Environmental Survey Beneath Finfish pens at Deenish, Kenmare Bay

August 2014

Produced by

AQUAFACT International Services Ltd

On behalf of

Marine Harvest Ireland

Issued September 2014

AQUAFACT INTERNATIONAL SERVICES Ltd.
12 KILKERRIN PARK
TUAM ROAD
GALWAY CITY
www.aquafact.ie

info@aquafact.ie

tel +353 (0) 91 756812
fax +353 (0) 91 756888

Table of Contents

List of Figures

List of Tables

Appendices

1. Executive Summary

AQUAFACT surveyed 9 stations at the Deenish fish farm site on the 7th August 2014 for faunal and sediment analyses.

Redox potential values met the standard of >0 mV at all stations except stations S5 and S2 (replicate A). Shannon Weiner diversity values met the standard of >3 at 6 of the stations, with stations S1, S4 and S5 returning values below the standard. AMBI scores met the standard of ≤3.3 at 6 of the stations, with stations S1, S2 and S4 returning values >3.3. These 3 stations were closest to the pen and as expected were the most impacted and returned a disturbance classification of ‘Moderately Disturbed’. The remaining stations were all classified as ‘Slightly Disturbed’ with the Reference station classified as ‘Undisturbed’. Eight of the 9 stations met the standard for numbers of non-pollution indicator species present at frequencies of ≥100/m^2 (or equally high to the reference site if natural abundance is lower than this level). Station S7 fell below the standard using this criterion.

Table 1.1 summaries the results for each station with all results below the standard highlighted in yellow.

Table 1.1: Summary results, Deenish 7th August 2014

Station	Redox (mV)	Shannon Weiner Diversity	AMBI Score	No. Taxa
S1	16.2 to 17.7	2.87	4.12	2
S2	-2.0 to 5.6	3.41	3.75	10
S3	16.7 to 19.3	3.98	3.24	5
S4	3.6 to 21.5	0.95	3.35	3
S5	-7.8 to -5.4	2.70	2.89	3
S6	19.8 to 32.5	5.37	1.71	7
S7	19.5 to 36.4	4.60	2.93	1
S8	12.2 to 25.3	5.00	1.71	11
S9 REF	13.4 to 22.9	4.93	1.02	19

2. Introduction

This report documents the environmental conditions of the seabed at a Marine Harvest Ireland finfish (*Salmo salar*) aquaculture site in Kenmare Bay, Co. Kerry / Cork on 7th August, 2014 (see Figure 2.1). The aquaculture site is situated close to Deenish Island, County Kerry on the northern shore of Kenmare River.

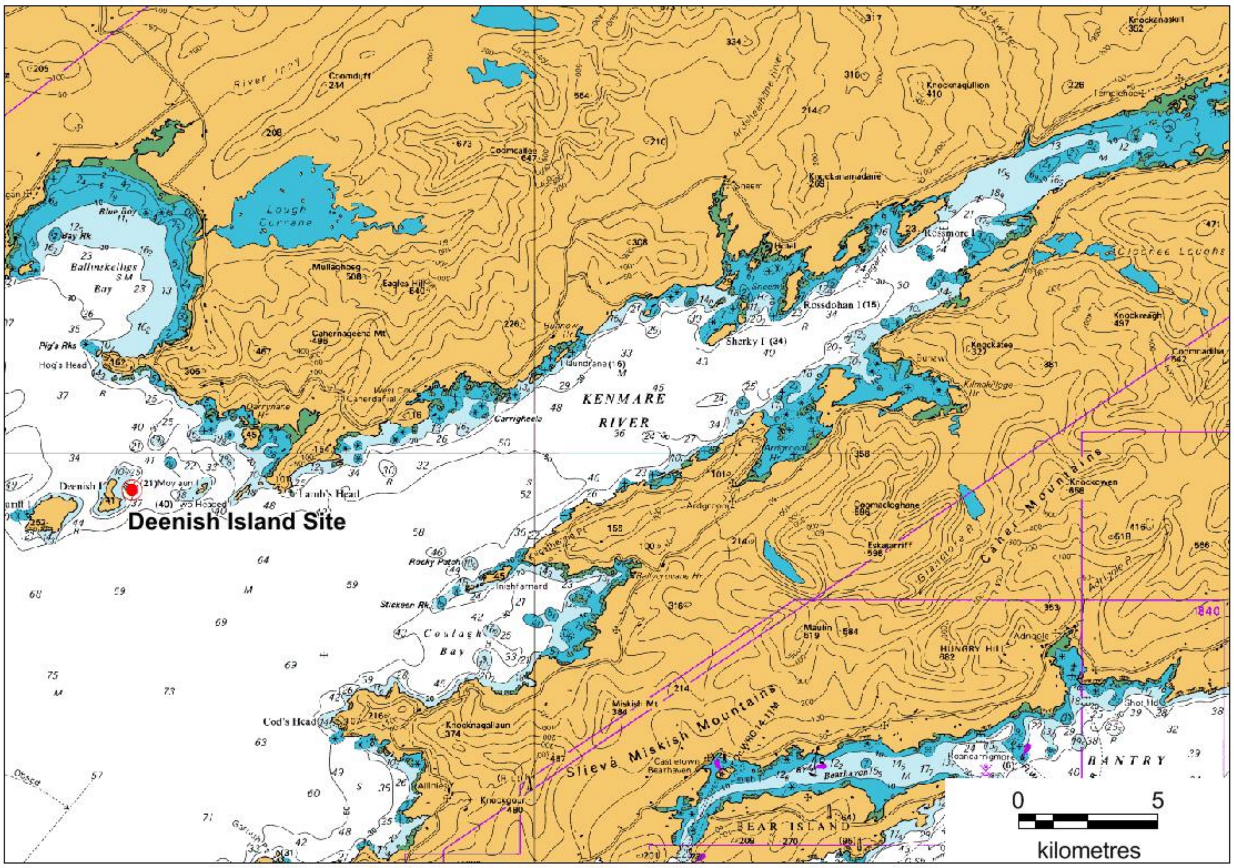


Figure 2.1. Map showing the location of the Deenish site surveyed in Kenmare Bay

Kenmare Bay, Co. Kerry, is a long and narrow, south-west facing bay. It is a deep, drowned glacial valley and the bedrock is mainly Old Red Sandstone which forms reefs along the middle of the bay throughout its length. Exposure to prevailing winds and swells at the mouth diminishes towards the head of the bay. Numerous islands and inlets along the length of the bay provide further areas of additional shelter in which a variety of habitats and unusual communities occur.

Two Natura 2000 sites are of relevance for the Deenish site (see Figure 2.2). Deenish Island is located in the outer reaches of the Kenmare River cSAC (Site code: 002158) and the island forms part of the Deenish Island and Scariff Island SPA (Site code: 004175).

Kenmare River cSAC has a very wide range of marine communities from exposed coast to ultra-sheltered areas. The site contains three marine habitats listed on Annex I of the EU Habitats Directive, namely reefs, large shallow bay and caves. There is also an extremely high number of rare and notable marine species present (24) and some uncommon communities. Kenmare River is the only known site in Ireland for the northern sea-fan, *Swiftia pallida* and is the only known area where this species and the southern sea-fan *Eunicella verrucosa* co-occur. Midway along the south coast of Kenmare River, a series of sea caves stretch back into the cliff. They typically support encrusting sponges, ascidians and bryozoans.

