STATE OF ST HELENA BAY 2007

BENTHIC MACROFAUNA DISTRIBUTIONS

PREPARED FOR

CSIR

PREPARED BY

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LWANDLE TECHNOLOGIES (PTY) LTD

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STATE OF ST HELENA BAY 2007
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1. BACKGROUND AND BRIEF

The St Helena Bay Water Quality Trust conducts 'State of the Bay' assessments to determine the overall environmental health of St Helena Bay and track effects that may be caused by human activities. These assessments focus on the benthic environment in terms of sediment quality and abundance and distributions of the macrofauna living in and on the sediments in the bay. The first of these assessments was carried out in 2001 (CSIR 2001), the current report is focused on the benthic macrofauna survey conducted in 2007, a companion report (CSIR 2007) addresses the sediment property data collected during this survey.

Soft-bottom benthic macrofauna (animals larger than 1 mm) is the component of the marine biota most widely used in environmental impact studies (Warwick and Clarke 1993). The long generation time (years rather than months) of the macrofauna and its non-mobile mode of life means that community structure reflects the environmental conditions integrated over a long period of time (Gray *et al.* 1990).

The purpose of this assessment is to build on the 2001 survey and data base in establishing the severity and extent of any discernible ecological impact associated with human activities in and around St Helena Bay.

2. APPROACH

The initial 'State of the Bay' assessment (CSIR 2001) provided a synoptic scale assessment of benthos distributions in St Helena Bay using sampling stations spread throughout the system but concentrated to an extent on the southern shores. Single samples were obtained from each of these stations and used to provide bay scale distributions. This approach provided useful 'exploratory' scale information from which areas influenced by human activities could be identified as well as those that could be considered more indicative of the natural biogeochemical processes at work in the system. However, due to high natural variability typical of soft sediment benthos communities (e.g. Gray 1981, Morrisey *et al* 1992) single samples are not suitable for robust temporal, i.e. between years or surveys, or spatial, i.e. between different geographical sites, comparisons. Consequently the sampling strategy employed in the 2001 survey was modified as follows:

- Replicate samples were obtained from sites adjacent to the fish factories on the southern shoreline of the bay, along the northern shore and in the centre of the bay to provide an improved statistical base for detecting spatial and temporal gradients
- Selected sites sampled in 2001 were re-occupied and samples taken to indicate changes between the two surveys in terms of the dominant fauna, and
- A set of samples were taken from within the Berg River estuary to provide a base for detecting future changes in this system.

3. METHODS

Sediment sampling for benthic macrofauna distributions was conducted across three dates in 2007 at 17 sites in St Helena Bay. Single samples were taken at 9 of the sample sites with varying levels of sample replication at another 8 sites giving a total of 44 individual benthos samples (Table 1). The distribution of sample sites is shown in Figure 1.

Table 1: Sample data for the 2007 St Helena State of the Bay survey on benthic macrofauna distributions

Sample Date	Sample Sites	Latitude	Longitude	Number of Replicates
2007/07/20	6.1	32.55020	17.92430	1
2007/07/20	21	32.72500	18.12380	1
2007/07/20	29	32.60070	18.24850	1
2007/07/20	31	32.65870	18.23550	1
2007/07/20	46	32.77660	18.13630	1
2007/07/20	47	32.78057	18.14599	1
2007/07/20	48	32.79070	18.14650	1
2007/07/20	49	32.78810	18.16870	1
2007/07/20	50	32.69680	18.19600	1
2007/05/02	**12**	32.70780	18.02400	3
2007/05/02	**26**	32.42450	18.12480	3
2007/07/20	**30**	32.63300	18.24800	5
2007/04/04	**166**	32.74568	18.01506	5
2007/04/04	**167**	32.74781	18.01447	5
2007/04/04	**168**	32.77355	18.05135	5
2007/04/04	**169**	32.77530	18.05134	5
2007/04/04	**170**	32.72326	17.97780	4
Total	**17**			**44**

Benthos samples were taken by Van Veen grab operated from a CSIR RIB. Table 1 lists the geographic coordinates of each of the sample sites occupied. The Van Veen grab dimensions were 0.33 x 0.33m resulting in a sampled area of ~0.1m^2/grab. On retrieval of the grab a subsample of the

sampled sediment was taken for sediment texture and granulometry analysis and the balance of the sediment was then washed through a 1mm aperture stainless steel sieve. The benthic macrofauna retained on the sieve was washed into labeled sample bottles, fixed in ~ 4% formaldehyde solution, and transferred to shore laboratories for processing.

Figure 1: *Chart of St Helena Bay showing the overall distribution of benthos sampling sites in 2007. The sites denoted by red diamonds indicate single samples in the bay, those designated by green diamonds are single samples in the Berg River estuary, and the red circles denote sites with replicate samples. Blue navigation symbols indicate stations where sediment property samples were collected (not discussed here).*

Once in the laboratory, the samples were rinsed in freshwater to remove all traces of the formaldehyde, as this dissolves the calcium carbonate in mollusc shells. The samples were hand-sorted to extract the preserved fauna from the sediment and transferred to 1% phenoxatol (ethylenglycolmonophenyl-ether). Any organisms considered dead at the time of collection (e.g. empty shells, decapitated polychaetes) were excluded from the study. The animals were identified to the lowest possible taxonomic level, blot-dried and weighed to the nearest 0.0001g on a precision balance. Literature used for identification of the fauna includes Barnard (1950), Day (1967a, 1967b, 1974), Kensley (1972, 1973, 1974, 1978), Griffiths (1976), Kilburn and Rippey (1982), and Branch *et al*. (1994).

The data sets were analysed using univariate and multivariate methods. Univariate indices allow comparisons between samples and sites. Data sets collected during environmental surveys are typically large and patterns in, and spatial differences between, community structures in terms of abundance and biomass distributions are not usually readily apparent. Multivariate methods provide powerful tools for discerning such patterns by reducing the large matrices with the help of graphical representation of the relationships among biotic samples.

In this study the biomass and abundance data were root-root transformed to ameliorate the influence of the very abundant species in the determination of sample differences, and the Bray-Curtis coefficient of similarity (Bray and Curtis 1957) was used to compute the degree of similarity between every pair of samples from the different sites. A dendrogram was produced by hierarchical cluster analysis, which successively clustered samples into groups beginning with the highest mutual similarities in community composition, progressively lowering the similarity level at which groups were formed. Multi-dimensional scaling (MDS), an ordination 'map' in two dimensions, was produced where the distances between the samples represent their dissimilarity - i.e. the closer the samples are depicted in the MDS, the more similar they are. It is therefore possible to interpret the relative degrees of similarity between individual samples or sites, which is not possible with the dendrogram. Both manners of representing data are complementary and are used in this study.

The computer software package PRIMER 5 (Plymouth Routines in Multivariate Ecological Research) was used to analyse the macrobenthos data following the procedures described by Clarke and Warwick (1994) for the analysis of community data. The computer software package GenStat version 9.1 was used for the statistical analyses.

4. RESULTS AND DISCUSSION

The raw data in the form of taxonomic counts and biomass estimates for each of the identified taxa for the samples taken in this survey are listed in Appendices 1 & 2. The following presentation of the results and the discussion is partitioned into a broad description of the community structure in terms of the more commonly occurring taxa, an analysis of the distribution of univariate indices, community distribution patterns (multivariate analysis), indications of pollution effects and temporal comparisons using historical data.

4.1 DOMINANT BENTHIC MACROFAUNA TAXA

Annelid polychaetes were the dominant taxon in terms of overall abundance accounting for >60% of the count. Most of the polychaetes are small forms, however, and it was the less numerically dominant molluscan bivalves *Tellina*, *Venerupis*, and *Dosinia* that comprised most of the total biomass (~31%, Table 2). All of the species listed in Table 2 appear to have wide distributions in inner continental shelf fine-medium sand and sandy-mud sediments on the South African south and west coasts (eg Christie 1976, Jackson and McGibbon 1991, Klages and Bornman 2005, Carter and Steffani 2006). Due to their ubiquitous distributions these species would be expected to occur in the region.

Table 2: Benthic macrofauna taxa comprising >1% of the total count or overall biomass in the 2007 St Helena Bay survey.

