (m)	88	88	103	103	99	108	108	103	101
Wire Out (m)					250			200	
End sample	NA	NA	NA	NA		NA	NA		NA
Time (GMT)					07:08:00			09:58:00	
Time Local					17:08:00			19:58:00	
Latitude deg					09			09	
Latitude min					23.069			22.770	
Latitude Decimal					-09.3845			-09.3795	
Longitude deg					134			134	
Longitude min					09.847			09.940	
Longitude Decimal					134.1641			134.1657	
Depth (m)					99			103	
Sample Description			GLEY 1 4/10y, bioclastic muddy sand	GLEY 1 4/10y, bioclastic muddy sand	muddy bioclastic sand	muddy sand with bioclasts 5Y 5/2	several large rocks; bioclastic gravel & sand	muddy sand	bioclastic sand and gravel; recovery only 1/5
Comments	few specimens from geology sample	sample elutriated, heavy fraction discarded. CAM015: a field of sea pens on soft sediments, fish, minimal current; occasional large sessile megafauna – gorgonians, black corals; extensive sand Arafura Sea – Areas with silt and intermittant patches of hard grounds; sloping Arafura Sea – Area beginning at 84m to 95m	few specimens from geology sample	sample elutriated, heavy fraction discarded. CAM016: rocky outcrops with many species of sessile filterfeeding megafauna (mostly cnidarians) and a few fish; several cracks in rock around 20cm wide	Dredge probably got full of mud prior to reaching rocky ridge	sample not quantitative; washed only topwater and surface ooze	possible topwater loss; non-quantitative;sample elutriated, heavy fraction discarded. CAM017: muddy bioturbated sand Arafura Sea – Areas with sparse megafauna, fecal pellets and burrows; some harder Arafura Sea – Areas with sessile megafauna (sea whips, fans, octocorals)	dredge full of thick sediment – no rocks; geological sample taken – A; biology – B	sample may have lost topwater – nonquantitative; sample elutriated, heavy fraction discarded; CAM018: rocky bottom, fissures and ledges; hard bare surfaces interspersed with silty sloping Arafura Sea – Areas; "garden" of sea fans & octocorals; visibility poor, murky
Sample containers	specimen 001	sample 001; specimens 002-004	specimens 001-003	sample 001; specimens 002-004	sample 003; specimens 001-002	sample 001	sample 010; specimens 001-009	sample 001	sample 001; specimens 002-004

Appendix 1 **Station Data**

Station Number	020	021	022	022	023	023	023	023	024
Sample Number	DR005	GR037	GR038	GR039	GR040	GR041	GR042	DR006	GR043
Gear	Diamentina Dredge	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Diamentina Dredge	Smith-Macintyre Grab
Location	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C East
Location nickname	"Purple"	"White"	"SAR-4"	"SAR-4"	"Gray"	"Gray"	"Gray"	"Gray"	"Orange"
Date (GMT)	11 May 2005	11 May 2005	11 May 2005	11 May 2005	11 May 2005	11 May 2005	11 May 2005	11 May 2005	11 May 2005
Julian Day	131	131	131	131	131	131	131	131	131
Sea State	1	1	2	2	2	2	2	2	2
Wind Direction (deg)	143	115	112	112	128	128	134	123	111
Wind Speed (kt)	13	12	11.7	11.7	13.8	13.8	15.4	13.5	13.6
Ship's Heading	nr	117	107	107	275	275	020	010	119
Begin sample									
Time (GMT)	12:25:00	13:39:00	16:02:20	16:11:25	20:06:52	20.14:07	20:36:41	21:42:06	22:53:25
Time Local (AEST)	22:25:00	23:39:00	02:02:20	02:11:25	06:06:52	10:00:00	06:36:41	07:42:06	08:53:25
Latitude deg	09	09	09	09	09	09	09	09	09
Latitude min	21.380	21.380	22.547	22.560	20.939	20.938	20.940	20.961	20.392
Latitude Decimal	-09.35633	-09.35633	-09.37578	-09.37600	-09.34898	-09.34897	-09.34900	-09.34935	-09.33987
Longitude deg	134	134	134	134	134	134	134	134	134
Longitude min	7.160	4.970	3.585	3.600	3.444	3.445	3.430	3.457	1.977
Longitude Decimal	134.11933	134.08283	134.05975	134.06000	134.05740	134.05742	134.05717	134.05762	134.03295
Depth (m)	110	112	121	121	140	140	140	138	132
Wire Out (m)	280								
End sample		NA	NA	NA	NA	NA	NA		NA
Time (GMT)	12:25:00							21:48:31	
Time Local	22:25:00							07:48:31	
Latitude deg	09							09	
Latitude min	21.170							20.830	
Latitude Decimal	-09.3528							-09.3472	
Longitude deg	134							134	
Longitude min	07.120							03.500	
Longitude Decimal	134.1187							134.0583	
Depth (m)	110							138	
Sample Description	muddy sand with coral rubble and shells	sandy mud GLEY 1 5/5GY	oozy mud GY 5/3; calcareous poorly sorted, very fine sand grains (<300 micron)	oozy mud GY 5/3; calcareous poorly sorted, very fine sand grains (<300 micron)	single large boulder – no sediment; indurated crust (large vesicles); well-developed weathering rind; burrows filled with mud	poorly sorted calcareous gravelly mud (high water content); 5Y 5/4	poorly sorted calcareous gravelly mud (high water content); 5Y 5/4	sample contains: solitary corals; indurated limestone (worm tubes, weathered vesicles – many chuncks up to 25cm diameter, well developed weathering rinds); staghorn coral (shallow water) – older (later sea level): carnivorous corals (deep water) – younger	poorly sorted calcareous mud, 5Y 5/3; no sand grains or gravel clasts
Comments	subsamples: A – geological sample; B – biology; C – coral rock fragments	CAM019: muddy substrate, occasional burrows; turbitity in water high	sieved all for biology; only small geology sample removed; mostly quantitative	washed entire sample. CAM020: soft floculant sediment; bioturbated with many burrows approx. 50-100 per metre square; occasional fish; turbid layer starts at 85mwo	specimen removed from rock	geology sample seived for biology; nearly quantitativesample elutriated, heavy fraction discarded.	sample elutriated, heavy fraction discarded. CAM021: soft bottom, turbid benthic layer, poor visibility; sparse megafauna, occasional sea whip; patches of firmer substrate with sessile megafauna (gorgonian, black coral, crinoid); some sandy mud	no sediment	entire sample passes through 0.3 mm sieve. small geological sample removed (~0.25 L); nearly quantitative
Sample containers	sample 010; specimens 001-009,011-026	sample 001; specimen 002	sample 001; specimens 002-003	sample 001	specimen 001	sample 001	sample 001; specimens 002-004	specimens 001-004	sample 001

Appendix 1

Station Data

Station Number	024	025	025	026	027	027	028	028	029	029
Sample Number	GR044	GR045	DR007	GR046	GR047	GR048	GR049	GR050	GR051	GR052
Gear	Smith-Macintyre Grab	Smith-Macintyre Grab	Diamentina Dredge	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab
Location	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C East	Arafura Sea – Area C Centre	Arafura Sea – Area C Centre	Arafura Sea – Area C Centre	Arafura Sea – Area C Centre	Arafura Sea – Area C Centre	Arafura Sea – Area C Centre	Arafura Sea – Area C Centre
Location nickname	"Orange"	"Indigo"	"Indigo"	"Marine"	"Benson"	"Benson"	"Pinky"	"Pinky"	"Scobby"	"Scobby"
Date (GMT)	11 May 2005	12 May 2005	12 May 2005	12 May 2005	13 May 2005	13 May 2005	13 May 2005	13 May 2005	13 May 2005	13 May 2005
Julian Day	131	132	132	132	133	133	133	133	133	133
Sea State	2	2	1	1	2	2	3	3	3	3
Wind Direction (deg)	115	106	116	126	113	113	130	130	125	125
Wind Speed (kt)	14.7	12.5	1.6	13	18	18	16.2	16.2	16.3	16.3
Ship's Heading	119	111	143	124	115	115	122	122	109	109
Begin sample									187	
Time (GMT)	23:06:30	01:48:01	03:12:00	06:05:00	12:23:00	12:29:00	16:23:20	16:31:36	19:00:37	19:11:06
Time Local (AEST)	09:06:30	11:48:01	13:12:00	16:05:00	22:23:00	22:29:00	02:23:20	02:31:36	05:00:37	05:11:06
Latitude deg	09	09	09	09	09	09	09	09	09	09
Latitude min	20.392	19.746	19.720	15.480	22.870	22.870	20.029	20.027	18.225	18.210
Latitude Decimal	-09.33987	-09.32910	-09.32867	-09.25800	-09.38117	-09.38117	-09.33382	-09.33378	-09.30375	-09.30350
Longitude deg	134	134	134	133	133	133	133	133	133	133
Longitude min	1.980	1.754	1.750	48.000	39.880	39.890	41.452	41.452	41.805	41.820
Longitude Decimal	134.03300	134.02923	134.02917	133.80000	133.66467	133.66483	133.69087	133.69087	133.69675	133.69700
Depth (m)	131	111	111	147	112	112	122	117	187	187
Wire Out (m)			281							
End sample	NA	NA		NA	NA	NA	NA		NA	NA
Time (GMT)			03:35:00							
Time Local			13:35:00							
Latitude deg			09							
Latitude min			19.890							
Latitude Decimal			-09.3315							
Longitude deg			134							
Longitude min			01.780							
Longitude Decimal			134.0297							
Depth (m)			111							
Sample Description	poorly sorted calcareous mud, 5Y 5/3; no sand grains or gravel clasts	poorly sorted calcareous muddy medium sand 5Y 5/4	muddy sand	mud 5Y 5/3	5y 5/4 muddy sand	5y 5/4 muddy sand	poorly sorted calcareous sandy mud, with some gravel 5Y 5/4; gravel clods are all calcareous, mostly mollusc fragments, fresh to intermediate preservation	poorly sorted calcareous sandy mud, with some gravel 5Y 5/4; gravel clods are all calcareous, mostly mollusc fragments, fresh to intermediate preservation	poorly-sorted slightly gravelly mud, 5Y 5/3; high water content on surface, calcareous gravel clasts have fresh preservation	poorly-sorted slightly gravelly mud, 5Y 5/3; high water content on surface, calcareous gravel clasts have fresh preservation
Comments	entire sample passes through 0.3 mm sieve. CAM022: muddy heavily bioturbated substrate; turbid poor visibility below 90m depth; strong current observed; occasional rocks seen	sample nonquantitative, hard to wash with bioclasts, sand and heavy clay; clay clods rinsed but not sieved. CAM023: hard bottom with patches of softer bioturbated ground; many large sessile megafauna (many sea whips, gorgonians, sponges, soft coral) and occasional fish	subsamples: A, geology ; B, biology, C, large coral fragments	subsamples A, geology; B, biology; nearly quantitative. CAM024: flat & soft sea floor, bioturbated & burrowed; few fish	subsamples A, geology; B, biology – surface ooze and top water only; elutriated, heavy fraction discarded	sample elutriated, heavy fraction discarded; ophiuroid at this site showing escape bioluminescence. CAM025: level bioturbated bottom covered with detritus & faecal pellets (no current ripples)	subsamples A, geology; B, biology – surface ooze and top water only; nonquantitative	elutriated, heavy fraction discarded. CAM026: poor visibility, sed. must be resuspended from current, bottom muddy bioturbated bottom with occasional hard sufaces with sessile megafauna	subsamples A, geology; B, biology – surface ooze and top water only; not quantitative	elutriated, heavy fraction discarded. CAM028: turbid, poor visibility; bioturbated, sparse megafauna interspersed with hard grounds having much megafauna
Sample containers	sample 001; specimen 002	sample 001	sample 001; specimen 002	sample 001	sample 001	sample 001; specimen 002	sample 001; specimen 002	sample 001	sample 001	sample 001; specimen 002

Appendix 1 **Station Data**

Station Number	030	030	031	032	034	035	037	037
Sample Number	GR053	GR054	BS005	BS006	BS007	BS008	GR056	GR057
Gear	Smith-Macintyre Grab	Smith-Macintyre Grab	Small Epibenthic Sled	Small Epibenthic Sled	Small Epibenthic Sled	Small Epibenthic Sled	Smith-Macintyre Grab	Smith-Macintyre Grab
Location	Arafura Sea – Area C Centre	Arafura Sea – Area C Centre	Arafura Sea – Area C Centre	Arafura Sea – Area C Centre	Arafura Sea – Area C West	Arafura Sea – Area C West	Arafura Sea – Area C West	Arafura Sea – Area C West
Location nickname	"Bunsai"	"Bunsai"	"Tom"	"Lucy"	"Sellers"	"Clavier"	"Cleese"	"Cleese"
Date (GMT)	13 May 2005	13 May 2005	14 May 2005	14 May 2005	17 May 2005	17 May 2005	17 May 2005	17 May 2005
Julian Day	133	133	134	134	137	137	137	137
Sea State	3	3	1	3	2	2	3	3
Wind Direction (deg)	125	125	138	129	131	137	114	110
Wind Speed (kt)	16.1	16.1	16	18.4	17.6	19	16	15.4
Ship's Heading	111	111	044	123	008	130	109	110
Begin sample								
Time (GMT)	22:13:56	22:24:09	10:52:00	19:14:48	01:05:12	12:55:00	15:36:46	15:46:09
Time Local (AEST)	08:13:56	08:24:09	20:52:00	05:14:48	11:05:12	22:55:00	01:36:46	01:46:09
Latitude deg	09	09	09	09	09	09	09	09
Latitude min	13.640	13.650	05.641	12.331	01.834	01.928	05.924	05.925
Latitude Decimal	-09.22733	-09.22750	-09.09402	-09.20552	-09.03057	-09.03213	-09.09873	-09.09875
Longitude deg	133	133	133	133	133	133	133	133
Longitude min	41.900	41.900	44.786	38.903	6.340	9.654	11.891	11.897
Longitude Decimal	133.69833	133.69833	133.74643	133.64838	133.10567	133.16090	133.19818	133.19828
Depth (m)	151	151	165	158	210	220	126	126
Wire Out (m)			415			600		
End sample	NA	NA					NA	NA
Time (GMT)			11:02:00	19:17:47	01:11:01	13:14:00		
Time Local			21:02:00	05:17:47	11:11:01	23:14:00		
Latitude deg			09	09	09	09		
Latitude min			05.455	12.319	01.727	02.231		
Latitude Decimal			-09.0909	-09.2053	-09.0288	-09.0372		
Longitude deg			133	133	133	133		
Longitude min			44.846	38.823	06.335	09.574		
Longitude Decimal			133.7474	133.6471	133.1056	133.1596		
Depth (m)			165	158	210	220		
Sample Description	poorly-sorted calcareous slightly sandy mud, 5Y 5/3; sand & grains are forams and mollusc fragments; high water content at surface	poorly-sorted calcareous slightly sandy mud, 5Y 5/3; sand & grains are forams and mollusc fragments; high water content at surface	high water content mud 5Y 5/3	high water content mud 5Y 5/3	high water content unconsolidated calcareous mud (poorly sorted) 5Y 5/4	probably high water content mud; sample heavily winnowed, only minor shell grit remaining	calcareous slightly muddy coarse sand & gravel, poorly sorted, sand & gravel fractions mostly mollusc fragments, 5Y 5/4	calcareous slightly muddy coarse sand & grvel, poorly sorted, sand & gravel fractions mostly mollusc fragments, 5Y 5/4
Comments	subsamples A, geology; B, biology – surface ooze and top water only; nonquantitative	elutriated, heavy fraction discarded. CAM029: turbid, poor visibility; bioturbated, sparse megafauna interspersed with hard grounds having much megafauna	small sample – net bag not closed properly – leaked sample. Seafloor condition via CAM030: turbid, poor visibility; bioturbated oozy mud, sparse megafauna	large sample – 2 fish bins full of soft sediment. Seafloor condition via CAM031: turbid, poor visibility; bioturbated oozy mud, sparse megafauna	Large sample, two bins full oozy mud. Subsample taken for sedimentology. CAM033: uneven mounded buturbated seafloor with occasional fish and large holes (Nephropids?)	Sample heavily winnowed, saved bag washings; sample taken from sled opening for sedimentology. CAM035: muddy bioturbated sediments, turbidity & particulate matter in water above bottom	Non-quantitative, geology sample removed; washed only surface oozy layer and topwater	quantitative, sand & gravel elutriated (molluscs probably not quantitative) and then discarded; took subsample of washed sand & shell gravel. CAM036: relatively flat hard bottom; shelly sand with no burrows; many large sessile filterfeeding megafauna; shelly debris is subfossil oyster shells, typical of shallow lagoon or mangroves thus possibly from last low stand of sea level
Sample containers	sample 001	sample 001; specimen 002	sample 001; specimen 002	sample 001, 006-007; specimens 002-005, 008	sample 001, 003; specimen 002	sample 001	sample 001; specimens 002-003	sample 001-002

Appendix 1 **Station Data**

Station Number	038	038	038	038	038	039
Sample Number	GR058	GR059	GR060	DR009	DR010	GR061
Gear	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Rock Dredge	Diamentina Dredge	Smith-Macintyre Grab
Location	Arafura Sea – Area C West	Arafura Sea – Area C West	Arafura Sea – Area C West	Arafura Sea – Area C West	Arafura Sea – Area C West	Arafura Sea – Area C West
Location nickname	"Neill"	"Neill"	"Neill"	"Neill"	"Neill"	"Tati"
Date (GMT)	17 May 2005	17 May 2005	17 May 2005	17 May 2005	17 May 2005	17 May 2005
Julian Day	137	137	137	137	137	137
Sea State	3	3	3	3	3	3
Wind Direction (deg)	117	117	117	110	110	112
Wind Speed (kt)	19	19	19	17.9	17.9	16.7
Ship's Heading	113	113	113	114	114	094
Begin sample						
Time (GMT)	19:19:20	19:20:34	19:37:40	20:36:49	21:30:19	22:47:00
Time Local (AEST)	05:19:20	05:20:34	05:37:40	06:36:49	07:30:19	08:47:00
Latitude deg	09	09	09	09	09	09
Latitude min	10.777	10.771	10.774	10.832	10.781	10.251
Latitude Decimal	-09.17962	-09.17952	-09.17957	-09.18053	-09.17968	-09.17085
Longitude deg	133	133	133	133	133	133
Longitude min	24.815	24.815	24.820	24.822	24.744	23.535
Longitude Decimal	133.41358	133.41358	133.41367	133.41370	133.41240	133.39225
Depth (m)	128	128	129	170	174	124
Wire Out (m)						
End sample	NA	NA	NA			NA
Time (GMT)				20:43:10	21:38:08	
Time Local				06:43:10	07:38:08	
Latitude deg				09	09	
Latitude min				11.672	10.768	
Latitude Decimal				-09.1945	-09.1795	
Longitude deg				133	133	
Longitude min				24.857	24.904	
Longitude Decimal				133.4143	133.4151	
Depth (m)				129	174	
Sample Description	calcareous poorly sorted slightly muddy sandy gravel, sand fraction is coarse, sand & gravel fractions are carbonate fragments, fresh to int preservation, maybe some lithics & terrigenous sands (beach sand?), 5Y 5/4	calcareous poorly sorted slightly muddy sandy gravel, sand fraction is coarse, sand & gravel fractions are carbonate fragments, fresh to int preservation, maybe some lithics & terrigenous sands (beach sand?), 5Y 5/4	calcareous poorly sorted slightly muddy sandy gravel, sand fraction is coarse, sand & gravel fractions are carbonate fragments, fresh to int preservation, maybe some lithics & terrigenous sands (beach sand?), 5Y 5/4	Large fragments of limestone; strongly cemented, weathered and encrusted, rind 0.5cm thick. Limestone is coarsegrained of mostly mollusc shells - beach, finge gravel (mostly mollusc shells. Lithotypes: coarse limestone, limestone with black stain (manganese), oyster shells, coral fragments	Several rocks consisting of coarse limestone, sample mostly consisting of oyster shells and sessile megafaunal filterfeeders	poorly sorted calcareous muddy coarse sand, gravel and asnd fractions are calcareous (intermediate preservation), 5Y 5/4 (Munsell)
Comments	nonquantitative, sample on hard ground, little sediment retained; sample is only gravel from bottom of grab	nonquantitative, sample on hard ground, little sediment retained; sample consists of gravel washings only	nonquantitative, sample on hard ground, little sediment retained; sample consists of gravel washings only. CAM037: hard seafloor with rocky outcrops, ledges and separated rocks with intervening muddy sediment patches; many large sessile filterfeeding megafauna & small fish, top of bank with more attached megagfaunal; visibility poor, water above bottom with suspended sediment	dredge taken up the slope	dredge taken at top of bank	nonquantitative, sample only elutriation of gravel, sedimentological sample taken
Sample containers	sample 001; specimens 002-003	sample 001; specimens 002-007	sample 001; specimens 002-004	specimens 001-004	sample 028, 036; specimens 001-027, 029-035	sample 001; specimens 002-005

Appendix 1

Station Data

Station Number	039	040	040	041	041	042	043	043
Sample Number	GR062	GR063	GR064	GR065	GR066	DR011	GR068	GR069
Gear	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Rock Dredge	Smith-Macintyre Grab	Smith-Macintyre Grab
Location	Arafura Sea – Area C West	Arafura Sea – Area C West	Arafura Sea – Area C West	Arafura Sea – Area C West	Arafura Sea – Area C West	Arafura Sea – Area C West	Arafura Sea – Area C West II	Arafura Sea – Area C West II
Location nickname	"Tati"	"Blanchette"	"Blanchette"	"Kidman"	"Kidman"	"Collette"	"Rose"	"Rose"
Date (GMT)	17 May 2005	18 May 2005	18 May 2005	18 May 2005	18 May 2005	18 May 2005	19 May 2005	19 May 2005
Julian Day	137	138	138	138	138	138	139	139
Sea State	3	3	3	2	2	2	1	1
Wind Direction (deg)	112	120	120	137	137	135	123	123
Wind Speed (kt)	16.7	18.3	18.3	19	19	16	17	17
Ship's Heading	094	115	115	126	126	328	116	116
Begin sample								
Time (GMT)	22:57:00	00:53:04	01:08:14	03:17:00	03:38:00	07:11:00	12:02:00	12:15:00
Time Local (AEST)	08:57:00	10:53:04	11:08:14	13:17:00	13:38:00	17:11:00	22:02:00	22:15:00
Latitude deg	09	09	09	09	09	09	09	09
Latitude min	10.264	09.028	09.005	07.585	07.587	07.018	05.378	05.365
Latitude Decimal	-09.17107	-09.15047	-09.15008	-09.12642	-09.12645	-09.11697	-09.08963	-09.08942
Longitude deg	133	133	133	133	133	133	133	133
Longitude min	23.537	23.450	23.449	25.287	25.289	24.725	25.106	25.090
Longitude Decimal	133.39228	133.39083	133.39082	133.42145	133.42148	133.41208	133.41843	133.41817
Depth (m)	124	141	141	199	199	204	226	226
Wire Out (m)								
End sample	NA	NA	NA	NA	NA		NA	NA
Time (GMT)						07:24:00		
Time Local						17:24:00		
Latitude deg						09		
Latitude min						07.778		
Latitude Decimal						-09.1296		
Longitude deg						133		
Longitude min						24.438		
Longitude Decimal						133.4073		
Depth (m)						204		
Sample Description	poorly sorted calcareous muddy coarse sand, gravel and asnd fractions are calcareous (intermediate preservation), 5Y 5/4 (Munsell)	calcareous muddy medium sand, sponge spicules (?), 5Y 5/3	calcareous muddy medium sand, 5Y 5/3	high water content mud 5Y 5/2	high water content mud 5Y 5/2	80% mud, 10% shells; lithologies marly limestone, coarse limestone, corals	5Y 5/3 bioclastic muddy grit	5Y 5/3 bioclastic muddy grit
Comments	nonquantitative, sample only elutriation of gravel, topwater lost. CAM038: hard pavement, sandy & calcareous surface, scattered patches of bioturbated soft sediment; negligible current, low turbidity, good visibility; many large sessile filter-feeding megafauna, fish and large crustaceans; bioturbated patches with mounds from worms or enteropneusts	nonquantitative, sedimentology sample taken, top water and surface only washed	quantitative, sand elutriated but not retained (molluscs nonquantitative). CAM039: flat sandy bottom, reasonably hard with some bioturbation with intermittent sand ripples (less than ~10cm wave length, less than ~5 cm high); occasional filterfeeders, small fish, echinoids & anemones	semiquantitative – sedimentology sample removed; washed remaining sample	fully quantitative – washed entire sample through 0.33mm screen. CAM040: flat bioturbated bottom, worm tubes & occasional holes (15cm across)	specimens extracted from thick mud. CAM041: bioturbated muddy bottom interspersed with rocky outcrops having large sessile filter feeders	nonquantitative, sedimentology sample taken, top water and surface ooze only washed	sample with shell grit and coral debris (saved example) elutriated; stem sections of stalked crinoid present. CAM042: bioturbated soft sediments interspersed with hard rocky surfaces having sessile filterfeeders, including stalked crinoid
Sample containers	sample 001; specimens 002-007	sample 001	sample 001	sample 001	sample 001	specimens 001-002	sample 001	sample 001, 007-008; specimens 002-006

Appendix 1 **Station Data**

Station Number	043	044	044	045	045	047	048	048	049	049
Sample Number	DR012	GR070	DR013	GR072	DR014	BS009	GR073	GR074	GR075	GR076
Gear	Rock Dredge	Smith-Macintyre Grab	Diamentina Dredge	Smith-Macintyre Grab	Rock Dredge	Small Epibenthic Sled	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab
Location	Arafura Sea – Area C West II	Arafura Sea – Area C West II	Arafura Sea – Area C West II	Arafura Sea – Area C West II	Arafura Sea – Area C West II	Arafura Sea – Area C West II	Arafura Sea – Area C West II	Arafura Sea – Area C West II	Arafura Sea – Area C West II	Arafura Sea – Area C West II
Location nickname	"Rose"	"Jennifer"	"Jennifer"	"Hugh"	"Hugh"	"Elle"	"Amanda"	"Amanda"	"Naomi"	"Naomi"
Date (GMT)	19 May 2005	19 May 2005	19 May 2005	19 May 2005	19 May 2005	20 May 2005	20 May 2005	20 May 2005	20 May 2005	20 May 2005
Julian Day	139	139	139	139	139	140	140	140	140	140
Sea State	1	2	2	2	2	3	1	1	1	1
Wind Direction (deg)	127	123	112	122	112	110	122	122	104	104
Wind Speed (kt)	19	18	17.9	19.4	15.7	16.1	18	18	21	21
Ship's Heading			099	101	298	090	107	107	093	093
Begin sample										
Time (GMT)	14:17:00	17:38:13	18:16:41	19:33:15	20:46:36	01:57:47	03:39:00	03:51:00	08:26:00	08:37:00
Time Local (AEST)	00:17:00	03:38:13	04:16:41	05:33:15	06:46:36	11:57:47	13:39:00	13:51:00	18:26:00	18:37:00
Latitude deg	09	09	09	09	09	09	09	09	09	09
Latitude min	05.312	01.771	01.863	01.806	01.810	01.838	00.122	00.110	05.780	05.787
Latitude Decimal	-09.08853	-09.02952	-09.03105	-09.03010	-09.03017	-09.03063	-09.00203	-09.00183	-09.09633	-09.0965
Longitude deg	133	133	133	133	133	133	133	133	133	133
Longitude min	2.989	14.606	14.654	14.681	14.720	15.015	12.058	12.055	17.207	17.203
Longitude Decimal	133.04982	133.24343	133.24423	133.24468	133.24533	133.25025	133.20097	133.20092	133.28678	133.28672
Depth (m)	226	214	216	227	234	233	222	222	161	161
Wire Out (m)					460	490				
End sample		NA		NA			NA	NA	NA	NA
Time (GMT)	14:45:00		18:33:42		20:58:47	02:15:41				
Time Local	00:45:00		04:33:42		06:58:47	12:15:41				
Latitude deg	09		09		09	09				
Latitude min	05.465		01.746		01.734	02.172				
Latitude Decimal	-09.0911		-09.0291		-09.0289	-09.0362				
Longitude deg	133		133		133	133				
Longitude min	24.165		14.628		14.492	14.849				
Longitude Decimal	133.4028		133.2438		133.2415	133.2475				
Depth (m)	201		216		234	233				
Sample Description	dredge half full of clayey mud & shell grit; lithotypes deep water barnacle shells, corals, weathered limestone, grey limestone	calcareous muddy gravel and cobbles in bottom of grab; cobbles heavily bored, encrusted & weathered; 5Y 4/4	lithotypes: encrusted oyster shells, mudstone, weathered mudstone with muddy gravel	large rock lost on recovery	Lithotypes: calcareous sandy mud with mudstone gravel fragments; weathered & lithified mudstone; sand dwelling gastropod; semi-lithified calcareous mudstone – highly burrowed and weathered.	bag 1/3 full oozy mud & some shell grit; sedimentological sample taken – calcareous slightly sandy mud, 5Y 4/4	bioclastic muddy sand 5Y 4/2	bioclastic muddy sand 5Y 4/2	grab 1/2 full; coarse bioclastic muddy sand 5Y 5/3	large rock in jaws of grab
Comments	several specimens washed from thick mud	nonquantitative, sedimentology sample taken, top water and surface only washed	CAM043: rubbly rocky substrate with exposed pebbles and patches of muddy gravel or sand; relatively sparse biota including crinoids, anenomes and a few fish	grab broken on hard ground – no sediment sample; small sea star recovered from grab a few hours later	Two kinds of burrows in rocks: large made by fan worms (chemical burrowing); short made by Pholids bivalves (mechanical burrowing). CAM044: visibility limited water turbid, rocky substrate with veneer of sediment & sediment patches; biota sparse – starfish, sponges including hexactinellid, occasional fish; also saw spring off grab	CAM046: bioturbated soft bottom with large depressions & mounds, pockmarks, few sessile animals, many small fish	nonquantitative sample – only surface ooze & topwater washed; sedimentological sample taken; only 1 burrowing echoid present	15 fragile burrowing echinoids present; elutriated shell grit. CAM047: bioturbated soft sediment with large burrows containing fish & sea urchin	nonquantitative, sedimentology sample taken, top water and surface only washed	washings of rock only
Sample containers	specimens 001-012	sample 001	specimens 001-007	specimen 001	specimens 001-005	sample 001-003	sample 001; specimens 002-003	sample 001; specimens 002	sample 001; specimens 002-003	sample 001; specimen 002

Appendix 1 **Station Data**

Station Number	049	049	050	051	053	053	055	056	057	060
Sample Number	GR077	GR078	BS011	BS010	GR080	DR015	GR081	BS012	BS013	BS014
Gear	Smith-Macintyre Grab	Smith-Macintyre Grab	Small Epibenthic Sled	Small Epibenthic Sled	Smith-Macintyre Grab	Rock Dredge	Smith-Macintyre Grab	Small Epibenthic Sled	Small Epibenthic Sled	Small Epibenthic Sled
Location	Arafura Sea – Area C West II	Arafura Sea – Area C West II	Arafura Sea – Area C South	Arafura Sea – Area C South	Arafura Sea – Area C South	Arafura Sea – Area C South	Arafura Sea – Area C South	Arafura Sea – Area C South	Arafura Sea – Area D	Arafura Sea – Area D
Location nickname	"Naomi"	"Naomi"	"Mawong"	"Nannagai"	"Bonito"	"Bonito"	"Loc"	"Corvina"	"Petrel"	"Flamingo"
Date (GMT)	20 May 2005	20 May 2005	21 May 2005	21 May 2005	21 May 2005	21 May 2005	21 May 2005	22 May 2005	24 May 2005	24 May 2005
Julian Day	140	140	141	141	141	141	141	142	144	144
Sea State	1	1	2	2	2	2	4	4	1	3
Wind Direction (deg)	104	104	113	120	106	106	100	105	126	135
Wind Speed (kt)	21	20	16	19	16.8	17	23	24.1	17	16.4
Ship's Heading	093	093	102	105	98		72	96	134	109
Begin sample										
Time (GMT)	08:46:00	08:54:00	15:00:10	11:26:00	17:04:47	19:08:24	21:35:41	01:32:53	09:32:00	21:27:49
Time Local (AEST)	18:46:00	18:54:00	01:00:10	21:26:00	03:04:47	05:08:24	07:35:41	11:32:53	19:34:00	07:27:49
Latitude deg	09	09	09	09	09	09	09	09	09	09
Latitude min	05.782	05.783	11.997	13.150	10.540	10.565	09.259	09.727	32.923	36.628
Latitude Decimal	-09.0964	-09.0964	-09.2000	-09.2192	-09.1757	-09.1761	-09.1543	-09.1621	-09.5487	-09.6105
Longitude deg	133	133	133	133	133	133	133	133	133	134
Longitude min	17.195	17.208	26.109	29.412	29.672	29.764	29.086	31.958	57.801	10.952
Longitude Decimal	133.28658	133.28680	133.43515	133.49020	133.49453	133.49607	133.48477	133.53263	133.96335	134.18253
Depth (m)	161	162	178	175	136	155	174	182	107	095
Wire Out (m)				440		450		450	250	
End sample	NA	NA			NA		NA			
Time (GMT)			15:12:06	11:37:00		19:17:59		01:44:39	09:46:00	21:36:52
Time Local			01:12:06	21:37:00		05:17:59		11:44:39	19:46:00	07:36:52
Latitude deg			09	09		09		09	09	09
Latitude min			12.029	13.284		10.508		09.830	33.091	36.588
Latitude Decimal			-09.2005	-09.2214		-09.1751		-09.1638	-09.5515	-09.6098
Longitude deg			133	133		133		133	133	134
Longitude min			26.252	29.546		29.560		32.302	57.189	10.872
Longitude Decimal			133.4375	133.4924		133.4927		133.5384	133.9532	134.1812
Depth (m)			178	175		170		182	107	95
Sample Description	rock in jaws of grab plus sandy bioclastic sediment	bioclastic sandy mud with shell gravel 5Y 5/3	calcareous poorly sorted mud (with some thick clay) 5Y 5/4	calcareous poorly sorted soft mud	calcareous muddy gravel, with mostly shell fragments coral, 5Y 5/4	rocks and mud: calcareous mudstone, oyster shells, coral or bryozoan fragments, coarse limestone	poorly sorted calcareous gravelly mud (5Y 5/4) with 1 cobble of coarse limestone	poorly sorted calcareous mud, 5Y 5/3	sandy mud 5Y 5/2	sandy mud 5Y 5/2
Comments	ophiuoid found on rock only	entire sample elutriated; CAM048: hard substrate with scattered boulders, visibility limited by particulates in water column; large sessile epifauna visible including sponges, sea anemones, octocorals, black corals and stalked/unstalked crinoids	sled with doors retied open; sample had much thick clayey mud – suspect sled dug deeper than surface layer	sled doors had closed owing to damaged ropes; suspect doors did not open on bottom; sample small, washed entire bag contents. NB: station numbers out of temporal sequence	non-quantitative sample – sedimentology sample taken, washed ony surface sediments away	Recovered some specimens from mud. CAM051: rocky substrate, some overhangs, with sessile filter feeders, grading downslope to soft silty mud and no epifauna	nonquantitative, sedimentology sample taken, top water and surface only washed	sedimentology sample taken, large volume of sediment subsampled. CAM053: soft bioturbated substrate, poor visibility, few megafauna	large sample, washed 1.5 bin full, with shell wash into 100% ethanol; geology bulk sample also taken. CAM054: fairly featureless muddy bottom with some bioturbation and burrows	large sample, washed 1.2 bin full; excluded clods and shell grit; no geology bulk sedimentology sample. Camera fairly featureless muddy bottom with some bioturbation and burrows
Sample containers	specimen 001	sample 001; specimen 002	samples 001-002	sample 001	sample 001; specimens 002	specimens 001-021	sample 001	sample 001	sample 001,003; specimen 002	sample 001; specimen 002