Deenish Island and Scariff Island are small- to medium-sized islands situated between 5 and 7 km west of Lamb’s Head off the Co. Kerry coast; they are thus very exposed to the force of the Atlantic Ocean. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Fulmar, Manx Shearwater, Storm Petrel, Lesser Black-backed Gull and Arctic Tern. Scariff is the larger of the two. It is steep-sided all the way around and rises to a peak of 252m. The highest cliffs are on the south side. The island vegetation is a mix of maritime grassland, areas dominated by Bracken and heathy areas with Ling Heather. There are the ruins of a monastic settlement and a cottage in the north-east sector of the island. Deenish is less rugged than Scariff, and rises to 144m in its southern half; the northern half is lower and flatter. The vegetation is mostly grassland, with some heath occurring on the higher ground. Old fields are now overgrown with Bracken and brambles. The sea areas to 500m around the islands are included inside the SPA boundary to provide a ‘rafting’ area for shearwaters.

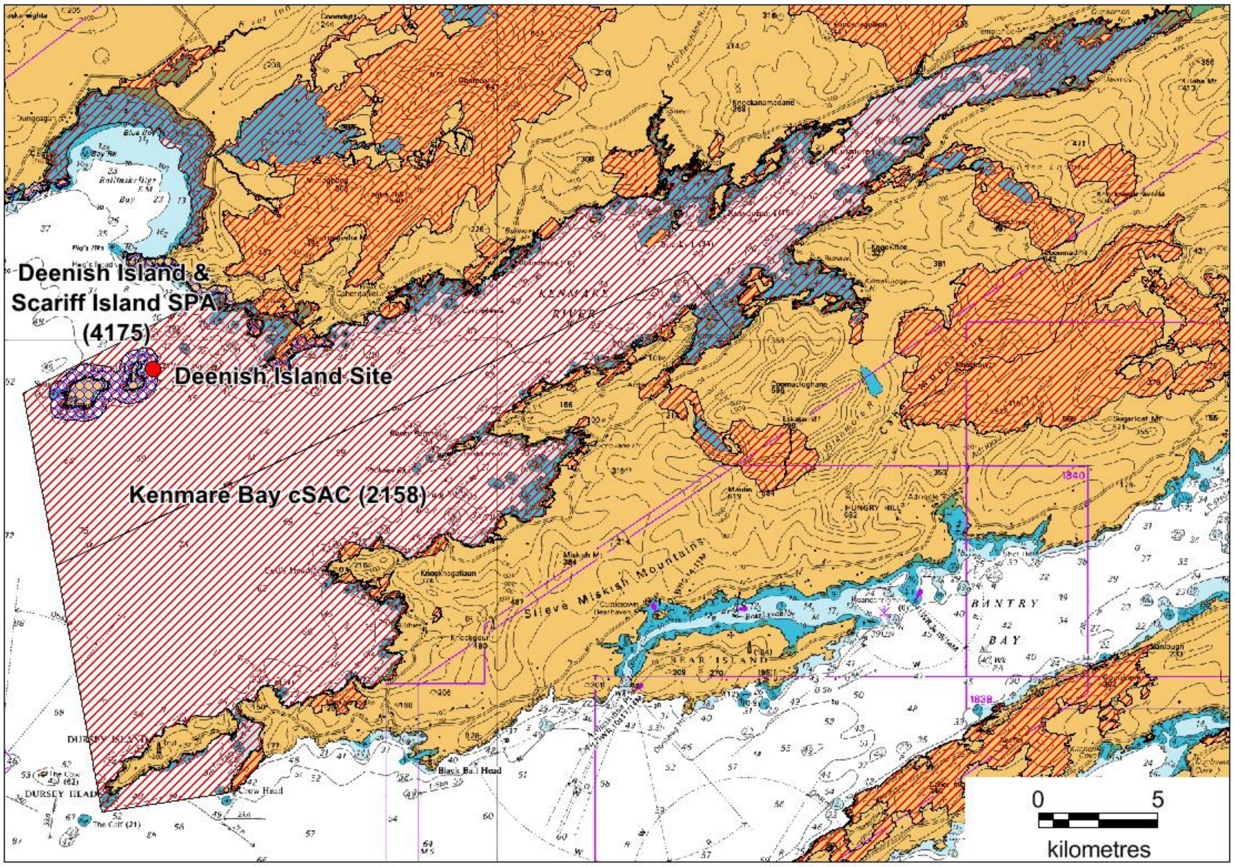


Figure 2.2. Map showing the locations of the relevant cSAC and SPA.

3. Aquaculture Stewardship Council (ASC) Salmon Standard

The aim of the ASC Salmon Standard is to minimise the potential negative effects of salmon aquaculture on the environment and society, while permitting the salmon farming industry to remain economically viable. Although the ASC Salmon Standard will be applicable at the farm level, it will also help protect and maintain ecosystem function and ecosystem services in salmon producing areas, with the recognition that aquaculture operations are not solely responsible for total ecosystem health.

The ASC Salmon Standard is defined by eight principles:

1. **Principle: Comply with all applicable national laws and local regulations**
2. **Principle: Conserve natural habitat, local biodiversity and ecosystem function**
3. **Principle: Protect the health and genetic integrity of wild populations**

4. **Principle: Use resources in an environmentally efficient and responsible manner**
5. **Principle: Manage disease and parasites in an environmentally responsible manner**
6. **Principle: Develop and operate farms in a socially responsible manner**
7. **Principle: Be a good neighbour and conscientious citizen**
8. **8: Standards for the suppliers of smolt**

It is in partial fulfilment of the second principle that this survey work and reporting was carried out. The second principle consists of 5 criteria and the fulfilment of Criterion 1: Benthic biodiversity and benthic effects is the purpose of this assessment.

3.1. Basis of the Standard

The concern is that, in pen culture, waste organic material will fall from the suspended pens and accumulate on the sea or lake bed particularly when the bottom is mud or silt sediment. This fine organic waste may add to the potential feed of natural filter feeding and deposit feeding benthic animals living in the sediment but even so this may cause a change in species composition and biodiversity. In serious cases where oxygen in the sediment becomes depleted with the associated chemical changes described below, this can eliminate sensitive However, as the organic waste accumulates it decays which is not so problematic when oxygen is available but the fine organic material tends to clog the spaces between the sediment particles and limit the circulation of oxygenated water from the surface. Decay then continues and can render the deeper layers of the sediment anaerobic which can eliminate naturally occurring species. In addition, the lack of oxygen means that as the by-products of decay which contain sulphur cannot be produced in the normal form which contains oxygen, commonly called sulphates, but as sulphides, most specifically hydrogen sulphide (H_2S) which gives a black colour to the sediment and smells of rotten eggs. It is also, however, toxic to living things and can then make the natural sediment azoic that is, hostile to life. The chemical conditions in the sediment are said to be 'reduced' due to the deficiency in oxygen and these reduced condition can be measured by what is termed the 'redox potential'.

Thus there are two potential chemical indicators of the low oxygen, reduced conditions, the redox potential and the sulphide concentration. In addition, an assessment of changes or damage to the natural benthic community can add a biological indicator of the overall effects on that community.