Taxonomic Level				%	
Phylum	**Order**	**Family**	**Taxon**	**Abundance**	**Biomass**
Cnidaria	Actinaria		Anemone sp	6.34	14.01
Arthropoda	Isopoda	Anthuriidae	*Centrathura caeca*	1.75	1.46
	Amphipoda	Ampeliscidae	*Ampelisca spinimana*	4.05	0.09
	Decapoda	Upogebiidae	*Callianassa krausi*	0.80	0.03
			Upogebia africana	0.19	2.52
		Hymenosomatidae	*Hymenosoma orbiculare*	0.12	1.61
Mollusca	Bivalvia	Tellinidae	*Macoma sp*	2.44	0.84
			Tellina gilchristi.	3.24	23.11
		Veneridae	*Venerupis corrugata*	0.25	4.17
			Dosinia lupinus orbignyi	0.27	4.17
	Gastropoda	Nassariidae	*Nassarius sp*	2.85	3.90
Annelida	Polychaeta	Nephtyidae	*Nephtys sphaerocirrata*	2.66	0.09
			N. hombergi	0.56	1.02
		Capitellidae	*Mediomastus capensis*	26.82	2.05
			Capitella capitata	11.35	0.95
		Spionidae	*Prionospio pinnata*	8.30	1.53
			P. sexoculata	2.76	0.16
		Pectinariidae	*Pectinaria capensis*	1.68	13.01
		Sabellidae	*Sabellides luderitzi*	5.18	0.76
		Lumbrinidae	*Lumbrinereis heteropoda difficilis*	0.42	2.61
			Arenicola lowenii	0.36	5.18
		Flabelligeridae	*Pherusa swakopiana*	0.58	1.59
Nemertea			Nemertea A	1.42	1.32

4.2 THE DISTRIBUTION OF UNIVARIATE INDICES

Table 3 lists the univariate indices and their distributions across the sample sites where replicate sampling was conducted.

Table 3: Mean indices of benthic macrofauna community structure for the sites sampled in the 2007 St Helena Bay benthic macrofauna distribution survey.

Sample Site	Number of taxa (S)	Total count (N)	Total biomass (g)	Species Richness (D)	Pileou's Evenness (J)	Shannon Wiener Diversity (H')
12	18	310	84.65	2.92	0.70	2.02
26	8	257	28.86	1.27	0.62	1.28
30	13	100	17.35	2.63	0.71	1.80
166	6	52	6.33	1.27	0.61	0.96
167	4	127	2.84	0.73	0.38	0.56
168	16	429	44.38	2.60	0.64	1.75
169	9	33	87.92	2.43	0.87	1.84
170	4	12	14.59	1.25	0.87	1.20

Single factor analysis of variance (ANOVA) shows that there are statistically significant ($p < 0.05$) differences between the sampled sites across all of the univariate indices. The sites responsible for these differences and the differentiating factors are listed in Table 4.

Table 4: Summary of single factor analysis of variance with Tukey's multiple comparison test showing sites that contribute to statistically significant differences at the $p<0.05$ level for the univariate indices measured in this survey.

Index	Outlier Sites	Causative Factor from comparisons of Means
Taxa (S)	12 & 168	High
Abundance (N)	168	High
Biomass	167	Low
Richness (D)	167	Low
Evenness (P)	167	Low
Shannon Wiener (H')	167	Low

The major feature is the relative impoverishment of site #167 which is close inshore adjacent to the fish factory discharge at Sandy Point (Figure 1). In contrast site #168 which is located ~200m distant from the fish factory discharge at West Point supports relatively high numbers of taxa and abundance and, in these features at least, is similar to site #12 located in deeper water distant from fish factory discharges. These results indicate that site location is an important controlling factor for benthic communities in St Helena Bay.

4.3 MULTIVARIATE ANALYSES OF BENTHIC MACROFAUNA COMMUNITY STRUCTURE

Dendrograms and MDS plots of Bray-Curtis similarity between taxon abundance for the individual samples and the respective biomass distributions are shown in Figures 2a and 2b.

Figures 2a and 2b show that there is a clear grouping of sample sites at the 30% similarity level. Note that this similarity level is low compared to the 2001 survey (CSIR 2001) which reported similarity levels of 40% - 50%. The difference is ascribed to the fact that the current survey included sites very close inshore (<5m depths) where physical disturbance by waves is relatively high and strong gradients in benthos species assemblages can be expected. These shallow sites were not accessible by the larger vessel employed in the earlier survey. The site groupings for both the abundance (Figure 2a) and biomass plots (Figure 2b) fall into the following broad categories although the groupings by biomass show slightly higher differentiation:

A. Sites adjacent to fish factories
B. Offshore deep water stations
C. Stations and sites on the eastern side of the bay in shallower water, and
D. Stations in the Berg River estuary.

These groupings are consistent with the known physical and water quality characteristics of the St Helena Bay system (CSIR 2002). The fish factories discharge high organic content effluents which affect sediments in close proximity to the discharges. The centre of St Helena Bay is largely depositional and sediments in this area are predominantly silts and clays derived from the Berg River with organic enrichment from depositing phytoplankton. The eastern side of the bay has mainly fine sands with low mud content commensurate with higher wave energy in this zone. The estuarine conditions of the Berg River mouth - variable salinity and suspended sediment loads and mainly terrigenous organic matter - naturally lead to different benthos communities than those of adjacent marine areas. Therefore, at the bay scale most of the observed benthic macrofaunal distributions appear to be linked to natural biogeochemical processes that operate in the region. The areas adjacent to the fish factory discharges are different and are discussed further below.

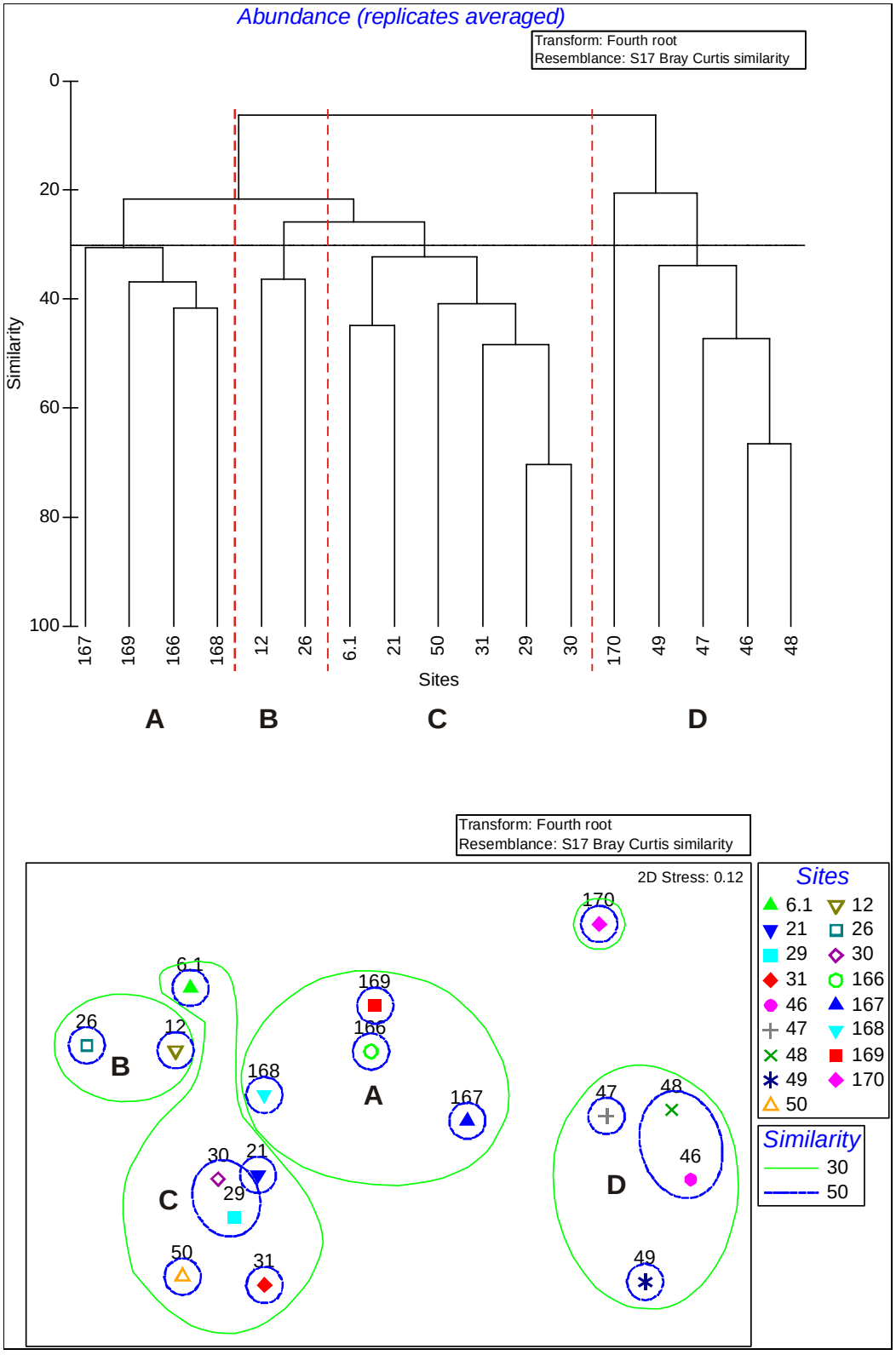

Figure 2a: *Dendrogram and MDS plot showing Bray-Curtis similarity of abundance between sample sites. A, B etc indicate groupings discussed in text.*