Appendix 1 **Station Data**

Station Number	061	063	064	064	002	002
Sample Number	GR082	BS015	GR083	GR084	GR085	GR086
Gear	Smith-Macintyre Grab	Small Epibenthic Sled	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab	Smith-Macintyre Grab
Location	Arafura Sea – Area D	Arafura Sea – Area D	Arafura Sea – Area B	Arafura Sea – Area B	Arafura Sea – Area B	Arafura Sea – Area B
Location nickname	“Gull”	“Albatros”	“Stratto”	“Stratto”	“Bruce”	“Bruce”
Date (GMT)	24 May 2005	25 May 2005	25 May 2005	25 May 2005	26 May 2005	26 May 2005
Julian Day	144	145	145	145	146	146
Sea State	3	3	3	4	3	3
Wind Direction (deg)	98	110	128	120	103	116
Wind Speed (kt)	20.7	19	22.8	24.2	17.6	16.6
Ship's Heading	125	113	120	122	97	87
Begin sample						
Time (GMT)	22:52:06	06:23:00	17:37:49	17:46:28	01:26:29	01:33:51
Time Local (AEST)	08:52:06	16:23:00	03:37:49	03:46:28	11:26:29	11:33:51
Latitude deg	09	09	09	09	09	09
Latitude min	37.579	39.701	44.317	44.316	47.993	47.993
Latitude Decimal	-09.6263	-09.6617	-09.7386	-09.7386	-09.7999	-09.7999
Longitude deg	134	134	135	135	135	135
Longitude min	14.360	22.456	15.949	15.947	22.026	22.026
Longitude Decimal	134.23933	134.37427	135.26582	135.26578	135.36710	135.36710
Depth (m)	093	090	103	102	095	093
Wire Out (m)						
End sample	NA		NA	NA	NA	NA
Time (GMT)		06:36:00				
Time Local		16:36:00				
Latitude deg		09				
Latitude min		39.828				
Latitude Decimal		-09.6638				
Longitude deg		134				
Longitude min		22.646				
Longitude Decimal		134.3774				
Depth (m)		90				
Sample Description	calcareous sandy mud, unconsolidated 5Y 5/4	calcareous sandy mud, unconsolidated 5Y 5/1	poorly sorted calcareous fine sand 5Y 5/3, intermediate preservation of carbonate grains, sand fraction mostly foram and mollusc fragments	poorly sorted calcareous fine sand 5Y 5/3, intermediate preservation of carbonate grains, sand fraction mostly foram and mollusc fragments	poorly sorted calcareous muddy sand 5Y 5/3, intermediate preservation of carbonate grains, sand fraction mostly foram and mollusc fragments	poorly sorted calcareous muddy sand 5Y 5/3, intermediate preservation of carbonate grains, sand fraction mostly foram and mollusc fragments
Comments	not quantitative, geology bulk sedimentology sample taken; excluded clods and shell grit after elutriation. Camera showsfairly featureless muddy bottom with some bioturbation and burrows	large sample, washed 1.2 bin full; excluded clods and shell grit; geology bulk sedimentology sample taken. Camera shows fairly featureless muddy bottom with some bioturbation and burrows	washed through 5mm screen for large animals; geological bulk sedimentology sample taken	washed through 5mm screen for large animals. CAM061: bioturbated sandy substrate with scattered to common burrows, sparse large sessile fauna, many small fish, poor visibility (water turbid)	Return to previously sampled station. geological bulk sedimentological sample taken. Washed through 5mm screen for large animals. CAM062: bioturbated sandy substrate, current ripples, with scattered to common burrows, sparse large sessile fauna, many small fish, poor visibility (water turbid)	Return to previously sampled station. Washed through 5mm screen for large animals. CAM062: bioturbated sandy substrate, current ripples, with scattered to common burrows, sparse large sessile fauna, many small fish, poor visibility (water turbid)
Sample containers	sample 001; specimen 002	sample 001; specimen 002	specimens 001-003	specimens 001-004	specimens 001-004	specimens 001-002

Appendix 1 **Specimen_Data**

Cruise#	Station#	Gear	Access#	CAAB #	Phylum code	Family Code	Species Code	Phylum Text	Higher Taxon Text	Family Text	Genus Text	Species Text	Comments	Institution	Date
SS0505-(	001	BS001B	001BS001-001	28911801	28	911	801	Crustacea	Brachyura	Portunidae	Portunus	sp. 1	photo	AM	01-May-2005
SS0505-(	001	BS001B	001BS001-002	22000801	22	0	801	Annelida	Polychaeta	unidentified	unidentified	sp. 1	photo	NTM	01-May-2005
SS0505-(	001	BS001B	001BS001-003	25160801	25	160	801	Echinodermata	Ophiuroidea	unidentified	unidentified	sp. 1	photo	AM	01-May-2005
SS0505-(	001	BS001B	001BS001-004	28105801	28	105	801	Crustacea	Tanaidacea	unidentified	unidentified	sp. 1	photo	AM	01-May-2005
SS0505-(	001	BS001B	001BS001-005	28400801	28	400	801	Crustacea	Amphipoda Gamm	unidentified	unidentified	sp. 1	photo	AM	01-May-2005
SS0505-(	001	BS001B	001BS001-006	23207801	23	207	801	Mollusca	Bivalvia	Nuculanidae	unidentified	sp. 1	photo; dead	NTM	01-May-2005
SS0505-(	001	BS001B	001BS001-007	24202801	24	202	801	Mollusca	Gastropoda	Buccinidae Fasci	unidentified	sp. 1	photo; dead	NTM	01-May-2005
SS0505-(	001	BS001B	001BS001-008	22000802	22	0	802	Annelida	Polychaeta	unidentified	unidentified	sp. 2	photo	NTM	01-May-2005
SS0505-(	001	BS001B	001BS001-009	99901007	99	901	7					coarse sample bulk		AM	01-May-2005
SS0505-(	001	BS001B	001BS001-010	99901005	99	901	5					fine sample bulk		AM	01-May-2005
SS0505-(	001	BS001B	001BS001-011	99901008	99	901	8					seived sample bulk		AM	01-May-2005
SS0505-(	001	BS001B	001BS001-012	99901006	99	901	6					medium sample bulk		AM	01-May-2005
SS0505-(	002	GR001B	002GR001B-001	28803801	28	803	801	Crustacea	Thalassinidea	Callianassidae	unidentified	sp. 1	photo	AM	02-May-2005
SS0505-(	002	GR001B	002GR001B-002	11328801	11	328	801	Cnidaria	Scleractinia	Flabellidae	Flabellum	sp. 1	photo	NTM	02-May-2005
SS0505-(	002	GR001B	002GR001B-003	99901005	99	901	5					fine sample bulk		AM	02-May-2005
SS0505-(	002	GR001B	002GR001B-004	99901007	99	901	7					coarse sample bulk		AM	02-May-2005
SS0505-(	002	GR001B	002GR001B-005	23410801	23	410	801	Mollusca	Bivalvia	Thraciidae	unidentified	sp. 1	photo	NTM	02-May-2005
SS0505-(	002	GR002B	002GR002B-001	11328801	11	328	801	Cnidaria	Scleractinia	Flabellidae	Flabellum	sp. 1		NTM	02-May-2005
SS0505-(	002	GR002B	002GR002B-002	99901005	99	901	5					fine sample bulk		AM	02-May-2005
SS0505-(	002	GR002B	002GR002B-003	11314801	11	314	801	Cnidaria	Scleractinia	Caryophylliidae	unidentified	sp. 1	photo	NTM	02-May-2005
SS0505-(	002	GR002B	002GR002B-004	11077801	11	77	801	Cnidaria	Hydrozoa	Stylasteridae	unidentified	sp. 1	photo	NTM	02-May-2005
SS0505-(	002	GR003B	002GR003B-001	37065801	37	65	801	Chordata	Pisces	Nettastomatidae	unidentified	sp. 1	photo	NTM	02-May-2005
SS0505-(	002	GR003B	002GR003B-002	99901005	99	901	5					fine sample bulk		AM	02-May-2005
SS0505-(	002	BS002B	002BS002-001	28803801	28	803	801	Crustacea	Thalassinidea	Callianassidae	unidentified	sp. 1		AM	02-May-2005
SS0505-(	002	BS002B	002BS002-002	28805801	28	805	801	Crustacea	Thalassinidea	Upogebiidae	unidentified	sp. 1	photo	AM	02-May-2005
SS0505-(	002	BS002B	002BS002-003	28865801	28	865	801	Crustacea	Brachyura	Raninidae	unidentified	sp. 1	photo	AM	02-May-2005
SS0505-(	002	BS002B	002BS002-004	99901005	99	901	5					fine sample bulk		AM	02-May-2005
SS0505-(	002	BS002B	002BS002-005	99901003	99	901	3					debris-shells		AM	02-May-2005
SS0505-(	003	GR004B	003GR004B-001	25176801	25	176	801	Echinodermata	Ophiuroidea	Ophiuridae	unidentified	sp. 1	photo	AM	04-May-2005
SS0505-(	003	GR004B	003GR004B-002	28865801	28	865	801	Crustacea	Brachyura	Raninidae	unidentified	sp. 1	photo	AM	04-May-2005
SS0505-(	003	GR004B	003GR004B-003	11328801	11	328	801	Cnidaria	Scleractinia	Flabellidae	Flabellum	sp. 1	photo; dead	NTM	04-May-2005
SS0505-(	003	GR004B	003GR004B-004	11077801	11	77	801	Cnidaria	Hydrozoa	Stylasteridae	unidentified	sp. 1	photo	NTM	04-May-2005
SS0505-(	003	GR005B	003GR005B-001	25176801	25	176	801	Echinodermata	Ophiuroidea	Ophiuridae	unidentified	sp. 1		AM	04-May-2005
SS0505-(	003	GR004B	003GR005B-002	28805802	28	805	802	Crustacea	Thalassinidea	Upogebiidae	unidentified	sp. 2	photo; female	AM	04-May-2005
SS0505-(	003	GR005B	003GR005B-003	28805802	28	805	802	Crustacea	Thalassinidea	Upogebiidae	unidentified	sp. 2	male	AM	04-May-2005
SS0505-(	003	GR004B	003GR005B-004	99901005	99	901	5					fine sample bulk		AM	04-May-2005
SS0505-(	005	GR006B	005GR006B-001	28030801	28	30	801	Crustacea	Stomatopoda	unidentified	unidentified	sp. 1	photo	AM	05-May-2005
SS0505-(	005	GR006B	005GR006B-002	28803801	28	803	801	Crustacea	Thalassinidea	Callianassidae	unidentified	sp. 1	photo	AM	05-May-2005
SS0505-(	005	GR006B	005GR006B-003	11001801	11	1	801	Cnidaria	Hydrozoa	unidentified	unidentified	sp. 1	photo	NTM	05-May-2005
SS0505-(	005	GR007B	005GR007B-001	99901005	99	901	5					fine sample bulk		AM	05-May-2005
SS0505-(	005	GR007B	005GR007B-002	37428801	37	428	801	Chordata	Pisces	Gobiidae	unidentified	sp. 1	photo	NTM	05-May-2005
SS0505-(	005	GR007B	005GR007B-003	22000801	22	0	801	Annelida	Polychaeta	unidentified	unidentified	sp. 1	photo	NTM	05-May-2005
SS0505-(	005	GR007B	005GR007B-004	25191801	25	191	801	Echinodermata	Ophiuroidea	Amphiuridae	unidentified	sp. 1	photo	AM	05-May-2005
SS0505-(	006	GR008B	006GR008B-001	28803801	28	803	801	Crustacea	Thalassinidea	Callianassidae	unidentified	sp. 1		AM	05-May-2005
SS0505-(	006	GR008B	006GR008B-002	22000000	22	0	0	Annelida	Polychaeta	unidentified	unidentified	unidentified		NTM	05-May-2005
SS0505-(	006	GR009B	006GR009B-001	28030802	28	30	802	Crustacea	Stomatopoda	unidentified	unidentified	sp. 2	photo	AM	05-May-2005
SS0505-(	006	GR009B	006GR009B-002	28803801	28	803	801	Crustacea	Thalassinidea	Callianassidae	unidentified	sp. 1		AM	05-May-2005
SS0505-(	006	GR009B	006GR009B-003	28765801	28	765	801	Crustacea	Caridea	Alpheidae	unidentified	sp. 1	photo	AM	05-May-2005
SS0505-(	006	GR009B	006GR009B-004	99901005	99	901	5					fine sample bulk		AM	05-May-2005
SS0505-(	006	GR009B	006GR009B-005	24220801	24	220	801	Mollusca	Gastropoda	Turridae	unidentified	sp. 1	photo	NTM	05-May-2005
SS0505-(	006	GR009B	006GR009B-006	11229801	11	229	801	Cnidaria	Actinaria	unidentified	unidentified	sp. 1	photo	NTM	05-May-2005
SS0505-(	007	GR010B	007GR010B-001	28030803	28	30	803	Crustacea	Stomatopoda	unidentified	unidentified	sp. 3	photo	AM	05-May-2005
SS0505-(	007	GR010B	007GR010B-002	28865801	28	865	801	Crustacea	Brachyura	Raninidae	unidentified	sp. 1		AM	05-May-2005
SS0505-(	007	GR010B	007GR010B-003	22000000	22	0	0	Annelida	Polychaeta	unidentified	unidentified	unidentified		NTM	05-May-2005

Appendix 1 **Specimen_Data**

Cruise#	Station#	Gear	Access#	CAAB #	Phylum code	Family Code	Species Code	Phylum Text	Higher Taxon Text	Family Text	Genus Text	Species Text	Comments	Institution	Date
SS0505-(	007	GR011B	007GR011B-001	99901005	99	901	5					fine sample	bulk	AM	05-May-2005
SS0505-(	007	GR011B	007GR011B-002	22000803	22	0	803	Annelida	Polychaeta	unidentified	unidentified	sp. 3	photo	NTM	05-May-2005
SS0505-(	007	GR011B	007GR011B-003	28803803	28	803	803	Crustacea	Thalassinidea	Callianassidae	unidentified	sp. 3	photo	AM	05-May-2005
SS0505-(	007	GR011B	007GR011B-004	28803802	28	803	802	Crustacea	Thalassinidea	Callianassidae	unidentified	sp. 2	photo	AM	05-May-2005
SS0505-(	007	GR011B	007GR011B-005	11314801	11	314	801	Cnidaria	Scleractinia	Caryophylliidae	unidentified	sp. 1	photo	NTM	05-May-2005
SS0505-(	007	BS003B	007BS003-001	99901005	99	901	5					fine sample	bulk	AM	05-May-2005
SS0505-(	007	BS003B	007BS003-002	37000801	37	0	801	Chordata	Pisces	unidentified	unidentified	sp. 1	photo; long fins	NTM	05-May-2005
SS0505-(	007	BS003B	007BS003-003	37065801	37	65	801	Chordata	Pisces	Nettastomatidae	unidentified	sp. 1		NTM	05-May-2005
SS0505-(	007	BS003B	007BS003-004	28711801	28	711	801	Crustacea	Penaeoidea	Penaeidae	unidentified	sp. 1	photo	AM	05-May-2005
SS0505-(	007	BS003B	007BS003-005	22062801	22	62	801	Annelida	Polychaeta	Polynoidae	unidentified	sp. 1	photo	NTM	05-May-2005
SS0505-(	007	BS003B	007BS003-006	28220801	28	220	801	Crustacea	Isopoda	Cirolanidae	unidentified	sp. 1	photo	AM	05-May-2005
SS0505-(	007	BS003B	007BS003-007	28205801	28	205	801	Crustacea	Isopoda	Anthuridae	unidentified	sp. 1	photo	AM	05-May-2005
SS0505-(	007	BS003B	007BS003-008	22000000	22	0	0	Annelida	Polychaeta	unidentified	unidentified	unidentified		NTM	05-May-2005
SS0505-(	007	BS003B	007BS003-009	23355801	23	355	801	Mollusca	Bivalvia	Tellinidae	unidentified	sp. 1	photo	NTM	05-May-2005
SS0505-(	007	BS003B	007BS003-010	25191801	25	191	801	Echinodermata	Ophiuroidea	Amphiuridae	unidentified	sp. 1		AM	05-May-2005
SS0505-(	007	BS003B	007BS003-011	28803802	28	803	802	Crustacea	Thalassinidea	Callianassidae	unidentified	sp. 2		AM	05-May-2005
SS0505-(	007	BS003B	007BS003-012	28105802	28	105	802	Crustacea	Tanaidacea	unidentified	unidentified	sp. 2	photo	AM	05-May-2005
SS0505-(	007	BS003B	007BS003-013	25191802	25	191	802	Echinodermata	Ophiuroidea	Amphiuridae	unidentified	sp. 2	photo	AM	05-May-2005
SS0505-(	007	BS003B	007BS003-014	25160802	25	160	802	Echinodermata	Ophiuroidea	unidentified	unidentified	sp. 2	photo	AM	05-May-2005
SS0505-(	007	BS003B	007BS003-015	99901008	99	901	8					seived sample	bulk	AM	05-May-2005
SS0505-(	007	BS003B	007BS003-016	99901003	99	901	3					debris-shells		AM	05-May-2005
SS0505-(	008	GR012B	008GR012B-001	11173801	11	173	801	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 1	photo	NTM	05-May-2005
SS0505-(	008	GR012B	008GR012B-002	11314802	11	314	802	Cnidaria	Scleractinia	Caryophylliidae	unidentified	sp. 2	photo	NTM	05-May-2005
SS0505-(	008	GR012B	008GR012B-003	99901008	99	901	8					seived sample	bulk	AM	05-May-2005
SS0505-(	008	GR012B	008GR012B-004	20325801	20	325	801	Bryozoa	Cheilostomata	QuadricellariidaeNellia		sp. 1	photo	NTM	05-May-2005
SS0505-(	008	GR012B	008GR012B-005	20300801	20	300	801	Bryozoa	Cheilostomata	Porinidae	Porina	vertebralis	photo	NTM	05-May-2005
SS0505-(	008	GR013B	008GR013B-001	23499801	23	499	801	Mollusca	Scaphopoda	unidentified	unidentified	sp. 1	photo	NTM	05-May-2005
SS0505-(	008	GR013B	008GR013B-002	99901005	99	901	5					fine sample	bulk	AM	05-May-2005
SS0505-(	009	GR014B	009GR014B-001	24221801	24	221	801	Mollusca	Gastropoda	Terebridae	unidentified	sp. 1	photo	NTM	05-May-2005
SS0505-(	009	GR014B	009GR014B-002	99901008	99	901	8					seived sample	bulk	AM	05-May-2005
SS0505-(	009	GR015B	009GR015B-001	99901005	99	901	5					fine sample	bulk	AM	05-May-2005
SS0505-(	009	GR015B	009GR015B-002	17001801	17	1	801	Sipuncula		Sipunculidae	Sipunculus	sp. 1	photo	NTM	05-May-2005
SS0505-(	009	GR015B	009GR015B-003	11314801	11	314	801	Cnidaria	Scleractinia	Caryophylliidae	unidentified	sp. 1		NTM	05-May-2005
SS0505-(	010	GR016B	010GR016B-001	22000801	22	0	801	Annelida	Polychaeta	unidentified	unidentified	sp. 1	photo	NTM	05-May-2005
SS0505-(	010	GR017B	010GR017B-001	99901005	99	901	5					fine sample	bulk	AM	05-May-2005
SS0505-(	010	GR017B	010GR017B-002	37428802	37	428	802	Chordata	Pisces	Gobiidae	unidentified	sp. 2	photo	NTM	05-May-2005
SS0505-(	010	GR017B	010GR017B-003	28220802	28	220	802	Crustacea	Isopoda	Cirolanidae	unidentified	sp. 2	photo	AM	05-May-2005
SS0505-(	010	GR017B	010GR017B-004	28803000	28	803	0	Crustacea	Thalassinidea	Callianassidae	unidentified	unidentified		AM	05-May-2005
SS0505-(	011	GR018B	011GR018B-001	99901005	99	901	5					fine sample	bulk	AM	05-May-2005
SS0505-(	011	GR018B	011GR018B-002	25191803	25	191	803	Echinodermata	Ophiuroidea	Amphiuridae	unidentified	sp. 3	photo	AM	05-May-2005
SS0505-(	011	GR018B	011GR018B-003	22000000	22	0	0	Annelida	Polychaeta	unidentified	unidentified	unidentified		NTM	05-May-2005
SS0505-(	012	GR019B	012GR019B-001	99901005	99	901	5					fine sample	bulk	AM	05-May-2005
SS0505-(	012	GR019B	012GR019B-002	17000801	17	0	801	Sipuncula		unidentified	unidentified	sp. 1	photo	NTM	05-May-2005
SS0505-(	012	GR019B	012GR019B-003	28803000	28	803	0	Crustacea	Thalassinidea	Callianassidae	unidentified	unidentified		AM	05-May-2005
SS0505-(	013	GR020B	013GR020B-001	28880801	28	880	801	Crustacea	Brachyura	Majidae	unidentified	sp. 1	photo	AM	10-May-2005
SS0505-(	013	GR020B	013GR020B-002	22000000	22	0	0	Annelida	Polychaeta	unidentified	unidentified	unidentified		NTM	10-May-2005
SS0505-(	013	GR021B	013GR021B-001	37428803	37	428	803	Chordata	Pisces	Gobiidae	unidentified	sp. 3	photo	NTM	10-May-2005
SS0505-(	013	GR021B	013GR021B-002	99901005	99	901	5					fine sample	bulk	AM	10-May-2005
SS0505-(	013	DR001B	013DR001B-001	25001801	25	1	801	Echinodermata	Crinoidea	unidentified	unidentified	sp. 1	photo	AM	10-May-2005
SS0505-(	013	DR001B	013DR001B-002	25171801	25	171	801	Echinodermata	Ophiuroidea	Gorgonocephalic	unidentified	sp. 1	photo	AM	10-May-2005
SS0505-(	013	DR001B	013DR001B-003	11196801	11	196	801	Cnidaria	Alcyonacea	Plexauridae	unidentified	sp. 1	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-004	25160000	25	160	0	Echinodermata	Ophiuroidea	unidentified	unidentified	unidentified		AM	10-May-2005
SS0505-(	013	DR001B	013DR001B-005	11173802	11	173	802	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 2	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-006	11173803	11	173	803	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 3	photo	NTM	10-May-2005

Appendix 1 **Specimen_Data**

Cruise#	Station#	Gear	Access#	CAAB #	Phylum code	Family Code	Species Code	Phylum Text	Higher Taxon Text	Family Text	Genus Text	Species Text	Comments	Institution	Date
SS0505-(	013	DR001B	013DR001B-007	25039801	25	39	801	Echinodermata	Crinoidea	Colobometridae	unidentified	sp. 1	photo	AM	10-May-2005
SS0505-(	013	DR001B	013DR001B-008	25039802	25	39	802	Echinodermata	Crinoidea	Colobometridae	unidentified	sp. 2	photo	AM	10-May-2005
SS0505-(	013	DR001B	013DR001B-009	25039803	25	39	803	Echinodermata	Crinoidea	Colobometridae	unidentified	sp. 3	photo	AM	10-May-2005
SS0505-(	013	DR001B	013DR001B-010	11191801	11	191	801	Cnidaria	Alcyonacea	Nephtheidae	unidentified	sp. 1	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-011	25192801	25	192	801	Echinodermata	Ophiuroidea	Ophiotrichidae	Ophiothrix	sp. 1	photo	AM	10-May-2005
SS0505-(	013	DR001B	013DR001B-012	11192801	11	192	801	Cnidaria	Alcyonacea	Nidaliidae	unidentified	sp. 1	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-013	28840004	28	840	4	Crustacea	Anomura	Galatheidae	Allogalathea	elegans	photo	AM	10-May-2005
SS0505-(	013	DR001B	013DR001B-014	11173804	11	173	804	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 4	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-015	11173805	11	173	804	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 5	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-016	20487801	20	487	801	Bryozoa	Cheilostomata	Phidoloporidae	Triphyllozoon	sp. 1	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-017	11160801	11	160	801	Cnidaria	Antipatharia	unidentified	unidentified	sp. 1	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-018	11173806	11	173	806	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 6	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-019	99901005	99	901	5					fine sample bulk		AM	10-May-2005
SS0505-(	013	DR001B	013DR001B-020	11173807	11	173	807	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 7	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-021	11173809	11	173	809	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 9	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-022	11173808	11	173	808	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 8	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-023	11173811	11	173	811	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 11	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-024	11173810	11	173	810	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 10	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-025	11173812	11	173	812	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 12	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-026	10180801	10	180	801	Porifera	Demospongiae	unidentified	unidentified	sp. 1	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-027	11173813	11	173	813	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 13	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-028	11173814	11	173	814	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 14	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-029	11173815	11	173	815	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 15	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-030	11173000	11	173	0	Cnidaria	Alcyonacea	unidentified	unidentified	unidentified		NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-031	11196803	11	196	803	Cnidaria	Alcyonacea	Plexauridae	unidentified	sp. 3	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-032	11196802	11	196	802	Cnidaria	Alcyonacea	Plexauridae	unidentified	sp. 2	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-033	19150801	19	150	801	Brachiopoda	Articulata	unidentified	unidentified	sp. 1	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-034	11190801	11	190	801	Cnidaria	Alcyonacea	Melithaeidae	unidentified	sp. 1	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-035	11173822	11	173	822	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 22	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-036	11173821	11	173	821	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 21	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-037	11173819	11	173	819	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 19	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-038	11173820	11	173	820	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 20	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-039	11173818	11	173	818	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 18	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-040	11173817	11	173	817	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 17	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-041	11173823	11	173	823	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 23	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-042	11173824	11	173	824	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 24	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-043	11173816	11	173	816	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 16	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-044	27500801	27	500	801	Crustacea	Cirripedia	unidentified	unidentified	sp. 1	photo	AM	10-May-2005
SS0505-(	013	DR001B	013DR001B-045	24080801	24	80	801	Mollusca	Gastropoda	Siliquariidae	Siliquaria	sp. 1	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-046	10180802	10	180	802	Porifera	Demospongiae	unidentified	unidentified	sp. 2	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-047	99901008	99	901	8					sieved sample		AM	10-May-2005
SS0505-(	013	DR001B	013DR001B-048	19150801	19	150	801	Brachiopoda	Articulata	unidentified	unidentified	sp. 1	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-049	22062802	22	62	802	Annelida	Polychaeta	Polynoidae	unidentified	sp. 2	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-050	11229802	11	229	802	Cnidaria	Actinaria	unidentified	unidentified	sp. 2	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-051	10180000	10	180	0	Porifera	Demospongiae	unidentified	unidentified	unidentified		NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-052	28843801	28	843	801	Crustacea	Anomura	Porcellanidae	unidentified	sp. 1	photo	AM	10-May-2005
SS0505-(	013	DR001B	013DR001B-053	25160803	25	160	803	Echinodermata	Ophiuroidea	unidentified	unidentified	sp. 3	photo	AM	10-May-2005
SS0505-(	013	DR001B	013DR001B-054	28840801	28	840	801	Crustacea	Anomura	Galatheidae	unidentified	sp. 1	photo	AM	10-May-2005
SS0505-(	013	DR001B	013DR001B-055	28840802	28	840	802	Crustacea	Anomura	Galatheidae	unidentified	sp. 2	photo	AM	10-May-2005
SS0505-(	013	DR001B	013DR001B-056	28840803	28	840	803	Crustacea	Anomura	Galatheidae	unidentified	sp. 3	photo	AM	10-May-2005
SS0505-(	013	DR001B	013DR001B-057	28926801	28	926	801	Crustacea	Brachyura	Pilumnidae	unidentified	sp. 1	photo	AM	10-May-2005
SS0505-(	013	DR001B	013DR001B-058	28765802	28	765	802	Crustacea	Caridea	Alpheidae	unidentified	sp. 2	photo	AM	10-May-2005
SS0505-(	013	DR001B	013DR001B-059	28911802	28	911	802	Crustacea	Brachyura	Portunidae	Thalamita	sp. 1	photo	AM	10-May-2005
SS0505-(	013	DR001B	013DR001B-060	11229803	11	229	803	Cnidaria	Actinaria	unidentified	unidentified	sp. 3	photo	NTM	10-May-2005

Appendix 1 **Specimen_Data**

Cruise#	Station#	Gear	Access#	CAAB #	Phylum code	Family Code	Species Code	Phylum Text	Higher Taxon Text	Family Text	Genus Text	Species Text	Comments	Institution	Date
SS0505-(	013	DR001B	013DR001B-061	11077802	11	77	802	Cnidaria	Hydrozoa	Stylasteridae	unidentified	sp. 2	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-062	20300801	20	300	801	Bryozoa	Cheilostomata	Porinidae	Porina	vertebralis		NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-063	20325801	20	325	801	Bryozoa	Cheilostomata	Quadricellariidae	Nellia	sp. 1		NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-064	20332801	20	332	801	Bryozoa	Cheilostomata	Candidae	Scrupocellaria	curvata	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-065	20405802	20	405	802	Bryozoa	Cheilostomata	Adeonidae	Adeonella	sp. 2	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-066	20405801	20	405	801	Bryozoa	Cheilostomata	Adeonidae	Adeonella	sp. 1	photo	NTM	10-May-2005
SS0505-(	013	DR001B	013DR001B-067	20300000	20	300	0	Bryozoa	Cheilostomata	unidentified	unidentified	unidentified		NTM	10-May-2005
SS0505-(	014	GR023B	014GR023B-001	99901005	99	901	5					fine sample bulk		AM	10-May-2005
SS0505-(	015	GR024B	015GR024B-001	99901005	99	901	5					fine sample bulk		AM	11-May-2005
SS0505-(	015	GR024B	015GR024B-002	10180000	10	180	0	Porifera	Demospongiae	unidentified	unidentified	unidentified		NTM	11-May-2005
SS0505-(	015	GR025B	015GR025B-001	99901005	99	901	5					fine sample bulk		AM	11-May-2005
SS0505-(	015	GR025B	015GR025B-002	22000804	22	0	804	Annelida	Polychaeta	unidentified	unidentified	sp. 4	photo	NTM	11-May-2005
SS0505-(	015	BS004B	015BS004B-001	99901005	99	901	5					fine sample bulk		AM	11-May-2005
SS0505-(	015	BS004B	015BS004B-002	23207802	23	207	802	Mollusca	Bivalvia	Nuculanidae	unidentified	sp. 2	photo	NTM	11-May-2005
SS0505-(	015	BS004B	015BS004B-003	28805803	28	805	803	Crustacea	Thalassinidea	Upogebiidae	unidentified	sp. 3	photo	AM	11-May-2005
SS0505-(	015	BS004B	015BS004B-004	28030802	28	30	802	Crustacea	Stomatopoda	unidentified	unidentified	sp. 2	photo	AM	11-May-2005
SS0505-(	015	BS004B	015BS004B-005	37428804	37	428	804	Chordata	Pisces	Gobiidae	unidentified	sp. 4	photo	NTM	11-May-2005
SS0505-(	015	BS004B	015BS004B-006	28803804	28	803	804	Crustacea	Thalassinidea	Callianassidae	unidentified	sp. 4	photo	AM	11-May-2005
SS0505-(	015	BS004B	015BS004B-007	99901003	99	901	3					debris-shells		AM	11-May-2005
SS0505-(	016	GR026B	016GR026B-001	24191801	24	191	801	Mollusca	Gastropoda	Epitoniidae	unidentified	sp. 1	photo	NTM	11-May-2005
SS0505-(	016	GR026B	016GR026B-002	11314803	11	314	803	Cnidaria	Scleractinia	Caryophylliidae	unidentified	sp. 3	photo	NTM	11-May-2005
SS0505-(	016	GR026B	016GR026B-003	99901003	99	901	3					debris-shells		AM	11-May-2005
SS0505-(	016	GR026B	016GR026B-004	11317801	11	317	801	Cnidaria	Scleractinia	Turbinoliidae	unidentified	sp. 1	photo	NTM	11-May-2005
SS0505-(	016	GR027B	016GR027B-001	99901005	99	901	5					fine sample bulk		AM	11-May-2005
SS0505-(	016	GR027B	016GR027B-002	28765803	28	765	803	Crustacea	Caridea	Alpheidae	unidentified	sp. 3	photo	AM	11-May-2005
SS0505-(	016	GR027B	016GR027B-003	28711802	28	711	802	Crustacea	Penaeoidea	Penaeidae	unidentified	sp. 2	photo	AM	11-May-2005
SS0505-(	017	GR028B	017GR028B-001	22000000	22	0	0	Annelida	Polychaeta	unidentified	unidentified	unidentified		NTM	11-May-2005
SS0505-(	017	GR029B	017GR029B-001	99901005	99	901	5					fine sample bulk		AM	11-May-2005
SS0505-(	017	GR029B	017GR029B-002	22000000	22	0	0	Annelida	Polychaeta	unidentified	unidentified	unidentified		NTM	11-May-2005
SS0505-(	017	GR029B	017GR029B-003	25160804	25	160	804	Echinodermata	Ophiuroidea	unidentified	unidentified	sp. 4	photo	AM	11-May-2005
SS0505-(	017	GR029B	017GR029B-004	28799000	28	799	0	Crustacea	Thalassinidea	unidentified	unidentified	unidentified		AM	11-May-2005
SS0505-(	018	GR030B	018GR030B-001	28840804	28	840	804	Crustacea	Anomura	Galatheidae	unidentified	sp. 4	photo	AM	11-May-2005
SS0505-(	018	GR030B	018GR030B-002	28900801	28	900	801	Crustacea	Brachyura	Corystidae	unidentified	sp. 1	photo	AM	11-May-2005
SS0505-(	018	GR030B	018GR030B-003	23199801	23	199	801	Mollusca	Bivalvia	unidentified	unidentified	sp. 1	photo	NTM	11-May-2005
SS0505-(	018	GR031B	018GR031B-001	99901005	99	901	5					fine sample bulk		AM	11-May-2005
SS0505-(	018	GR031B	018GR031B-002	25160000	25	160	0	Echinodermata	Ophiuroidea	unidentified	unidentified	unidentified		AM	11-May-2005
SS0505-(	018	GR031B	018GR031B-003	22030801	22	30	801	Annelida	Polychaeta	Onuphidae	unidentified	sp. 1	photo	NTM	11-May-2005
SS0505-(	018	GR031B	018GR031B-004	14000801	14	0	801	Nemertea		unidentified	unidentified	sp. 1	photo	NTM	11-May-2005
SS0505-(	018	DR002B	018DR002B-001	11173000	11	173	0	Cnidaria	Alcyonacea	unidentified	unidentified	unidentified		NTM	11-May-2005
SS0505-(	018	DR002B	018DR002B-002	20487801	20	487	801	Bryozoa	Cheilostomata	Phidoloporidae	Triphyllozoon	sp. 1		NTM	11-May-2005
SS0505-(	018	DR002B	018DR002B-003	99901005	99	901	5					fine sample bulk		AM	11-May-2005
SS0505-(	019	GR032B	019GR032B-001	99901005	99	901	5					fine sample bulk		AM	11-May-2005
SS0505-(	019	GR033B	019GR033B-001	28220803	28	220	803	Crustacea	Isopoda	Cirolanidae	unidentified	sp. 3	photo	AM	11-May-2005
SS0505-(	019	GR033B	019GR033B-002	28226801	28	226	801	Crustacea	Isopoda	Sphaeromatidae	unidentified	sp. 1	photo	AM	11-May-2005
SS0505-(	019	GR033B	019GR033B-003	28926801	28	926	801	Crustacea	Brachyura	Pilumnidae	unidentified	sp. 1		AM	11-May-2005
SS0505-(	019	GR033B	019GR033B-004	25160000	25	160	0	Echinodermata	Ophiuroidea	unidentified	unidentified	unidentified		AM	11-May-2005
SS0505-(	019	GR033B	019GR033B-005	22000000	22	0	0	Annelida	Polychaeta	unidentified	unidentified	unidentified		NTM	11-May-2005
SS0505-(	019	GR033B	019GR033B-006	28880802	28	880	802	Crustacea	Brachyura	Majidae	unidentified	sp. 2	photo	AM	11-May-2005
SS0505-(	019	GR033B	019GR033B-007	11173000	11	173	0	Cnidaria	Alcyonacea	unidentified	unidentified	unidentified		NTM	11-May-2005
SS0505-(	019	GR033B	019GR033B-008	11284801	11	284	801	Cnidaria	Zoanthinaria	unidentified	unidentified	sp. 1	photo	NTM	11-May-2005
SS0505-(	019	GR033B	019GR033B-009	11290801	11	290	801	Cnidaria	Scleractinia	unidentified	unidentified	sp. 1	photo	NTM	11-May-2005
SS0505-(	019	GR033B	019GR033B-010	99901005	99	901	5					fine sample bulk		AM	11-May-2005
SS0505-(	019	DR003B	019DR003B-001	99901005	99	901	5					fine sample bulk		AM	11-May-2005