Such conditions are to be avoided so the four Indicators under this criterion are aimed at measuring the extent that any organic material originating from the pen culture is causing such changes to the sea bed. However, such conditions can occur naturally or may be due to other causes beyond the farm so possible impacts from the farm have to be assessed in relation to the existing baseline conditions outside the farm area.

The four indicators used to assess benthic biodiversity and benthic effects and they are discussed below.

3.1.1. Indicator 2.1.1 Redox Potential

The redox potential or sulphide levels in the sediment outside of the Allowable Zone of Effect (AZE) must be measured. This gives an indication of the degradation of sediment conditions due to decomposition of excess organic material which can come from the pens above. As the decomposition progresses in excessive cases, oxygen becomes progressively scarce in the water in the sediment to the point where it becomes anaerobic at which point anaerobic bacteria continue the process creating progressively reducing conditions and, in effect, an 'oxygen debt' and acidic conditions in the sediment. These conditions are indicated by the reduction/oxygen or redox potential which can be measured by a relatively simple method. The redox potential is to be measured in duplicate at 9 stations (giving 18 analyses). The Standard acceptable is 0.

3.1.2. Indicator 2.1.2 Faunal Index Score

Four options of faunal indicators can be used in the Standard. All are based on the relative numbers of animals per species from a measured area expressed per m^2. Two indicators were chosen for this assessment and they are discussed below. The simplest is probably the **Shannon Weiner Index** which is commonly referred to as a diversity index. It is relatively simple since the species do not have to be named just separated and counted. When plotted on a ranked basis with the first species being the commonest then a steep fall to the following species in numbers and a low number of species suggests a low diversity which is often associated with difficult conditions. A shallower fall with a wider range of species suggests a more diverse community which can mean a more 'healthy' community. The Standard requires that the index be above 3.

The **AZTI marine biotic index (AMBI)** is a measure of the overall pollution sensitivity of a benthic assemblage. Individuals are put into one of five ecological sensitivity groups (from disturbance sensitive to pollution tolerant or opportunistic species) and the AMBI is calculated as a weighted average of the sensitivity scores. Assemblages with high proportions of sensitive taxa are indicative of areas with low levels of disturbance, whilst sites dominated by opportunistic taxa reflect impacted areas. The AMBI was developed to indicate disturbance by organic enrichment. The Standard requires the score to be 3.3 or below.

Both of these indices are calculated using the faunal abundance data returned from the duplicate sampling at the same 9 sites used for the calculation of the Redox potential.

3.1.3. Indicator 2.1.3 Macrofaunal Taxa

This is to establish that even in some natural systems there are usually some animal species which should be abundant but that those species are not those favoured by organic pollution. Thus from the data on species abundance from the grab stations those having a frequency greater than 100 per m^2 (or equally high to the reference site if natural abundance is lower than this level) should be identified. Amongst these the Standard states that there should be at least 2 or more which are not pollution indicators.

3.1.4. Indicator 2.1.4 Definition of Site-Specific AZE

At the commencement of the Standard the 30m AZE is a pragmatic working estimate. It is anticipated that within the first 3 years of the standard a more exact, site specific assessment will be made, which will take into account a number of factors such as current and wind that will enable this to be done more exactly. An example of such a ‘robust and credible ‘model is given as the SEPA AUTODEPOMOD which is to be used with monitoring of the parameters to provide benchmarks.

4. Sampling Procedure & Processing

All survey work took place on the 7th August 2014. The dive at the Deenish site was conducted at a maximum depth of 23.8m Pen layouts at the time of survey and benthic grab stations can be seen in

Figure 4.1. Table 4.1 shows the station coordinates. As can be seen, 2 stations were sampled at the edge of the pen (S1 and S2), three were sampled 20m into the 30m AZE, one upstream (S4), one downstream (S3) and one at right angles (S5). Three were sampled in the same arrangement as above but at a distance of 20m outside the AZE. However, the downstream site could not be sampled as another pen was in the way. As an alternative, another station was sampled upstream at a distance of 70m outside the AZE (8). S7 was a right angles and S6 was 20m downstream. The Reference station was located *c.* 180m to the north of the pen.

Disinfection

Prior to each survey for each location all equipment and boats are thoroughly disinfected utilising both a dipping and spraying protocol.

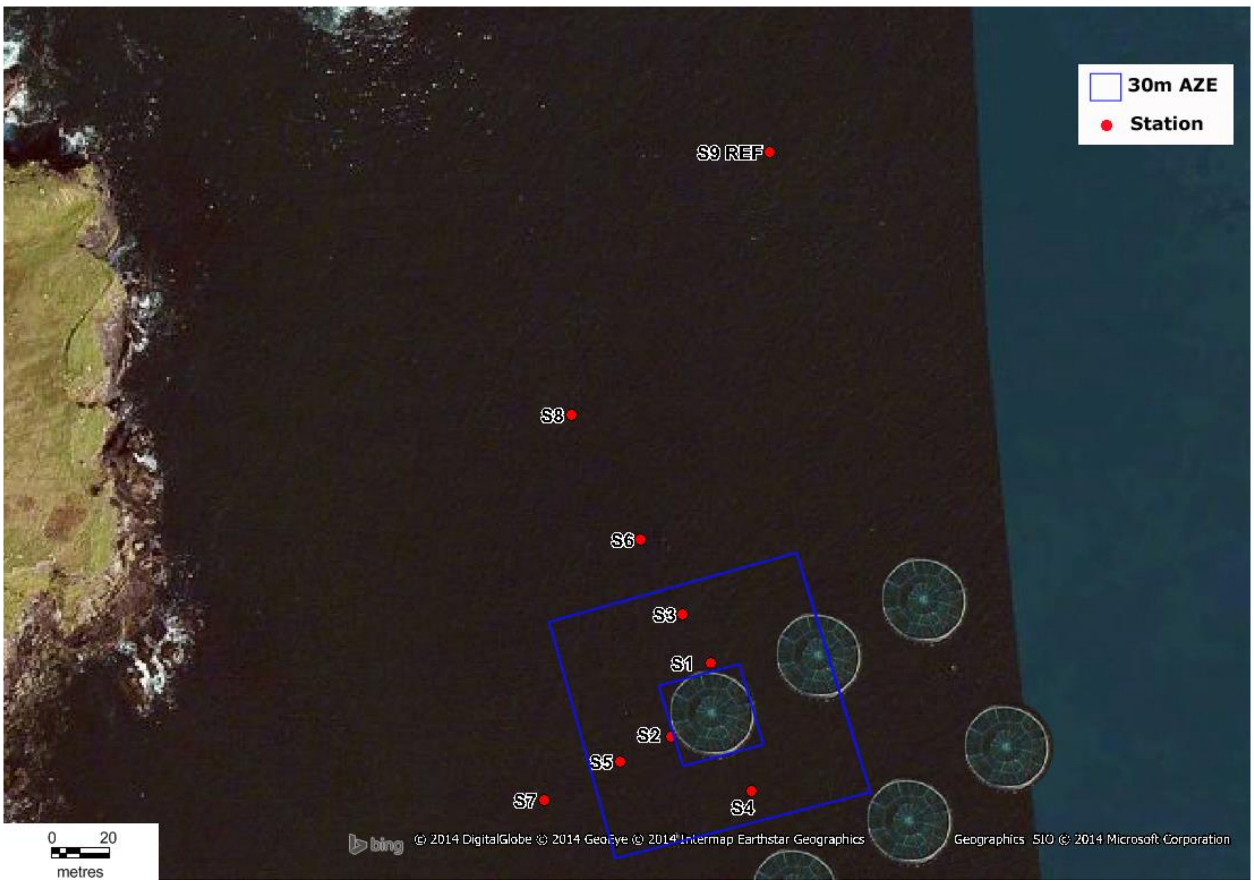


Figure 4.1: Station locations showing the 30m AZE

Table 4.1: Station coordinates

Stations	Longitude	Latitude
S1	-10.2133	51.74032
S2	-10.2135	51.74009
S3	-10.2134	51.74048
S4	-10.2131	51.73992
S5	-10.2138	51.74001
S6	-10.2136	51.74071
S7	-10.2141	51.73989
S8	-10.214	51.7411
S9 REF	-10.213	51.74193