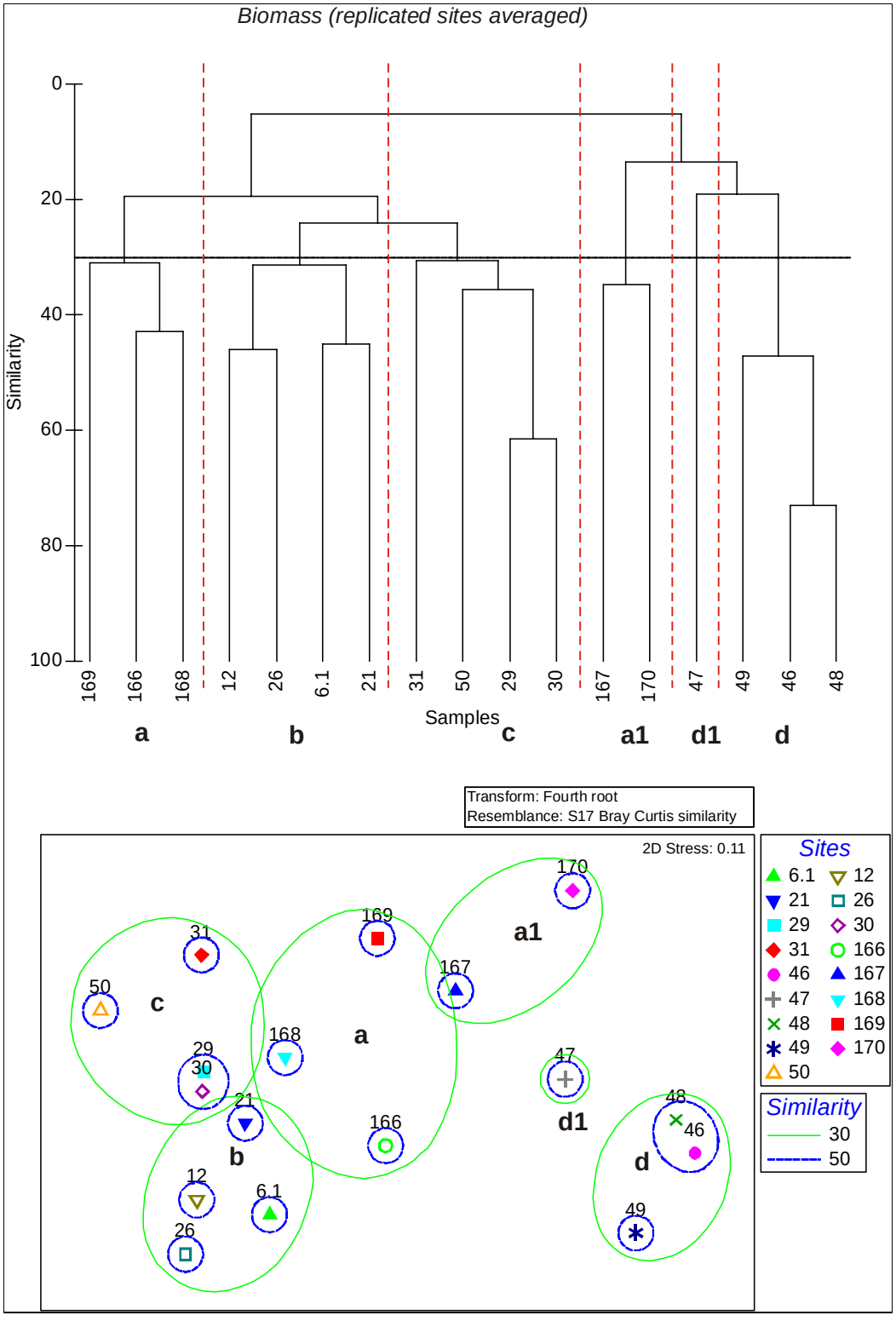

Figure 2b: *Dendrogram and MDS plot showing Bray-Curtis similarity of biomass between sample sites.*

4.4 BENTHIC MACROFAUNA DISTRIBUTIONS AT THE FISH FACTORY SITES

Benthic macrofauna samples were taken from two pairs of sites closely adjacent to the West and Sandy Point fish factories that discharge effluent into St Helena Bay (Figure 3). Note that site #170 in Stompneusbaai is not discussed further here as it has no comparison site adjacent to it.

Figure 3: *Sample sites adjacent to fish factory discharges at West Point (# 168 and 169) and Sandy Point (# 166 and 167).*

Generally in unpolluted, stable sediments there are many rare species and few numerically dominant ones while conversely, in polluted, or unstable sediments there are usually few rare species and species present are often abundant. Therefore plotting the number of species present against their abundances in geometrically increasing classes[1] should give characteristic curves for non-polluted and polluted sediments. Figure 4 shows an example of this for known organically polluted sites on a sewage sludge dumping ground in the Firth of Clyde UK compared to adjacent non-polluted sites.

[1] Geometric classes are 1 individual in class 1; 2-3 in class 2, 4-7 (class 3), 8-13 (class 4) etc.

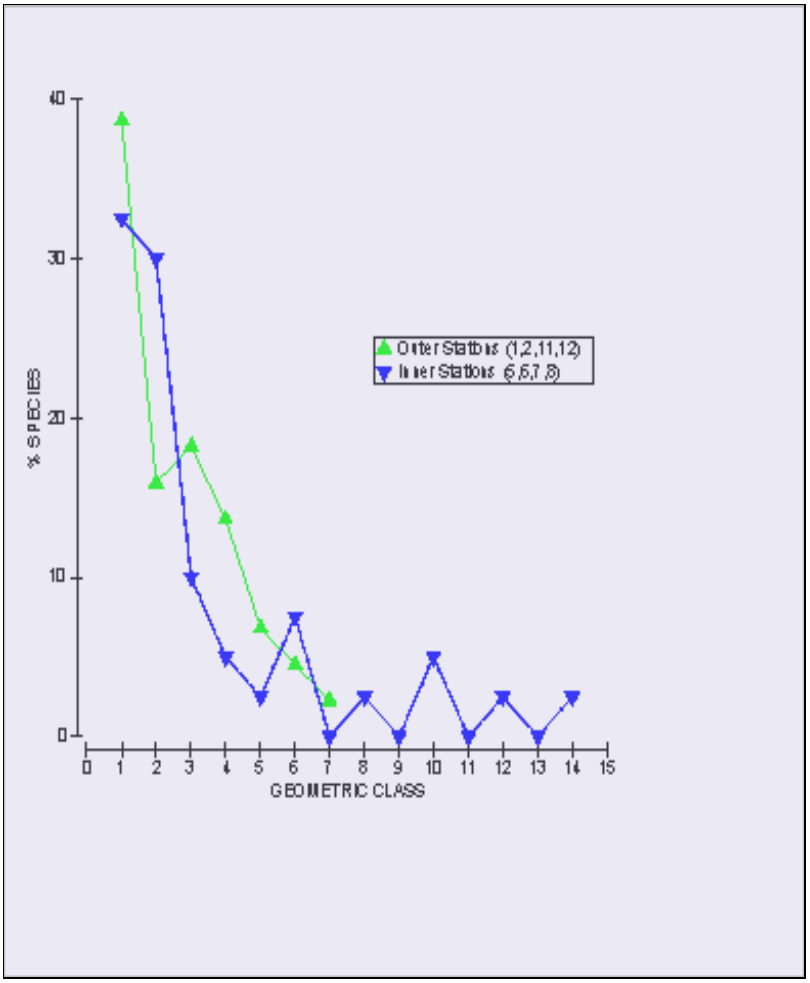

Figure 4: *Benthos taxon abundance distributions in geometric classes for sample sites on (blue), and adjacent (green) to, a sewage dump site in the Firth of Clyde (modified from Gray and Pearson 1982).*

The main feature of this distribution is that whereas the unpolluted samples are restricted to geometric class 7 polluted samples extend past class 10; i.e. a number of the taxa present support large numbers of individuals.

Figure 5 shows corresponding geometric class abundance plots for sites #166, 167, 168 and 169.