Appendix 1 **Specimen_Data**

Cruise#	Station#	Gear	Access#	CAAB #	Phylum code	Family Code	Species Code	Phylum Text	Higher Taxon Text	Family Text	Genus Text	Species Text	Comments	Institution	Date
SS0505-(	020	GR034B	020GR034B-001	11173000	11	173	0	Cnidaria	Alcyonacea	unidentified	unidentified	unidentifie	placed in fridge by Graham, cannot be located	NTM	11-May-2005
SS0505-(	020	GR035B	020GR035B-001	99901005	99	901	5					fine sample	bulk	AM	11-May-2005
SS0505-(	020	GR035B	020GR035B-002	11160801	11	160	801	Cnidaria	Antipatharia	unidentified	unidentified	sp. 1	photo	NTM	11-May-2005
SS0505-(	020	GR035B	020GR035B-003	11173825	11	173	825	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 25	photo	NTM	11-May-2005
SS0505-(	020	GR035B	020GR035B-004	25001802	25	1	802	Echinodermata	Crinoidea	unidentified	unidentified	sp. 2	photo	AM	11-May-2005
SS0505-(	020	DR005B	020DR005B-001	25001801	25	1	801	Echinodermata	Crinoidea	unidentified	unidentified	sp. 1		NTM	11-May-2005
SS0505-(	020	DR005B	020DR005B-002	25001802	25	1	802	Echinodermata	Crinoidea	unidentified	unidentified	sp. 2	photo	AM	11-May-2005
SS0505-(	020	DR005B	020DR005B-003	25171803	25	171	803	Echinodermata	Ophiuroidea	Gorgonocephalic	unidentified	sp. 3	photo	AM	11-May-2005
SS0505-(	020	DR005B	020DR005B-004	25160805	25	160	805	Echinodermata	Ophiuroidea	unidentified	unidentified	sp. 5	photo	AM	11-May-2005
SS0505-(	020	DR005B	020DR005B-005	19150802	19	150	802	Brachiopoda	Articulata	unidentified	unidentified	sp. 2	photo	NTM	11-May-2005
SS0505-(	020	DR005B	020DR005B-006	19150801	19	150	801	Brachiopoda	Articulata	unidentified	unidentified	sp. 1	photo	NTM	11-May-2005
SS0505-(	020	DR005B	020DR005B-007	25171802	25	171	802	Echinodermata	Ophiuroidea	Gorgonocephalic	unidentified	sp. 2	photo	AM	11-May-2005
SS0505-(	020	DR005B	020DR005B-008	22116801	22	116	801	Annelida	Polychaeta	Flabelligeridae	unidentified	sp. 1	photo	NTM	11-May-2005
SS0505-(	020	DR005B	020DR005B-009	28770801	28	770	801	Crustacea	Caridea	Pandalidae	unidentified	sp. 1	photo	AM	11-May-2005
SS0505-(	020	DR005B	020DR005B-010	99901005	99	901	5					fine sample	bulk	AM	11-May-2005
SS0505-(	020	DR005B	020DR005B-011	11229804	11	229	804	Cnidaria	Actinaria	unidentified	unidentified	sp. 4	photo	NTM	11-May-2005
SS0505-(	020	DR005B	020DR005B-012	11314804	11	314	804	Cnidaria	Scleractinia	Caryophylliidae	unidentified	sp. 4	photo	NTM	11-May-2005
SS0505-(	020	DR005B	020DR005B-013	11290801	11	290	801	Cnidaria	Scleractinia	unidentified	unidentified	sp. 1	photo	NTM	11-May-2005
SS0505-(	020	DR005B	020DR005B-014	11001803	11	1	803	Cnidaria	Hydrozoa	unidentified	unidentified	sp. 3	photo	NTM	11-May-2005
SS0505-(	020	DR005B	020DR005B-015	20487801	20	487	801	Bryozoa	Cheilostomata	Phidoloporidae	Triphyllozoon	sp. 1		NTM	11-May-2005
SS0505-(	020	DR005B	020DR005B-016	11001802	11	1	802	Cnidaria	Hydrozoa	unidentified	unidentified	sp. 2	photo	NTM	11-May-2005
SS0505-(	020	DR005B	020DR005B-017	11160802	11	160	802	Cnidaria	Antipatharia	unidentified	unidentified	sp. 2	photo	NTM	11-May-2005
SS0505-(	020	DR005B	020DR005B-018	22000000	22	0	0	Annelida	Polychaeta	unidentified	unidentified	unidentified		NTM	11-May-2005
SS0505-(	020	DR005B	020DR005B-019	25171801	25	171	801	Echinodermata	Ophiuroidea	Gorgonocephalic	unidentified	sp. 1	photo	AM	11-May-2005
SS0505-(	020	DR005B	020DR005B-020	11196804	11	196	804	Cnidaria	Alcyonacea	Plexauridae	unidentified	sp. 4	photo	NTM	11-May-2005
SS0505-(	020	DR005B	020DR005B-021	11173826	11	173	826	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 26	photo	NTM	11-May-2005
SS0505-(	020	DR005B	020DR005B-022	11173000	11	173	0	Cnidaria	Alcyonacea	unidentified	unidentified	unidentified		NTM	11-May-2005
SS0505-(	020	DR005B	020DR005B-023	25160000	25	160	0	Echinodermata	Ophiuroidea	unidentified	unidentified	unidentified		AM	11-May-2005
SS0505-(	020	DR005B	020DR005B-024	27500801	27	500	801	Crustacea	Cirripedia	unidentified	unidentified	sp. 1		AM	11-May-2005
SS0505-(	020	DR005B	020DR005B-025	99901008	99	901	8					seived sam	ple bulk	AM	11-May-2005
SS0505-(	020	DR005B	020DR005B-026	25200801	25	200	801	Echinodermata	Echinoidea	unidentified	unidentified	sp. 1	photo	AM	11-May-2005
SS0505-(	021	GR037B	021GR037B-001	99901005	99	901	5					fine sample	bulk	AM	12-May-2005
SS0505-(	021	GR037B	021GR037B-002	25160000	25	160	0	Echinodermata	Ophiuroidea	unidentified	unidentified	unidentified		AM	12-May-2005
SS0505-(	022	GR038B	022GR038B-001	99901005	99	901	5					fine sample	bulk	AM	12-May-2005
SS0505-(	022	GR038B	022GR038B-002	28765804	28	765	804	Crustacea	Caridea	Alpheidae	unidentified	sp. 4	photo	AM	12-May-2005
SS0505-(	022	GR038B	022GR038B-003	11169801	11	169	801	Cnidaria	Octocorallia	unidentified	unidentified	sp. 1	photo	NTM	12-May-2005
SS0505-(	022	GR039B	022GR039B-001	99901005	99	901	5					fine sample	bulk	AM	12-May-2005
SS0505-(	023	GR040B	023GR040B-001	11197801	11	197	801	Cnidaria	Alcyonacea	Primnoidae	unidentified	sp. 1	photo	NTM	12-May-2005
SS0505-(	023	GR041B	023GR041B-001	99901005	99	901	5					fine sample	bulk	AM	12-May-2005
SS0505-(	023	GR042B	023GR042B-001	99901005	99	901	5					fine sample	bulk	AM	12-May-2005
SS0505-(	023	GR042B	023GR042B-002	28205802	28	205	802	Crustacea	Isopoda	Anthuridae	unidentified	sp. 2	photo	AM	12-May-2005
SS0505-(	023	GR042B	023GR042B-003	28765805	28	765	805	Crustacea	Caridea	Alpheidae	unidentified	sp. 5	photo	AM	12-May-2005
SS0505-(	023	GR042B	023GR042B-004	28803805	28	803	805	Crustacea	Thalassinidea	Callianassidae	unidentified	sp. 5	photo	AM	12-May-2005
SS0505-(	023	DR006B	023DR006B-001	25001801	25	1	801	Echinodermata	Crinoidea	unidentified	unidentified	sp. 1		AM	12-May-2005
SS0505-(	023	DR006B	023DR006B-002	25160000	25	160	0	Echinodermata	Ophiuroidea	unidentified	unidentified	unidentified		AM	12-May-2005
SS0505-(	023	DR006B	023DR006B-003	11173000	11	173	0	Cnidaria	Alcyonacea	unidentified	unidentified	unidentified		NTM	12-May-2005
SS0505-(	023	DR006B	023DR006B-004	11320801	11	320	801	Cnidaria	Scleractinia	Dendrophylliidae	unidentified	sp. 1	photo	NTM	12-May-2005
SS0505-(	024	GR043B	024GR043B-001	99901005	99	901	5					fine sample	bulk	AM	12-May-2005
SS0505-(	024	GR044B	024GR044B-001	99901005	99	901	5					fine sample	bulk	AM	12-May-2005
SS0505-(	024	GR044B	024GR044B-002	23207802	23	207	802	Mollusca	Bivalvia	Nuculanidae	unidentified	sp. 2	photo	NTM	12-May-2005
SS0505-(	025	GR045B	025GR045B-001	99901005	99	901	5					fine sample	bulk	AM	12-May-2005

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Cruise#	Station#	Gear	Access#	CAAB #	Phylum code	Family Code	Species Code	Phylum Text	Higher Taxon Text	Family Text	Genus Text	Species Text	Comments	Institution	Date
SS0505-(	025	DR007B	025DR007B-001	99901005	99	901	5					fine sample	bulk	AM	12-May-2005
SS0505-(	025	DR007B	025DR007B-002	19150803	19	150	803	Brachiopoda	Articulata	unidentified	unidentified	sp. 3	photo	NTM	12-May-2005
SS0505-(	026	GR046B	026GR046B-001	99901005	99	901	5					fine sample	bulk	AM	12-May-2005
SS0505-(	027	GR047B	027GR047B-001	99901005	99	901	5					fine sample	bulk	AM	13-May-2005
SS0505-(	027	GR048B	027GR048B-001	99901005	99	901	5					fine sample	bulk	AM	13-May-2005
SS0505-(	027	GR048B	027GR048B-002	25180801	25	180	801	Echinodermata	Ophiuroidea	Ophiodermatidae	unidentified	sp. 1	photo; bioluminescent	AM	13-May-2005
SS0505-(	028	GR049B	028GR049B-001	99901005	99	901	5					fine sample	bulk	AM	14-May-2005
SS0505-(	028	GR049B	028GR049B-002	25160806	25	160	806	Echinodermata	Ophiuroidea	unidentified	unidentified	sp. 6	photo	AM	14-May-2005
SS0505-(	028	GR050B	028GR050B-001	99901005	99	901	5					fine sample	bulk	AM	14-May-2005
SS0505-(	029	GR051B	029GR051B-001	99901005	99	901	5					fine sample	bulk	AM	14-May-2005
SS0505-(	029	GR052B	029GR052B-001	99901005	99	901	5					fine sample	bulk	AM	14-May-2005
SS0505-(	029	GR052B	029GR052B-002	20330801	20	330	801	Bryozoa	Cheilostomata	Beaniidae	Beania	sp. 1	photo	NTM	14-May-2005
SS0505-(	030	GR053B	030GR053B-001	99901005	99	901	5					fine sample	bulk	AM	14-May-2005
SS0505-(	030	GR054B	030GR054B-001	99901005	99	901	5					fine sample	bulk	AM	14-May-2005
SS0505-(	030	GR054B	030GR054B-002	23207803	23	207	803	Mollusca	Bivalvia	Nuculanidae	unidentified	sp. 3	photo	NTM	14-May-2005
SS0505-(	031	BS005B	031BS005B-001	99901005	99	901	5					fine sample	bulk	AM	14-May-2005
SS0505-(	031	BS005B	031BS005B-002	11191802	11	191	802	Cnidaria	Alcyonacea	Nephtheidae	unidentified	sp. 2	photo	NTM	14-May-2005
SS0505-(	032	BS006B	032BS006B-001	99901005	99	901	5					fine sample	bulk	AM	15-May-2005
SS0505-(	032	BS006B	032BS006B-002	28803806	28	803	806	Crustacea	Thalassinidea	Callianassidae	unidentified	sp. 6	photo	AM	15-May-2005
SS0505-(	032	BS006B	032BS006B-003	28803807	28	803	807	Crustacea	Thalassinidea	Callianassidae	unidentified	sp. 7	photo	AM	15-May-2005
SS0505-(	032	BS006B	032BS006B-004	28922801	28	922	801	Crustacea	Brachyura	Goneplacidae	unidentified	sp. 1	photo	AM	15-May-2005
SS0505-(	032	BS006B	032BS006B-005	28206801	28	206	801	Crustacea	Isopoda	Paranthuridae	unidentified	sp. 1	photo	AM	15-May-2005
SS0505-(	032	BS006B	032BS006B-006	99901007	99	901	7					coarse sample	bulk	AM	15-May-2005
SS0505-(	032	BS006B	032BS006B-007	99901003	99	901	3					debris-shells		AM	15-May-2005
SS0505-(	032	BS006B	032BS006B-008	14000802	14	0	802	Nemertea		unidentified	unidentified	sp. 2	photo	NTM	15-May-2005
SS0505-(	034	BS007B	034BS007B-001	99901005	99	901	5					fine sample	bulk	AM	17-May-2005
SS0505-(	034	BS007B	034BS007B-002	22000805	22	0	805	Annelida	Polychaeta	unidentified	unidentified	sp. 5	photo	NTM	17-May-2005
SS0505-(	034	BS007B	034BS007B-003	99901007	99	901	7					coarse sample	bulk	AM	17-May-2005
SS0505-(	036	BS008B	036BS008B-001	99901005	99	901	5					fine sample	bulk	AM	17-May-2005
SS0505-(	037	GR056B	037GR056B-001	99901005	99	901	5					fine sample	bulk	AM	18-May-2005
SS0505-(	037	GR056B	037GR056B-002	24207801	24	207	801	Mollusca	Gastropoda	Volutidae	Volutoconus	sp. 1	photo	NTM	18-May-2005
SS0505-(	037	GR056B	037GR056B-003	11077801	11	77	801	Cnidaria	Hydrozoa	Stylasteridae	unidentified	sp. 1	photo	NTM	18-May-2005
SS0505-(	037	GR057B	037GR057B-001	99901005	99	901	5					fine sample	bulk	AM	18-May-2005
SS0505-(	037	GR057B	037GR057B-002	99901003	99	901	3					debris-shells		AM	18-May-2005
SS0505-(	038	GR058B	038GR058B-001	99901007	99	901	7					coarse sample	bulk	AM	18-May-2005
SS0505-(	038	GR058B	038GR058B-002	11001804	11	1	804	Cnidaria	Hydrozoa	unidentified	unidentified	sp. 4	photo	NTM	18-May-2005
SS0505-(	038	GR058B	038GR058B-003	10180803	10	180	803	Porifera	Demospongiae	unidentified	unidentified	sp. 3	photo	NTM	18-May-2005
SS0505-(	038	GR059B	038GR059B-001	99901005	99	901	5					fine sample	bulk	AM	18-May-2005
SS0505-(	038	GR059B	038GR059B-002	10180805	10	180	805	Porifera	Demospongiae	unidentified	unidentified	sp. 5	photo	NTM	18-May-2005
SS0505-(	038	GR059B	038GR059B-003	10180804	10	180	804	Porifera	Demospongiae	unidentified	unidentified	sp. 4	photo	NTM	18-May-2005
SS0505-(	038	GR059B	038GR059B-004	11173825	11	173	825	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 25	photo	NTM	18-May-2005
SS0505-(	038	GR059B	038GR059B-005	11173827	11	173	827	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 27	photo	NTM	18-May-2005
SS0505-(	038	GR059B	038GR059B-006	11173828	11	173	828	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 28	photo	NTM	18-May-2005
SS0505-(	038	GR059B	038GR059B-007	25001803	25	1	803	Echinodermata	Crinoidea	unidentified	unidentified	sp. 3	photo	AM	18-May-2005
SS0505-(	038	GR060B	038GR060B-001	99901005	99	901	5					fine sample	bulk	AM	18-May-2005
SS0505-(	038	GR060B	038GR060B-002	11208801	11	208	801	Cnidaria	Pennatulacea	unidentified	unidentified	sp. 1	photo	NTM	18-May-2005
SS0505-(	038	GR060B	038GR060B-003	25001803	25	1	803	Echinodermata	Crinoidea	unidentified	unidentified	sp. 3		AM	18-May-2005
SS0505-(	038	GR060B	038GR060B-004	11173827	11	173	827	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 27		NTM	18-May-2005
SS0505-(	038	DR009B	038DR009B-001	22000000	22	0	0	Annelida	Polychaeta	unidentified	unidentified	unidentified		NTM	18-May-2005
SS0505-(	038	DR009B	038DR009B-002	11173000	11	173	0	Cnidaria	Alcyonacea	unidentified	unidentified	unidentified		NTM	18-May-2005
SS0505-(	038	DR009B	038DR009B-003	11160000	11	160	0	Cnidaria	Antipatharia	unidentified	unidentified	unidentified		NTM	18-May-2005
SS0505-(	038	DR009B	038DR009B-004	11001804	11	1	804	Cnidaria	Hydrozoa	unidentified	unidentified	sp. 4		NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-001	25202801	25	202	801	Echinodermata	Echinoidea	Cidaridae	unidentified	sp. 1	photo	AM	18-May-2005

Appendix 1 **Specimen_Data**

Cruise#	Station#	Gear	Access#	CAAB #	Phylum code	Family Code	Species Code	Phylum Text	Higher Taxon Text	Family Text	Genus Text	Species Text	Comments	Institution	Date
SS0505-(	038	DR010B	038DR010B-002	25000000	25	0	0	Echinodermata	Crinoidea	unidentified	unidentified	unidentifie	white	AM	18-May-2005
SS0505-(	038	DR010B	038DR010B-003	25000000	25	0	0	Echinodermata	Crinoidea	unidentified	unidentified	unidentifie	brown	AM	18-May-2005
SS0505-(	038	DR010B	038DR010B-004	25171804	25	171	804	Echinodermata	Ophiuroidea	Gorgonocephalic	unidentified	sp. 4	photo	AM	18-May-2005
SS0505-(	038	DR010B	038DR010B-005	11173829	11	173	829	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 29	photo	NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-006	10180806	10	180	806	Porifera	Demospongiae	unidentified	unidentified	sp. 6	photo	NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-007	28840805	28	840	805	Crustacea	Anomura	Galatheidae	unidentified	sp. 5	photo, ex 10180806	AM	18-May-2005
SS0505-(	038	DR010B	038DR010B-008	10180808	10	180	808	Porifera	Demospongiae	unidentified	unidentified	sp. 8	photo	NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-009	10180807	10	180	807	Porifera	Demospongiae	unidentified	unidentified	sp. 7	photo	NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-010	11191803	11	191	803	Cnidaria	Alcyonacea	Nephtheidae	unidentified	sp. 3	photo	NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-011	25001801	25	1	801	Echinodermata	Crinoidea	unidentified	unidentified	sp. 1		AM	18-May-2005
SS0505-(	038	DR010B	038DR010B-012	11077803	11	77	803	Cnidaria	Hydrozoa	Stylasteridae	unidentified	sp. 3	photo	NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-013	11001804	11	1	804	Cnidaria	Hydrozoa	unidentified	unidentified	sp. 4		NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-014	10180802	10	180	802	Porifera	Demospongiae	unidentified	unidentified	sp. 2		NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-015	20322801	20	322	801	Bryozoa	Cheilostomata	Flustridae	unidentified	sp. 1	photo	NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-016	11173830	11	173	830	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 30	photo	NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-017	25176802	25	176	802	Echinodermata	Ophiuroidea	Ophiuridae	unidentified	sp. 2	photo	AM	18-May-2005
SS0505-(	038	DR010B	038DR010B-018	11192801	11	192	801	Cnidaria	Alcyonacea	Nidaliidae	unidentified	sp. 1		NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-019	25202802	25	202	802	Echinodermata	Echinoidea	Cidaridae	unidentified	sp. 2	photo	AM	18-May-2005
SS0505-(	038	DR010B	038DR010B-020	23272801	23	272	801	Mollusca	Bivalvia	Spondylidae	Spondylus	sp. 1	photo	NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-021	10180809	10	180	809	Porifera	Demospongiae	unidentified	unidentified	sp. 9	photo	NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-022	28765806	28	765	806	Crustacea	Caridea	Alpheidae	unidentified	sp. 6	photo	AM	18-May-2005
SS0505-(	038	DR010B	038DR010B-023	22000000	22	0	0	Annelida	Polychaeta	unidentified	unidentified	unidentified		NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-024	11173811	11	173	811	Cnidaria	Alcyonacea	unidentified	unidentified	sp. 11	photo	NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-025	11160805	11	160	805	Cnidaria	Antipatharia	unidentified	unidentified	sp. 5	photo	NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-026	11160804	11	160	804	Cnidaria	Antipatharia	unidentified	unidentified	sp. 4	photo	NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-027	11160803	11	160	803	Cnidaria	Antipatharia	unidentified	unidentified	sp. 3	photo	NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-028	99901005	99	901	5					fine sample	bulk	AM	18-May-2005
SS0505-(	038	DR010B	038DR010B-029	27500802	27	500	802	Crustacea	Cirripedia	unidentified	unidentified	sp. 2	photo	AM	18-May-2005
SS0505-(	038	DR010B	038DR010B-030	10180810	10	180	810	Porifera	Demospongiae	unidentified	unidentified	sp. 10	photo	NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-031	11320802	11	320	802	Cnidaria	Scleractinia	Dendrophylliidae	Balanophyllia	sp. 1	photo	NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-032	11173000	11	173	0	Cnidaria	Alcyonacea	unidentified	unidentified	unidentified		NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-033	99901002	99	901	2					debris-rocks		AM	18-May-2005
SS0505-(	038	DR010B	038DR010B-034	10180811	10	180	811	Porifera	Demospongiae	unidentified	unidentified	sp. 11	photo	NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-035	35033801	35	33	801	Chordata	Urochordata	Styelidae	unidentified	sp. 1	photo	NTM	18-May-2005
SS0505-(	038	DR010B	038DR010B-036	99901008	99	901	8					seived sam	ple bulk	AM	18-May-2005
SS0505-(	039	GR061B	039GR061B-001	99901005	99	901	5					fine sample	bulk	AM	18-May-2005
SS0505-(	039	GR061B	039GR061B-002	28840803	28	840	803	Crustacea	Anomura	Galatheidae	unidentified	sp. 3	photo, male	AM	18-May-2005
SS0505-(	039	GR061B	039GR061B-003	25178801	25	178	801	Echinodermata	Ophiuroidea	Ophiocomidae	unidentified	sp. 1	photo	AM	18-May-2005
SS0505-(	039	GR061B	039GR061B-004	10180812	10	180	812	Porifera	Demospongiae	unidentified	unidentified	sp. 12	photo	NTM	18-May-2005
SS0505-(	039	GR061B	039GR061B-005	11173000	11	173	0	Cnidaria	Alcyonacea	unidentified	unidentified	unidentified		NTM	18-May-2005
SS0505-(	039	GR062B	039GR062B-001	99901005	99	901	5					fine sample	bulk	AM	18-May-2005
SS0505-(	039	GR062B	039GR062B-002	28840803	28	840	803	Crustacea	Anomura	Galatheidae	unidentified	sp. 3	photo, female	AM	18-May-2005
SS0505-(	039	GR062B	039GR062B-003	28730801	28	730	801	Crustacea	Caridea	unidentified	unidentified	sp. 1	photo	AM	18-May-2005
SS0505-(	039	GR062B	039GR062B-004	22024801	22	24	801	Annelida	Polychaeta	Eunicidae	Eunice	sp. 1	photo	NTM	18-May-2005
SS0505-(	039	GR062B	039GR062B-005	10180813	10	180	813	Porifera	Demospongiae	unidentified	unidentified	sp. 13	photo	NTM	18-May-2005
SS0505-(	039	GR062B	039GR062B-006	10180000	10	180	0	Porifera	Demospongiae	unidentified	unidentified	unidentified		NTM	18-May-2005
SS0505-(	039	GR062B	039GR062B-007	11173000	11	173	0	Cnidaria	Alcyonacea	unidentified	unidentified	unidentified		NTM	18-May-2005
SS0505-(	040	GR063B	040GR063B-001	99901005	99	901	5					fine sample	bulk	AM	18-May-2005
SS0505-(	040	GR064B	040GR064B-001	99901005	99	901	5					fine sample	bulk	AM	18-May-2005
SS0505-(	041	GR065B	041GR065B-001	99901005	99	901	5					fine sample	bulk	AM	18-May-2005
SS0505-(	041	GR066B	041GR066B-001	99901005	99	901	5					fine sample	bulk	AM	18-May-2005
SS0505-(	042	DR011B	042DR011B-001	11192802	11	192	802	Cnidaria	Alcyonacea	Nidaliidae	unidentified	sp. 2	photo	NTM	18-May-2005
SS0505-(	042	DR011B	042DR011B-002	25404801	25	404	801	Echinodermata	Holothuroidea	Psolidae	unidentified	sp. 1	photo	AM	18-May-2005

Appendix 1 **Specimen_Data**

Cruise#	Station#	Gear	Access#	CAAB #	Phylum code	Family Code	Species Code	Phylum Text	Higher Taxon Text	Family Text	Genus Text	Species Text	Comments	Institution	Date
SS0505-(	043	GR068B	043GR068B-001	99901005	99	901	5					fine sample	bulk	AM	19-May-2005
SS0505-(	043	GR069B	043GR069B-001	99901005	99	901	5					fine sample	bulk	AM	19-May-2005
SS0505-(	043	GR069B	043GR069B-002	11229805	11	229	805	Cnidaria	Actinaria	unidentified	unidentified	sp. 5	photo	NTM	19-May-2005
SS0505-(	043	GR069B	043GR069B-003	25021801	25	21	801	Echinodermata	Crinoidea	Pentacrinitidae?	unidentified	sp. 1	photo, stem sections only	AM	19-May-2005
SS0505-(	043	GR069B	043GR069B-004	25160807	25	160	807	Echinodermata	Ophiuroidea	unidentified	unidentified	sp. 7	photo	AM	19-May-2005
SS0505-(	043	GR069B	043GR069B-005	19150804	19	150	804	Brachiopoda	Articulata	unidentified	unidentified	sp. 4	photo, dead	NTM	19-May-2005
SS0505-(	043	GR069B	043GR069B-006	28840806	28	840	806	Crustacea	Anomura	Galatheidae	unidentified	sp. 6	photo	AM	19-May-2005
SS0505-(	043	GR069B	043GR069B-007	99901007	99	901	7					coarse sample	bulk	AM	19-May-2005
SS0505-(	043	GR069B	043GR069B-008	99901009	99	901	9					debris - dead corals		AM	19-May-2005
SS0505-(	043	DR012B	043DR012B-001	11280801	11	280	801	Cnidaria	Corallimorpharia	unidentified	unidentified	sp. 1	photo	NTM	19-May-2005
SS0505-(	043	DR012B	043DR012B-002	10180814	10	180	814	Porifera	Demospongiae	unidentified	unidentified	sp. 14	photo	NTM	19-May-2005
SS0505-(	043	DR012B	043DR012B-003	25160808	25	160	808	Echinodermata	Ophiuroidea	unidentified	unidentified	sp. 8	photo	AM	19-May-2005
SS0505-(	043	DR012B	043DR012B-004	20332801	20	332	801	Bryozoa	Cheilostomata	Candidae	Scrupocellaria	curvata	photo	NTM	19-May-2005
SS0505-(	043	DR012B	043DR012B-005	25160000	25	160	0	Echinodermata	Ophiuroidea	unidentified	unidentified	unidentified		AM	19-May-2005
SS0505-(	043	DR012B	043DR012B-006	27524801	27	524	801	Crustacea	Cirripedia	Scalpellidae	Arcoscalpellum	sp. 1	photo	AM	19-May-2005
SS0505-(	043	DR012B	043DR012B-007	27524802	27	524	802	Crustacea	Cirripedia	Scalpellidae	unidentified	sp. 1	photo	AM	19-May-2005
SS0505-(	043	DR012B	043DR012B-008	22000000	22	0	0	Annelida	Polychaeta	unidentified	unidentified	unidentified		NTM	19-May-2005
SS0505-(	043	DR012B	043DR012B-009	20300802	20	300	802	Bryozoa	Cheilostomata	unidentified	unidentified	sp. 1	photo	NTM	19-May-2005
SS0505-(	043	DR012B	043DR012B-010	99901009	99	901	9					debris - dead corals		AM	19-May-2005
SS0505-(	043	DR012B	043DR012B-011	10180000	10	180	0	Porifera	Demospongiae	unidentified	unidentified	unidentified		NTM	19-May-2005
SS0505-(	043	DR012B	043DR012B-012	25404801	25	404	801	Echinodermata	Holothuroidea	Psolidae	unidentified	sp. 1		AM	19-May-2005
SS0505-(	044	GR070B	044GR070B-001	99901005	99	901	5					fine sample	bulk	AM	19-May-2005
SS0505-(	044	DR013B	044DR013B-001	11160803	11	160	803	Cnidaria	Antipatharia	unidentified	unidentified	sp. 3	photo	NTM	20-May-2005
SS0505-(	044	DR013B	044DR013B-002	27500803	27	500	803	Crustacea	Cirripedia	unidentified	unidentified	sp. 3	photo	AM	20-May-2005
SS0505-(	044	DR013B	044DR013B-003	11001804	11	1	804	Cnidaria	Hydrozoa	unidentified	unidentified	sp. 4		NTM	20-May-2005
SS0505-(	044	DR013B	044DR013B-004	11190802	11	190	802	Cnidaria	Alcyonacea	Melithaeidae	unidentified	sp. 2	photo	NTM	20-May-2005
SS0505-(	044	DR013B	044DR013B-005	10300802	10	300	802	Porifera	Hexactinellida	unidentified	unidentified	sp. 2	photo	NTM	20-May-2005
SS0505-(	044	DR013B	044DR013B-006	10300801	10	300	801	Porifera	Hexactinellida	unidentified	unidentified	sp. 1	photo	NTM	20-May-2005
SS0505-(	044	DR013B	044DR013B-007	24207000	24	207	0	Mollusca	Gastropoda	Volutidae	unidentified	unidentified		NTM	20-May-2005
SS0505-(	045	GR072B	045GR072B-001	25143801	25	143	801	Echinodermata	Asteroidea	Echinasteridae	unidentified	sp. 1	photo	AM	20-May-2005
SS0505-(	045	DR014B	045DR014B-001	11160801	11	160	801	Cnidaria	Antipatharia	unidentified	unidentified	sp. 1		NTM	20-May-2005
SS0505-(	045	DR014B	045DR014B-002	23401000	23	401	0	Mollusca	Bivalvia	Pholadidae	unidentified	unidentified		NTM	20-May-2005
SS0505-(	045	DR014B	045DR014B-003	17020801	17	20	801	Echiura		unidentified	unidentified	sp. 1	photo	NTM	20-May-2005
SS0505-(	045	DR014B	045DR014B-004	20300803	20	300	803	Bryozoa	Cheilostomata	unidentified	unidentified	sp. 2	photo	NTM	20-May-2005
SS0505-(	045	DR014B	045DR014B-005	20300804	20	300	804	Bryozoa	Cheilostomata	unidentified	unidentified	sp. 3	photo	NTM	20-May-2005
SS0505-(	047	BS009B	047BS009B-001	99901005	99	901	5					fine sample	bulk	AM	20-May-2005
SS0505-(	047	BS009B	047BS009B-002	99901007	99	901	7					coarse sample	bulk	AM	20-May-2005
SS0505-(	047	BS009B	047BS009B-003	99901003	99	901	3					debris-shells		AM	20-May-2005
SS0505-(	048	GR073B	048GR073B-001	99901005	99	901	5					fine sample	bulk	AM	20-May-2005
SS0505-(	048	GR073B	048GR073B-002	22000806	22	0	806	Annelida	Polychaeta	unidentified	unidentified	sp. 6	photo	NTM	20-May-2005
SS0505-(	048	GR073B	048GR073B-003	25200801	25	200	801	Echinodermata	Echinoidea	unidentified	unidentified	sp. 1		AM	20-May-2005
SS0505-(	048	GR074B	048GR074B-001	99901005	99	901	5					fine sample	bulk	AM	20-May-2005
SS0505-(	048	GR074B	048GR074B-002	25200801	25	200	801	Echinodermata	Echinoidea	unidentified	unidentified	sp. 1	photo	AM	20-May-2005
SS0505-(	049	GR075B	049GR075B-001	99901005	99	901	5					fine sample	bulk	AM	20-May-2005
SS0505-(	049	GR075B	049GR075B-002	25160809	25	160	809	Echinodermata	Ophiuroidea	unidentified	unidentified	sp. 9	photo	AM	20-May-2005
SS0505-(	049	GR075B	049GR075B-003	22000000	22	0	0	Annelida	Polychaeta	unidentified	unidentified	unidentified		NTM	20-May-2005
SS0505-(	049	GR076B	049GR076B-001	99901005	99	901	5					fine sample	bulk	AM	20-May-2005
SS0505-(	049	GR076B	049GR076B-002	11173000	11	173	0	Cnidaria	Alcyonacea	unidentified	unidentified	unidentified		NTM	20-May-2005
SS0505-(	049	GR077B	049GR077B-001	25160810	25	160	810	Echinodermata	Ophiuroidea	unidentified	unidentified	sp. 10	photo	AM	20-May-2005
SS0505-(	049	GR078B	049GR078B-001	99901005	99	901	5					fine sample	bulk	AM	20-May-2005
SS0505-(	049	GR078B	049GR078B-002	22116802	22	116	802	Annelida	Polychaeta	Flabelligeridae	unidentified	sp. 2	photo	NTM	20-May-2005
SS0505-(	051	BS010B	051BS010B-001	99901005	99	901	5					fine sample	bulk	AM	21-May-2005
SS0505-(	050	BS011B	050BS011B-001	99901005	99	901	5					fine sample	bulk	AM	22-May-2005