4.1. Benthic survey

Duplicate samples from 9 quantitative benthic stations were sampled. The station layout was as follows:

- Two samples from the edge of the pens;
- Three samples 25m into the AZE of 30m, one upstream, one downstream an done at right angles (orthoangular) to the prevailing current at low tide;
- Three samples in the same arrangement as above but 25m outside the AZE;
- One reference sample well outside the AZE but in similar environmental conditions 500 -1000m outside the pen edges. The reference station was located 180m north of the pen as this was the only location with similar environmental conditions to the pen site.

The coordinates of each sampling station were recorded using a Trimble GeoXT, which is capable of sub-meter horizontal accuracy using real time corrections from the integrated EGNOS (European Geostationary Navigation Overlay System) receiver. Sampling was carried out at peak pen volume of the production cycle.

A van Veen grab sampler was used to collect the benthic samples. Upon retrieval of each sample, a redox probe with a platinum ring indicator attached to a portable pH/Redox meter calibrated in mV along with a silver/silver chloride reference electrode was pushed into the sediment surface to a depth of 2cm. Due to the coarse shelly nature of the bottom type at this location, determining Redox potential with a probe is unsuitable as the interstitial water in the large spaces between the sediment grains can easily flow around the shell and consequently the accuracy of the redox depth is compromised. Therefore, AQUAFACT also determined Redox potential using Sediment Profile Imagery (SPI). Details of the SPI can be seen in Appendix 1. SPI is one of the methods recommended by the Irish Department of Agriculture, Fisheries and Food and Irish Marine Institute to determine the apparent redox potential depth (APRD) as part of their fish farm benthic monitoring protocols. It is a much more accurate method to determine the APRD at a location compared to the use of a probe. Appendix 2 contains a SPI image from the vicinity of a fish farm. As can be seen from the image, the location where the probe is inserted across the sediment surface will determine if the station fails or passes the standard requirement of 0 or above. The SPI image gives a much better interpretation of the redox at the station, which is relatively healthy.

Following this, a grab sample was sieved on a 1 mm mesh sieve, stained with Rhodamine dye, fixed with 10% buffered formalin and preserved in 70% alcohol. Samples were then sorted under a microscope (x 10 magnification) back in the laboratory, into four main groups: polychaeta, mollusca, crustacea and others. The 'others' group consisted of echinoderms, nematodes, nemerteans, cnidarians and other lesser phyla. The taxa were then identified to species level where possible.

4.2. Data Analysis

The faunal replicates for each station were combined to give a total abundance for each station prior to analyses. A data matrix of all the combined faunal abundance data was compiled and used for statistical analyses. The faunal analysis was carried out using PRIMER ® (Plymouth Routines in Multivariate Ecological Research).

Univariate statistics in the form of diversity indices were calculated on the combined replicate data. The following diversity indices were calculated:

1) Margalef's species richness index (D), (Margalef, 1958).

$$D = \frac{S - 1}{\log_2 N}$$

where: N is the number of individuals

S is the number of species

2) Pielou's Evenness index (J), (Pielou, 1977).

$$J = \frac{H'(\text{observed})}{H'_{max}}$$

where: H'_{max} is the maximum possible diversity, which could be achieved if all species were equally abundant (= $\log_2 S$)

3) Shannon-Wiener diversity index (H'), (Pielou, 1977).

$$H' = -\sum_{i=1}^{S} p_i (\log_2 p_i)$$

where: p_I is the proportion of the total count accounted for by the i^{th} taxa

Species richness is a measure of the total number of species present for a given number of individuals. Evenness is a measure of how evenly the individuals are distributed among different species. The diversity index incorporates both of these parameters.

The PRIMER ® manual (Clarke & Warwick, 2001) was used to carry out multivariate analyses on the station-by-station faunal data. All species/abundance data were fourth root transformed and used to prepare a Bray-Curtis similarity matrix in PRIMER®. The fourth root transformation was used in order to down-weigh the importance of the highly abundant species and allow the mid-range and rarer species to play a part in the similarity calculation. The similarity matrix was then used in classification/cluster analysis. The aim of this analysis was to find "natural groupings' of samples, i.e. samples within a group that are more similar to each other, than they are similar to samples in different groups (Clarke & Warwick, *loc. cit.*). The PRIMER ® programme CLUSTER carried out this analysis by successively fusing the samples into groups and the groups into larger clusters, beginning with the highest mutual similarities then gradually reducing the similarity level at which groups are formed. The result is represented graphically in a dendrogram, the x-axis representing the full set of samples and the y-axis representing similarity levels at which two samples/groups are said to have fused. The CLUSTER programme was set to include a series of 'similarity profile' (SIMPROF) permutation tests, which look for statistical evidence of genuine clusters in samples which are *a priori* unstructured. SIMPROF performs tests at every node of a completed dendrogram, that the group being sub-divided has 'significant' internal structure. The test results are displayed in a colour convention on the dendrogram plot (samples connected by red lines cannot be significantly differentiated).

The Bray-Curtis similarity matrix was also subjected to a non-metric multi-dimensional scaling (MDS) algorithm (Kruskall & Wish, 1978), using the PRIMER ® program MDS. This programme produces an ordination, which is a map of the samples in two- or three-dimensions, whereby the placement of samples reflects the similarity of their biological communities rather than their simple geographical location (Clarke & Warwick, 2001). With regard to stress values, they give an indication of how well the multi-dimensional similarity matrix is represented by the two-dimensional plot. They are calculated by comparing the interpoint distances in the similarity matrix with the corresponding interpoint distances on the 2-d plot. Perfect or near perfect matches are rare in field data, especially in the absence of a single overriding forcing factor such as an organic enrichment gradient. Stress values increase not only with the reducing dimensionality (lack of clear forcing structure), but also with increasing quantity of data (it is a sum of the squares type regression coefficient). Clarke and Warwick (*loc. cit.*) have provided a classification of the reliability of MDS plots based on stress values, having compiled simulation studies of stress value behaviour and archived empirical data. This classification generally holds well for 2-d ordinations of the type used in this study. Their classification is given below:

- Stress value < 0.05: Excellent representation of the data with no prospect of misinterpretation.
- Stress value < 0.10: Good representation, no real prospect of misinterpretation of overall structure, but very fine detail may be misleading in compact subgroups.
- Stress value < 0.20: This provides a useful 2-d picture, but detail may be misinterpreted particularly nearing 0.20.
- Stress value 0.20 to 0.30: This should be viewed with scepticism, particularly in the upper part of the range, and discarded for a small to moderate number of points such as < 50.
- Stress values > 0.30: The data points are close to being randomly distributed in the 2-d ordination and not representative of the underlying similarity matrix.