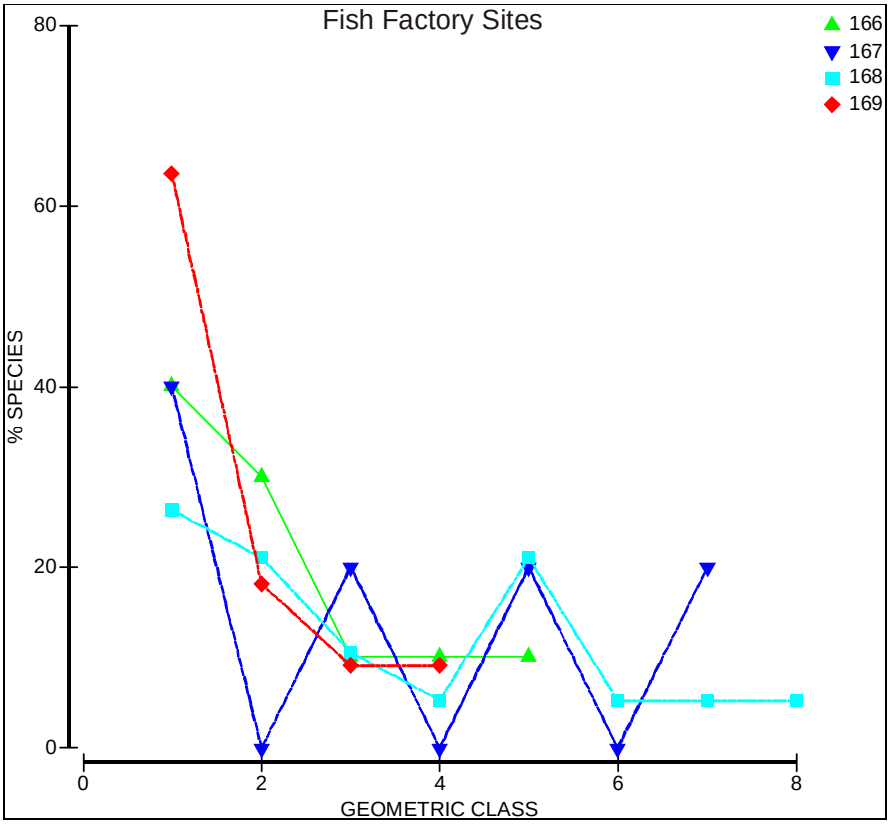

Figure 5: *Plots of x2 geometric species abundance classes for the four sampling sites adjacent to fish factory discharges in St Helena Bay. Site locations are shown in Figure 3.*

Figure 5 indicates that there are clear differences between the sites with #166 and #169 showing distributions characteristic of undisturbed sites and #167 and #168 showing signs of pollution effects.

4.5 TEMPORAL COMPARISONS OF BENTHIC MACROFAUNA

The data available for temporal comparisons comprise benthos count data from seven sites sampled in 2001 and 2007. Figure 6 shows the sample positions in St Helena Bay. Dendrograms showing sample affinities according to benthos abundances/taxon are displayed in Figure 7a and the corresponding MDS plot in Figure 7b.

Figures 7a and 7b show that the 2001 samples separate out from the 2007 samples at 50% similarity and that sample affinities within the 2001 set are higher than for the current samples.

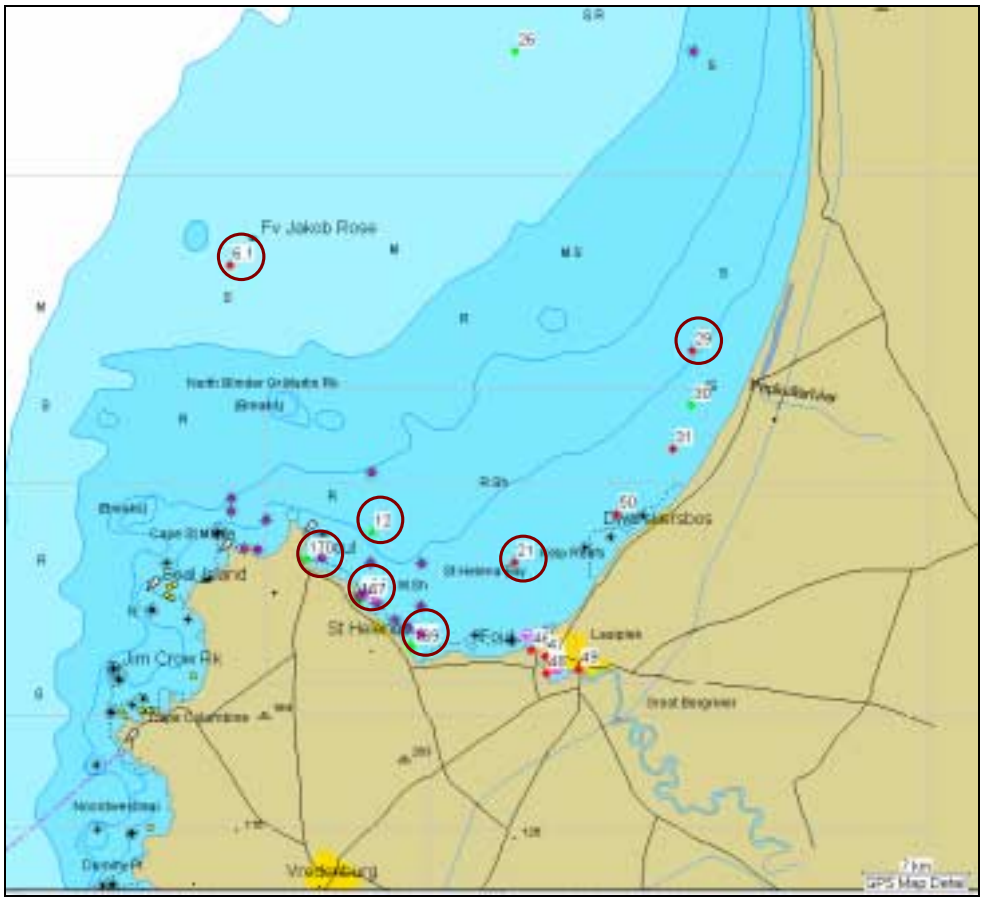

Figure 6: *Map of the sample sites (ringed) compared between the 2001 and 2007 benthos surveys*

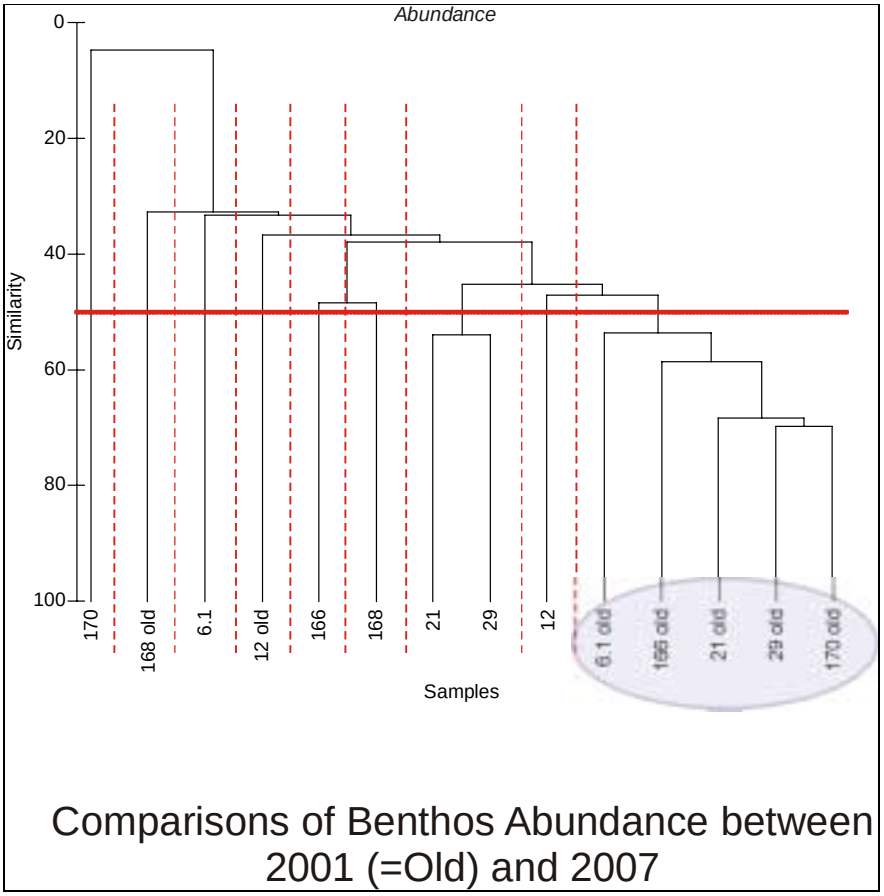

Figure 7a: *Dendrogram showing Bray-Curtis similarities in taxonomic abundances between samples taken in 2001 and 2007.*

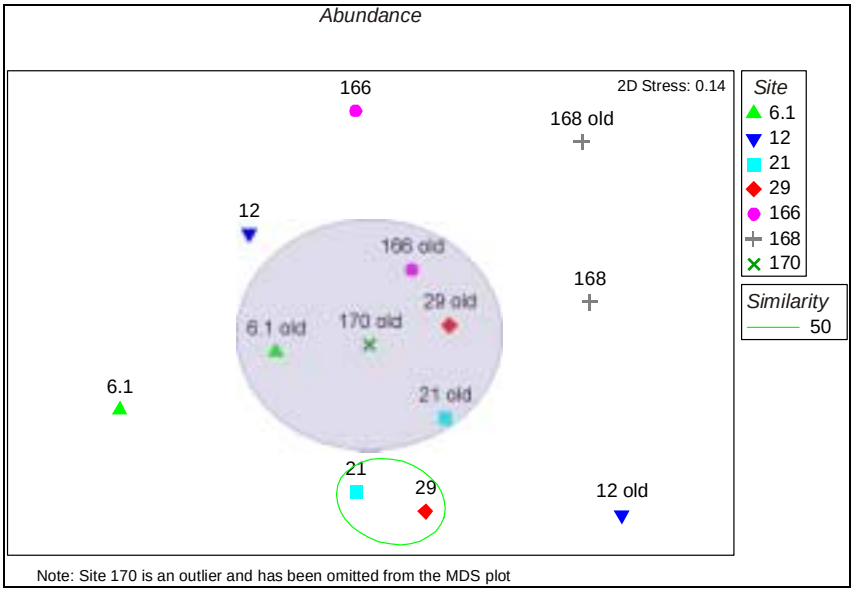

Figure 7b: *MDS plot showing Bray-Curtis similarities in taxonomic abundances between samples taken in 2001 and 2007.*

The taxa responsible for the sample differentiations have been identified by the *SIMPER* sub-routine in PRIMER and are listed in Table 5.