Appendix 1 **Specimen_Data**

Cruise#	Station#	Gear	Access#	CAAB #	Phylum code	Family Code	Species Code	Phylum Text	Higher Taxon Text	Family Text	Genus Text	Species Text	Comments	Institution	Date
SS0505-(	050	BS011B	050BS011B-002	99901007	99	901	7					coarse sample bulk		AM	22-May-2005
SS0505-(	053	DR015B	053DR015B-001	28911803	28	911	803	Crustacea	Brachyura	Portunidae	Charybdis	sp. 1	photo	AM	22-May-2005
SS0505-(	053	DR015B	053DR015B-002	10180809	10	180	809	Porifera	Demospongiae	unidentified	unidentified	sp. 9	photo	NTM	22-May-2005
SS0505-(	053	DR015B	053DR015B-003	10180811	10	180	811	Porifera	Demospongiae	unidentified	unidentified	sp. 11		NTM	22-May-2005
SS0505-(	053	DR015B	053DR015B-004	10300803	10	300	803	Porifera	Hexactinellida	unidentified	unidentified	sp. 3	photo	NTM	22-May-2005
SS0505-(	053	DR015B	053DR015B-005	10180818	10	180	818	Porifera	Demospongiae	unidentified	unidentified	sp. 18	photo	NTM	22-May-2005
SS0505-(	053	DR015B	053DR015B-006	10180815	10	180	815	Porifera	Demospongiae	unidentified	unidentified	sp. 15	photo	NTM	22-May-2005
SS0505-(	053	DR015B	053DR015B-007	25001000	25	1	0	Echinodermata	Crinoidea	unidentified	unidentified	unidentified		AM	22-May-2005
SS0505-(	053	DR015B	053DR015B-008	10180808	10	180	808	Porifera	Demospongiae	unidentified	unidentified	sp. 8		NTM	22-May-2005
SS0505-(	053	DR015B	053DR015B-009	11001804	11	1	804	Cnidaria	Hydrozoa	unidentified	unidentified	sp. 4		NTM	22-May-2005
SS0505-(	053	DR015B	053DR015B-010	11160804	11	160	804	Cnidaria	Antipatharia	unidentified	unidentified	sp. 4		NTM	22-May-2005
SS0505-(	053	DR015B	053DR015B-011	11160805	11	160	805	Cnidaria	Antipatharia	unidentified	unidentified	sp. 5		NTM	22-May-2005
SS0505-(	053	DR015B	053DR015B-012	10180816	10	180	816	Porifera	Demospongiae	unidentified	unidentified	sp. 16	photo	NTM	22-May-2005
SS0505-(	053	DR015B	053DR015B-013	28926801	28	926	801	Crustacea	Brachyura	Pilumnidae	unidentified	sp. 1		AM	22-May-2005
SS0505-(	053	DR015B	053DR015B-014	11314804	11	314	804	Cnidaria	Scleractinia	Caryophylliidae	unidentified	sp. 4		NTM	22-May-2005
SS0505-(	053	DR015B	053DR015B-015	22000000	22	0	0	Annelida	Polychaeta	unidentified	unidentified	unidentified		NTM	22-May-2005
SS0505-(	053	DR015B	053DR015B-016	28840807	28	840	807	Crustacea	Anomura	Galatheidae	unidentified	sp. 7	photo	AM	22-May-2005
SS0505-(	053	DR015B	053DR015B-017	23226801	23	226	801	Mollusca	Bivalvia	Arcidae	unidentified	sp. 1	photo	NTM	22-May-2005
SS0505-(	053	DR015B	053DR015B-018	23301801	23	301	801	Mollusca	Bivalvia	Chamidae	Chama	sp. 1	photo	NTM	22-May-2005
SS0505-(	053	DR015B	053DR015B-019	10180000	10	180	0	Porifera	Demospongiae	unidentified	unidentified	unidentified		NTM	22-May-2005
SS0505-(	053	DR015B	053DR015B-020	10180817	10	180	817	Porifera	Demospongiae	unidentified	unidentified	sp. 17	photo	NTM	22-May-2005
SS0505-(	053	DR015B	053DR015B-021	11173000	11	173	0	Cnidaria	Alcyonacea	unidentified	unidentified	unidentified		NTM	22-May-2005
SS0505-(	053	GR080B	053GR080B-001	99901005	99	901	5					fine sample bulk		AM	22-May-2005
SS0505-(	053	GR080B	053GR080B-002	25160000	25	160	0	Echinodermata	Ophiuroidea	unidentified	unidentified	unidentified		AM	22-May-2005
SS0505-(	055	GR081B	055GR081B-001	99901005	99	901	5					fine sample bulk		AM	22-May-2005
SS0505-(	056	BS012B	056BS012B-001	99901005	99	901	5					fine sample bulk		AM	22-May-2005
SS0505-(	056	BS012B	056BS012B-002	20330801	20	330	801	Bryozoa	Cheilostomata	Beaniidae	Beania	sp. 1		NTM	22-May-2005
SS0505-(	057	BS013B	057BS013B-001	99901005	99	901	5					fine sample bulk		AM	24-May-2005
SS0505-(	057	BS013B	057BS013B-002	25160000	25	160	0	Echinodermata	Ophiuroidea	unidentified	unidentified	unidentified		AM	24-May-2005
SS0505-(	057	BS013B	057BS013B-003	99901003	99	901	3					debris-shells		AM	24-May-2005
SS0505-(	060	BS014B	060BS014B-001	99901005	99	901	5					fine sample bulk		AM	25-May-2005
SS0505-(	060	BS014B	060BS014B-002	11001805	11	1	805	Cnidaria	Hydrozoa	unidentified	unidentified	sp. 5	photo	NTM	25-May-2005
SS0505-(	061	GR082B	061GR082B-001	99901005	99	901	5					fine sample bulk		AM	25-May-2005
SS0505-(	061	GR082B	061GR082B-002	37000801	37	0	801	Chordata	Pisces	unidentified	unidentified	sp. 1	photo; long fins	NTM	25-May-2005
SS0505-(	063	BS015B	063BS015B-001	99901005	99	901	5					fine sample bulk		AM	25-May-2005
SS0505-(	063	BS015B	063BS015B-002	37065801	37	65	801	Chordata	Pisces	Nettastomatidae	unidentified	sp. 1		NTM	25-May-2005
SS0505-(	064	GR083B	064GR083B-001	17000801	17	0	801	Sipuncula		unidentified	unidentified	sp. 1		NTM	26-May-2005
SS0505-(	064	GR083B	064GR083B-002	22000807	22	0	807	Annelida	Polychaeta	unidentified	unidentified	sp. 7	photo	NTM	26-May-2005
SS0505-(	064	GR083B	064GR083B-003	11173000	11	173	0	Cnidaria	Alcyonacea	unidentified	unidentified	unidentified		NTM	26-May-2005
SS0505-(	064	GR084B	064GR084B-001	28865801	28	865	801	Crustacea	Brachyura	Raninidae	unidentified	sp. 1		NTM	26-May-2005
SS0505-(	064	GR084B	064GR084B-002	28922802	28	922	802	Crustacea	Brachyura	Goneplacidae	unidentified	sp. 2	photo	AM	26-May-2005
SS0505-(	064	GR084B	064GR084B-003	28803802	28	803	802	Crustacea	Thalassinidea	Callianassidae	unidentified	sp. 2	photo	AM	26-May-2005
SS0505-(	064	GR084B	064GR084B-004	11314805	11	314	805	Cnidaria	Scleractinia	Caryophylliidae	unidentified	sp. 5	photo	NTM	26-May-2005
SS0505-(	002	GR085B	002GR085B-001	22000000	22	0	0	Annelida	Polychaeta	unidentified	unidentified	unidentified		NTM	26-May-2005
SS0505-(	002	GR085B	002GR085B-002	24220802	24	220	802	Mollusca	Gastropoda	Turridae	unidentified	sp. 2	photo	NTM	26-May-2005
SS0505-(	002	GR085B	002GR085B-003	28803801	28	803	801	Crustacea	Thalassinidea	Callianassidae	unidentified	sp. 1	photo	AM	26-May-2005
SS0505-(	002	GR085B	002GR085B-004	25160811	25	160	811	Echinodermata	Ophiuroidea	unidentified	unidentified	sp. 11	photo	AM	26-May-2005
SS0505-(	002	GR086B	002GR086B-001	25160801	25	160	801	Echinodermata	Ophiuroidea	unidentified	unidentified	sp. 1		AM	26-May-2005
SS0505-(	002	GR086B	002GR086B-002	25191804	25	191	804	Echinodermata	Ophiuroidea	Amphiuridae	unidentified	sp. 4	photo	AM	26-May-2005

Appendix 1 **Fauna_Codes**

CAAB SPCODE	COMMON_NAME	SCIENTIFIC_NAME	AUTHORITY	FAMILY	NOTES	Stations recorded - Photos
10180801	sponge	Sponge sp. 1			Demospongiae, flat/vase	013DR001B-026
10180802	sponge	Sponge sp. 2			Demospongiae? long spicules	013DR001B-046
10180803	sponge	Sponge sp. 3			Demospongiae	038GR058B-003
10180804	sponge	Sponge sp. 4			Demospongiae	038GR059B-003
10180805	sponge	Sponge sp. 5			Demospongiae, mud sponge	038GR059B-002
10180806	sponge	Sponge sp. 6			Demospongiae	038DR010B-006
10180807	sponge	Sponge sp. 7			Demospongiae, coarse hard tube	038DR010B-009
10180808	sponge	Sponge sp. 8			Demospongiae, fine hard tube	038DR010B-008
10180809	sponge	Sponge sp. 9			Demospongiae, hard, white	038DR010B-021
10180810	sponge	Sponge sp. 10			Demospongiae, sandy stick	038DR010B-030
10180811	sponge	Sponge sp. 11			Demospongiae? hard bracket	038DR010B-034
10180812	sponge	Sponge sp. 12			Demospongiae, soft	039GR061B-004
10180813	sponge	Sponge sp. 13			Demospongiae?	039GR062B-005
10180814	sponge	Sponge sp. 14			Demospongiae	043DR012B-002
10180815	sponge	Sponge sp. 15			Demospongiae? hard bracket lumpy	053DR015B-006
10180816	sponge	Sponge sp. 16			Demospongiae, yellow encrusting & tubes	053DR015B-012
10180817	sponge	Sponge sp. 17			Demospongiae?	053DR015B-020
10180818	sponge	Sponge sp. 18			Demospongiae, ochre irreg	053DR015B-005
10300801	glass sponge	Hexactinellida sp. 1			Hexactinellida?	044DR013B-006
10300802	glass sponge	Hexactinellida sp. 2			Hexactinellida?	044DR013B-005
10300803	glass sponge	Hexactinellida sp. 3			Hexactinellida?	053DR015B-004
11001801	hydroid	Hydroida sp. 1				005GR006B-003
11001802	hydroid	Hydroida sp. 2			long	020DR005B-016
11001803	hydroid	Hydroida sp. 3			lg polyps in sponge	020DR005B-014
11001804	hydroid	Hydroida sp. 4			lg colony	038GR058B-002
11001805	hydroid	Hydroida sp. 5			from mud with rootlets	060BS014B-002
11077801	hydrocoral	Stylasteridae sp. 1		Stylasteridae	pink, was ?Bryozoa sp. 1	002GR002B-004;003GR004B-004;037GR056B-003
11077802	hydrocoral	Stylasteridae sp. 2		Stylasteridae	white	013DR001B-061
11077803	hydrocoral	Stylasteridae sp. 3		Stylasteridae?	white with green tips (labelled as a bryozoan)	038DR010B-012
11160801	black corals	Antipatharia sp. 1			spiral, pale polyps	013DR001B-017;020GR035B-002
11160802	black corals	Antipatharia sp. 2			spiral, very fine	020DR005B-017
11160803	black corals	Antipatharia sp. 3			flat, coarse branch	038DR010B-027;044DR013B-001
11160804	black corals	Antipatharia sp. 4			flat, fine branch	038DR010B-026
11160805	black corals	Antipatharia sp. 5			bottlebrush	038DR010B-025
11169801	octocoral	Octocorallia sp. 1			strange colony, poss. Octocorallia	022GR038D-003
11173801	octocoral	Alcyonacea sp. 1			sm gorgonian	008GR012B-001
11173802	octocoral	Alcyonacea sp. 2			pale pink fan, fine branch	013DR001B-005
11173803	octocoral	Alcyonacea sp. 3			pale pink fan, long branch	013DR001B-006
11173804	octocoral	Alcyonacea sp. 4			thick white seawhip	013DR001B-014
11173805	octocoral	Alcyonacea sp. 5			white fan, red/orange base	013DR001B-015
11173806	octocoral	Alcyonacea sp. 6			white whip spiral end	013DR001B-018
11173807	octocoral	Alcyonacea sp. 7			white, sparse branch whip	013DR001B-020
11173808	octocoral	Alcyonacea sp. 8			pale, thick branches	013DR001B-022
11173809	octocoral	Alcyonacea sp. 9			pink fan, dark polyps	013DR001B-021
11173810	octocoral	Alcyonacea sp. 10			yellow fan, fine branch	013DR001B-024
11173811	octocoral	Alcyonacea sp. 11			sm yellow, spiky polyp	013DR001B-023;038DR010B-024
11173812	octocoral	Alcyonacea sp. 12			pale, short branches off main axis	013DR001B-025
11173813	octocoral	Alcyonacea sp. 13			pink fan, flat, sparse pale polyps	013DR001B-027
11173814	octocoral	Alcyonacea sp. 14			red fan, flat	013DR001B-028
11173815	octocoral	Alcyonacea sp. 15			red fan irregular	013DR001B-029
11173816	octocoral	Alcyonacea sp. 16			cream fan	013DR001B-043
11173817	octocoral	Alcyonacea sp. 17			pale fan, flat, irreg branching	013DR001B-040
11173818	octocoral	Alcyonacea sp. 18			pale lemon flat	013DR001B-039
11173819	octocoral	Alcyonacea sp. 19			white fork	013DR001B-037
11173820	octocoral	Alcyonacea sp. 20			short white whip	013DR001B-038
11173821	octocoral	Alcyonacea sp. 21			pale fan, dark polyps	013DR001B-036
11173822	octocoral	Alcyonacea sp. 22			long pink fan	013DR001B-035

Appendix 1 **Fauna_Codes**

CAAB SPCODE	COMMON_NAME	SCIENTIFIC_NAME	AUTHORITY	FAMILY	NOTES	Stations recorded - Photos
11173823	octocoral	Alcyonacea sp. 23			grey fan, small polyp	013DR001B-041
11173824	octocoral	Alcyonacea sp. 24			grey fan, large polyp	013DR001B-042
11173825	octocoral	Alcyonacea sp. 25			grey fan, v large polyp	020GR035B-003;038GR059B-004
11173826	octocoral	Alcyonacea sp. 26			cream fan, lg polyps	020DR005B-021
11173827	octocoral	Alcyonacea sp. 27			tall colony, orange polyps	038GR059B-005
11173828	octocoral	Alcyonacea sp. 28			small colony	038GR059B-006
11173829	octocoral	Alcyonacea sp. 29			sugar-frosted pale orange	038DR010B-005
11173830	octocoral	Alcyonacea sp. 30			flat pink, fine surface spikes	038DR010B-016
11190801	octocoral	Melithaeidae sp. 1		Melithaeidae	white bramble	013DR001B-034
11190802	octocoral	Melithaeidae sp. 2		Melithaeidae	sparse white bramble	044DR013B-004
11191801	soft coral	Nephtheidae sp. 1		Nephtheidae	orange	013DR001B-010
11191802	soft coral	Nephtheidae sp. 2		Nephtheidae	tiny, with rootlets	031BS005B-002
11191803	soft coral	Nephtheidae sp. 3		Nephtheidae	orange, large spicules	038DR010B-010
11192801	soft coral	Nidaliidae sp. 1		Nidaliidae	white & pink polyps	013DR001B-012
11192802	soft coral	Nidaliidae sp. 2		Nidaliidae	orange	042DR011B-001
11196801	seafan	Plexauridae sp. 1		Plexauridae	red	013DR001B-003
11196802	seafan	Plexauridae sp. 2		Plexauridae	orange coarse mesh	013DR001B-032
11196803	seafan	Plexauridae sp. 3		Plexauridae	orange fine mesh	013DR001B-031
11196804	seafan	Plexauridae sp. 4		Plexauridae	orange/pink fine mesh	020DR005B-020
11197801	octocoral	Primnoidae sp. 1		Primnoidae	pale, spiky	023GR040B-001
11208801	seapen	Pennatulacea sp. 1			tiny, green tinge on polyp leaves	038GR060B-002
11229801	sea anemones	Actinaria sp. 1			striped on shell	006GR009B-006
11229802	sea anemones	Actinaria sp. 2			coloured on rock	013DR001B-050
11229803	sea anemones	Actinaria sp. 3			tiger on antipatharian	013DR001B-060
11229804	sea anemones	Actinaria sp. 4			white on antipatharian	020DR005B-011
11229805	sea anemones	Actinaria sp. 5			burrowing	043GR069B-002
11280801	corallimorph anemones	Corallimorpharia sp. 1			pink, on dead corals	043DR012B-001
11284801	zoanthid anemones	Zoanthinaria sp. 1			brown on tubifex	019GR033B-008
11290801	colonial coral	Scleractinia sp. 1			white, irreg, tiny calyces	019GR033B-009;020DR005B-013
11314801	solitary coral	Caryophylliidae sp. 1		Caryophylliidae	dead collected	002GR002B-003;007GR011B-005
11314802	solitary coral	Caryophylliidae sp. 2		Caryophylliidae		008GR012B-002
11314803	solitary coral	Caryophylliidae sp. 3		Caryophylliidae	dead collected	016GR026B-002
11314804	colonial coral	Caryophylliidae sp. 4		Caryophylliidae	dead collected	020DR005B-012
11314805	solitary coral	Caryophylliidae sp. 5		Caryophylliidae	dead collected	064GR084B-004
11317801	solitary coral	Turbinoliidae sp. 1		Turbinoliidae		016GR026B-004
11320801	colonial coral	Dendrophylliidae sp. 1		Dendrophylliidae	orange-yellow	023DR006B-004
11320802	solitary coral	Balanophyllia sp. 1		Dendrophylliidae	orange	038DR010B-031
11328801	solitary coral	Flabellum sp. 1		Flabellidae	dead collected	002GR001B-002;003GR004B-003
14000801	ribbon worm	Nemertea sp. 1			brown bands on back	018GR031B-004
14000802	ribbon worm	Nemertea sp. 2			red	032BS006B-008
17000801	sipunculan worm	Sipuncula sp. 1				012GR019B-002
17001801	sipunculan worm	Sipunculus sp. 1		Sipunculidae		009GR015B-002
17020801	echiuran worm	Echiura sp. 1				045DR014B-003
19150801	brachiopod	Brachiopoda sp. 1			fine ribs	013DR001B-033;013DR001B-048;020DR005B-006
19150802	brachiopod	Brachiopoda sp. 2			smooth, round	020Dr005B-005
19150803	brachiopod	Brachiopoda sp. 3			smooth, more elongate	025DR007B-002
19150804	brachiopod	Brachiopoda sp. 4			coarser ribs	043GR069B-005
20300801	bryozoan	Porina vertebralis		Porinidae	Cheilostomata	008GR012B-005
20300802	bryozoan	Bryozoa sp. 1			Cheilostomata, tubes	043DR012B-009
20300803	bryozoan	Bryozoa sp. 2			Cheilostomata, orange vane	045DR014B-004
20300804	bryozoan	Bryozoa sp. 3			Cheilostomata, encrusting	045DR014B-005
20322801	bryozoan	Flustridae sp. 1		Flustridae	soft, flat	038DR010B-015
20325801	bryozoan	Nellia sp. 1		Quadricellariidae		008GR012B-004
20330801	bryozoan	Beania sp. 1		Beaniidae	rigid	029GR052B-002
20332801	bryozoan	Scrupocellaria curvata		Candidae		013DR001B-064;043DR012B-004
20405801	bryozoan	Adeonella sp. 1		Adeonidae	large	013DR001B-066
20405802	bryozoan	Adeonella sp. 2		Adeonidae	small	013DR001B-0657

Appendix 1

Fauna_Codes

CAAB SPCODE	COMMON_NAME	SCIENTIFIC_NAME	AUTHORITY	FAMILY	NOTES	Stations recorded - Photos
20487801	bryozoan	Triphyllozoon sp. 1		Phidoloporidae		013DR001B-016
22000801	polychaete worm	Polychaeta sp. 1				001BS001-002;005GR007B-003;010GR016B-001
22000802	polychaete worm	Polychaeta sp. 2				001BS001-008
22000803	polychaete worm	Polychaeta sp. 3			red, long setae	007GR011B-002
22000804	polychaete worm	Polychaeta sp. 4			sandy, long front setae	015GR025B-002
22000805	polychaete worm	Polychaeta sp. 5			red	034BS007B-002
22000806	polychaete worm	Polychaeta sp. 6			bristle	048GR073B-002
22000807	polychaete worm	Polychaeta sp. 7			tube worm	064GR083B-002
22024801	polychaete worm	Eunice sp. 1		Eunicidae		039GR062B-004
22030801	polychaete worm	Onuphidae sp. 1		Onuphidae		018GR031B-003
22062801	scale worm	Polynoidae sp. 1		Polynoidae		007BS003-005
22062802	scale worm	Polynoidae sp. 2		Polynoidae		013DR001B-049
22116801	polychaete worm	Flabelligeridae sp. 1		Flabelligeridae	setae crown	020DR005B-008
22116802	polychaete worm	Flabelligeridae sp. 2		Flabelligeridae	few long setae	049GR078B-002
23199801	bivalve	Bivalvia sp. 1			radial ribs	018GR030B-003
23207801	beaked cockles	Nuculanidae sp. 1		Nuculanidae	dead collected	001BS001-006
23207802	beaked cockles	Nuculanidae sp. 2		Nuculanidae		015BS004B-002;024GR044B-002
23207803	beaked cockles	Nuculanidae sp. 3		Nuculanidae	dead collected	030GR054B-002
23226801	ark shell	Arcidae sp. 1		Arcidae		053DR015B-017
23272801	thorny oyster	Spondylus sp. 1		Spondylidae		038DR010B-020
23301801	chama	Chama sp. 1		Chamidae		053DR015B-018
23355801	tellin	Tellinidae sp. 1		Tellinidae		007BS003-009
23410801	bivalve	Thraciidae sp. 1		Thraciidae		002GR001B-005
23499801	tusk shell	Scaphopoda sp. 1				008GR013B-001
24080801	worm shells	Siliquaria sp. 1		Siliquariidae	dead in situ	013DR001B-045
24191801	ladder shell	Epitoniidae sp. 1		Epitoniidae	dead?	016GR026B-001
24202801	whelks	Fasciolariinae sp. 1		Buccinidae		001BS001-007
24207801	volute	Volutoconus sp. 1		Volutidae		037GR056B-002
24220801	turrid	Turridae sp. 1		Turridae		006GR009B-005
24220802	turrid	Turridae sp. 2		Turridae		002GR085B-002
24221801	auger shell	Terebridae sp. 1		Terebridae		009GR014B-001
25001801	crinoids	Crinoidea sp. 1			long cirri	013DR001B-001
25001802	crinoids	Crinoidea sp. 2			5 arms	020GR035B-004;020DR005B-002
25001803	crinoids	Crinoidea sp. 3			many arms, long cirri	038GR059B-007
25021801	stalked crinoid	Pentacrinitidae? sp. 1		Pentacrinitidae	stem sections only, prob. Subfossil	043GR069B-003
25039801	crinoids	Colobometridae sp. 1		Colobometridae	small	013DR001B-007
25039802	crinoids	Colobometridae sp. 2		Colobometridae	stiff arms	013DR001B-008
25039803	crinoids	Colobometridae sp. 3		Colobometridae	sm cirri	013DR001B-009
25143801	seastar	Echinasteridae sp. 1		Echinasteridae		045GR072B-001
25160801	brittlestar	Ophiuroidea sp. 1				001BS001-003
25160802	brittlestar	Ophiuroidea sp. 2				007BS003-014
25160803	snakestar	Ophiuroidea sp. 3				013DR001B-053
25160804	brittlestar	Ophiuroidea sp. 4				017GR029B-003
25160805	snakestar	Ophiuroidea sp. 5				020DR005B-004
25160806	brittlestar	Ophiuroidea sp. 6				028GR049B-002
25160807	brittlestar	Ophiuroidea sp. 7				043GR069B-004
25160808	brittlestar	Ophiuroidea sp. 8				043DR012B-003
25160809	brittlestar	Ophiuroidea sp. 9				049GR075B-002
25160810	brittlestar	Ophiuroidea sp. 10				049GR077B-001
25160811	brittlestar	Ophiuroidea sp. 11				002GR085B-004
25171801	basketstar	Gorgonocephalidae sp. 1		Gorgonocephalidae	pr spines base of arms on disc; ex 013DR001B-003	013DR001B-002;020DR005B-019
25171802	basketstar	Gorgonocephalidae sp. 2		Gorgonocephalidae	no disc granules	020DR005B-007
25171803	basketstar	Gorgonocephalidae sp. 3		Gorgonocephalidae	disc granules	020DR005B-003
25171804	snakestar	Gorgonocephalidae sp. 4		Gorgonocephalidae	unbranched arms	038DR010B-004
25176801	brittlestar	Ophiuridae sp. 1		Ophiuridae		003GR004B-001
25176802	brittlestar	Ophiuridae sp. 2		Ophiuridae	pink	038DR010B-017
25178801	brittlestar	Ophiocomidae sp. 1		Ophiocomidae		039GR061B-003

Appendix 1 **Fauna_Codes**

CAAB SPCODE	COMMON_NAME	SCIENTIFIC_NAME	AUTHORITY	FAMILY	NOTES	Stations recorded - Photos
25180801	brittlestar	Ophiodermatidae sp. 1		Ophiodermatidae	bioluminescent	027GR048B-002
25191801	brittlestar	Amphiuridae sp. 1		Amphiuridae		005GR007B-004
25191802	brittlestar	Amphiuridae sp. 2		Amphiuridae		007BS003-013
25191803	brittlestar	Amphiuridae sp. 3		Amphiuridae		011GR018B-002
25191804	brittlestar	Amphiuridae sp. 4		Amphiuridae		002GR086B-002
25192801	brittlestar	Ophiothrix sp. 1		Ophiotrichidae		013DR001B-011
25200801	sea urchin	Echinoidea sp. 1			irregular	020DR005B-026;048GR074B-002
25202801	sea urchin	Cidaridae sp. 1		Cidaridae	large, sponge on spines but few thorns	038DR010B-001
25202802	sea urchin	Cidaridae sp. 2		Cidaridae	sm, spines with lots of thorns	038DR010B-019
25404801	sea cucumber	Psolidae sp. 1		Psolidae	sm, white	042DR011B-002
27500801	barnacle	Cirripedia sp. 1			balanomorph on octocoral/antipatharian stems	013DR001B-044
27500802	stalked barnacle	Cirripedia sp. 2		Oxynaspididae?	embedded in live octocoral	038DR010B-029
27500803	stalked barnacle	Cirripedia sp. 3			on antipatharian	044DR013B-002
27524801	stalked barnacle	Arcoscalpellum sp. 1		Scalpellidae	striped stalk	043DR012B-006
27524802	stalked barnacle	Scalpellidae sp. 1		Scalpellidae	plates on stalk	043DR012B-007
28030801	mantis shrimp	Stomatopoda sp. 1				005GR006B-001
28030802	mantis shrimp	Stomatopoda sp. 2				006GR009B-001;015BS004B-004
28030803	mantis shrimp	Stomatopoda sp. 3				007GR010B-001
28105801	tanaidacean	Tanaidacea sp. 1				001BS001-004
28105802	tanaidacean	Tanaidacea sp. 2				007BS003-012
28205801	isopod	Anthuridae sp. 1		Anthuridae		007BS003-007
28205802	isopod	Anthuridae sp. 2		Anthuridae		023GR042B-002
28206801	isopod	Paranthuridae sp. 1		Paranthuridae		032BS006B-005
28220801	isopod	Cirolanidae sp. 1		Cirolanidae		007BS003-006
28220802	isopod	Cirolanidae sp. 2		Cirolanidae		010GR017B-003
28220803	isopod	Cirolanidae sp. 3		Cirolanidae	ex hole in rock	019GR033B-001
28226801	isopod	Sphaeromatidae sp. 1		Sphaeromatidae	ex hole in rock	019GR033B-002
28400801	gammarid amphipods	Amphipoda Gammaridea sp. 1				001BS001-005
28711801	prawn	Penaeidae sp. 1		Penaeidae		007BS003-004
28711802	prawn	Penaeidae sp. 2		Penaeidae		016GR027B-003
28730801	shrimp	Caridea sp. 1			red pattern	039GR062B-003
28765801	snapping shrimp	Alpheidae sp. 1		Alpheidae	red pattern	006GR009B-003
28765802	snapping shrimp	Alpheidae sp. 2		Alpheidae	clear	013GR001B-058
28765803	snapping shrimp	Alpheidae sp. 3		Alpheidae	red band on claw	016GR027B-002
28765804	snapping shrimp	Alpheidae sp. 4		Alpheidae	long palm, setae on finger	022GR038D-002
28765805	snapping shrimp	Alpheidae sp. 5		Alpheidae	spotted long palm, no setae on finger	023GR042B-003
28765806	snapping shrimp	Alpheidae sp. 6		Alpheidae	clear, black spots on abdomen	038DR010B-022
28770801	shrimp	Pandalidae sp. 1		Pandalidae		020DR005B-009
28803801	slow prawn	Callianassidae sp. 1		Callianassidae	faint pattern	002GR001B-001;005GR006B-002;002GR085B-003
28803802	slow prawn	Callianassidae sp. 2		Callianassidae	red pattern	007GR011B-004;064GR084B-003
28803803	slow prawn	Callianassidae sp. 3		Callianassidae	sm, white band on claw, long palm	007GR011B-003
28803804	slow prawn	Callianassidae sp. 4		Callianassidae	orange, toothed claw	015BS004B-006
28803805	slow prawn	Callianassidae sp. 5		Callianassidae	white band on claw, short palm	023GR042B-004
28803806	slow prawn	Callianassidae sp. 6		Callianassidae	clear, no colour	032BS006B-002
28803807	slow prawn	Callianassidae sp. 7		Callianassidae	pale, diffuse pink bars on claws	032BS006B-003
28805801	slow prawn	Upogebiidae sp. 1		Upogebiidae	pair, subchelate claws	002BS002-002
28805802	slow prawn	Upogebiidae sp. 2		Upogebiidae	female, orange pattern	003GR005B-002
28805803	slow prawn	Upogebiidae sp. 3		Upogebiidae	pink claws	015BS004B-003
28840004	elegant squat lobster	Allogalathea elegans	(A. Adams & White, 1848)	Galatheidae	ex 013DR001B-001	013DR001B-013
28840801	squat lobster	Galatheidae sp. 1		Galatheidae	translucent white	013DR001B-054
28840802	squat lobster	Galatheidae sp. 2		Galatheidae	red claws	013DR001B-055
28840803	squat lobster	Galatheidae sp. 3		Galatheidae	red pattern, large eyes, 3 rostral spines, male long palm, female short palm	013DR001B-056;039GR061B-002;039GR062B-002
28840804	squat lobster	Galatheidae sp. 4		Galatheidae	red pattern, large eyes, 1 rostral spine	018GR030B-001
28840805	squat lobster	Galatheidae sp. 5		Galatheidae	red spots ex sponge 006	038DR010B-007

Appendix 1

Fauna_Codes

CAAB SPCODE	COMMON_NAME	SCIENTIFIC_NAME	AUTHORITY	FAMILY	NOTES	Stations recorded - Photos
28840806	squat lobster	Galatheidae sp. 6		Galatheidae	blurred red pattern, large eyes, 3 rostral spines longer than sp. 3	043GR069B-006
28840807	squat lobster	Galatheidae sp. 7		Galatheidae	female with eggs	053DR015B-016
28843801	half crab	Porcellanidae sp. 1		Porcellanidae		013DR001B-052
28865801	frog crab	Raninidae sp. 1		Raninidae	female with eggs	002BS002-003;003GR004B-002
28880801	spider crab	Majidae sp. 1		Majidae		013GR020B-001
28880802	spider crab	Majidae sp. 2		Majidae		019GR033B-006
28900801	crab	Corystidae sp. 1		Corystidae		018GR030B-002
28911801	swimmer crab	Portunus sp. 1		Portunidae	female with eggs	001BS001-001
28911802	swimmer crab	Thalamita sp. 1		Portunidae	male	013DR001B-059
28911803	swimmer crab	Charybdis sp. 1		Portunidae	male	053DR015B-001
28922801	crab	Goneplacidae sp. 1		Goneplacidae	tentative family placement	032BS006B-004
28922802	crab	Goneplacidae sp. 2		Goneplacidae	tentative family placement	064GR084B-002
28926801	hairy crabs	Pilumnidae sp. 1		Pilumnidae		013DR001B-057
35033801	ascidian	Styelidae sp. 1		Styelidae		038DR010B-035
37000801	fish	Unidentified fish sp. 1				007BS003-002;061GR082B-002
37065801	duckbill eel	Nettastomatidae sp. 1		Nettastomatidae		002GR003B-001
37428801	goby	Gobiidae sp. 1		Gobiidae		005GR007B-002
37428802	goby	Gobiidae sp. 2		Gobiidae		010GR017B-002
37428803	goby	Gobiidae sp. 3		Gobiidae		013GR021B-001
37428804	goby	Gobiidae sp. 4		Gobiidae		015BS004B-005

Appendix 2 – Large Invertebrate Images

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SPONGES and TUNICATE

In the following, each entry is in the following order:

CAAB spcode, common name, scientific name, <authority>, family, notes, stations recorded

10180801, sponge, Sponge sp. 1, Demospongiae, flat/vase, 013DR001B-026

10180802, sponge, Sponge sp. 2, Demospongiae? long spicules, 013DR001B-046

10180803, sponge, Sponge sp. 3, Demospongiae, 038GR058B-003

10180804, sponge, Sponge sp. 4, Demospongiae, 038GR059B-003

10180805, sponge, Sponge sp. 5, Demospongiae, mud sponge, 038GR059B-002

10180806, sponge, Sponge sp. 6, Demospongiae, 038DR010B-006

10180807, sponge, Sponge sp. 7, Demospongiae, coarse hard tube, 038DR010B-009

10180808, sponge, Sponge sp. 8, Demospongiae, fine hard tube, 038DR010B-008

10180809, sponge, Sponge sp. 9, Demospongiae, hard, white, 038DR010B-021

10180810, sponge, Sponge sp. 10, Demospongiae, sandy stick, 038DR010B-030

10180811, sponge, Sponge sp. 11, Demospongiae? hard bracket, 038DR010B-034

10180812, sponge, Sponge sp. 12, Demospongiae, soft, 039GR061B-004

10180813, sponge, Sponge sp. 13, Demospongiae?, 039GR062B-005

10180814, sponge, Sponge sp. 14, Demospongiae, 043DR012B-002

10180815, sponge, Sponge sp. 15, Demospongiae? hard bracket lumpy, 053DR015B-006

10180816, sponge, Sponge sp. 16, Demospongiae, yellow encrusting & tubes, 053DR015B-012

10180817, sponge, Sponge sp. 17, Demospongiae?, 053DR015B-020

10180818, sponge, Sponge sp. 18, Demospongiae, ochre irreg, 053DR015B-005

10300801, glass sponge, Hexactinellida sp. 1, Hexactinellida?, 044DR013B-006

10300802, glass sponge, Hexactinellida sp. 2, Hexactinellida?, 044DR013B-005

10300803, glass sponge, Hexactinellida sp. 3, Hexactinellida?, 053DR015B-004

Tunicata

35033801, ascidian, Styelidae sp. 1, Styelidae, 038DR010B-035

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10300803-053DR015B-004b-Hexactinellida-sp3.tif

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10180802-013DR001B-046b-Demospongiae-sp2.tif

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10180804-038GR059B-003-Demospongiae-sp4.tif

10180805-038GR059B-002-Demospongiae-sp5.tif

10180806-038DR010B-002-Demospongiae-sp6.tif

10180807-038DR010B-009-Demospongiae-sp7.tif

10180808-038DR010B-008-Demospongiae-sp8.tif

10180809-038DR010B-021-Demospongiae-sp9.tif

10180809-053DR015B-002-Demospongiae-sp9.tif

10180810-038DR010B-030-Demospongiae-sp10.tif

10180811-038DR010B-034a-Demospongiae-sp11.tif

10180811-038DR010B-034b-Demospongiae-sp11.tif

10180812-039GR061B-004-Demospongiae-sp12.tif

10180813-039GR062B-005a-Demospongiae-sp13.tif

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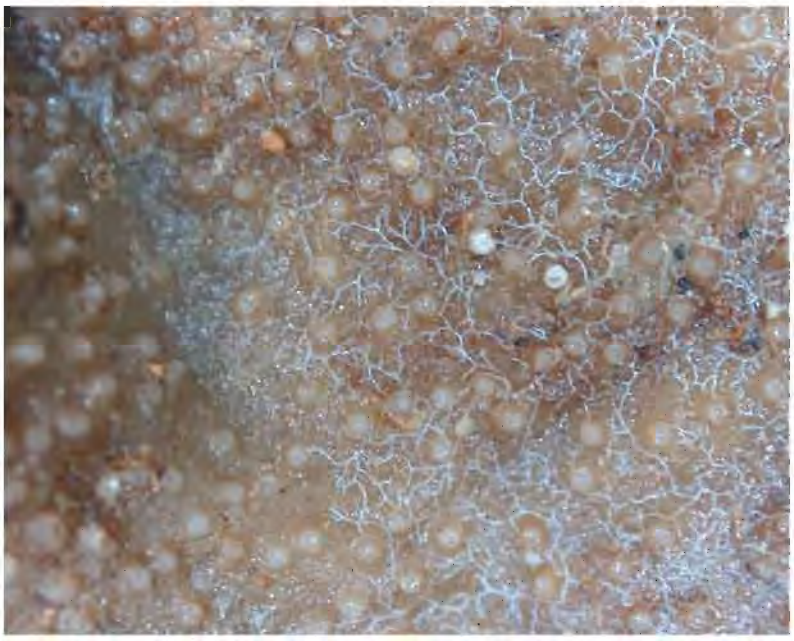

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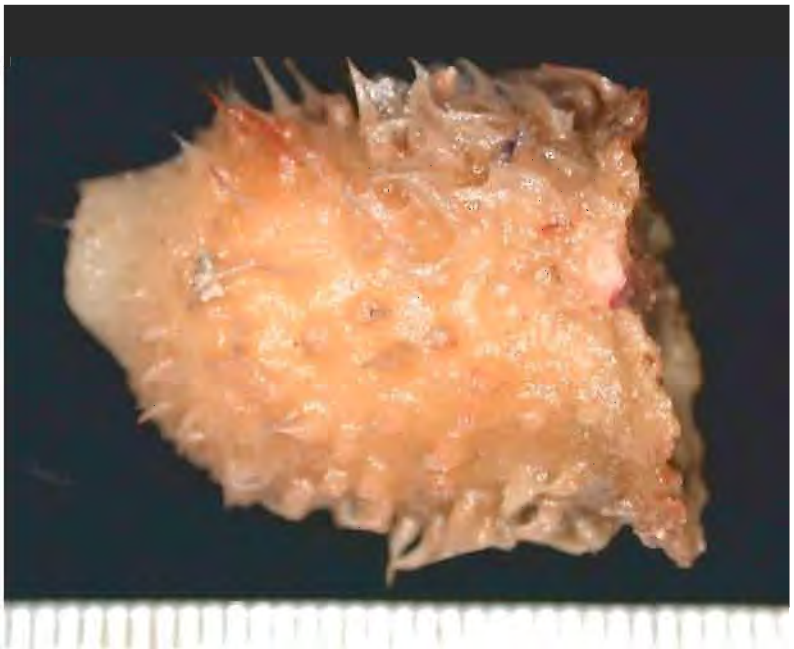