Each stress value must be interpreted both in terms of its absolute value and the number of data points. In the case of this study, the moderate number of data points indicates that the stress value can be interpreted more or less directly. While the above classification is arbitrary, it does provide a framework that has proved effective in this type of analysis.

In addition to the calculation of the Shannon-Weiner Diversity Index and numbers of taxa above, AMBI scores were also calculated using the AZTI AMBI programme. Individuals are put into one of five ecological sensitivity groups (from disturbance sensitive to pollution tolerant or opportunistic species) and the AMBI is calculated as a weighted average of the sensitivity scores. Assemblages with high proportions of sensitive taxa are indicative of areas with low levels of disturbance, whilst sites dominated by opportunistic taxa reflect impacted areas. The AMBI was developed to indicate disturbance by organic enrichment.

5. Results

5.1. Redox Potential

Table 5.1 shows the redox potential measured using a portable pH/Redox meter. Values ranged from -7.8 (S5 A) to 36.4mV (S7 B).

Station	mV
S1 A	16.2
S1 B	17.7
S2 A	-2.0
S2 B	5.6
S3 A	19.3
S3 B	16.7
S4 A	21.5
S4 B	3.6
S5 A	-7.8
S5 B	-5.4
S6 A	32.5
S6 B	19.8
S7A	19.5
S7 B	36.4

Station	mV
S8 A	12.2
S8 B	25.3
S9 REF A	22.9
S9 REF B	13.4

Figures 5.1 to 5.3 shows the SPI images from the stations (no SPI image was returned from Station S4). Apparent Redox Potential Discontinuity depths ranged from 0.0cm (S1, S2 and S5) to >6.7cm (S9 REF).

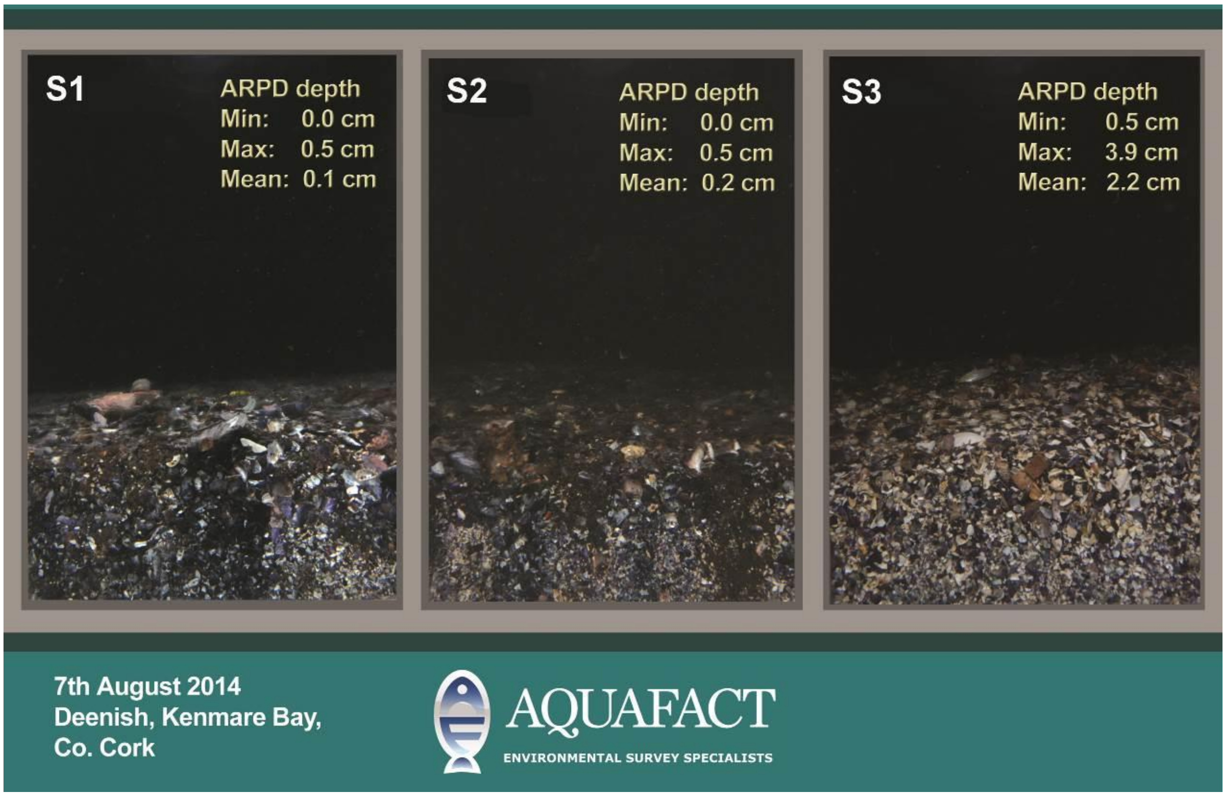


Figure 5.1: ARPD depths from Stations S1 to S3.

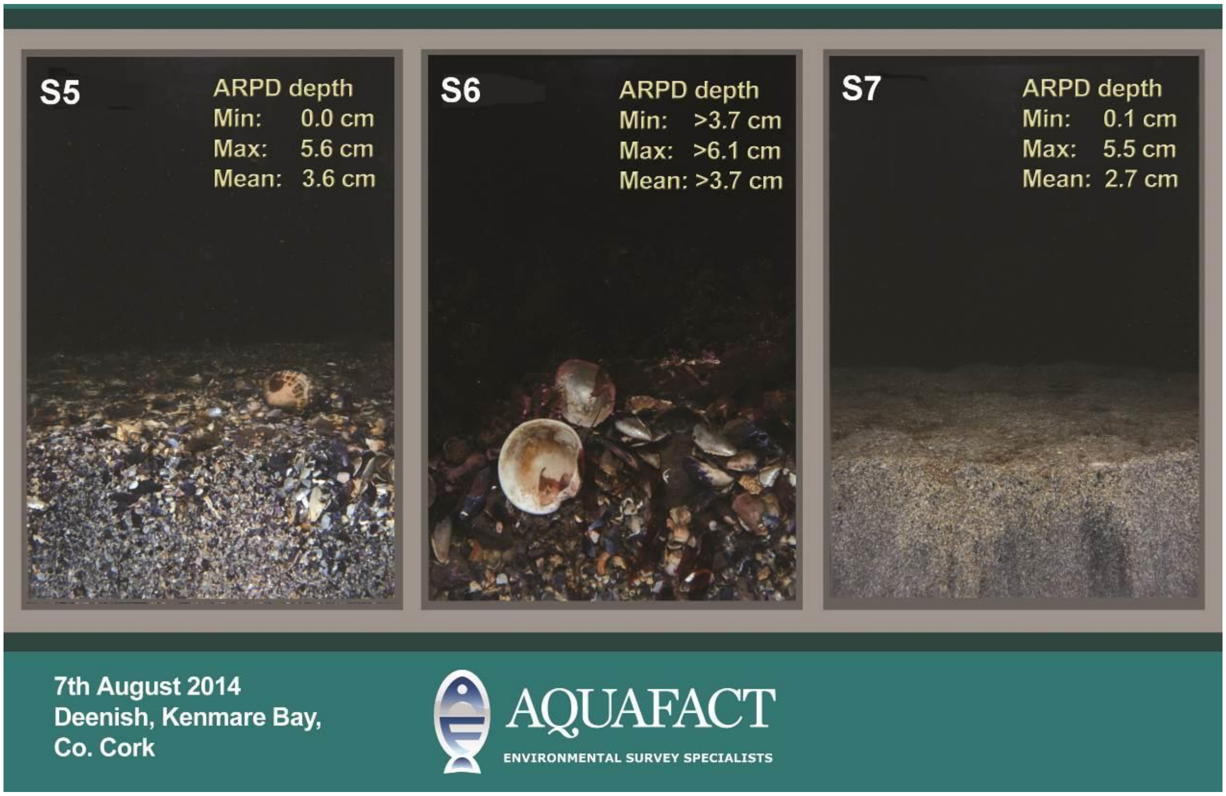


Figure 5.2: ARPD depths from Stations S5 to S7.