Table 5: Comparisons of the dominant taxa between the 2001 and 2007 benthos surveys

Sample site	Dominant taxa 2001	Dominant taxa 2007
6.1	Ampelisca, Mediomastus, Iphinoe, Lemboides, Sabellides	Centrathura, Tellina
12	Magelona	Ampelisca, Diopatra, Sabellides, Nassarius, Gammaropsis
21	Mediomastus, Magelona, Pherusa, Phaxas, Iphinoe	Magelona, Iphinoe, Holothuridae
29	Ampelisca, Lemboides, Phaxas, Anemone, Sabellides	Pherusa, Bodotridae
166	Ampelisca, Nassarius, Macoma, Magelona, Platynereis	Sabellides
168	Diopatra, Lumbrinereis	Magelona, Sabellides, Pectinaria, Prionospio, Nemertines, Ampelisca
170	Mediomastus, Ampelisca, Nassarius, Iphinoe, Magelona, Nephtys	Arenicola, Centrathura

Table 5 shows that crustaceans amphipods such as *Ampelisca* and *Iphinoe* contribute to the temporal differentiation between the two surveys, these taxa being more abundant in 2001 than they were in the 2007 survey. This appears to be a bay wide phenomenon as the differences extended to the deepest site samples, #6.1 in the centre of St Helena Bay (Figure 6). Amphipods are known to be relatively intolerant of organic pollution as they occur more commonly in oxic sands than in organically loaded and sometimes anoxic muddy sediments (Warwick and Clarke 1993).

5. CONCLUSIONS AND RECOMMENDATIONS

The overall findings of the 2007 'State of St Helena Bay' investigation into benthos distributions can be summarized in four main points:

- The dominant taxa recorded are those expected to occur in inner continental shelf sediments off the Cape coast
- Samples were weakly geographically grouped but these were consistent with the different habitats known to be present in St Helena Bay

- Samples closely adjacent to fish factory discharges showed evidence of pollution stress. These effects were generally limited to within 100m – 200m distance from the discharges, and
- There were differences between the previous 'State of St Helena Bay' survey conducted in 2001 and the current survey; amphipod crustaceans being more numerically dominant in the former survey. This may be indicative of increased organic loading with time but, as the differences were also evident in the offshore areas of the bay; this may be a response to natural as opposed to anthropogenic processes.

The recommendations that arise from the 2007 survey are:

- These surveys should be continued to further develop the time series of measurements that is being established for St Helena Bay; such data are the cornerstone of timeously detecting anthropogenic effects on natural systems
- Some changes to the spatial and temporal sampling coverage around specifically the fish factory discharge sites should be considered. This is especially important for detecting any benefits that may be generated from effluent improvement initiatives, and
- The potential large scale effects on sediment supply to the bay system as a result of dam construction on the Berg River should be addressed in future 'State of the Bay' surveys. Any such effects are probably unlikely to become manifest in the short to medium term (<5 - 10 years) but may have important consequences for the biogeochemical functioning of the system if they do.

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APPENDIX 1: BENTHIC MACROFAUNA COUNTS (per sample)

Abundance (No/0.1m2)	Sample Reference																					
	6.1	21	29	31	46	47	48	49	50	12	12	12	26	26	26	30	30	30	30	31	166	166
ISOPODA																						
Centrathura caeca	2	5	7	1	0	1	0	0	0	1	1	4	0	0	0	26	10	2	8	35	0	0
Sphaeromatidae, Hemibranchiatae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Synidotea hirtipes	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
AMPHIPODA																						
Paramoera capensis	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	0	1	1	1	0	0
Perioculodes longimanus	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Perioculodes pallidus	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
Chorophiidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gammaropsis afra	0	0	0	0	0	0	0	0	0	9	4	13	0	0	0	0	0	0	0	0	0	0
Ampelisca spinimana	0	2	0	0	0	0	0	0	0	60	61	98	0	0	0	0	0	0	0	0	0	1
Ampelisca anomala	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	3
Bathyporeia sp.	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Urothoe grimaldii	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
Photis longimanus	0	0	0	0	0	0	0	0	0	1	4	2	0	0	0	0	0	0	0	0	0	1
Photis longidactylus	0	0	0	0	0	0	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0
***Maera* spp.**	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
***Melita* spp.**	0	2	1	1	0	0	0	1	0	0	4	0	0	0	0	0	1	0	0	0	0	0
Lysianassa ceratina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grandidierella lutosa	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Atylus guttatus	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	1	0	0	0
Listriella lindae	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CUMACEA																						
Iphinoe spp.	0	3	4	4	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	1	0	0
Bodotriidae	0	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
ANEMONE																						
Anemone A	2	6	31	0	0	0	0	0	2	19	28	33	0	0	0	12	18	21	25	40	0	1
Anemone B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MYSIDACEA																						
Mysidacea	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DECAPODA																						
Callianassa kraussi	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Upogebia africana	0	0	0	0	5	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hymenosoma orbiculare	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
BIVALVIA																						
***Macoma* spp.**	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Phaxas decipens	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	11
Venerupis corrugata	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Tellina gilchristi	2	0	0	0	0	0	0	0	0	25	41	48	25	21	24	0	1	0	0	0	0	1
Dosinia lupinus orbignyi	0	0	0	0	0	0	0	0	0	4	2	3	2	1	3	1	0	0	0	0	0	0
Choromytilus meridionalis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GASTROPODA																						
Nassarius spp.	15	13	0	0	0	0	0	0	0	32	1	37	27	39	4	0	0	0	0	0	0	0

APPENDIX 1 (cont)

Abundance (No/0.1m2)	Sample Reference																					
	166	166	167	167	167	167	167	168	168	168	168	168	169	169	169	169	169	170	170	170	170	171
ISOPODA																						
Centrathura caeca	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sphaeromatidae, Hemibranchiatae	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0
Synidotea hirtipes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
AMPHIPODA																						
Paramoera capensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Perioculodes longimanus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Perioculodes pallidus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chorophiidae	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Gammaropsis afra	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ampelisca spinimana	0	0	0	0	0	0	0	0	6	5	0	6	0	0	0	0	0	0	0	0	0	0
Ampelisca anomala	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	2	0	0	0	0
Bathyporeia sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Urothoe grimaldii	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Photis longimanus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Photis longidactylus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maera spp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Melita spp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lysianassa ceratina	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	4	1	6	0	0	0	0
Grandidierella lutosa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Atylus guttatus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Listriella lindae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CUMACEA																						
Iphinoe spp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bodotriidae	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0
ANEMONE																						
Anemone A	0	0	0	0	0	0	0	0	0	0	27	74	32	3	0	0	0	0	0	0	0	0
Anemone B	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
MYSIDACEA																						
Mysidacea	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
DECAPODA																						
Callianassa kraussi	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0
Upogebia africana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hymenosoma orbiculare	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0	0	0	0
BIVALVIA																						
Macoma spp.	0	0	0	0	0	0	0	0	58	1	57	24	0	0	0	0	3	0	0	0	0	0
Phaxas decipens	1	0	0	0	0	0	0	0	0	0	1	11	1	0	0	0	0	0	0	0	0	0
Venerupis corrugata	0	0	0	0	1	0	0	0	0	0	0	1	1	4	0	2	2	0	0	0	0	0
Tellina gilchristi	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0
Dosinia lupinus orbignyi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Choromytilus meridionalis	0	0	0	0	0	0	0	0	0	0	0	0	0	23	0	11	3	4	0	0	0	0
GASTROPODA																						
Nassarius spp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX 1 (cont)