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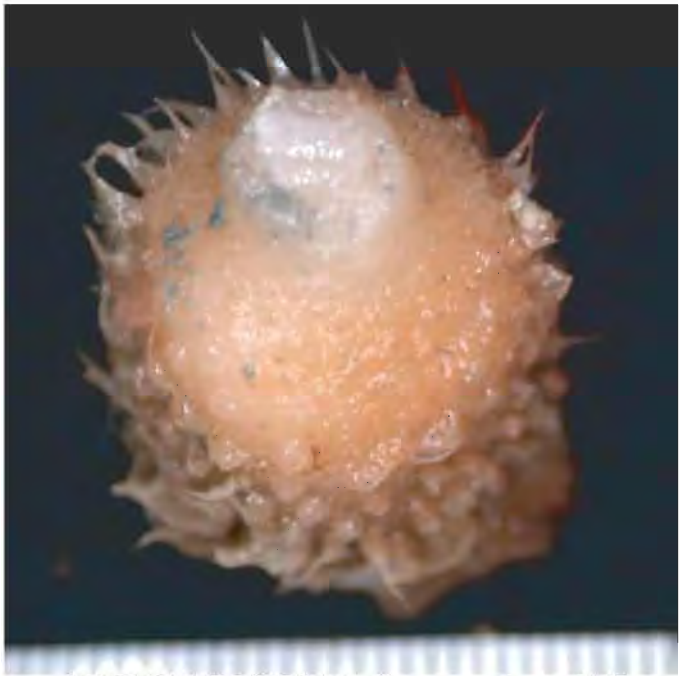

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10180818-053DR015B-005-Demospongiae-sp18.tif

35033801-038DR010B-035-Styelidae-sp1.tif

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CNIDARIA

In the following, each entry is in the following order:

CAAB spcode, common name, scientific name, <authority>, family, notes, stations recorded

11001801, hydroid, Hydroida sp. 1, 005GR006B-003

11001802, hydroid, Hydroida sp. 2, long, 020DR005B-016

11001803, hydroid, Hydroida sp. 3, lg polyps in sponge, 020DR005B-014

11001804, hydroid, Hydroida sp. 4, lg colony, 038GR058B-002

11001805, hydroid, Hydroida sp. 5, from mud with rootlets, 060BS014B-002

11077801, hydrocoral, Stylasteridae sp. 1, Stylasteridae, pink, was ?Bryozoa sp. 1 , 002GR002B-004;003GR004B-004;037GR056B-003

11077802, hydrocoral, Stylasteridae sp. 2, Stylasteridae, white, 013DR001B-061

11077803, hydrocoral, Stylasteridae sp. 3, Stylasteridae?, white with green tips (labelled as a bryozoan), 038DR010B-012

11160801, black corals, Antipatharia sp. 1, spiral, pale polyps, 013DR001B-017;020GR035B-002

11160802, black corals, Antipatharia sp. 2, spiral, very fine, 020DR005B-017

11160803, black corals, Antipatharia sp. 3, flat, coarse branch, 038DR010B-027;044DR013B-001

11160804, black corals, Antipatharia sp. 4, flat, fine branch, 038DR010B-026

11160805, black corals, Antipatharia sp. 5, bottlebrush, 038DR010B-025

11169801, octocoral, Octocorallia sp. 1, strange colony, poss. Octocorallia, 022GR038D-003

11173801, octocoral, Alcyonacea sp. 1, sm gorgonian, 008GR012B-001

11173802, octocoral, Alcyonacea sp. 2, pale pink fan, fine branch, 013DR001B-005

11173803, octocoral, Alcyonacea sp. 3, pale pink fan, long branch, 013DR001B-006

11173804, octocoral, Alcyonacea sp. 4, thick white seawhip, 013DR001B-014

11173805, octocoral, Alcyonacea sp. 5, white fan, red/orange base, 013DR001B-015

11173806, octocoral, Alcyonacea sp. 6, white whip spiral end, 013DR001B-018

11173807, octocoral, Alcyonacea sp. 7, white, sparse branch whip, 013DR001B-020

11173808, octocoral, Alcyonacea sp. 8, pale, thick branches, 013DR001B-022

11173809, octocoral, Alcyonacea sp. 9, pink fan, dark polyps, 013DR001B-021

11173810, octocoral, Alcyonacea sp. 10, yellow fan, fine branch, 013DR001B-024

11173811, octocoral, Alcyonacea sp. 11, sm yellow, spiky polyp, 013DR001B-023;038DR010B-024

11173812, octocoral, Alcyonacea sp. 12, pale, short branches off main axis, 013DR001B-025

11173813, octocoral, Alcyonacea sp. 13, pink fan, flat, sparse pale polyps, 013DR001B-027

11173814, octocoral, Alcyonacea sp. 14, red fan, flat, 013DR001B-028

11173815, octocoral, Alcyonacea sp. 15, red fan irregular, 013DR001B-029

11173816, octocoral, Alcyonacea sp. 16, cream fan, 013DR001B-043

11173817, octocoral, Alcyonacea sp. 17, pale fan, flat, irreg branching, 013DR001B-040

11173818, octocoral, Alcyonacea sp. 18, pale lemon flat, 013DR001B-039

11173819, octocoral, Alcyonacea sp. 19, white fork, 013DR001B-037

11173820, octocoral, Alcyonacea sp. 20, short white whip, 013DR001B-038

11173821, octocoral, Alcyonacea sp. 21, pale fan, dark polyps, 013DR001B-036

11173822, octocoral, Alcyonacea sp. 22, long pink fan, 013DR001B-035

11173823, octocoral, Alcyonacea sp. 23, grey fan, small polyp, 013DR001B-041

11173824, octocoral, Alcyonacea sp. 24, grey fan, large polyp, 013DR001B-042

11173825, octocoral, Alcyonacea sp. 25, grey fan, v large polyp, 020GR035B-003;038GR059B-004

11173826, octocoral, Alcyonacea sp. 26, cream fan, lg polyps, 020DR005B-021

11173827, octocoral, Alcyonacea sp. 27, tall colony, orange polyps, 038GR059B-005

11173828, octocoral, Alcyonacea sp. 28, small colony, 038GR059B-006

11173829, octocoral, Alcyonacea sp. 29, sugar-frosted pale orange, 038DR010B-005

11173830, octocoral, Alcyonacea sp. 30, flat pink, fine surface spikes, 038DR010B-016

11190801, octocoral, Melithaeidae sp. 1, Melithaeidae, white bramble, 013DR001B-034

11190802, octocoral, Melithaeidae sp. 2, Melithaeidae, sparse white bramble, 044DR013B-004

11191801, soft coral, Nephtheidae sp. 1, Nephtheidae, orange, 013DR001B-010

11191802, soft coral, Nephtheidae sp. 2, Nephtheidae, tiny, with rootlets, 031BS005B-002

11191803, soft coral, Nephtheidae sp. 3, Nephtheidae, orange, large spicules, 038DR010B-010

11192801, soft coral, Nidaliidae sp. 1, Nidaliidae, white & pink polyps, 013DR001B-012

11192802, soft coral, Nidaliidae sp. 2, Nidaliidae, orange, 042DR011B-001

11196801, seafan, Plexauridae sp. 1, Plexauridae, red, 013DR001B-003

11196802, seafan, Plexauridae sp. 2, Plexauridae, orange coarse mesh, 013DR001B-032

11196803, seafan, Plexauridae sp. 3, Plexauridae, orange fine mesh , 013DR001B-031

11196804, seafan, Plexauridae sp. 4, Plexauridae, orange/pink fine mesh, 020DR005B-020

11197801, octocoral, Primnoidae sp. 1, Primnoidae, pale, spiky, 023GR040B-001

11208801, seapen, Pennatulacea sp. 1, tiny, green tinge on polyp leaves, 038GR060B-002

11229801, sea anemones, Actinaria sp. 1, striped on shell, 006GR009B-006

11229802, sea anemones, Actinaria sp. 2, coloured on rock, 013DR001B-050

11229803, sea anemones, Actinaria sp. 3, tiger on antipatharian, 013DR001B-060

11229804, sea anemones, Actinaria sp. 4, white on antipatharian, 020DR005B-011

11229805, sea anemones, Actinaria sp. 5, burrowing, 043GR069B-002

11280801, corallimorph anemones, Corallimorpharia sp. 1, pink, on dead corals, 043DR012B-001

11284801, zoanthid anemones, Zoanthinaria sp. 1, brown on tubifex, 019GR033B-008

11290801, colonial coral, Scleractinia sp. 1, white, irreg, tiny calyces, 019GR033B-009;020DR005B-013

11314801, solitary coral, Caryophylliidae sp. 1, Caryophylliidae, dead collected, 002GR002B-003;007GR011B-005

11314802, solitary coral, Caryophylliidae sp. 2, Caryophylliidae, 008GR012B-002

11314803, solitary coral, Caryophylliidae sp. 3, Caryophylliidae, dead collected, 016GR026B-002

11314804, colonial coral, Caryophylliidae sp. 4, Caryophylliidae, dead collected, 020DR005B-012

11314805, solitary coral, Caryophylliidae sp. 5, Caryophylliidae, dead collected, 064GR084B-004

11317801, solitary coral, Turbinoliidae sp. 1, Turbinoliidae, 016GR026B-004

11320801, colonial coral, Dendrophylliidae sp. 1, Dendrophylliidae, orange-yellow, 023DR006B-004

11320802, solitary coral, Balanophyllia sp. 1, Dendrophylliidae, orange, 038DR010B-031

11328801, solitary coral, Flabellum sp. 1, Flabellidae, dead collected, 002GR001B-002;003GR004B-003

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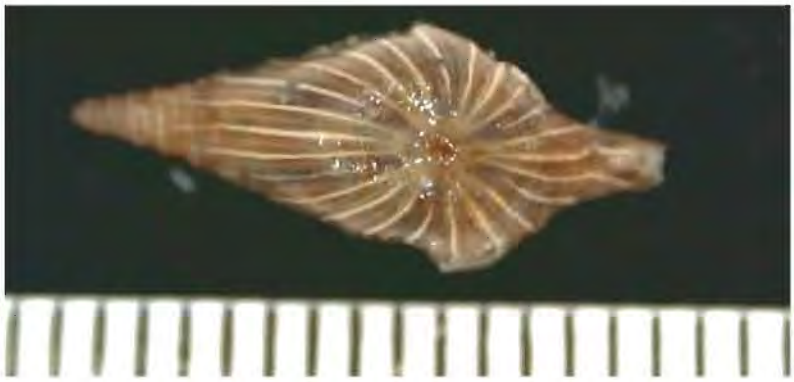

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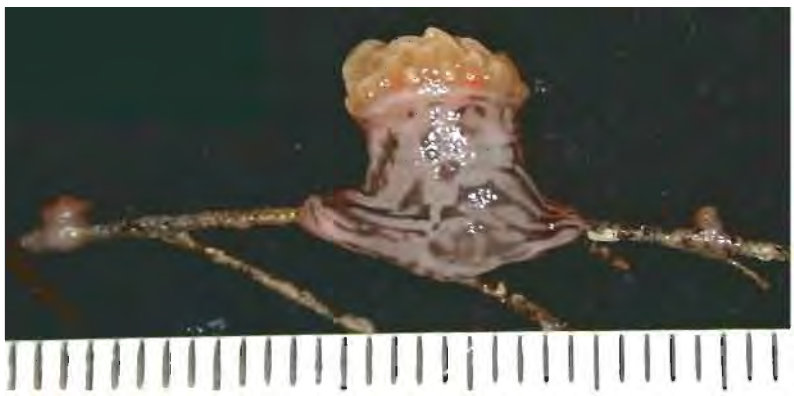

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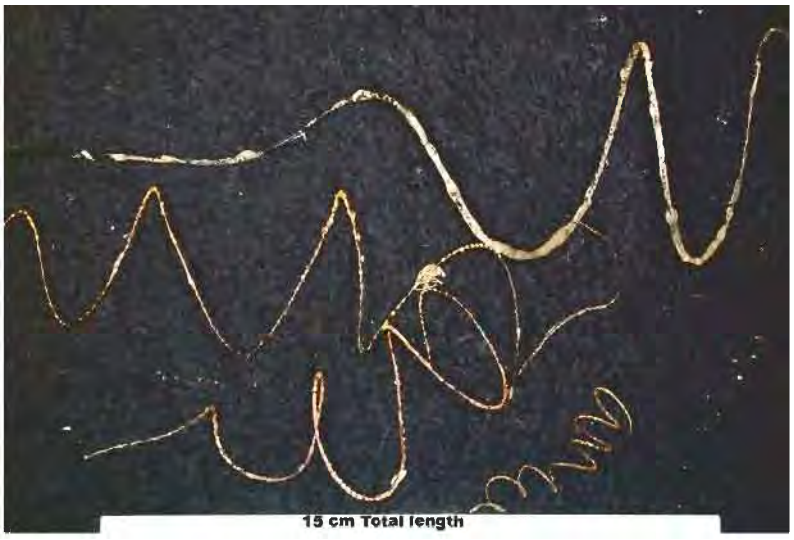

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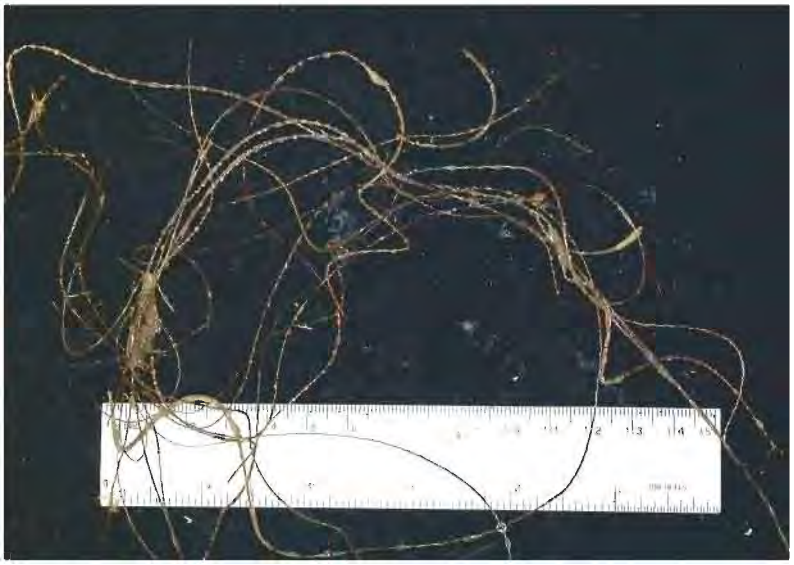

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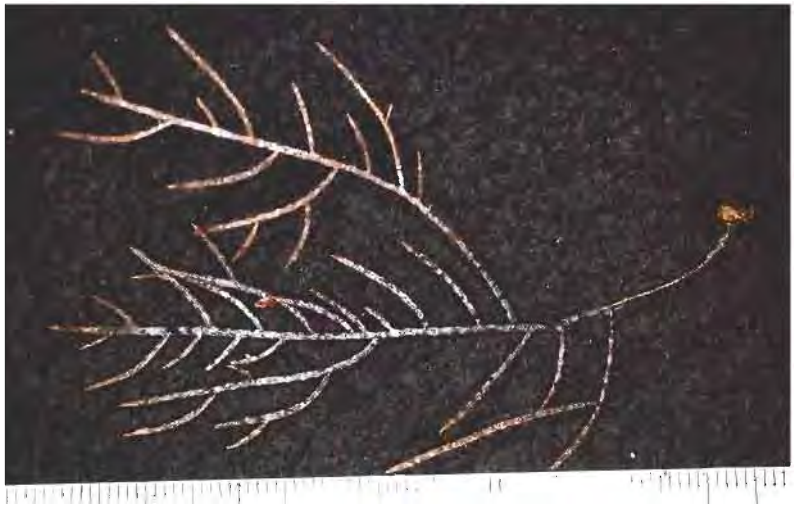

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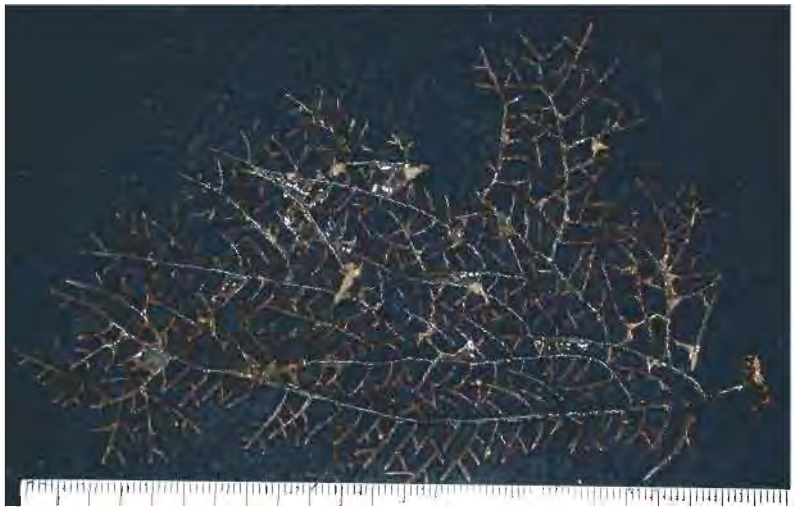

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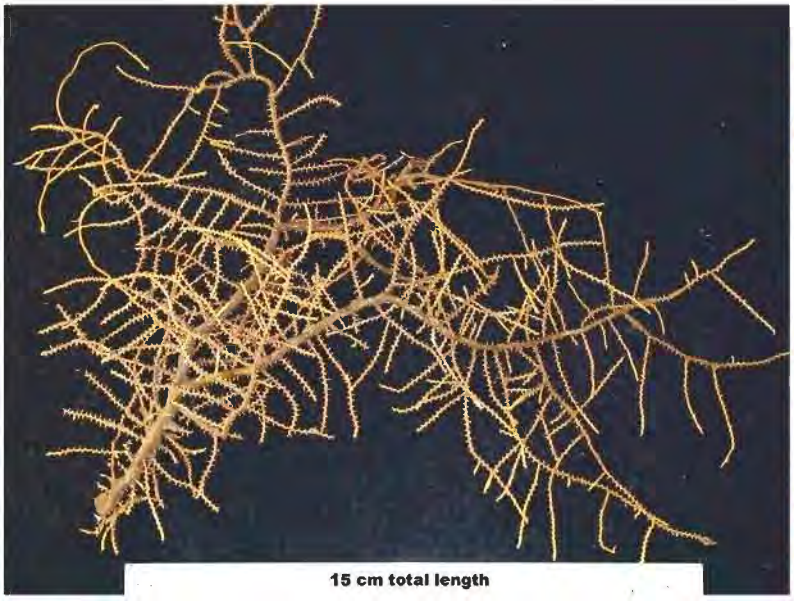

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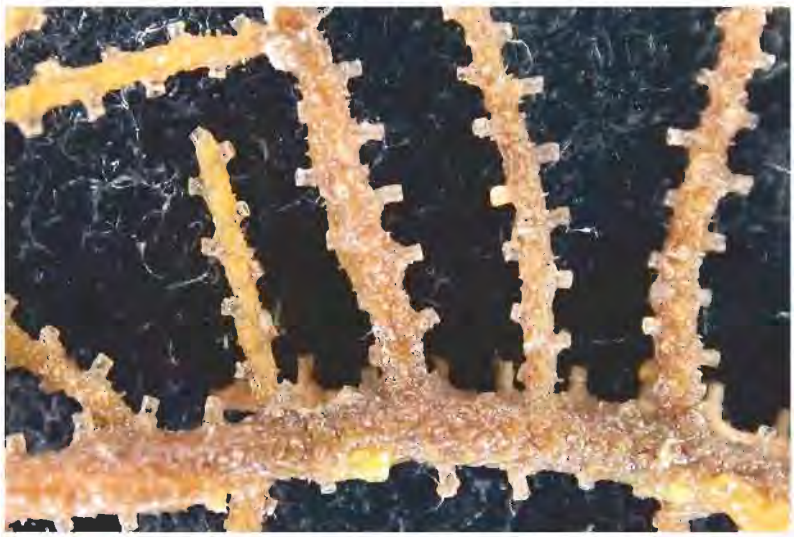

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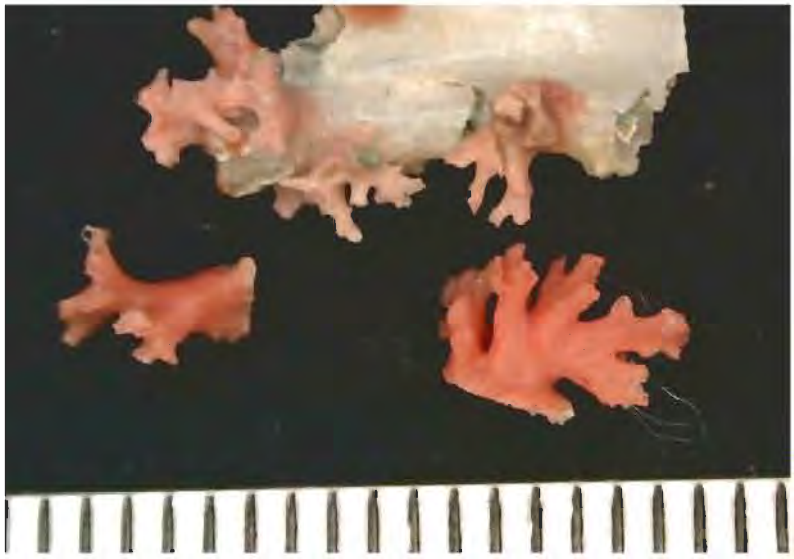

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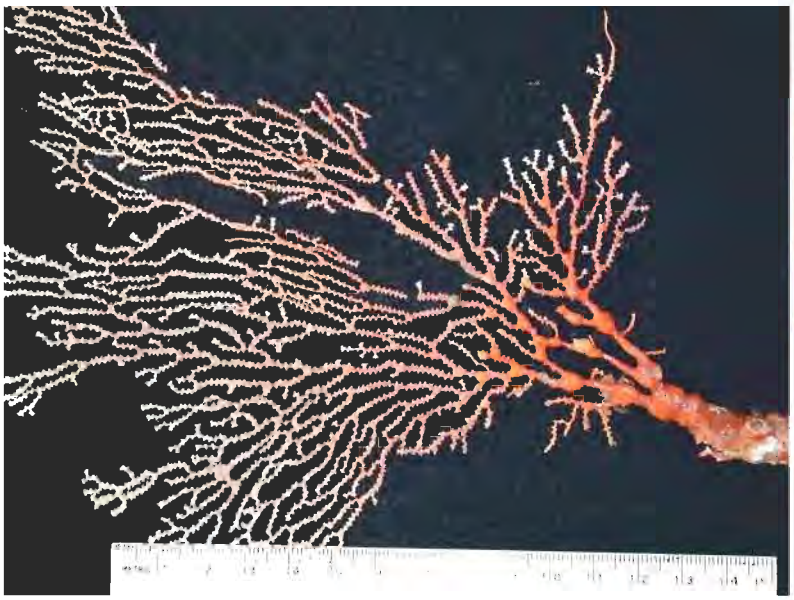

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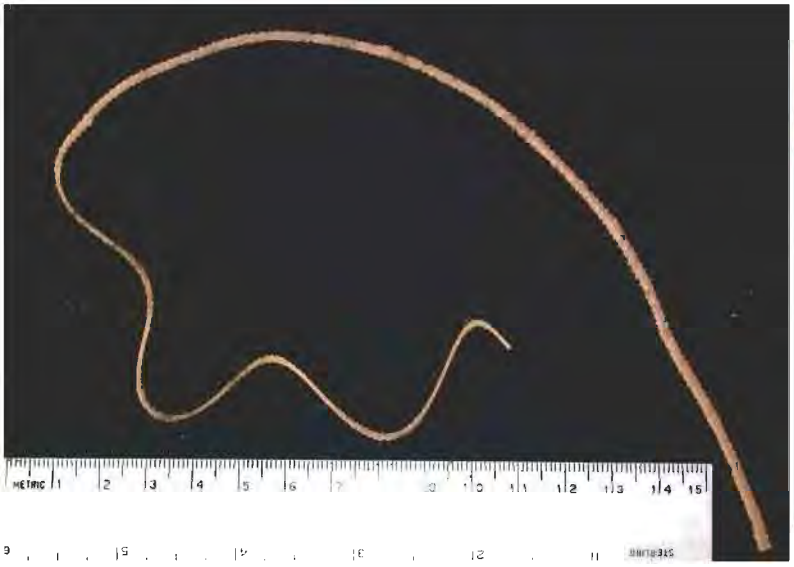

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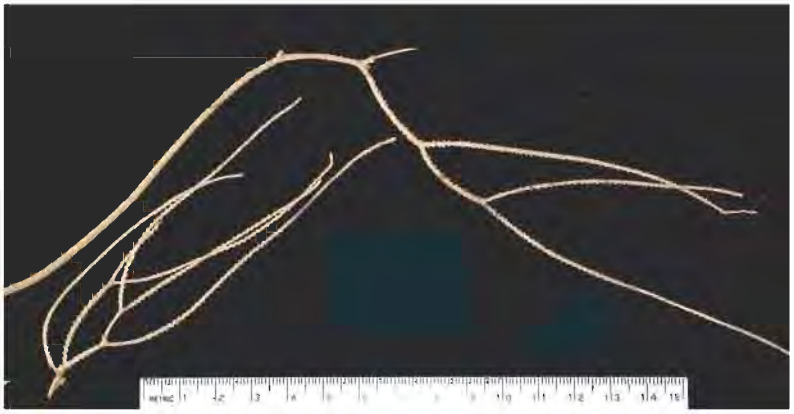

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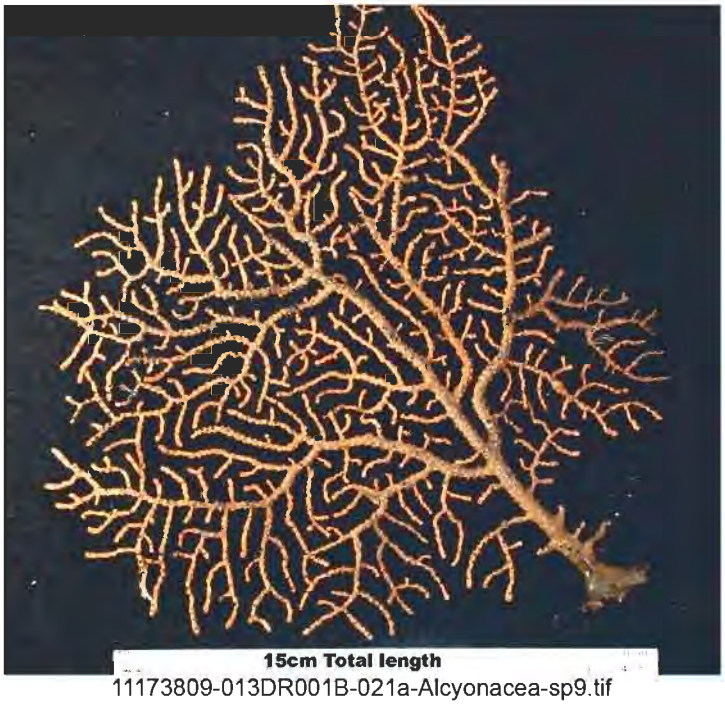

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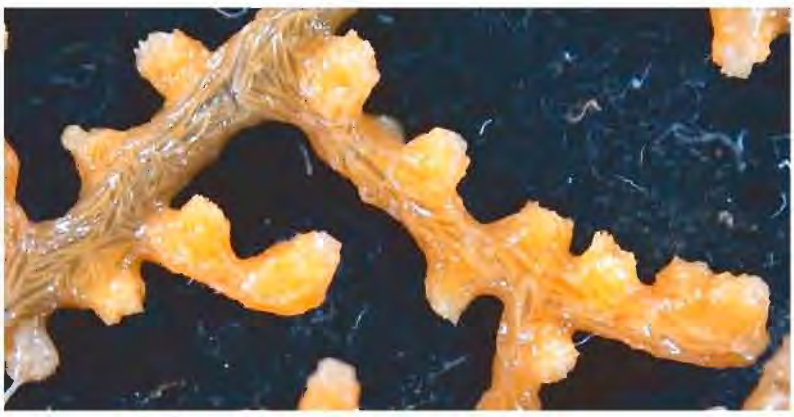

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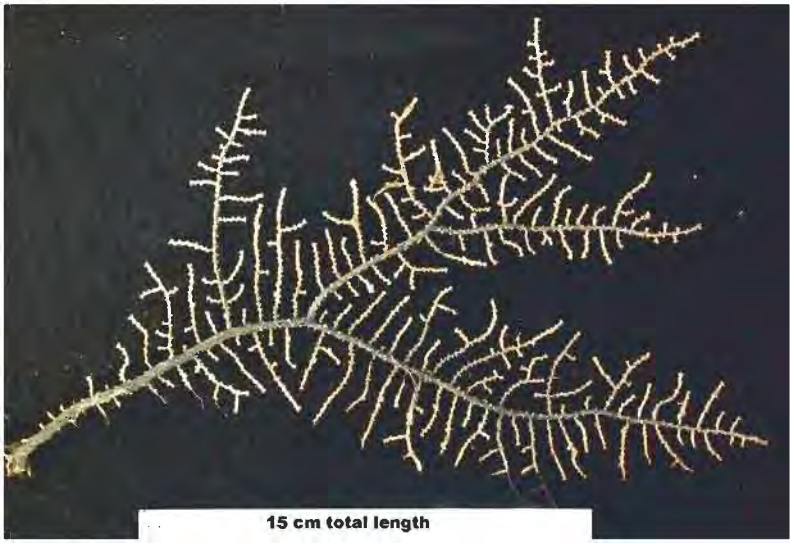

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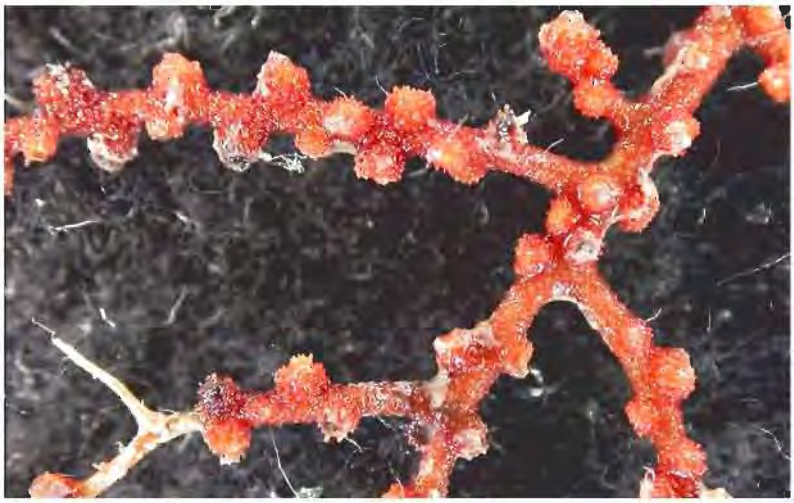

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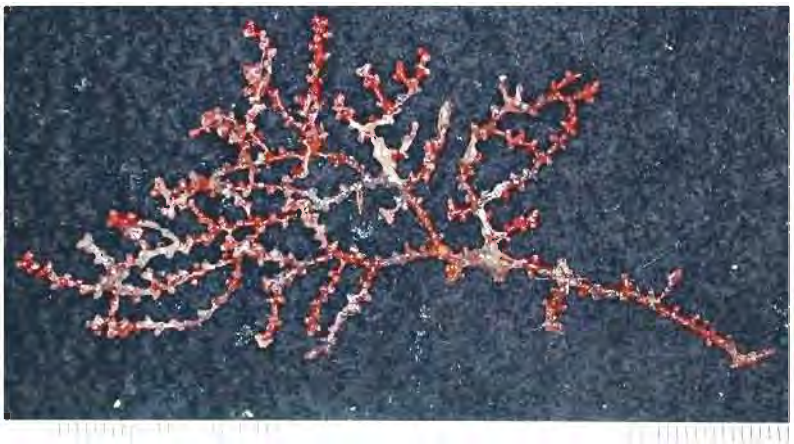

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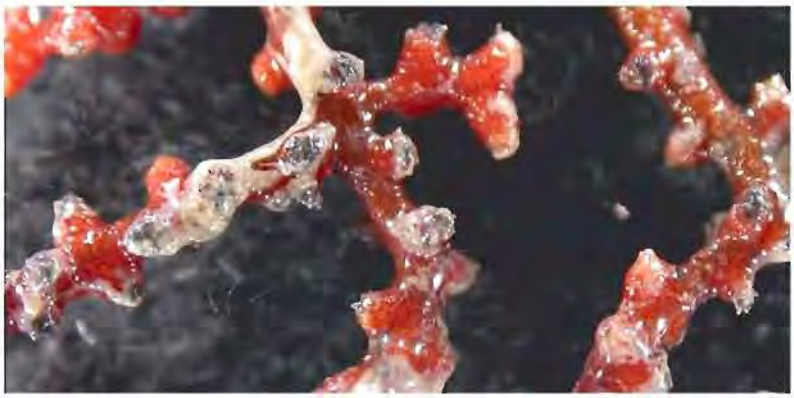

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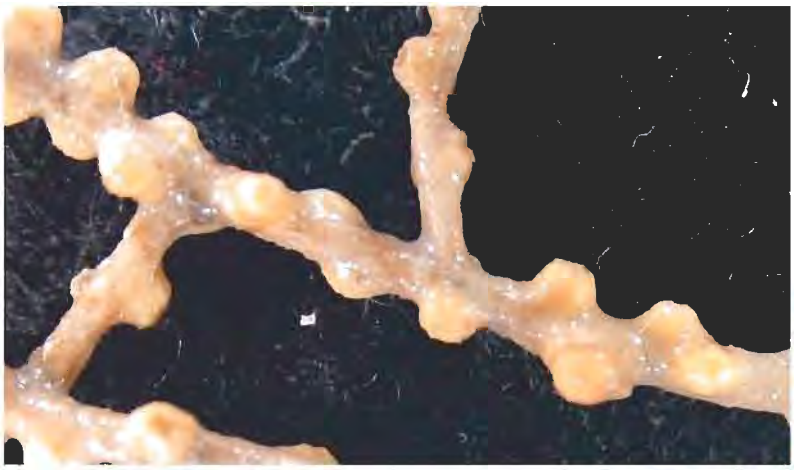

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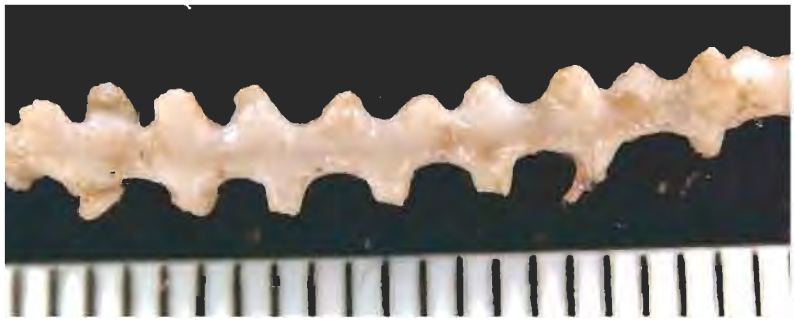

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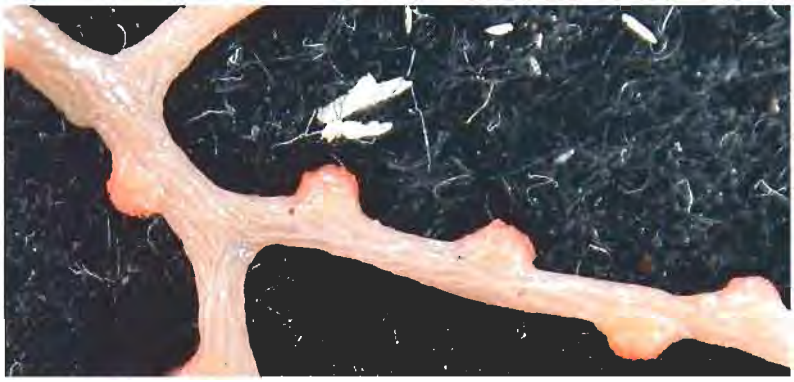

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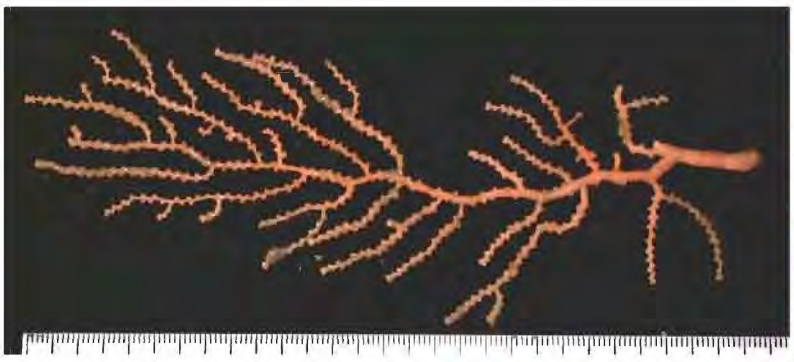