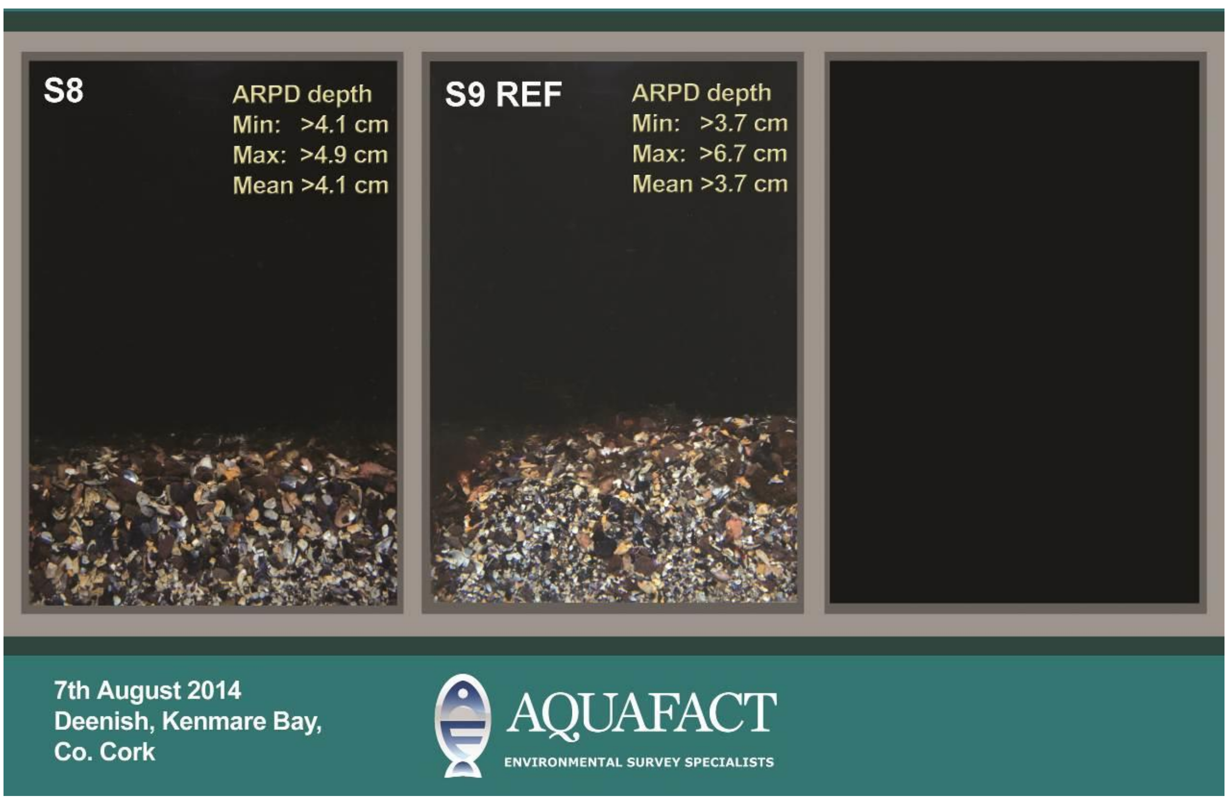


Figure 5.3: ARPD depths from Stations S8 to S9.

5.2. Benthic Macrofaunal Analysis

The taxonomic identification of the benthic infauna across all 9 stations sampled at the Deenish fish farm site yielded a total count of 267 taxa ascribed to 11 phyla. One species could not be enumerated due to its colonial nature. A complete listing of the taxa abundance is provided in Appendix 3. Of the 267 taxa present, 171 were identified to species level, the remaining 95 could not be identified to species level as they were juvenile, partial/damaged or indeterminate.

Of the 267 taxa enumerated, 112 were annelids (segmented worms including sipunculids), 70 were crustaceans (crabs, shrimps, prawns), 55 were molluscs (mussels, cockles, snails etc.), 19 were echinoderms (starfish, brittlestars, sea cucumbers), 5 were cnidarians (sea anemones, corals, jellyfish etc), 1 was a nemertean (ribbon worms), 1 was a nematoda (round worms), 1 was a platyhelminthean (flat worm), 1 was a chaetognath (arrow worms), 1 was a poriferan (sponge) and 1 was a brachiopod (lampshell).

5.2.1.1. Univariate Analysis (including Shannon Weiner Diversity Index)

Univariate statistical analyses were carried out on the combined replicate station-by-station faunal data which was expressed per m^2. The colonial species (sponge) was removed prior to analysis. The following parameters were calculated and can be seen in Table 4.2; taxon numbers, number of individuals, richness, evenness and Shannon Weiner diversity. Taxon numbers ranged from 46 (S7) to 122 (S8). Numbers of individuals ranged from 174 (S7) to 16,610 (S4). Richness ranged from 5.87 (S4) to 16.9 (S6). Evenness ranged from 0.16 (S4) to 0.83 (S7). Shannon Weiner diversity ranged from 0.95 (S4) to 5.37 (S6).

Table 5.1: Diversity indices

Station	No. Taxa	No. Individuals	Richness	Evenness	Shannon Weiner Diversity
S1	68	48540	6.21	0.47	**2.87**
S2	84	41000	7.81	0.53	**3.41**
S3	69	16140	7.02	0.65	**3.98**
S4	58	332200	4.48	0.16	**0.95**
S5	63	22600	6.18	0.45	**2.70**
S6	111	13400	11.58	0.79	**5.37**

Station	No. Taxa	No. Individuals	Richness	Evenness	Shannon Weiner Diversity
S7	46	3480	5.52	0.83	**4.60**
S8	122	38280	11.47	0.72	**5.00**
S9 REF	116	48260	10.66	0.72	**4.93**

5.2.1.2. Multivariate analysis

The dendrogram and the MDS plot can be seen in Figures 5.4 and 5.5 respectively. The stress value of the MDS is 0.03 which indicates an excellent representation of the data with no prospect for misinterpretation. SIMPROF analysis revealed 5 statistically significant groupings between the 9 stations (the stations joined by red lines could not be statistically differentiated from each other).