Abundance (No/0.1m2)	Sample Reference																					
	6.1	21	29	31	46	47	48	49	50	12	12	12	26	26	26	30	30	30	30	31	166	166
Bullia laevissima	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
Crepidula spp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nucella cingulata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NEMERTEA																						
Nemertea	0	4	0	0	0	0	0	0	4	0	0	0	1	0	0	0	3	0	3	1	0	0
HOLOTHUROIDEA																						
Holothuroidea	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PENNATULACEA																						
Virgularia schultzei	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
POLYCHAETA																						
Cirratulidae	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cirriformia tentaculata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diopatra monroi	5	2	2	0	0	0	0	0	0	94	43	73	0	0	0	0	0	0	0	0	6	4
Dorvillea rudolphi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drilonereis monroi	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Glycera convoluta	0	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
Spionidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boccardia polybranchia	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prionospio pinnata	0	0	0	0	0	0	0	0	0	0	0	0	64	30	31	0	0	0	0	0	0	0
Prionospio sexoculata	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	58
Prionospio saldanha	0	0	1	15	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	5	0	0
Nerinides gilchristi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mediomastus capensis	0	0	4	0	0	0	0	0	1	6	1	1	231	107	116	92	1	3	4	7	0	25
Capitella capitata	0	0	0	0	76	49	32	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nephtys hombergi	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	5	5	0	5
Nephtys sphaerocirrata	3	6	37	5	0	0	0	0	2	5	3	3	10	10	17	3	10	7	8	3	0	2
Orbinia angrapequensis	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
Magelona **spp.**	0	3	5	5	0	0	0	0	14	0	0	0	0	0	0	0	36	4	8	33	0	0
Arenicola loveni	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pectinaria capensis	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Syllidia armata	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3
Aricidea longiobranchiata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nereis **spp.**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ceratonereis erythraeensis	0	0	0	0	30	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lumbrineris heteropoda difficilis	0	0	1	0	0	0	0	0	0	3	4	5	2	4	0	3	0	1	2	0	0	0
Lumbrineris meteroana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Amphicteis gunneri	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Sabellides luderitzi	0	0	0	3	0	0	0	0	0	97	15	26	0	0	0	0	1	0	0	2	0	38
Harmothoe **spp.**	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Paraonidae	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
Ancistrosyllis **spp.**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pherusa swakopiana	0	0	11	0	0	0	0	0	0	0	0	1	0	0	0	2	7	5	2	6	0	0
Terebellidae	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Terebella pterochaeta	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OLIGOCHAETA																						
Oligochaeta	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX 1 (cont)

Abundance (No/0.1m2)	Sample Reference																					
	166	166	167	167	167	167	167	168	168	168	168	168	169	169	169	169	169	170	170	170	170	171
Bullia laevissima	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Crepidula spp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
Nucella cingulata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
NEMERTEA																						
Nemertea	0	0	0	0	0	0	0	0	6	8	5	25	22	2	0	0	0	0	0	0	0	0
HOLOTHUROIDEA																						
Holothuroidea	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
PENNATULACEA																						
Virgularia schultzei	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
POLYCHAETA																						
Cirratulidae	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	5	0	2	0
Cirriformia tentaculata	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0
Diopatra monroi	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
Dorvillea rudolphi	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Drilonereis monroi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Glycera convoluta	0	0	0	0	0	0	0	1	2	2	0	6	4	1	0	0	0	0	0	0	0	0
Spionidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Boccardia polybranchia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prionospio pinnata	0	0	0	0	3	0	0	2	209	135	8	8	0	0	0	0	0	0	0	0	0	0
Prionospio sexoculata	44	9	6	3	31	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prionospio saldanha	0	0	0	0	0	0	0	0	0	27	1	1	0	0	0	0	0	0	0	0	0	0
Nerinides gilchristi	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Mediomastus capensis	2	1	1	2	79	2	5	12	340	225	27	243	32	9	1	0	3	0	0	0	0	0
Capitella capitata	0	0	15	35	231	89	62	68	0	0	0	0	0	7	0	0	0	0	0	0	3	0
Nephtys hombergi	2	0	0	0	0	0	0	0	1	1	6	3	0	0	0	0	1	0	0	0	0	0
Nephtys sphaerocirrata	0	0	0	0	0	0	0	0	8	12	3	0	0	0	0	0	0	0	0	0	0	0
Orbinia angrapequensis	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
***Magelona* spp.**	0	0	0	2	0	0	0	0	37	61	53	34	30	3	0	0	0	0	0	0	0	0
Arenicola loveni	0	0	0	0	1	0	0	1	0	1	1	0	0	6	0	0	0	0	7	1	3	0
Pectinaria capensis	0	0	0	0	0	0	0	0	28	7	31	32	0	0	0	0	0	0	0	0	0	0
Syllidia armata	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
Aricidea longiobranchiata	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
***Nereis* spp.**	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	0
Ceratonereis erythraeensis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lumbrineris heteropoda difficilis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lumbrineris meteroana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Amphicteis gunneri	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sabellides luderitzi	1	0	0	0	0	0	0	0	60	60	2	0	0	1	0	0	0	0	0	0	0	0
***Harmothoe* spp.**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paraonidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
***Ancistrosyllis* spp.**	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pherusa swakopiana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Terebellidae	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0
Terebella pterochaeta	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
OLIGOCHAETA																						
Oligochaeta	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX 2: BENTHIC MACROFAUNA BIOMASS (g/0.1m^2)

Biomass (g/0.1m2)

Sample ReferenceE	6.1	21	29	31	46	47	48	49	50	12.1	26.1	26.2
ISOPODA												
Centrathura caeca	0.0413	0.0778	0.0677	0.0402	0.0000	0.0086	0.0000	0.0000	0.0000	10.0116	0.0000	0.0000
Sphaeromatidae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Synidotea hirtipes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0015	0.0000	0.0000	0.0000
AMPHIPODA												
Paramoera capensis	0.0000	0.0000	0.0019	0.0000	0.0000	0.0000	0.0016	0.0000	0.0000	0.0000	0.0000	0.0000
Perioculodes longimanus	0.0000	0.0000	0.0000	0.0042	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Perioculodes pallidus	0.0000	0.0000	0.0013	0.0037	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Chorophiidae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Gammaropsis afra	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0103	0.0000	0.0000
Ampelisca spinimana	0.0000	0.0025	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1073	0.0000	0.0000
Ampelisca anomala	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0054	0.0000	0.0000
Bathyporeia sp.	0.0000	0.0000	0.0000	0.0018	0.0000	0.0000	0.0000	0.0000	0.0028	0.0000	0.0000	0.0000
Urothoe grimaldii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0000	0.0000	0.0000
Photis longimanus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0023	0.0000	0.0000
Photis longidactylus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000
***Maera* spp.**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
***Melita* spp.**	0.0000	0.0034	0.0020	0.0005	0.0000	0.0000	0.0000	0.0025	0.0000	0.0000	0.0000	0.0000
Lysianassa ceratina	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Grandidierella lutosa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0070	0.0000	0.0000	0.0000	0.0000
Atylus guttatus	0.0000	0.0000	0.0164	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Listriella lindae	0.0000	0.0414	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CUMACEA												
Iphinoe spp.	0.0000	0.0077	0.0107	0.0102	0.0000	0.0000	0.0000	0.0000	0.0043	0.0000	0.0000	0.0000
Bodotriidae	0.0000	0.0000	0.0004	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ANEMONE												
Anemone A	0.1172	1.6209	4.2656	0.0000	0.0000	0.0000	0.0000	0.0000	0.4597	3.5442	0.0000	0.0000
Anemone B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
MYSIDACEA												
Mysidacea	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
DECAPODA												
Callianassa kraussi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0388	0.0000	0.0000	0.0000	0.0000
Upogebia africana	0.0000	0.0000	0.0000	0.0000	10.3654	0.0000	9.4852	0.6902	0.0000	0.0000	0.0000	0.0000
Hymenosoma orbiculare	0.0000	0.0000	0.0000	0.0000	0.0000	3.1571	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BIVALVIA												
***Macoma* spp.**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Phaxas decipens	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Venerupis corrugata	0.0000	6.6775	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tellina gilchristi	0.2601	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	31.7368	12.9016	11.0384
Dosinia lupinus orbignyi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2910	2.6933	1.4507
Choromytilus meridionalis	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
GASTROPODA												
Nassarius spp.	3.4486	3.0595	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	6.2201	4.3815	7.5238
Bullia laevissima	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0704	0.0000	0.0000	0.0000
Crepidula spp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Nucella cingulata	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

APPENDIX 2 (cont)

Biomass (g/0.1m2)