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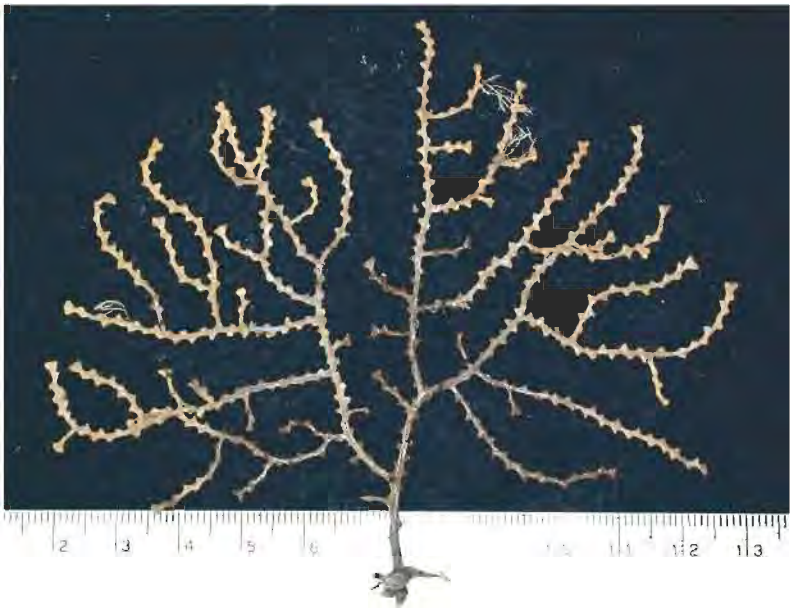

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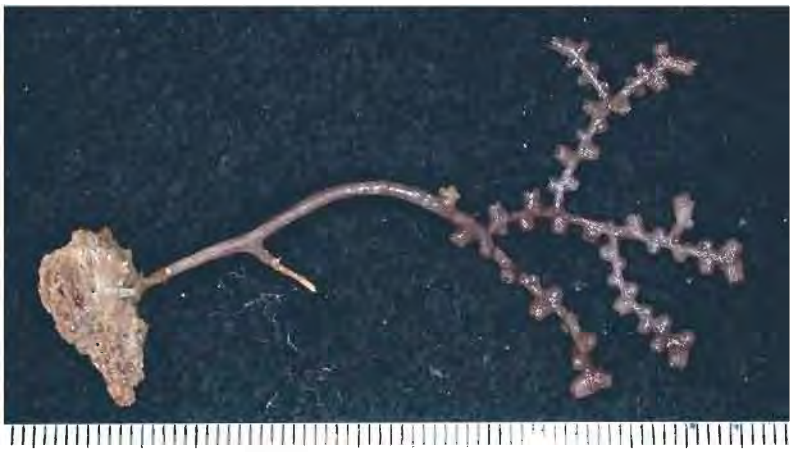

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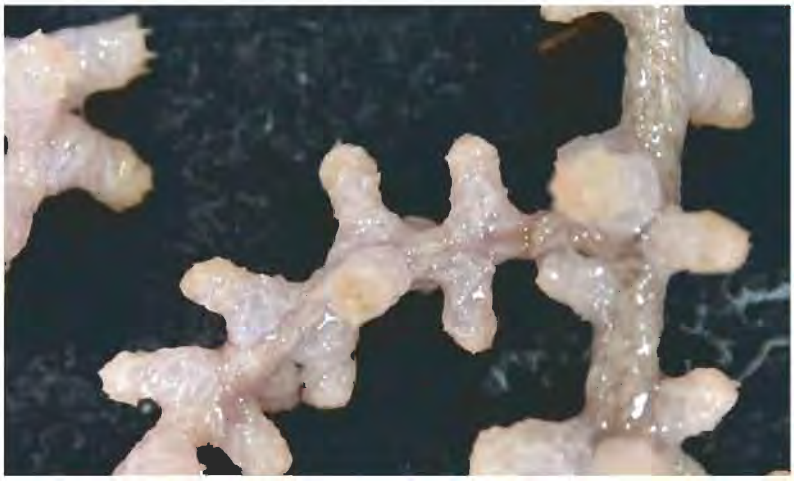

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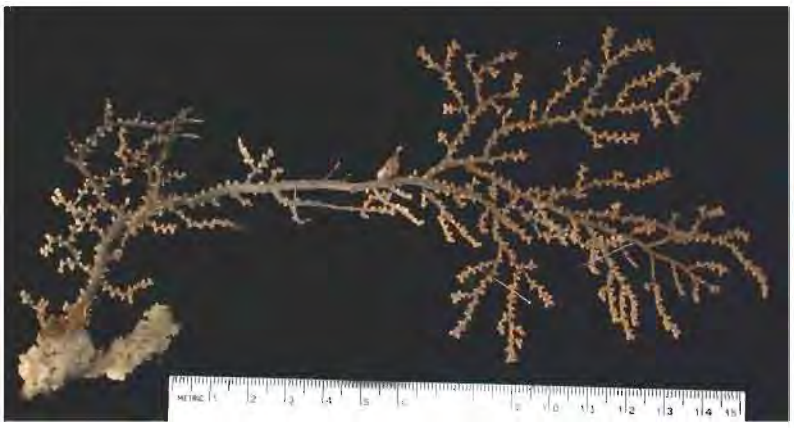

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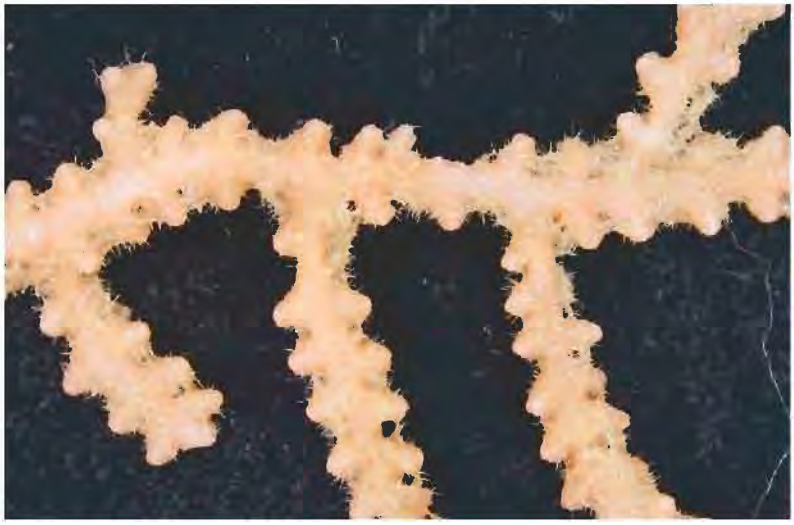

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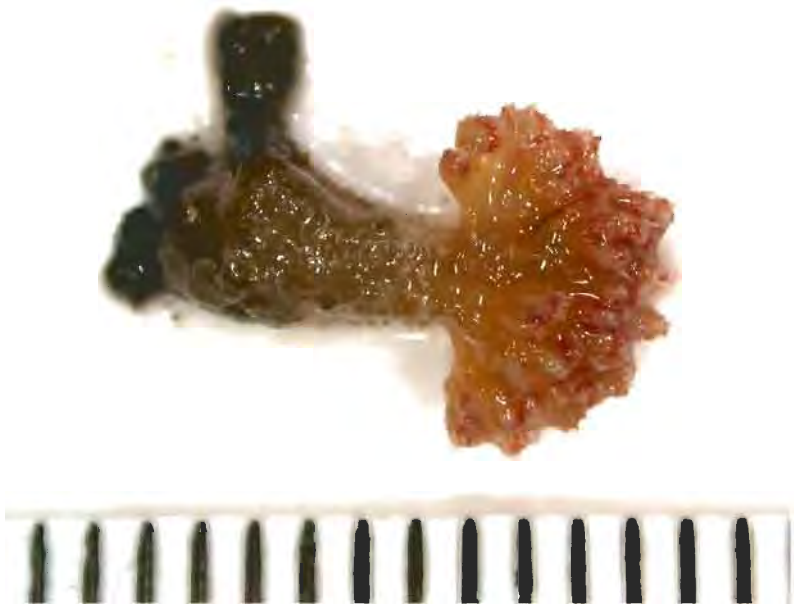

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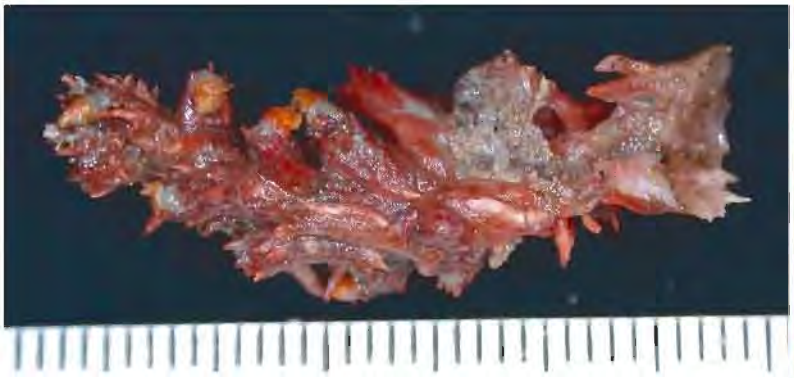

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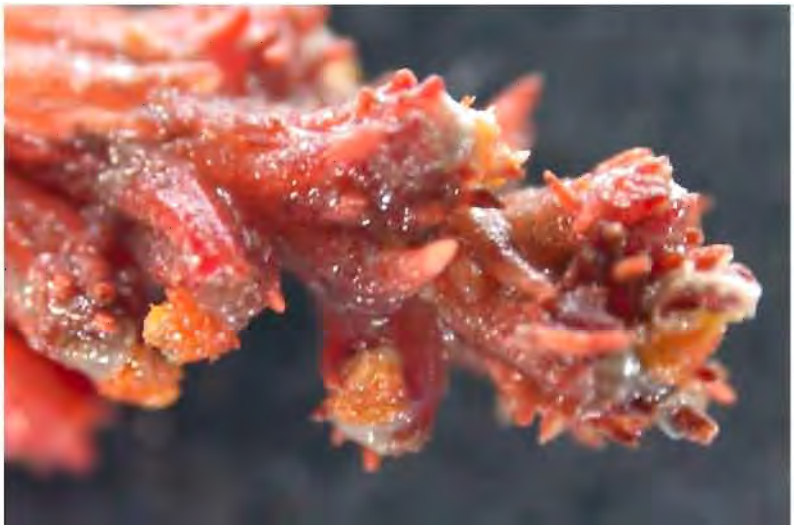

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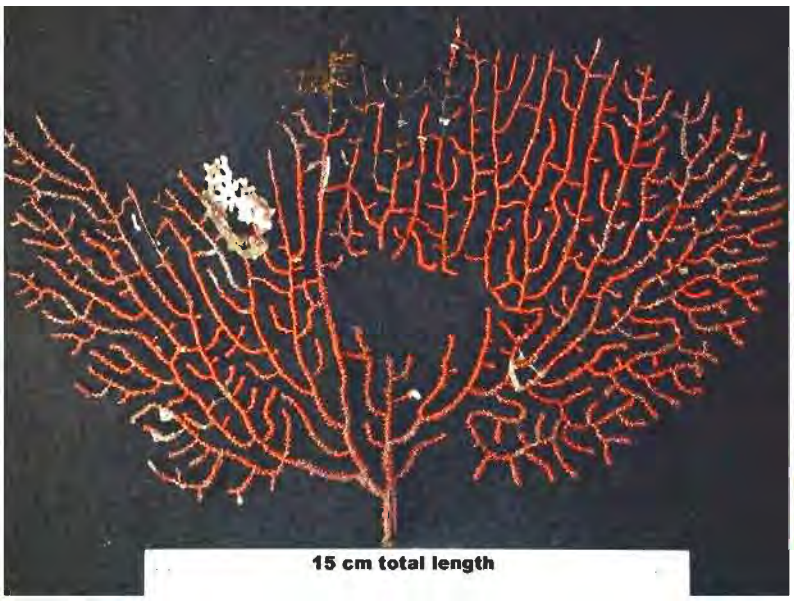

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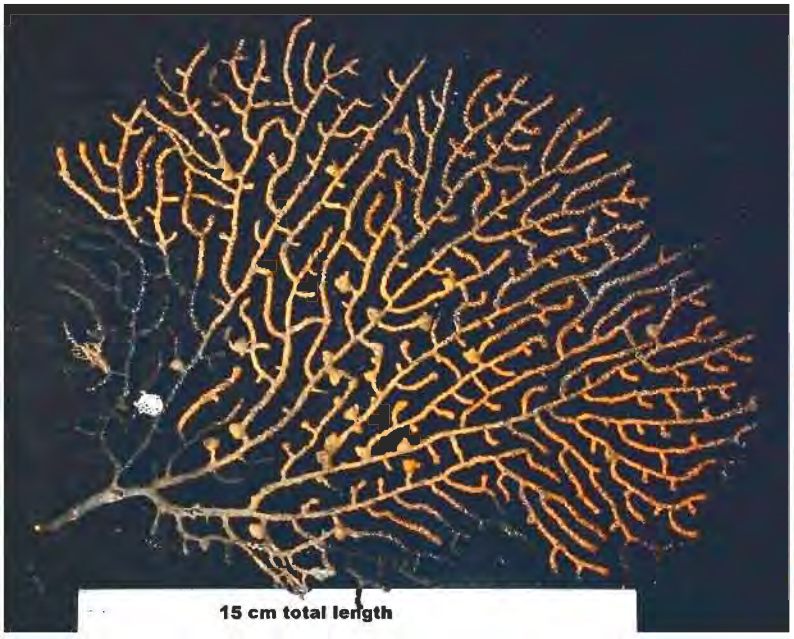

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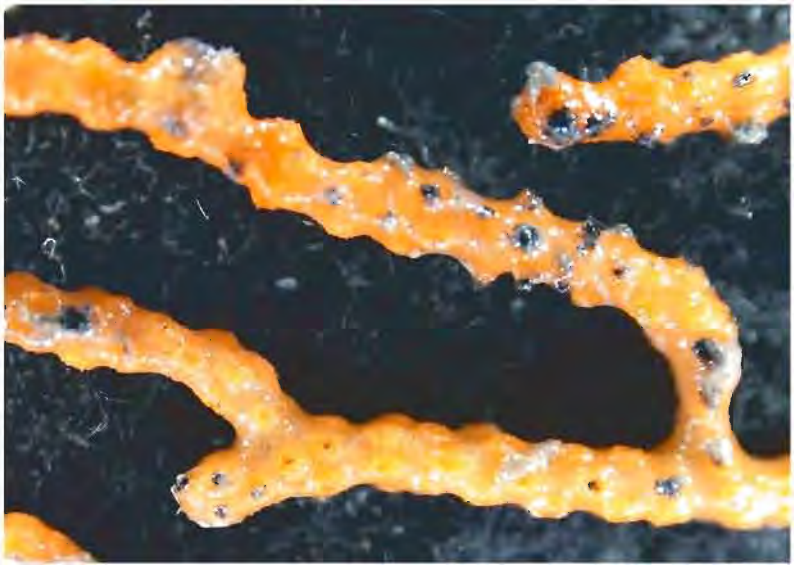

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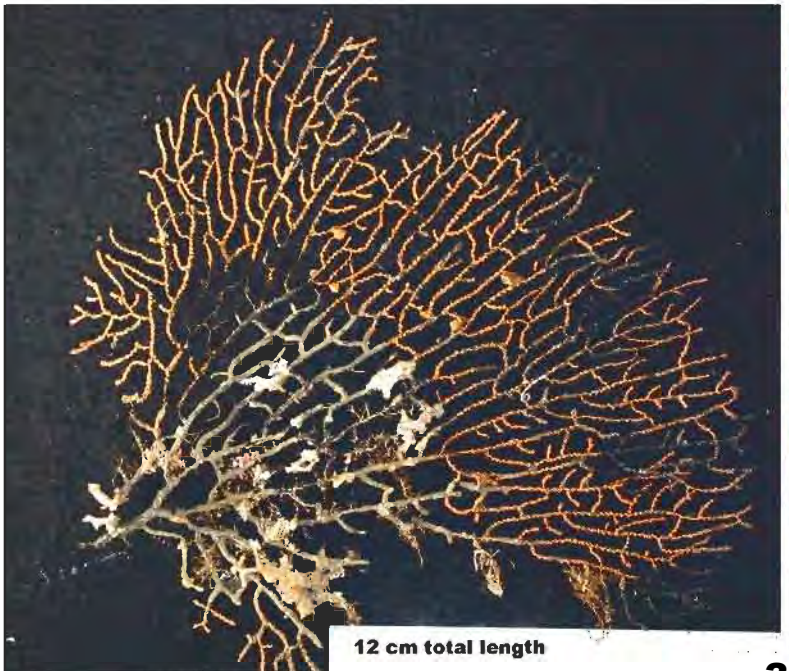

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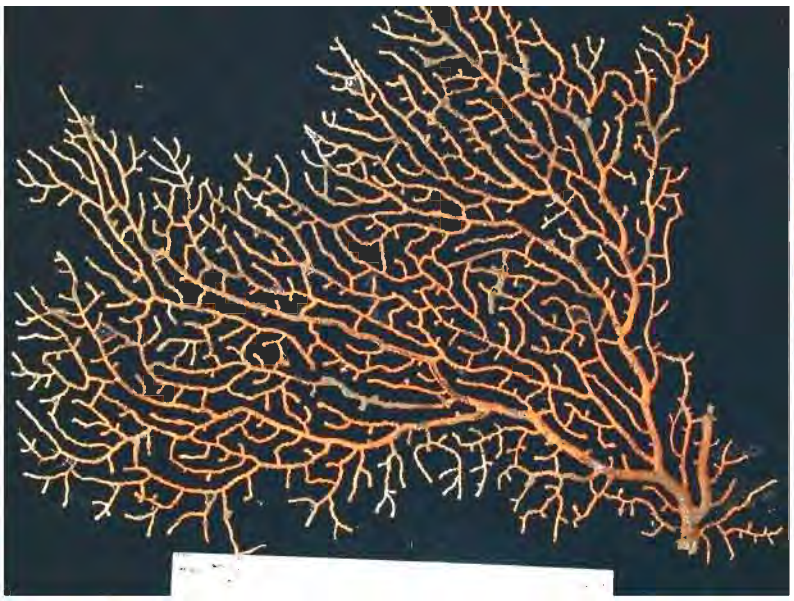

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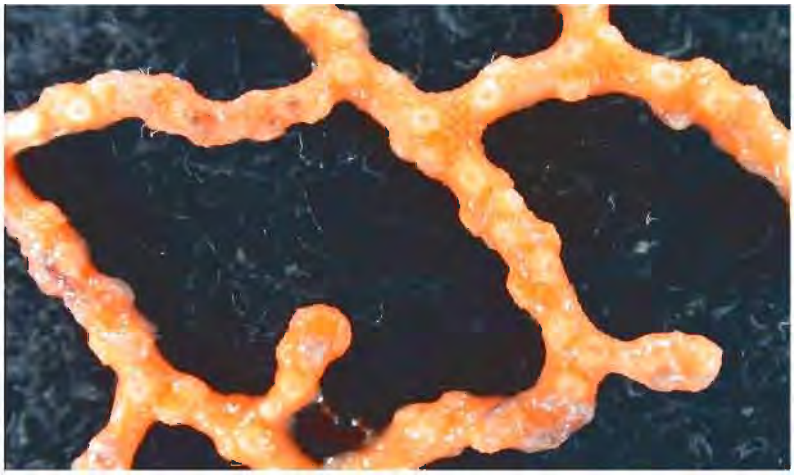

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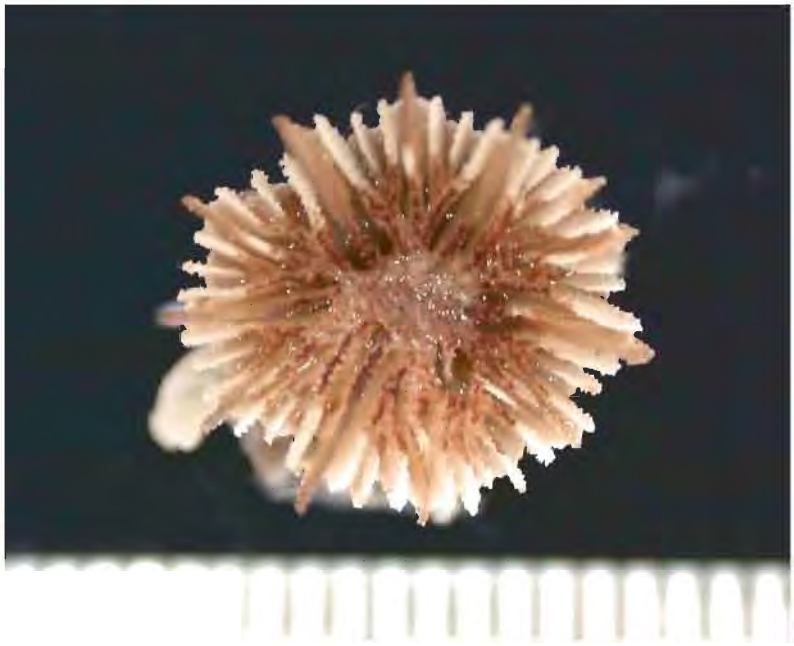

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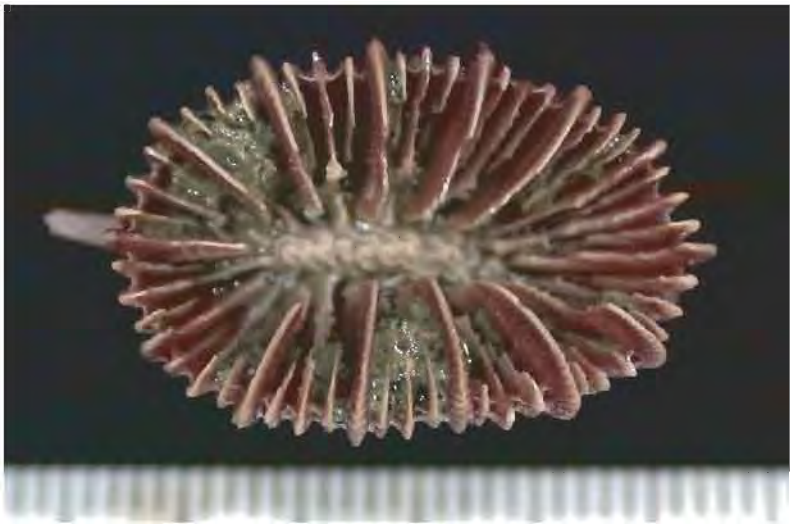

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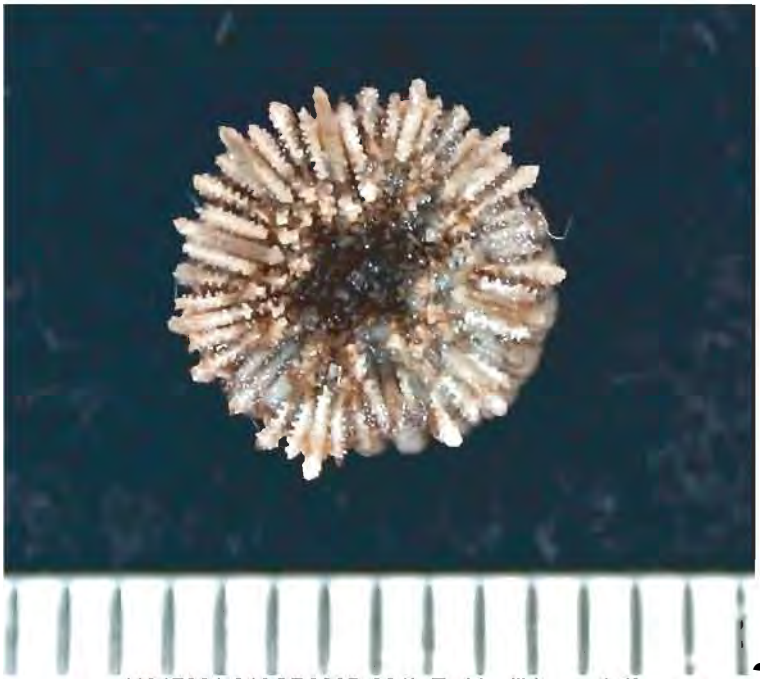

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Various Phyla (Nemertea, Sipunculida, Echiurida, Brachiopoda, Bryozoa)

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CAAB spcode, common name, scientific name, <authority>, family, notes, stations recorded

14000801, ribbon worm, Nemertea sp. 1, brown bands on back, 018GR031B-004

14000802, ribbon worm, Nemertea sp. 2, red, 032BS006B-008

17000801, sipunculan worm, Sipuncula sp. 1, 012GR019B-002

17001801, sipunculan worm, Sipunculus sp. 1, Sipunculidae, 009GR015B-002

17020801, echiuran worm, Echiura sp. 1, 045DR014B-003

19150801, brachiopod, Brachiopoda sp. 1, fine ribs, 013DR001B-033;013DR001B-048;020DR005B-006

19150802, brachiopod, Brachiopoda sp. 2, smooth, round, 020Dr005B-005

19150803, brachiopod, Brachiopoda sp. 3, smooth, more elongate, 025DR007B-002

19150804, brachiopod, Brachiopoda sp. 4, coarser ribs, 043GR069B-005

20300801, bryozoan, Porina vertebralis, Porinidae, Cheilostomata, 008GR012B-005

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19150802-020DR005B-005a-Brachiopoda-sp2.tif

19150802-020DR005B-005b-Brachiopoda-sp2.tif

19150803-025DR007B-002a-Brachiopoda-sp3.tif

19150803-025DR007B-002b-Brachiopoda-sp3.tif

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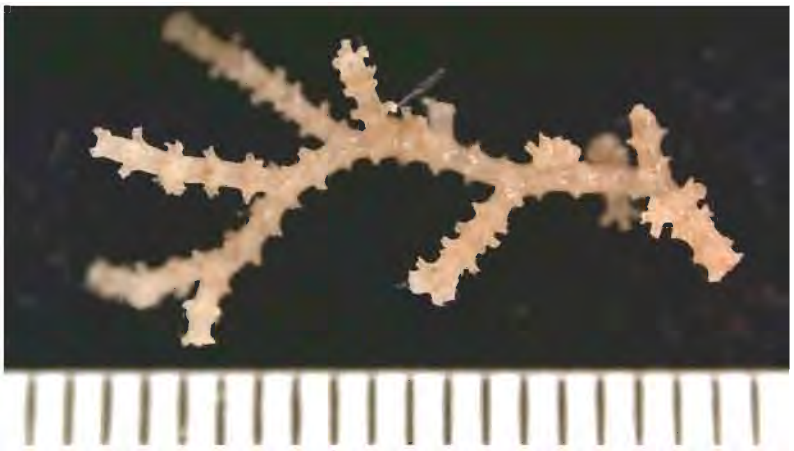

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20325801-008GR012B-004-Nellia-sp1.tif

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CAAB spcode, common name, scientific name, <authority>, family, notes, stations recorded

22000801, polychaete worm, Polychaeta sp. 1, 001BS001-002;005GR007B-003;010GR016B-001

22000802, polychaete worm, Polychaeta sp. 2, 001BS001-008

22000803, polychaete worm, Polychaeta sp. 3, red, long setae, 007GR011B-002

22000804, polychaete worm, Polychaeta sp. 4, sandy, long front setae, 015GR025B-002

22000805, polychaete worm, Polychaeta sp. 5, red, 034BS007B-002

22000806, polychaete worm, Polychaeta sp. 6, bristle, 048GR073B-002

22000807, polychaete worm, Polychaeta sp. 7, tube worm, 064GR083B-002

22024801, polychaete worm, Eunice sp. 1, Eunicidae, 039GR062B-004

22030801, polychaete worm, Onuphidae sp. 1, Onuphidae, 018GR031B-003

22062801, scale worm, Polynoidae sp. 1, Polynoidae, 007BS003-005

22062802, scale worm, Polynoidae sp. 2, Polynoidae, 013DR001B-049

22116801, polychaete worm, Flabelligeridae sp. 1, Flabelligeridae, setae crown, 020DR005B-008

22116802, polychaete worm, Flabelligeridae sp. 2, Flabelligeridae, few long setae, 049GR078B-002

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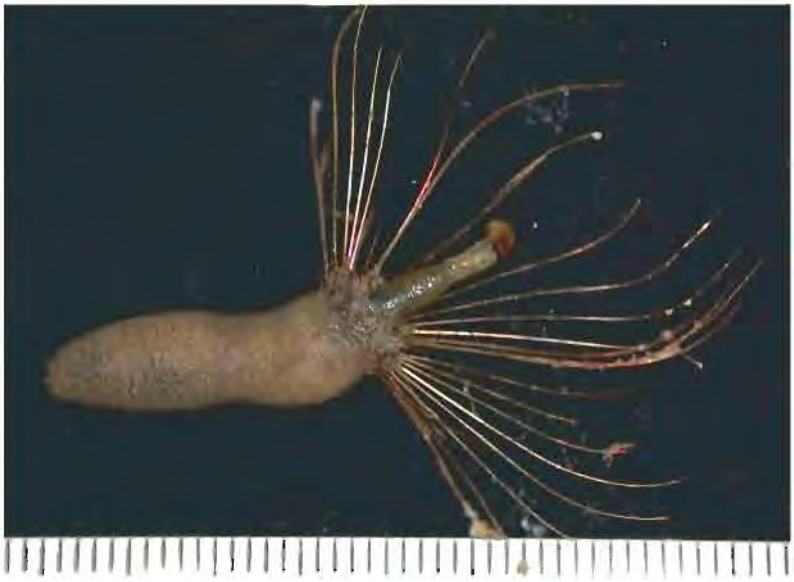

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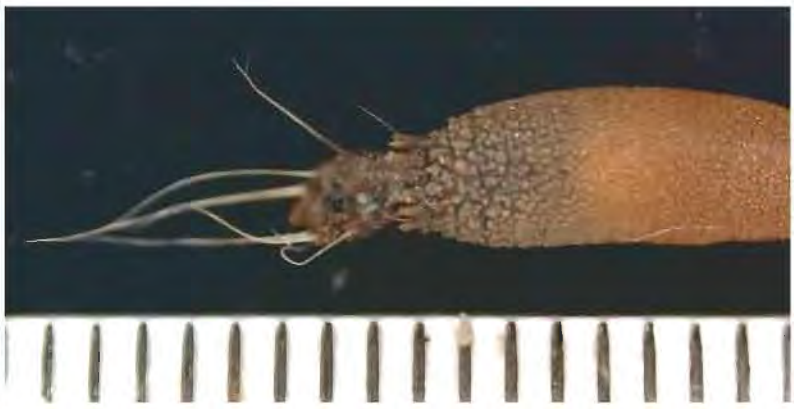

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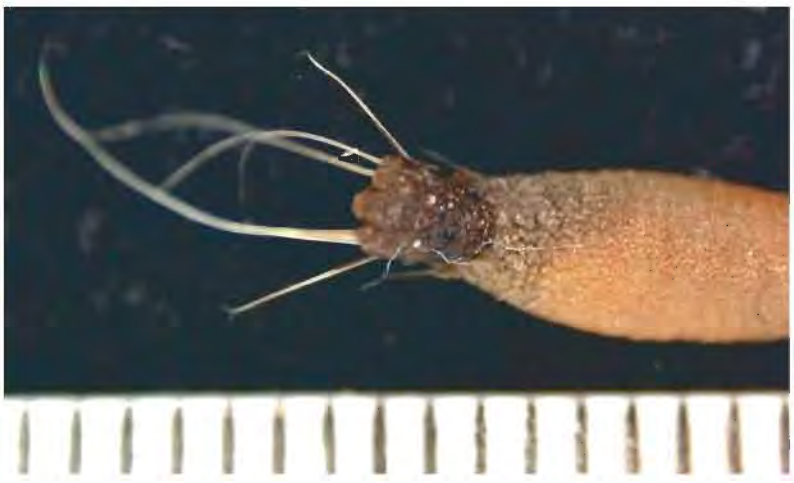

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MOLLUSCA

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CAAB spcode, common name, scientific name, <authority>, family, notes, stations recorded

23199801, bivalve, Bivalvia sp. 1, radial ribs, 018GR030B-003

23207801, beaked cockles, Nuculanidae sp. 1, Nuculanidae, dead collected, 001BS001-006

23207802, beaked cockles, Nuculanidae sp. 2, Nuculanidae, 015BS004B-002;024GR044B-002

23207803, beaked cockles, Nuculanidae sp. 3, Nuculanidae, dead collected, 030GR054B-002

23226801, ark shell, Arcidae sp. 1, Arcidae, 053DR015B-017

23272801, thorny oyster, Spondylus sp. 1, Spondylidae, 038DR010B-020

23301801, chama, Chama sp. 1, Chamidae, 053DR015B-018

23355801, tellin, Tellinidae sp. 1, Tellinidae, 007BS003-009

23410801, bivalve, Thraciidae sp. 1, Thraciidae, 002GR001B-005

23499801, tusk shell, Scaphopoda sp. 1, 008GR013B-001

24080801, worm shells, Siliquaria sp. 1, Siliquariidae, dead in situ, 013DR001B-045

24191801, ladder shell, Epitoniidae sp. 1, Epitoniidae, dead?, 016GR026B-001

24202801, whelks, Fasciolariinae sp. 1, Buccinidae, 001BS001-007

24207801, volute, Volutoconus sp. 1, Volutidae, 037GR056B-002

24220801, turrid, Turridae sp. 1, Turridae, 006GR009B-005

24220802, turrid, Turridae sp. 2, Turridae, 002GR085B-002

24221801, auger shell, Terebridae sp. 1, Terebridae, 009GR014B-001

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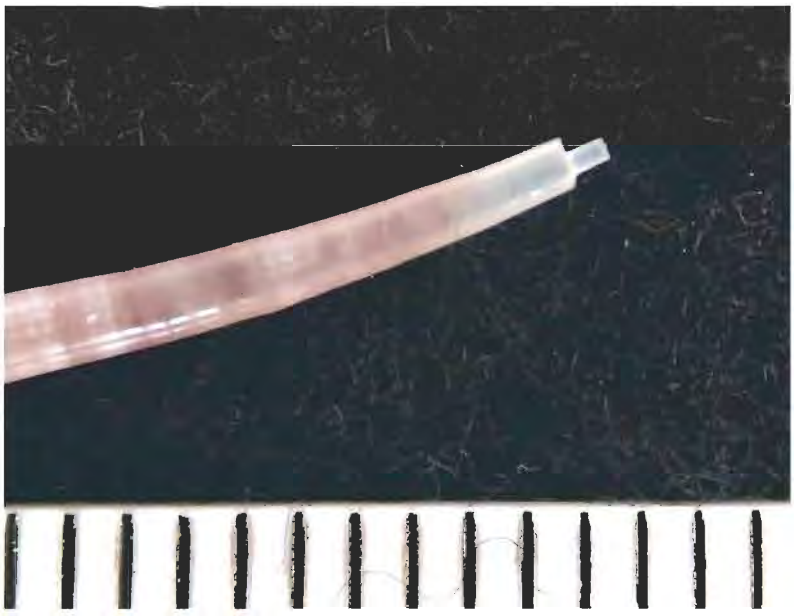

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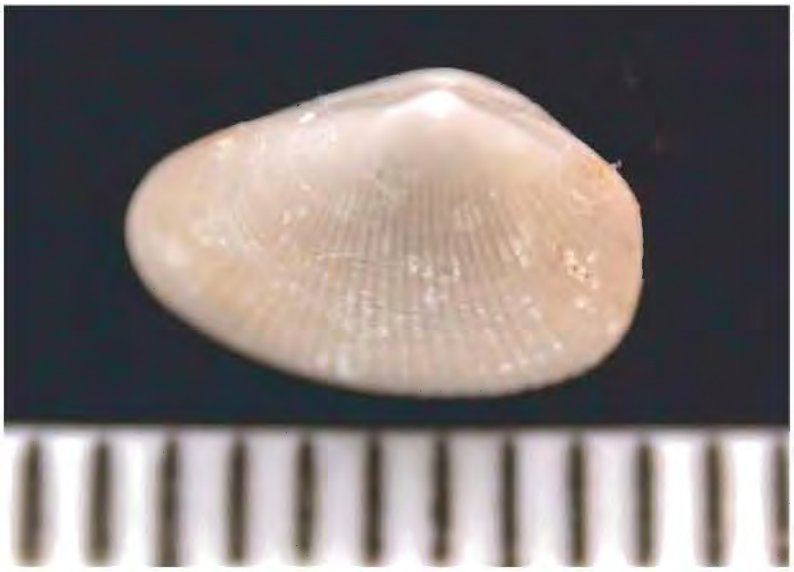