Station S7 (**Group a**) separated away from all other stations at a 19.19% similarity level. This station contained 46 species (30 of which were present twice or less) comprising 174 individuals. Six species accounted for just over 54% of the faunal abundance: Nematoda (27 individuals, 15.52% abundance) and the polychaetes *Spio* sp. (21 individuals, 12.07% abundance), *Spiophanes bombyx* (13 individuals, 7.47% abundance), *Capitella* sp. complex (13 individuals, 7.47% abundance), *Mediomastus fragilis* (11 individuals, 6.32% abundance) and the oligochaete *Tubificoides pseudogaster* agg. (10 individuals, 5.75% abundance). Nematoda, *Spio* sp. and *Spiophanes bombyx* are tolerant to excess organic matter enrichment. They occur under normal conditions but their populations are stimulated by organic enrichment. *Mediomastus fragilis* is a second order opportunist and *Capitella* sp. complex and *Tubificoides pseudogaster* are first order opportunistic species which proliferate in reduced sediments.

Station S4 (**Group b**) separated from the remaining stations at a similarity level of 33.54%. This station contained 58 species (36 of which were present twice or less) comprising 16,610 individuals. Four species accounted for just over 95% of the faunal abundance: Nematoda (14,184 individuals, 85.39% abundance) and the polychaetes *Capitella* sp. complex (1,456 individuals, 8.77% abundance) and *Malacoceros fuliginosus* (267 individuals, 1.61% abundance) and the oligochaete *Tubificoides pseudogaster* agg. (10 individuals, 5.75% abundance). Nematoda are tolerant to excess organic matter enrichment. They occur under normal conditions but their populations are stimulated by organic enrichment. *Capitella* sp. complex, *Tubificoides pseudogaster* and *Malacoceros fuliginosus* are first order opportunistic species which proliferate in reduced sediments.

The remaining 7 stations split into 3 groups. **Group c** separated from **Groups d** and **e** at a 41.84% similarity level. **Group c** contained stations S1, S2, S3 and S5 and formed a group at a 54.86% similarity level. Within this group, stations S2 and S3 were 60.09% similar to each other and stations S1 and S5 were 55.45% similar to each other. Station S1 contained 68 species (33 of which were present twice or less) comprising 2,427 individuals. Four species accounted for just over 80% of the faunal abundance: the polychaetes *Capitella* sp. complex (870 individuals, 35.85% abundance) and *Mediomastus fragilis* (806 individuals, 33.21% abundance), the gastropod mollusc *Nassarius pygmaeus* (228 individuals, 9.39% abundance) and the polychaete *Malacoceros fuliginosus* (82 individuals, 3.38% abundance). *Nassarius pygmaeus* is a species indifferent to enrichment always present in low densities with non-significant variations over time. *Mediomastus fragilis* is a second order opportunist and *Capitella* sp. complex and *Malacoceros fulginosus* are first order opportunistic species which proliferate in reduced sediments.

Station S5 contained 63 species (35 of which were present twice or less) comprising 1,130 individuals. Three species accounted for just over 80% of the faunal abundance: Nematoda (543 individuals, 48.05% abundance) and the polychaetes *Mediomastus fragilis* (319 individuals, 28.23% abundance) and *Capitella* sp. complex (43 individuals, 3.81% abundance). Nematoda are tolerant to excess organic matter enrichment. They occur under normal conditions but their populations are stimulated by organic enrichment. *Mediomastus fragilis* is a second order opportunist and *Capitella* sp. complex is a first order opportunistic species which proliferates in reduced sediments.

Station S2 contained 84 species (40 of which were present twice or less) comprising 2,050 individuals. Five species accounted for just over 80% of the faunal abundance: the polychaete *Mediomastus fragilis* (569 individuals, 27.76% abundance), Nematoda (506 individuals, 24.68% abundance), the polychaete *Capitella* sp. complex (347 individuals, 16.92% abundance), the bivalve mollusc Mytilidae (506 individuals, 24.68% abundance) and the copepod crustacean Miraciidae (72 individuals, 3.51% abundance). Nematoda and Mytilidae are tolerant to excess organic matter enrichment. They occur under normal conditions but their populations are stimulated by organic enrichment. *Mediomastus fragilis* is a second order opportunist and *Capitella* sp. complex is a first order opportunistic species which proliferates in reduced sediments.

Station S3 contained 69 species (33 of which were present twice or less) comprising 807 individuals. Four species accounted for just over 62% of the faunal abundance: the polychaetes *Mediomastus fragilis* (246 individuals, 30.48% abundance) and *Capitella* sp. complex (156 individuals, 19.33% abundance), Nematoda (62 individuals, 7.68% abundance) and the brittlestar *Amphipholis squamata* (37 individuals, 4.58% abundance). Nematoda are tolerant to excess organic matter enrichment. They occur under normal conditions but their populations are stimulated by organic enrichment. *Mediomastus fragilis* is a second order opportunist and *Capitella* sp. complex is a first order opportunistic species which proliferates in reduced sediments. *Amphipholis squamata* is a species very sensitive to organic enrichment and present under unpolluted conditions.

Station 6 (**Group d**) separated from **Group e** at a 52.74% similarity level. Station 6 contained 111 species (66 of which were present twice or less) comprising 670 individuals. Five species accounted for 40% of the faunal abundance: the polychaetes *Mediomastus fragilis* (88 individuals, 13.13% abundance), *Socarnes erythrophthalmus* (72 individuals, 10.75% abundance) and *Polygordius* sp. (37 individuals, 5.52% abundance), the copepod crustacean Miraciidae (37 individuals, 5.52% abundance) and Nematoda (34 individuals, 5.08% abundance). *Socarnes erythrophthalmus* is a species indifferent to enrichment always present in low densities with non-significant variations over time. Nematoda are tolerant to excess organic matter enrichment. They occur under normal conditions but their populations are stimulated by organic enrichment. *Mediomastus fragilis* is a second order opportunist and *Polygordius* sp. is a species very sensitive to organic enrichment and present under unpolluted conditions.

Stations 8 and 9 REF formed **Group e** at a 58.13% similarity level. Station 8 contained 122 species (51 of which were present twice or less) comprising 1,914 individuals. Six species accounted for just over 50% of the faunal abundance: the amphipod crustacean *Leptocheirus hirsutimanus* (272 individuals, 14.21% abundance), the polychaete *Socarnes erythrophthalmus* (270 individuals, 14.11% abundance), Nematoda (214 individuals, 11.18% abundance), the polychaete *Sphaerosyllis bulbosa* (103 individuals, 5.38% abundance) and the amphipods *Gammaropsis lobata* (69 individuals, 3.61% abundance) and Aoridae (67 individuals, 3.5% abundance). *Socarnes erythrophthalmus* and *Sphaerosyllis bulbosa* are species indifferent to enrichment always present in low densities with non-significant variations over time. Nematoda and *Leptocheirus hirsutimanus* are tolerant to excess organic matter enrichment. They occur under normal conditions but their populations are stimulated by organic enrichment. *Gammaropsis lobata* is a species very sensitive to organic enrichment and present under unpolluted conditions.