Sample Reference	6.1	21	29	31	46	47	48	49	50	12.1	26.1	26.2
Nemertea	0.0000	0.3865	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0576	0.0000	4.3248	0.0000
HOLOTHUROIDEA												
Holothuroidea	0.0000	0.7070	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
PENNATULACEA												
Virgularia schultzei	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3697	0.0000	0.0000	0.0000
POLYCHAETA												
Cirratulidae	0.0138	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Cirriformia tentaculata	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diopatra monroi	0.6037	0.3515	0.0858	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	16.9895	0.0000	0.0000
Dorvillea rudolphi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Drilonereis monroi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.8813
Glycera convoluta	0.0000	0.6267	0.0469	1.6135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Spionidae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Boccardia polybranchia	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0088	0.0000	0.0000	0.0000	0.0000
Prionospio pinnata	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.9127	3.1213
Prionospio sexoculata	0.0000	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Prionospio saldanha	0.0000	0.0000	0.0002	0.0543	0.0000	0.0000	0.0000	0.0000	0.0039	0.0000	0.0000	0.0000
Nerinides gilchristi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mediomastus capensis	0.0000	0.0000	0.0102	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0492	2.1885	1.0689
Capitella capitata	0.0000	0.0000	0.0000	0.0000	2.3367	0.2796	0.0921	0.0074	0.0000	0.0000	0.0000	0.0000
Nephtys hombergi	0.8734	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Nephtys sphaerocirrata	0.0477	0.0425	0.1649	0.0140	0.0000	0.0000	0.0000	0.0000	0.0027	0.0162	0.0542	0.0555
Orbinia angrapequensis	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0928	0.0000	0.0000	0.0000
***Magelona* spp.**	0.0000	0.0046	0.0126	0.0116	0.0000	0.0000	0.0000	0.0000	0.0312	0.0000	0.0000	0.0000
Arenicola loveni	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pectinaria capensis	0.0000	0.0000	0.0000	0.0295	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Syllidia armata	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
Aricidea longiobranchiata	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
***Nereis* spp.**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Ceratonereis erythraeensis	0.0000	0.0000	0.0000	0.0000	0.3630	0.0000	0.0000	0.0606	0.0000	0.0000	0.0000	0.0000
Lumbrineris heteropoda	0.0000	0.0000	1.6672	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.2567	2.3237	2.4760
Lumbrineris meteroana	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Amphicteis gunneri	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0068	0.0000
Sabellides luderitzi	0.0000	0.0000	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.3901	0.0000	0.0000
***Harmothoe* spp.**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paraonidae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0156	0.0000	0.0000
***Ancistrosyllis* spp.**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pherusa swakopiana	0.0000	0.0000	3.0889	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Terebellidae	0.0000	0.0000	0.0000	0.0038	0.0000	0.0000	0.0000	0.0000	0.0000	0.0035	0.0000	0.0000
Terebella pterochaeta	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
OLIGOCHAETA												
Oligochaeta	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000

APPENDIX 2 (cont)

Biomass (g/0.1m2)

Sample Reference	26.3	30.1	30.2	30.3	30.4	30.5	166.1	166.2	166.3
ISOPODA									
Centrathura caeca	0.0000	0.6274	0.1529	0.0306	0.1616	0.6310	0.0000	0.0000	0.0000
Sphaeromatidae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Synidotea hirtipes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AMPHIPODA									
Paramoera capensis	0.0000	0.0048	0.0000	0.0014	0.0005	0.0047	0.0000	0.0000	0.0000
Perioculodes longimanus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Perioculodes pallidus	0.0000	0.0000	0.0024	0.0000	0.0000	0.0007	0.0000	0.0000	0.0000
Chorophiidae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Gammaropsis afra	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Ampelisca spinimana	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0019	0.0000
Ampelisca anomala	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0090	0.0000
Bathyporeia sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Urothoe grimaldii	0.0000	0.0000	0.0042	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Photis longimanus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0013	0.0000
Photis longidactylus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
***Maera* spp.**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
***Melita* spp.**	0.0000	0.0000	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Lysianassa ceratina	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Grandidierella lutosa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Atylus guttatus	0.0000	0.0224	0.0000	0.0005	0.0003	0.0000	0.0000	0.0000	0.0000
Listriella lindae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CUMACEA									
Iphinoe spp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0034	0.0000	0.0000	0.0000
Bodotriidae	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000
ANEMONE									
Anemone A	0.0000	16.3904	5.8335	7.0847	5.7135	9.0419	0.0000	0.2131	0.0000
Anemone B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
MYSIDACEA									
Mysidacea	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
DECAPODA									
Callianassa kraussi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.8658	0.0000
Upogebia africana	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hymenosoma orbiculare	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.0574	0.0000	0.0000
BIVALVIA									
***Macoma* spp.**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Phaxas decipens	0.0000	0.0000	0.0000	0.9537	0.0000	0.0000	0.0000	1.6876	0.2267
Venerupis corrugata	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	9.2916	0.0000
Tellina gilchristi	13.7849	0.0000	0.0106	0.0000	0.0000	0.0000	0.0000	1.8057	0.0000
Dosinia lupinus orbignyi	7.3073	12.9028	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Choromytilus meridionalis	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
GASTROPODA									
Nassarius spp.	0.7228	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Bullia laevissima	0.0000	0.0000	0.0000	0.0000	4.3164	0.0000	0.0000	0.0000	0.0000
Crepidula spp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Nucella cingulata	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

APPENDIX 2 (cont)

Biomass (g/0.1m2)

Sample Reference	26.3	30.1	30.2	30.3	30.4	30.5	166.1	166.2	166.3
Nemertea	0.0000	0.0000	0.0409	0.0000	0.0872	0.1108	0.0000	0.0000	0.0000
HOLOTHUROIDEA									
Holothuroidea	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
PENNATULACEA									
Virgularia schultzei	0.0000	2.5534	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
POLYCHAETA									
Cirratulidae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Cirriformia tentaculata	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diopatra monroi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5.9431	1.2187	0.0000
Dorvillea rudolphi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Drilonereis monroi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Glycera convoluta	0.0000	0.0000	0.6110	0.0000	0.5440	0.0000	0.0000	0.0000	0.0000
Spionidae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Boccardia polybranchia	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Prionospio pinnata	2.3665	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Prionospio sexoculata	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0530	0.2827	0.4504
Prionospio saldanha	0.0000	0.0000	0.0022	0.0000	0.0000	0.0128	0.0000	0.0000	0.0000
Nerinides gilchristi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mediomastus capensis	0.9287	0.1405	0.0004	0.0040	0.0060	0.0059	0.0000	0.1026	0.0114
Capitella capitata	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Nephtys hombergi	0.0000	0.1015	0.0323	0.3983	1.8367	1.8590	0.0000	0.2780	0.1001
Nephtys sphaerocirrata	0.0514	0.0183	0.0365	0.0292	0.0247	0.0185	0.0000	0.0039	0.0000
Orbinia angrapequensis	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
***Magelona* spp.**	0.0000	0.0000	0.1246	0.0086	0.0246	0.0756	0.0000	0.0000	0.0000
Arenicola loveni	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pectinaria capensis	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Syllidia armata	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0043	0.0000
Aricidea longiobranchiata	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
***Nereis* spp.**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Ceratonereis erythraeensis	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Lumbrineris heteropoda	0.0000	1.8827	0.0000	0.9202	1.5910	0.0000	0.0000	0.0000	0.0000
Lumbrineris meteroana	0.0166	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Amphicteis gunneri	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sabellides luderitzi	0.0000	0.0000	0.0045	0.0000	0.0000	0.0047	0.0000	1.1066	0.0139
***Harmothoe* spp.**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paraonidae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
***Ancistrosyllis* spp.**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pherusa swakopiana	0.0000	1.1332	2.6787	2.1505	0.8134	2.9871	0.0000	0.0000	0.0000
Terebellidae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Terebella pterochaeta	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
OLIGOCHAETA									
Oligochaeta	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

APPENDIX 2 (cont)

Biomass (g/0.1m2)

Sample Reference	167.1	167.5	168.1	168.2	168.3	168.4	168.5	169.1	169.2
ISOPODA									
Centrathura caeca	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sphaeromatidae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1135	0.0000
Synidotea hirtipes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AMPHIPODA									
Paramoera capensis	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Perioculodes longimanus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Perioculodes pallidus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Chorophiidae	0.0000	0.0000	0.0000	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000
Gammaropsis afra	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Ampelisca spinimana	0.0000	0.0000	0.0196	0.0148	0.0000	0.0237	0.0000	0.0000	0.0000
Ampelisca anomala	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	0.0000	0.0000	0.0000
Bathyporeia sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Urothoe grimaldii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Photis longimanus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Photis longidactylus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
***Maera* spp.**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
***Melita* spp.**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Lysianassa ceratina	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3146	0.0000
Grandidierella lutosa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Atylus guttatus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Listriella lindae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CUMACEA									
Iphinoe spp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Bodotriidae	0.0000	0.0000	0.0000	0.0042	0.0000	0.0000	0.0013	0.0000	0.0000
ANEMONE									
Anemone A	0.0000	0.0000	0.0000	0.0000	11.3149	26.3137	10.8277	0.0185	0.0000
Anemone B	0.0000	0.0000	0.3846	1.1742	0.0000	0.0000	0.0000	0.0000	0.0000
MYSIDACEA									
Mysidacea	0.0000	0.0000	0.0000	0.0000	0.0084	0.0000	0.0000	0.0000	0.0000
DECAPODA									
Callianassa kraussi	0.0000	0.0000	0.0000	0.0000	4.9971	9.8250	0.0000	0.0000	0.0000
Upogebia africana	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hymenosoma orbiculare	0.0000	0.0000	0.0000	0.4907	0.0000	0.0000	0.0000	1.9743	0.0000
BIVALVIA									
***Macoma* spp.**	0.0000	0.0000	1.6015	1.0925	1.3318	1.2485	0.0000	0.0000	0.0000
Phaxas decipens	0.0000	0.0000	0.0000	0.0000	0.0239	3.4285	1.5496	0.0000	0.0000
Venerupis corrugata	0.0000	0.0000	0.0000	0.0000	0.0000	1.9717	3.3217	3.4921	0.0000
Tellina gilchristi	0.0000	0.0000	0.0854	0.0000	0.0392	0.0000	0.0000	0.0000	0.0000
Dosinia lupinus orbignyi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Choromytilus meridionalis	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
GASTROPODA									
Nassarius spp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Bullia laevissima	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Crepidula spp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Nucella cingulata	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