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23207802-024GR044B-002-Nuculanidae-sp2.tif

23207803-030GR054B-002-Nuculanidae-sp3.tif

23226801-053DR015B-017-Arcidae-sp1.tif

23272801-038DR010B-020-Spondylus-sp1.tif

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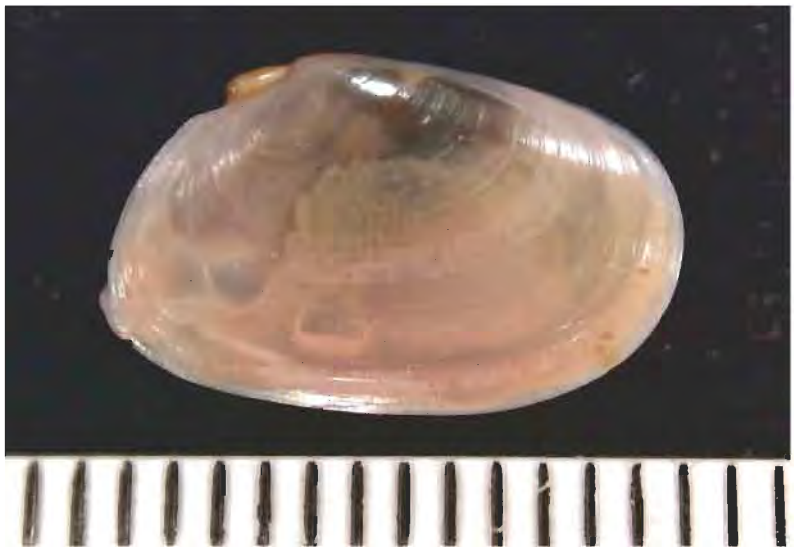

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24191801-016GR026B-001-Epitoniidae-sp1.tif

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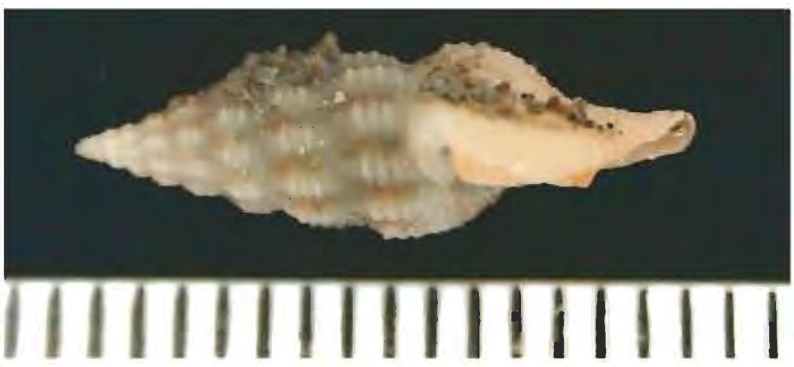

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ECHINODERMATA

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CAAB spcode, common name, scientific name, <authority>, family, notes, stations recorded

25001801, crinoids, Crinoidea sp. 1, long cirri, 013DR001B-001

25001802, crinoids, Crinoidea sp. 2, 5 arms, 020GR035B-004;020DR005B-002

25001803, crinoids, Crinoidea sp. 3, many arms, long cirri, 038GR059B-007

25021801, stalked crinoid, Pentacrinitidae? sp. 1, Pentacrinitidae, stem sections only, prob. Subfossil, 043GR069B-003

25039801, crinoids, Colobometridae sp. 1, Colobometridae, small, 013DR001B-007

25039802, crinoids, Colobometridae sp. 2, Colobometridae, stiff arms, 013DR001B-008

25039803, crinoids, Colobometridae sp. 3, Colobometridae, sm cirri, 013DR001B-009

25143801, seastar, Echinasteridae sp. 1, Echinasteridae, 045GR072B-001

25160801, brittlestar, Ophiuroidea sp. 1, 001BS001-003

25160802, brittlestar, Ophiuroidea sp. 2, 007BS003-014

25160803, snakestar, Ophiuroidea sp. 3, 013DR001B-053

25160804, brittlestar, Ophiuroidea sp. 4, 017GR029B-003

25160805, snakestar, Ophiuroidea sp. 5, 020DR005B-004

25160806, brittlestar, Ophiuroidea sp. 6, 028GR049B-002

25160807, brittlestar, Ophiuroidea sp. 7, 043GR069B-004

25160808, brittlestar, Ophiuroidea sp. 8, 043DR012B-003

25160809, brittlestar, Ophiuroidea sp. 9, 049GR075B-002

25160810, brittlestar, Ophiuroidea sp. 10, 049GR077B-001

25160811, brittlestar, Ophiuroidea sp. 11, 002GR085B-004

25171801, basketstar, Gorgonocephalidae sp. 1, Gorgonocephalidae, pr spines base of arms on disc; ex 013DR001B-003, 013DR001B-002;020DR005B-019

25171802, basketstar, Gorgonocephalidae sp. 2, Gorgonocephalidae, no disc granules, 020DR005B-007

25171803, basketstar, Gorgonocephalidae sp. 3, Gorgonocephalidae, disc granules, 020DR005B-003

25171804, snakestar, Gorgonocephalidae sp. 4, Gorgonocephalidae, unbranched arms, 038DR010B-004

25176801, brittlestar, Ophiuridae sp. 1, Ophiuridae, 003GR004B-001

25176802, brittlestar, Ophiuridae sp. 2, Ophiuridae, pink, 038DR010B-017

25178801, brittlestar, Ophiocomidae sp. 1, Ophiocomidae, 039GR061B-003

25180801, brittlestar, Ophiodermatidae sp. 1, Ophiodermatidae, bioluminescent, 027GR048B-002

25191801, brittlestar, Amphiuridae sp. 1, Amphiuridae, 005GR007B-004

25191802, brittlestar, Amphiuridae sp. 2, Amphiuridae, 007BS003-013

25191803, brittlestar, Amphiuridae sp. 3, Amphiuridae, 011GR018B-002

25191804, brittlestar, Amphiuridae sp. 4, Amphiuridae, 002GR086B-002

25192801, brittlestar, Ophiothrix sp. 1, Ophiotrichidae, 013DR001B-011

25200801, sea urchin, Echinoidea sp. 1, irregular, 020DR005B-026;048GR074B-002

25202801, sea urchin, Cidaridae sp. 1, Cidaridae, large, sponge on spines but few thorns, 038DR010B-001

25202802, sea urchin, Cidaridae sp. 2, Cidaridae, sm, spines with lots of thorns, 038DR010B-019

25404801, sea cucumber, Psolidae sp. 1, Psolidae, sm, white, 042DR011B-002

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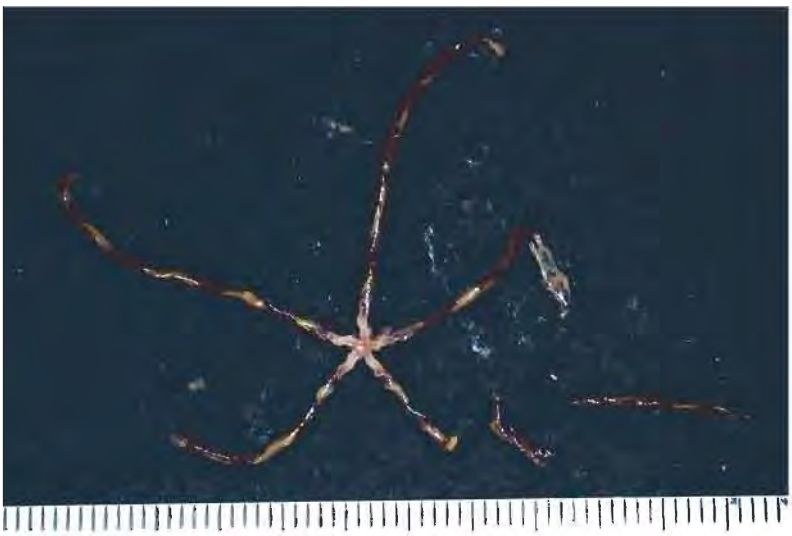

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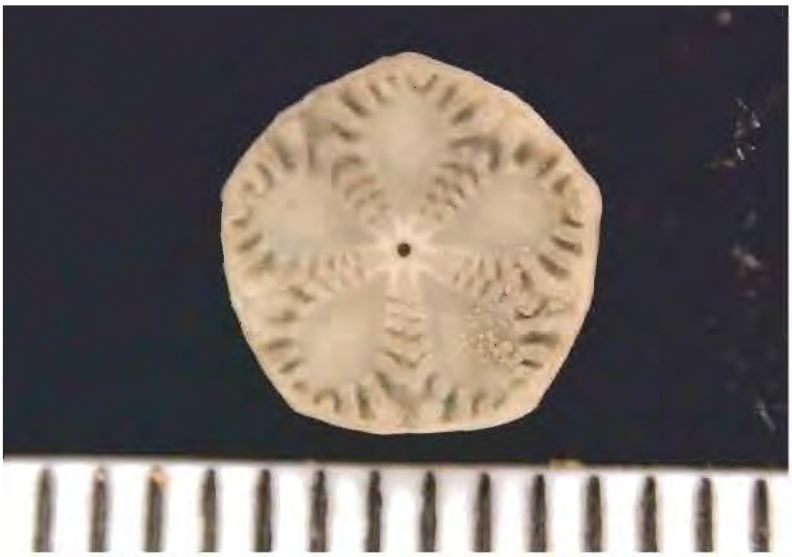

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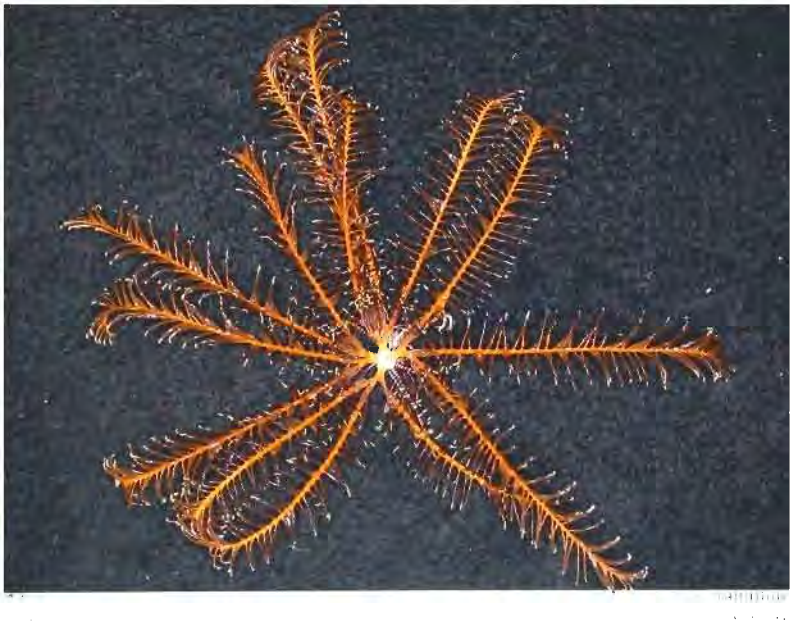

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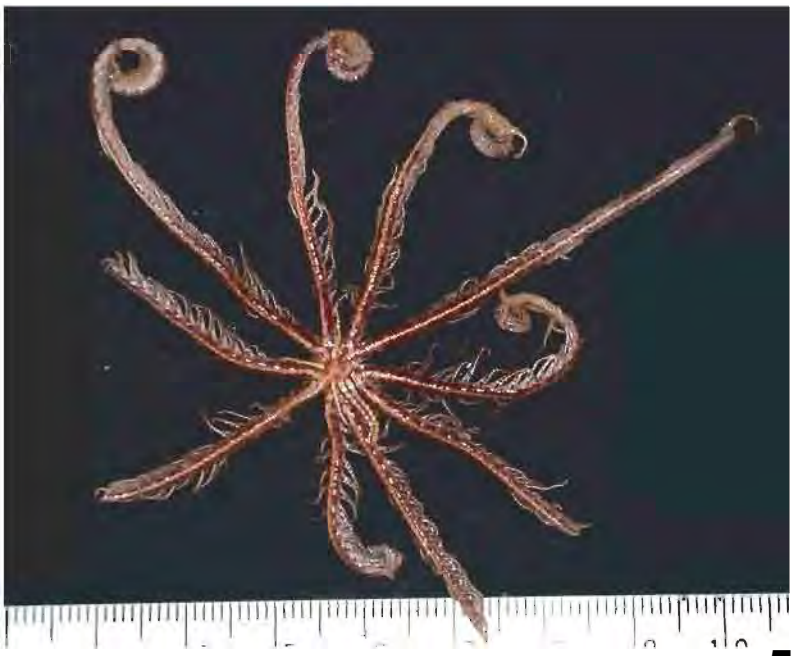

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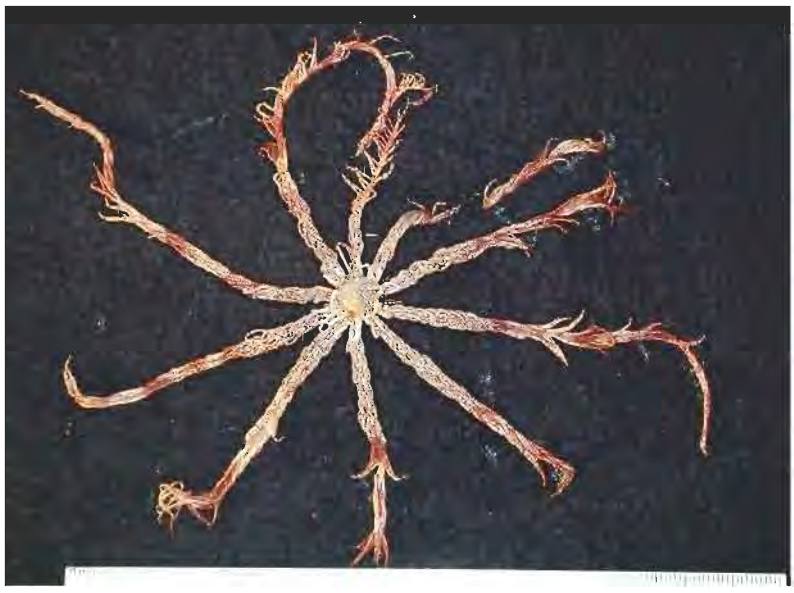

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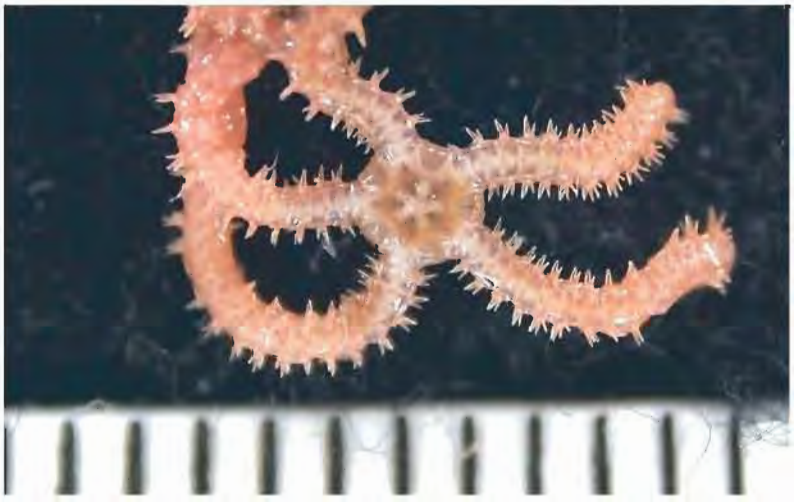

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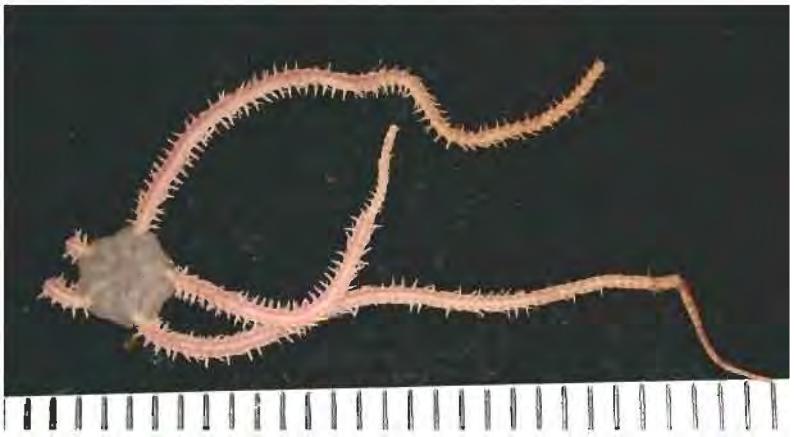

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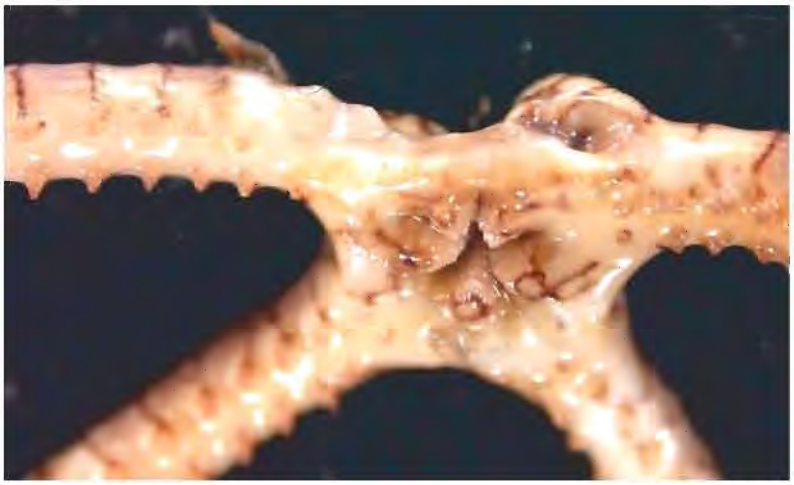

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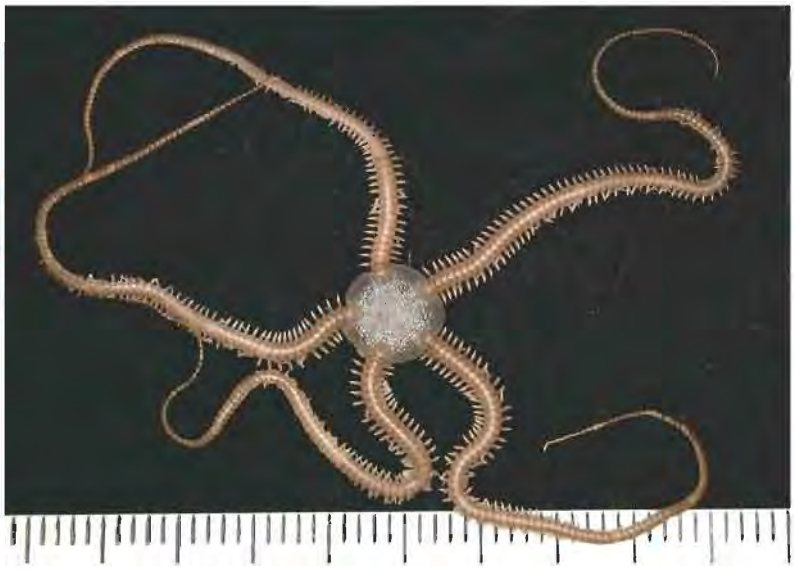

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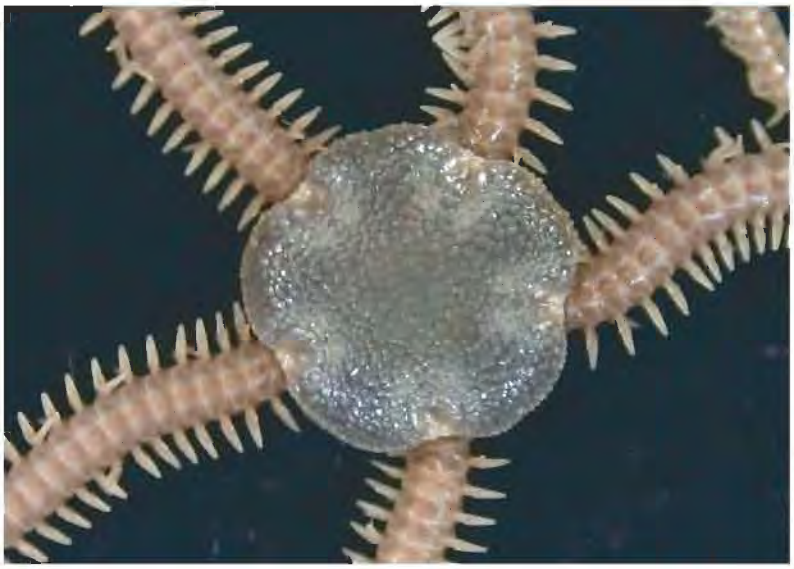

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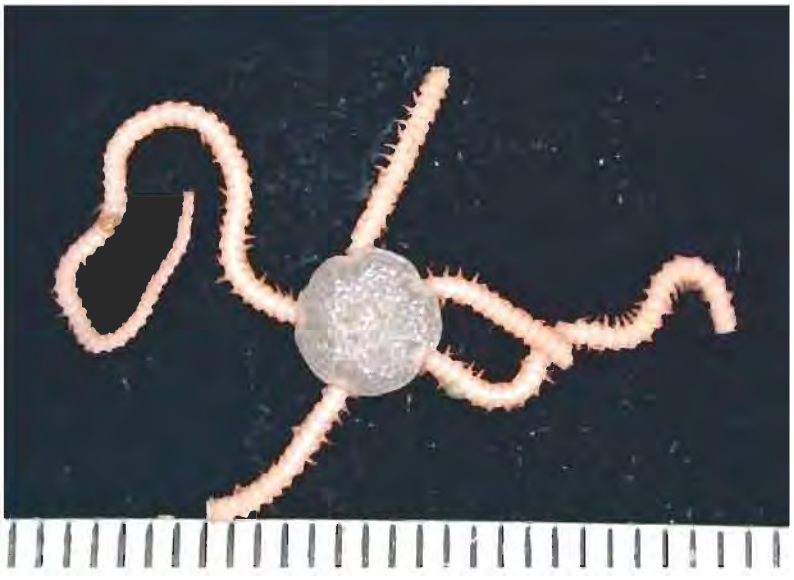

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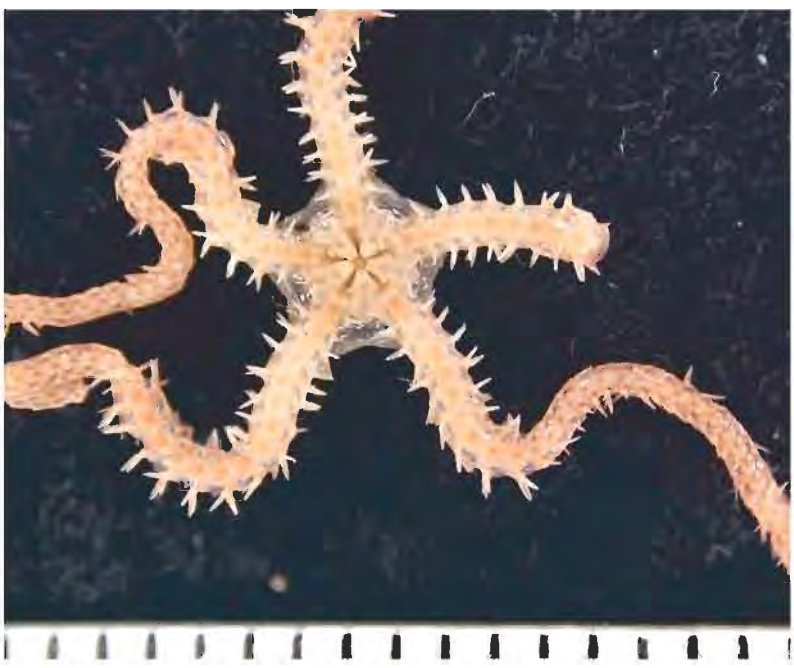

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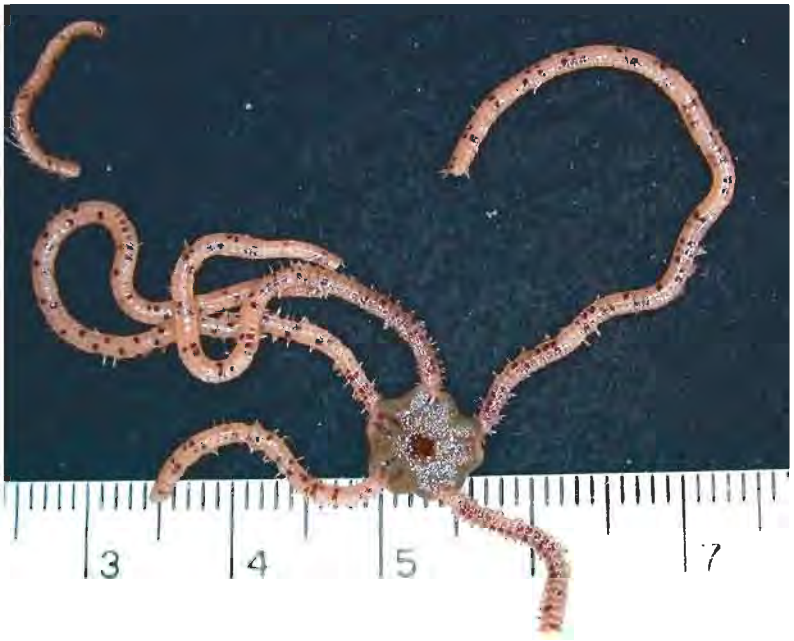

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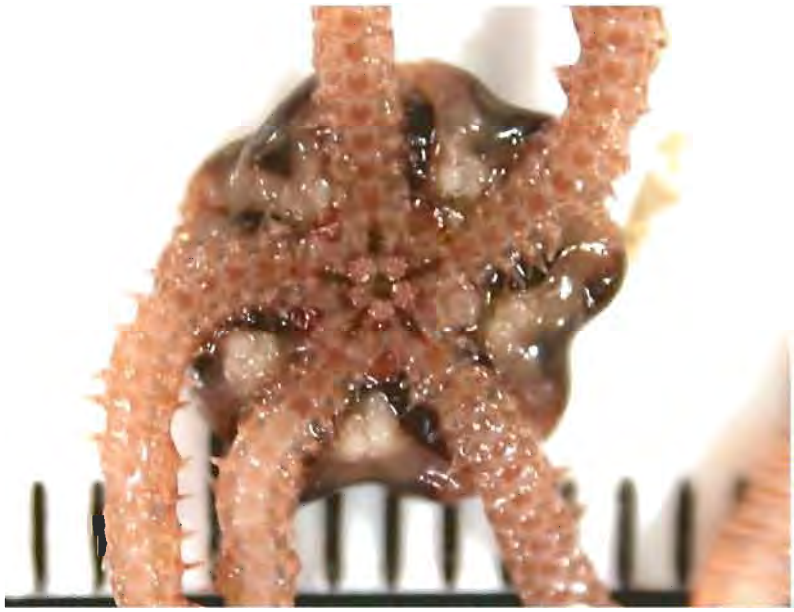

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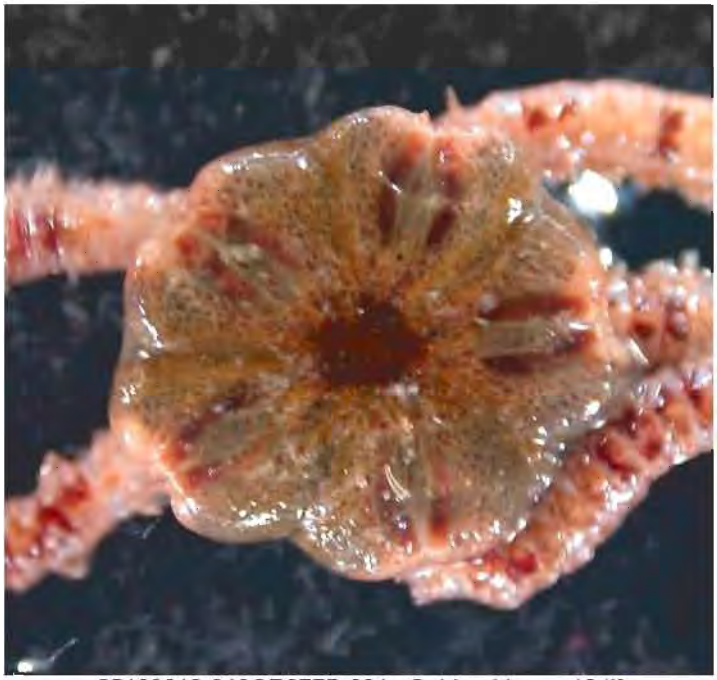

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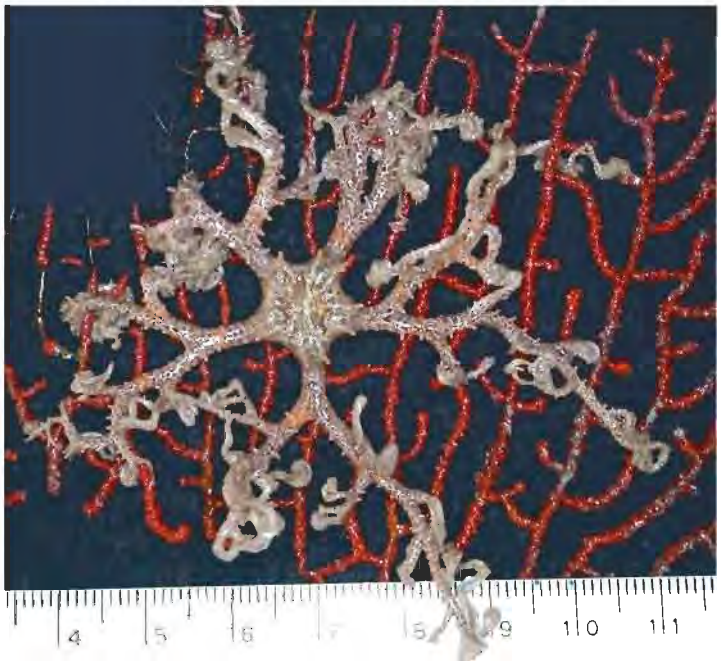

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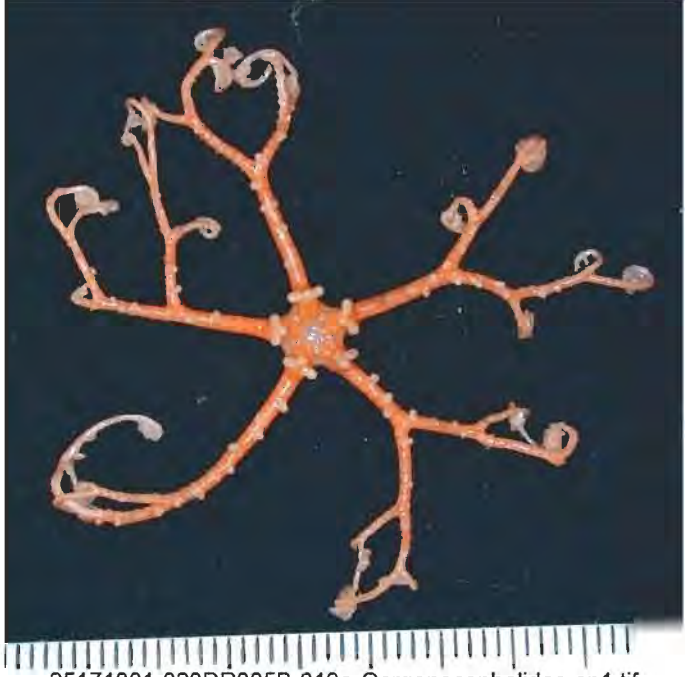

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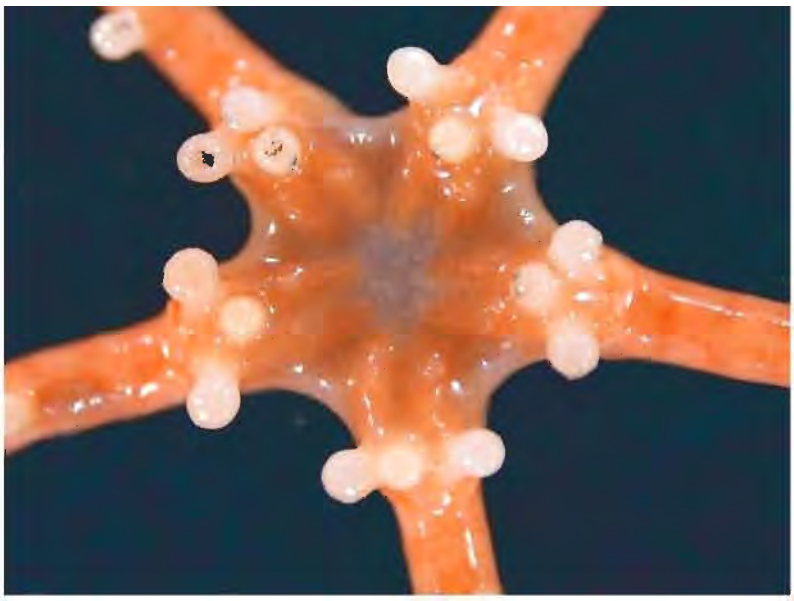

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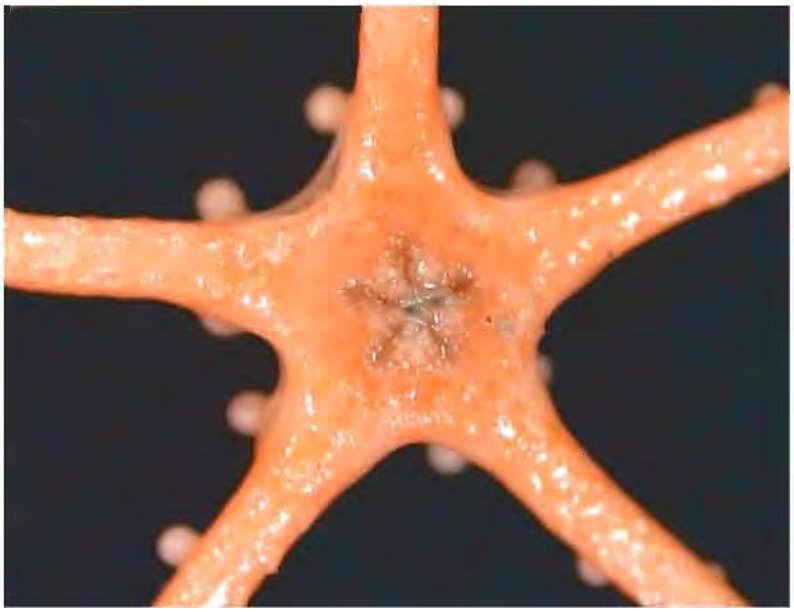

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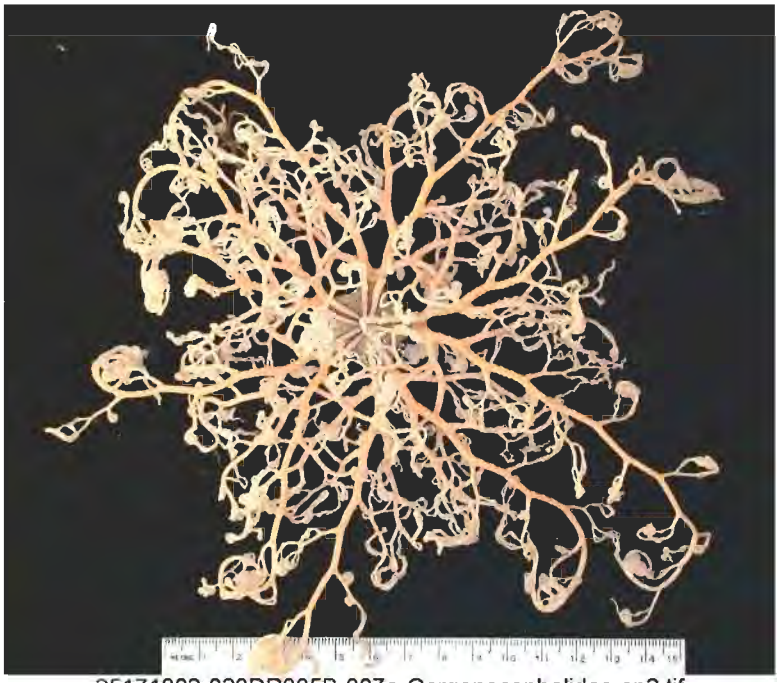