APPENDIX 2 (cont)

Biomass (g/0.1m2)

Sample Reference	167.1	167.5	168.1	168.2	168.3	168.4	168.5	169.1	169.2
Nemertea	0.0000	0.0000	0.7870	0.6413	0.3201	2.6167	1.3410	0.0447	0.0000
HOLOTHUROIDEA									
Holothuroidea	0.0000	0.0000	0.0000	0.0175	0.0000	0.0000	0.0000	0.0120	0.0000
PENNATULACEA									
Virgularia schultzei	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
POLYCHAETA									
Cirratulidae	0.0000	0.0000	0.0000	0.3959	0.0344	0.0000	0.1431	0.0000	0.0000
Cirriformia tentaculata	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diopatra monroi	0.0000	0.0000	0.0000	0.0000	0.0000	0.4517	0.0000	0.0000	0.0000
Dorvillea rudolphi	0.0000	0.0000	0.0076	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Drilonereis monroi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Glycera convoluta	0.0000	0.1224	0.1483	0.1732	0.0000	2.4205	1.0607	0.0462	0.0000
Spionidae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Boccardia polybranchia	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Prionospio pinnata	0.0000	0.0131	1.1977	0.5598	0.0328	0.0424	0.0000	0.0000	0.0000
Prionospio sexoculata	0.0246	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Prionospio saldanha	0.0000	0.0000	0.0000	0.0157	0.0007	0.0020	0.0000	0.0000	0.0000
Nerinides gilchristi	0.0000	0.0000	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mediomastus capensis	0.0061	0.0468	6.6295	1.8572	0.2167	2.3996	0.1480	0.0337	0.0032
Capitella capitata	0.2840	0.6250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0637	0.0000
Nephtys hombergi	0.0000	0.0000	0.0558	0.3621	1.3927	0.9797	0.0000	0.0000	0.0000
Nephtys sphaerocirrata	0.0000	0.0000	0.0383	0.0406	0.0184	0.0000	0.0000	0.0000	0.0000
Orbinia angrapequensis	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1330	0.0000	0.0000
***Magelona* spp.**	0.0111	0.0000	0.3273	0.4475	0.4738	0.6763	0.3558	0.0526	0.0000
Arenicola loveni	0.0000	3.7324	0.0000	0.6516	0.3650	0.0000	0.0000	2.2250	0.0000
Pectinaria capensis	0.0000	0.0000	15.5240	1.9910	39.2680	49.2250	0.0000	0.0000	0.0000
Syllidia armata	0.0000	0.0000	0.0015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Aricidea longiobranchiata	0.0000	0.0000	0.0000	0.0130	0.0000	0.0000	0.0000	0.0000	0.0000
***Nereis* spp.**	0.0000	0.0000	0.0000	0.0000	0.0011	0.0000	0.0000	0.0000	0.0000
Ceratonereis erythraeensis	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Lumbrineris heteropoda	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Lumbrineris meteroana	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Amphicteis gunneri	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sabellides luderitzi	0.0000	0.0000	2.7160	1.6860	0.0392	0.0000	0.0000	0.0069	0.0000
***Harmothoe* spp.**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paraonidae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
***Ancistrosyllis* spp.**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pherusa swakopiana	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Terebellidae	0.0000	0.0000	0.1572	0.1674	0.0000	0.0000	0.0000	0.0000	0.0000
Terebella pterochaeta	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
OLIGOCHAETA									
Oligochaeta	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

APPENDIX 2 (cont)

Biomass (g/0.1m2)

Sample Reference	169.3	169.4	169.5	170.2	170.3	170.4	170.5
ISOPODA							
Centrathura caeca	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sphaeromatidae	0.0000	0.0000	0.0000	0.0053	0.0000	0.0613	0.0000
Synidotea hirtipes	0.0000	0.1559	0.0000	0.0000	0.0000	0.0000	0.0000
AMPHIPODA							
Paramoera capensis	0.0000	0.0000	0.0000	0.0041	0.0000	0.0000	0.0000
Perioculodes longimanus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Perioculodes pallidus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Chorophiidae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Gammaropsis afra	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Ampelisca spinimana	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Ampelisca anomala	0.0000	0.0000	0.0049	0.0000	0.0000	0.0000	0.0000
Bathyporeia sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Urothoe grimaldii	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Photis longimanus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Photis longidactylus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
***Maera* spp.**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
***Melita* spp.**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Lysianassa ceratina	0.1462	0.0001	0.2160	0.0000	0.0000	0.0000	0.0000
Grandidierella lutosa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Atylus guttatus	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Listriella lindae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CUMACEA							
Iphinoe spp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Bodotriidae	0.0000	0.0027	0.0000	0.0000	0.0000	0.0000	0.0000
ANEMONE							
Anemone A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Anemone B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
MYSIDACEA							
Mysidacea	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
DECAPODA							
Callianassa kraussi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Upogebia africana	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hymenosoma orbiculare	0.0000	0.0000	3.4395	0.0000	0.0000	0.0000	0.0000
BIVALVIA							
***Macoma* spp.**	0.0000	0.1211	0.0000	0.0000	0.0000	0.0000	0.0000
Phaxas decipens	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Venerupis corrugata	5.9747	3.1262	0.0000	0.0000	0.0000	0.0000	0.0000
Tellina gilchristi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Dosinia lupinus orbignyi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Choromytilus meridionalis	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
GASTROPODA							
Nassarius spp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Bullia laevissima	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Crepidula spp.	0.0000	0.0000	0.0271	0.0000	0.0000	0.0000	0.0000
Nucella cingulata	0.0000	0.0000	7.9038	0.0000	0.0000	0.0000	0.0000

APPENDIX 2 (cont)

Biomass (g/0.1m2)

Sample Reference	169.3	169.4	169.5	170.2	170.3	170.4	170.5
Nemertea	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
HOLOTHUROIDEA							
Holothuroidea	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
PENNATULACEA							
Virgularia schultzei	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
POLYCHAETA							
Cirratulidae	0.0000	0.0000	0.0000	0.0046	0.0000	0.0025	0.0000
Cirriformia tentaculata	0.0000	0.2927	0.0010	0.0000	0.0000	0.0000	0.0000
Diopatra monroi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Dorvillea rudolphi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Drilonereis monroi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Glycera convoluta	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Spionidae	0.0000	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000
Boccardia polybranchia	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Prionospio pinnata	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Prionospio sexoculata	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Prionospio saldanha	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Nerinides gilchristi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mediomastus capensis	0.0000	0.0089	0.0000	0.0000	0.0000	0.0000	0.0000
Capitella capitata	0.0000	0.0000	0.0000	0.0000	0.0000	0.0193	0.0000
Nephtys hombergi	0.0000	0.0203	0.0000	0.0000	0.0000	0.0000	0.0000
Nephtys sphaerocirrata	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Orbinia angrapequensis	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
***Magelona* spp.**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Arenicola loveni	0.0000	0.0000	0.0000	16.8788	2.2035	12.1964	0.0000
Pectinaria capensis	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Syllidia armata	0.0000	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000
Aricidea longiobranchiata	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
***Nereis* spp.**	0.0000	0.0000	0.1887	0.0000	0.0000	0.0000	0.0000
Ceratonereis erythraeensis	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Lumbrineris heteropoda	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Lumbrineris meteroana	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Amphicteis gunneri	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sabellides luderitzi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
***Harmothoe* spp.**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paraonidae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
***Ancistrosyllis* spp.**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pherusa swakopiana	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Terebellidae	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Terebella pterochaeta	0.0000	0.0000	0.0814	0.0000	0.0000	0.0000	0.0000
OLIGOCHAETA							
Oligochaeta	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000