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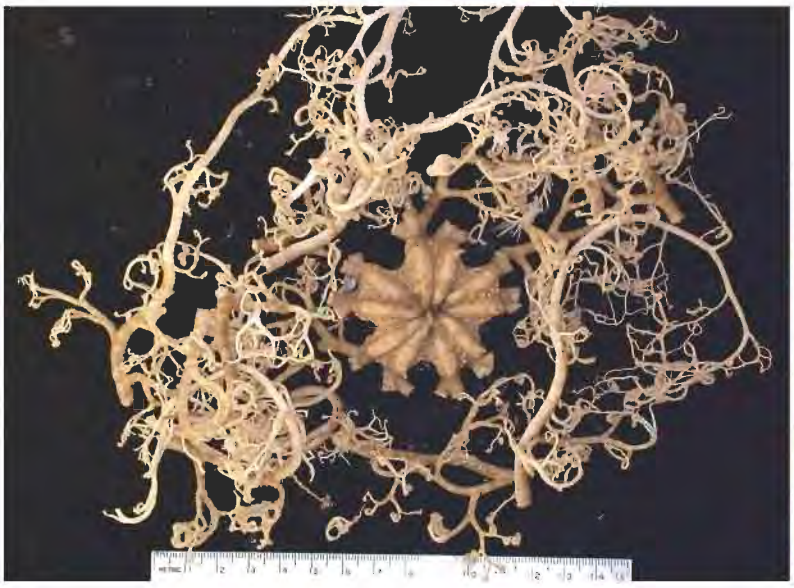

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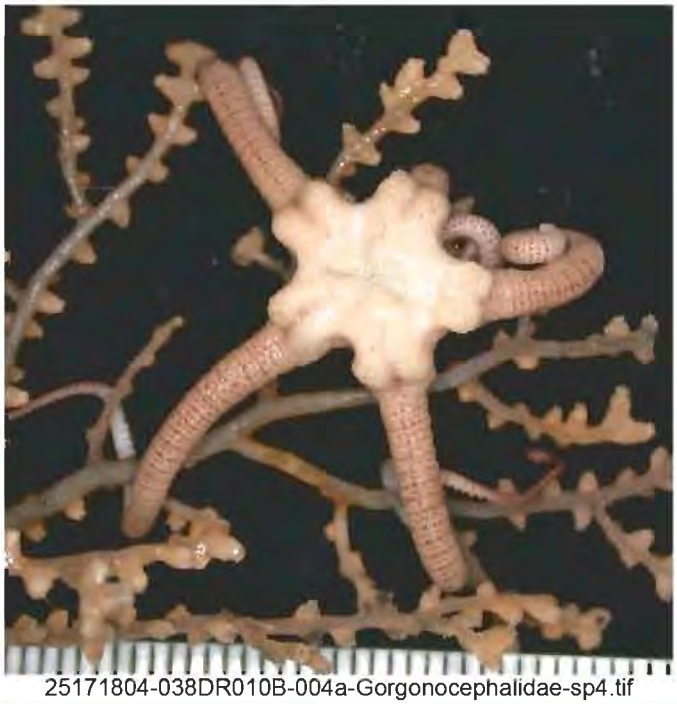

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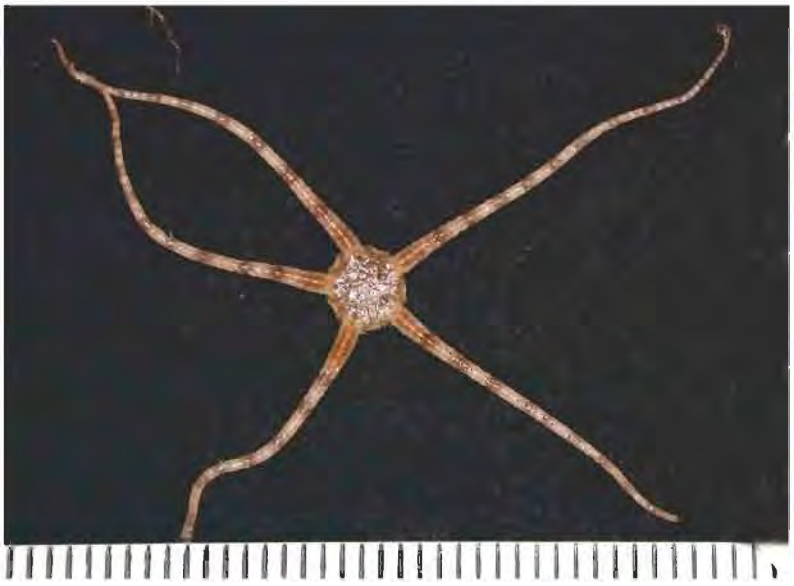

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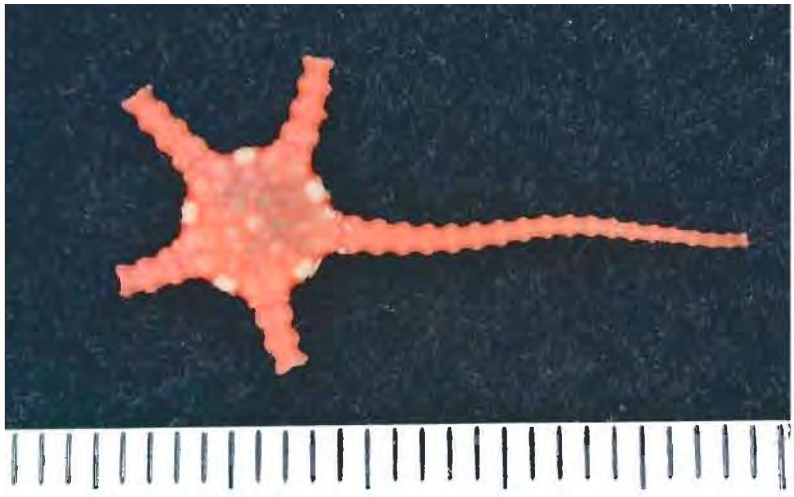

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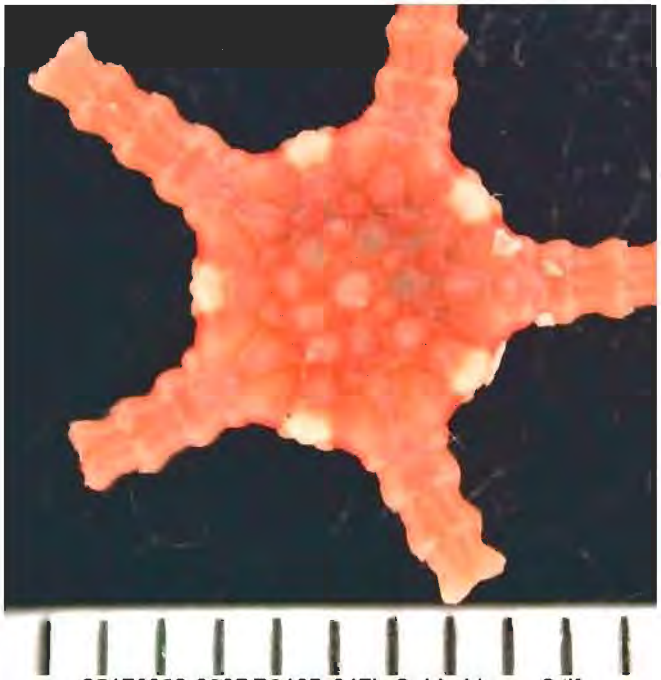

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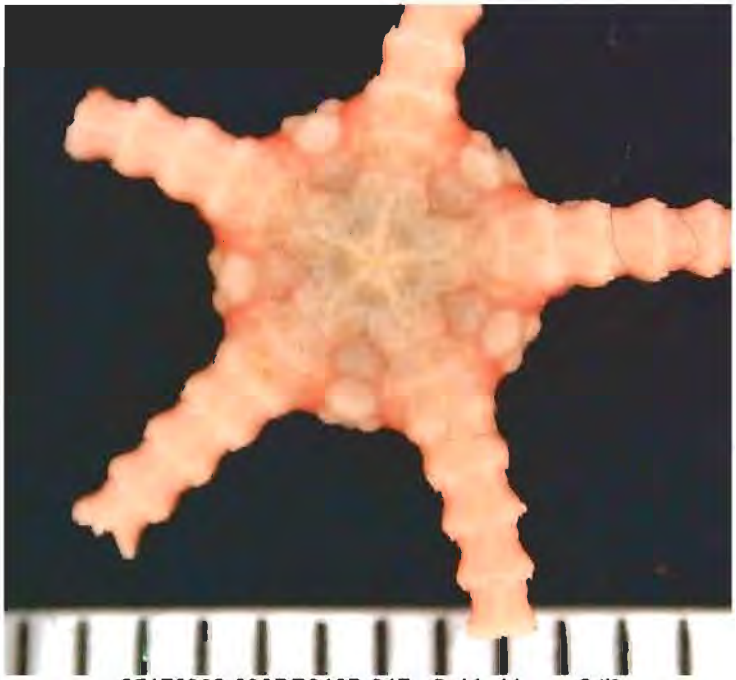

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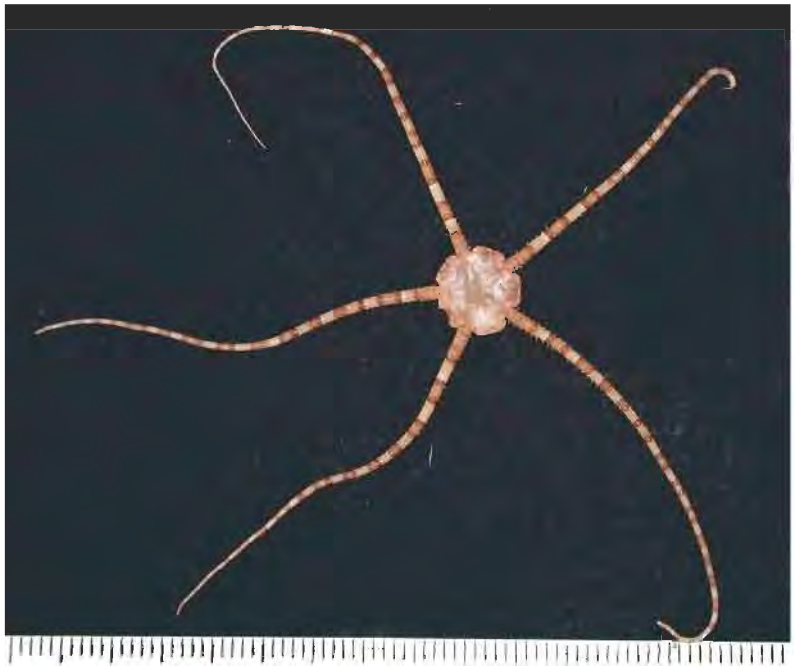

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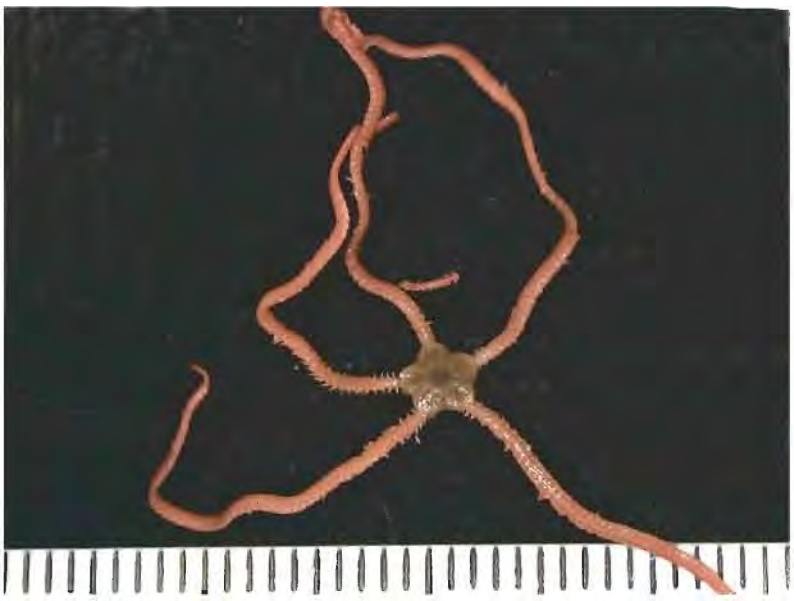

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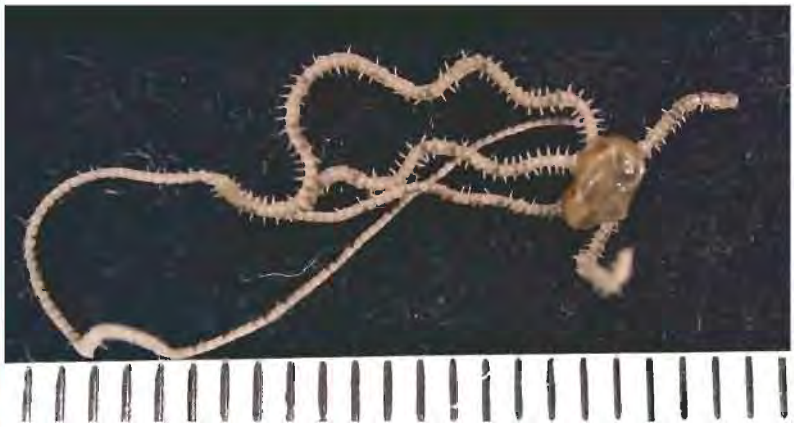

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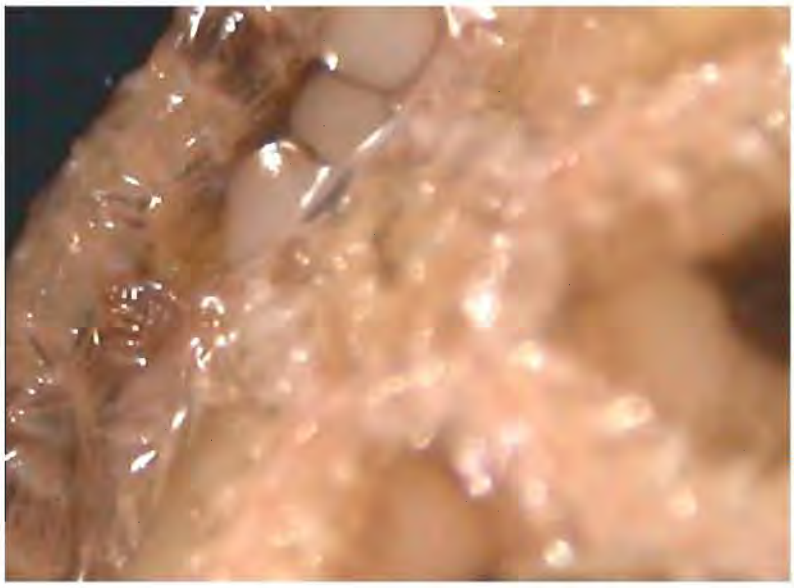

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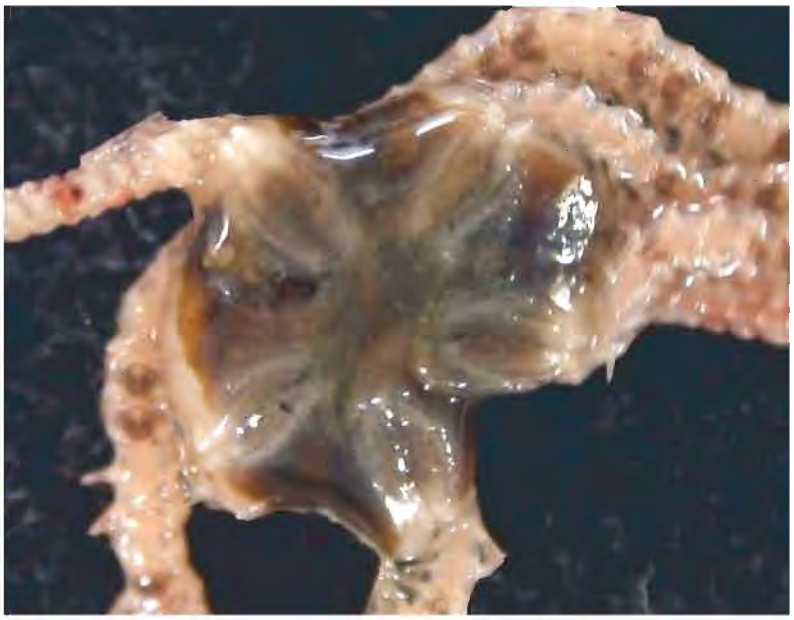

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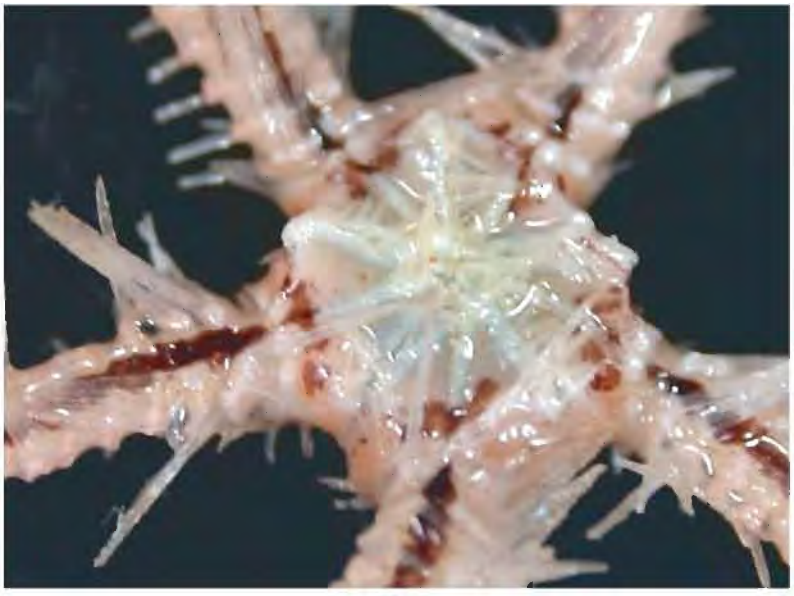

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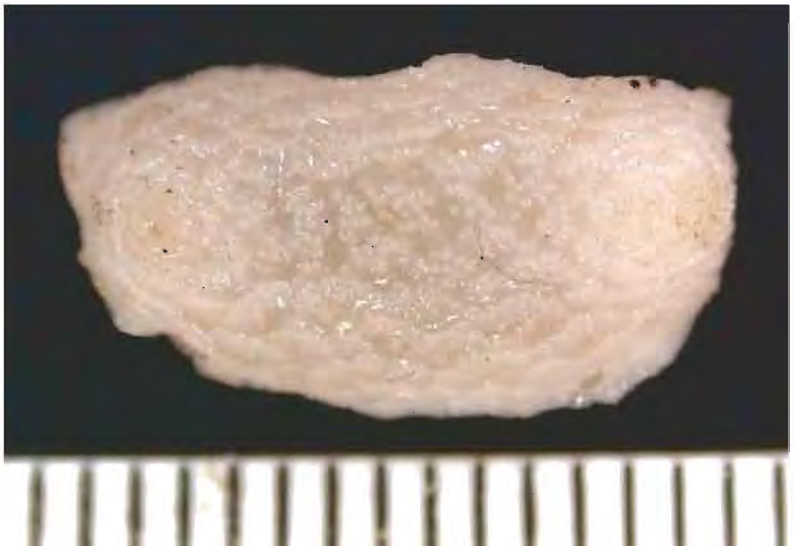

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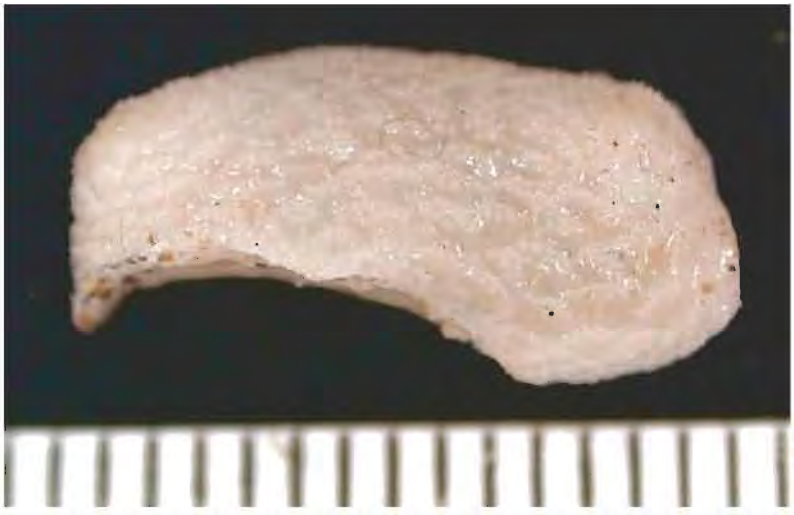

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27500802, stalked barnacle, Cirripedia sp. 2, Oxynaspididae?, embedded in live octocoral, 038DR010B-029

27500803, stalked barnacle, Cirripedia sp. 3, on antipatharian, 044DR013B-002

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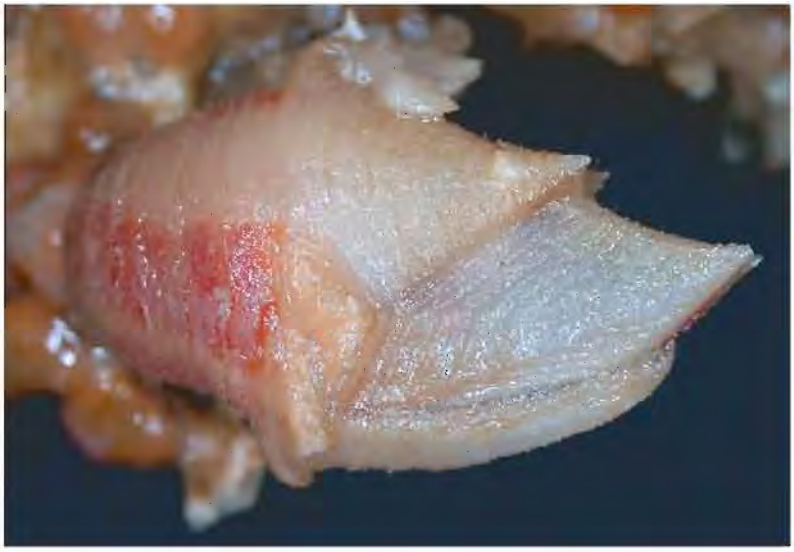

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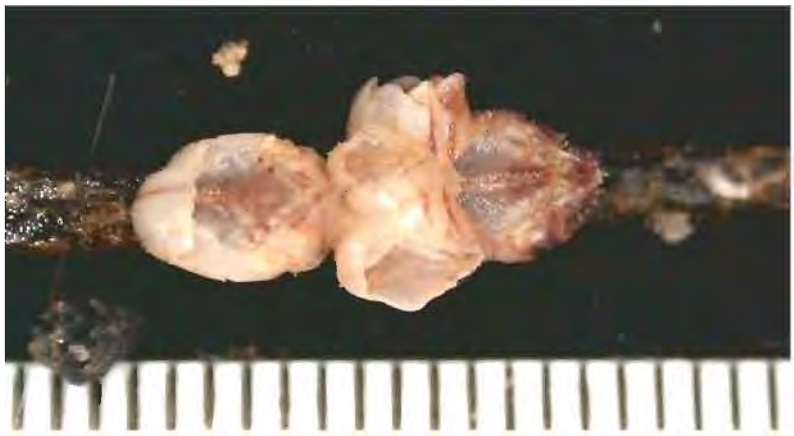

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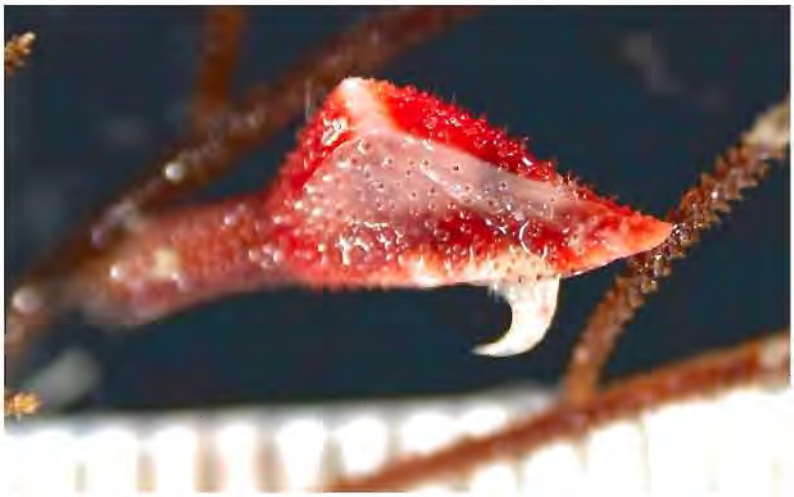

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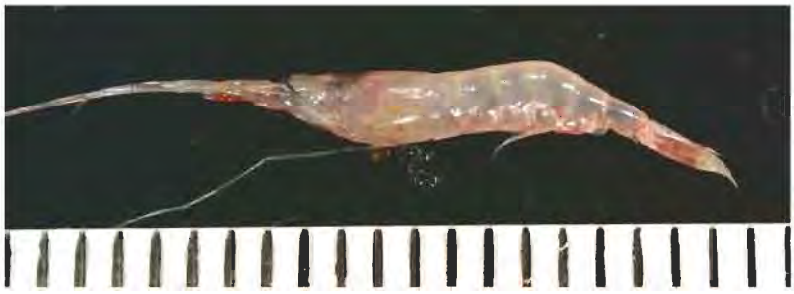

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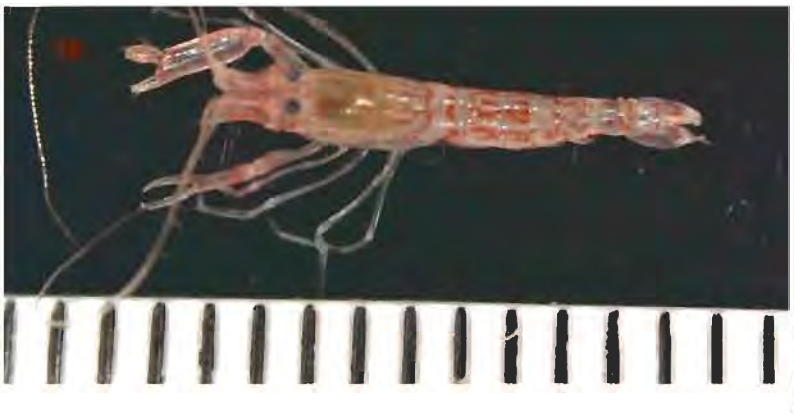

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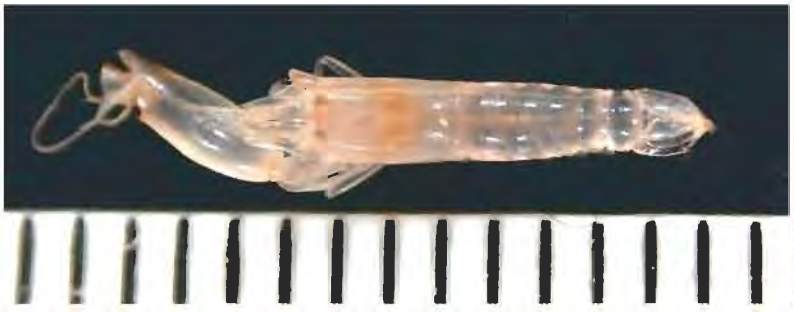

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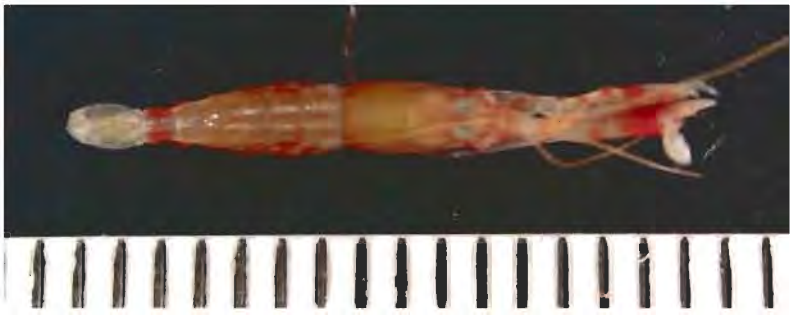

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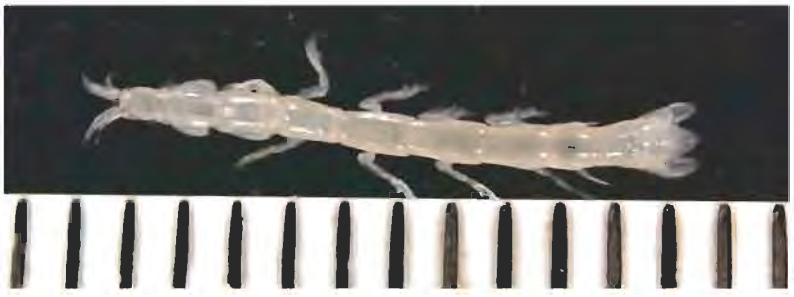

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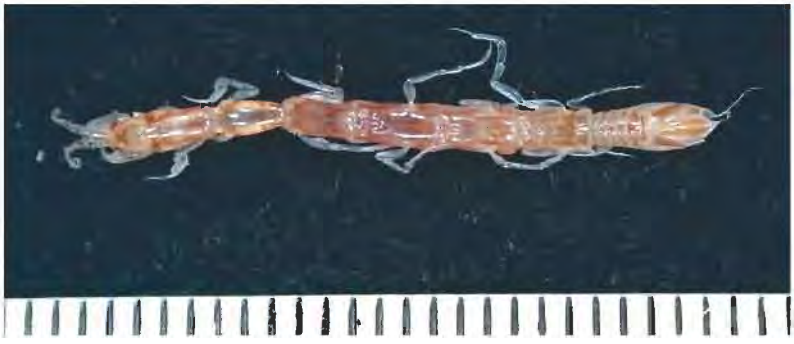

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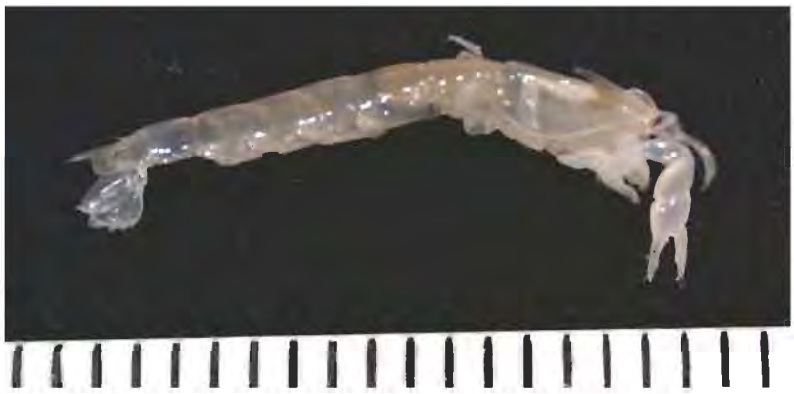

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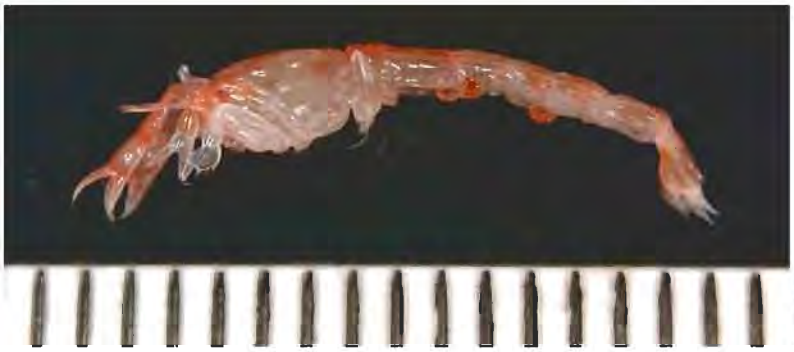

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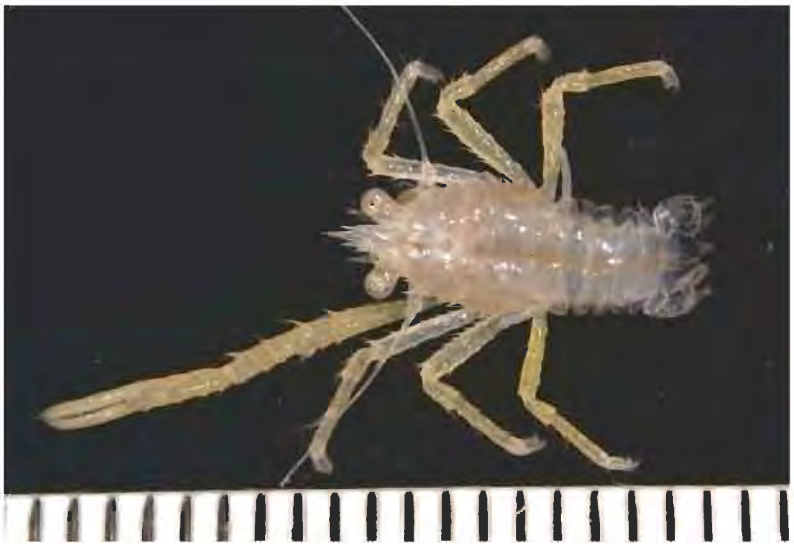

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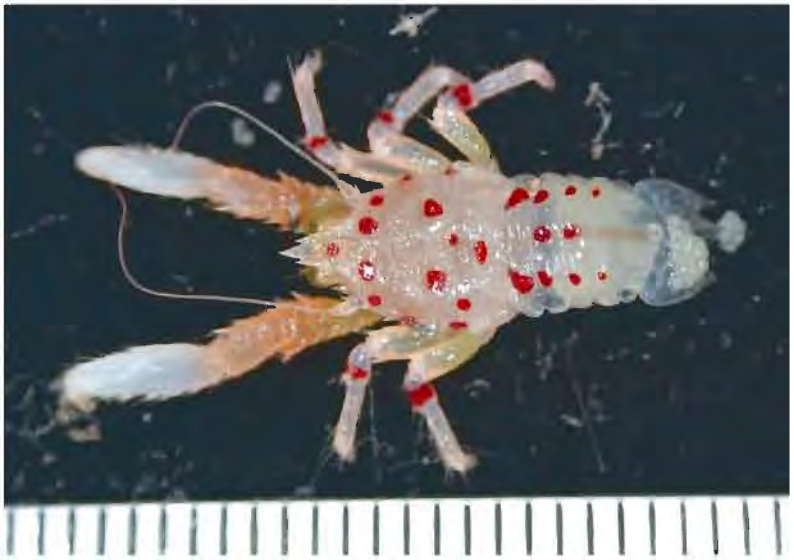

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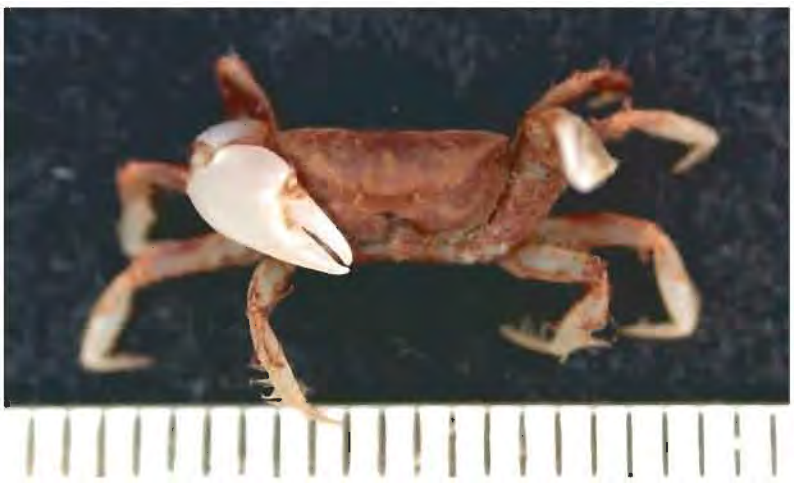

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In the following, each entry is in the following order:
CAAB spcode, common name, scientific name, <authority>, family, notes, stations recorded

37000801, fish, Unidentified fish sp. 1, 007BS003-002;061GR082B-002

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