Station 9 REF contained 116 species (55 of which were present twice or less) comprising 2,413 individuals. Six species accounted for just over 50% of the faunal abundance: the gastropod mollusc *Caecum glabrum* (304 individuals, 12.60% abundance), the brittlestar *Amphipholis squamata* (279 individuals, 11.56% abundance), Nematoda (230 individuals, 9.53% abundance), the brittlestar *Ophiocomina nigra* (168 individuals, 6.96% abundance), the bivalve mollusc Mytilidae (130 individuals, 5.39% abundance) and the polychaete *Sphaerosyllis bulbosa* (113 individuals, 4.68% abundance). *Sphaerosyllis bulbosa* are species indifferent to enrichment always present in low densities with non-significant variations over time. Nematoda and Mytilidae are tolerant to excess organic matter enrichment. They occur under normal conditions but their populations are stimulated by organic enrichment. *Amphipholis squamata, Ophiocomina nigra* and *Caecum glabrum* are species very sensitive to organic enrichment and present under unpolluted conditions.

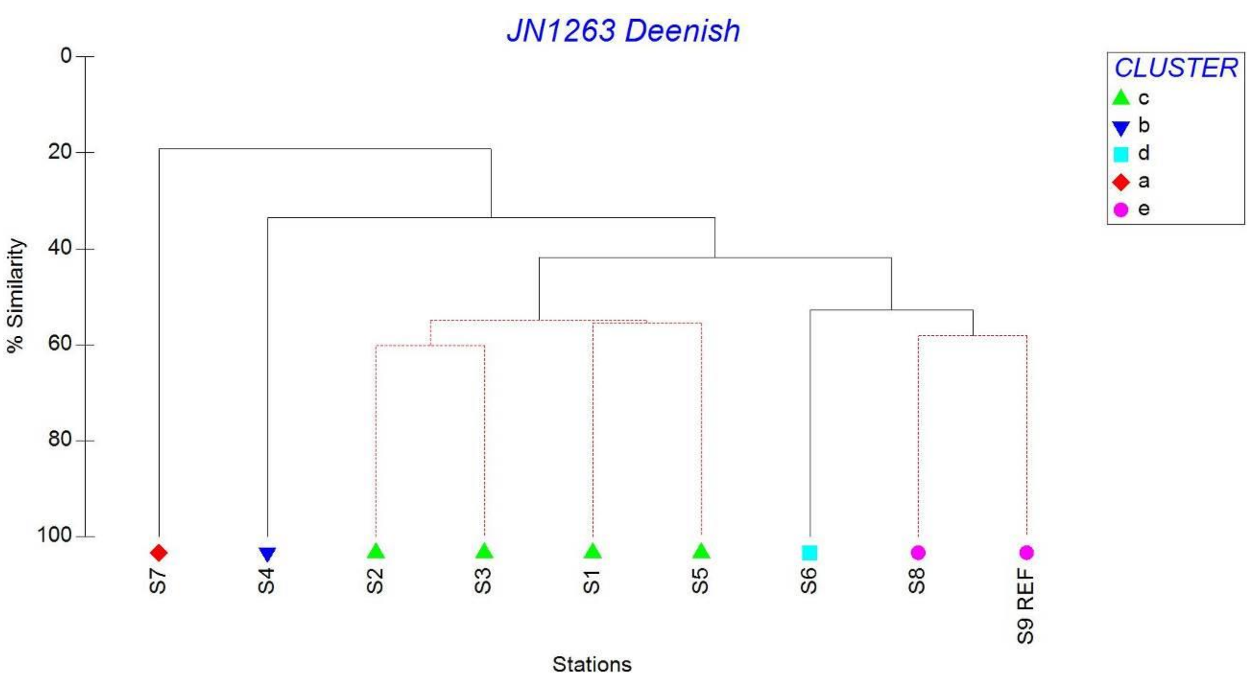


Figure 5.4: Dendrogram produced from Cluster analysis.

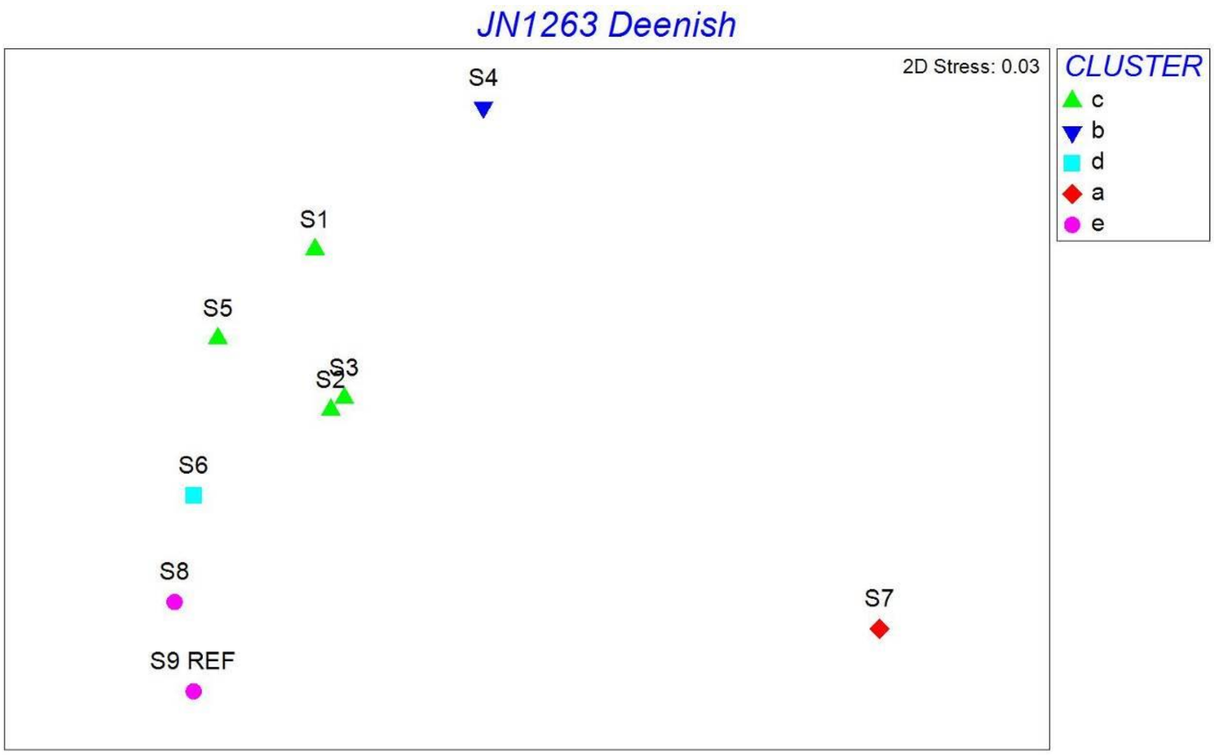


Figure 5.5: MDS plot.

5.2.1.3. AMBI & Taxa Numbers

The AMBI scores for each station can be seen in Table 5.2. Detailed station by station AMBI results can be seen in Appendix 4. AMBI scored ranged from 1.03 at Station S9 REF to 4.12 at Station 1. The three stations nearest the pen were classified as 'Moderately Disturbed', with the outer 5 stations classified as 'Slightly Disturbed' and as expected the Reference Station S9 REF was classified as 'Undisturbed'.

Table 5.2: AMBI Scores for the Deenish stations

Station	AMBI Score	Disturbance Classification
S1	4.12	Moderately Disturbed
S2	3.75	Moderately Disturbed
S3	3.24	Slightly Disturbed
S4	3.35	Moderately Disturbed
S5	2.89	Slightly Disturbed
S6	1.70	Slightly Disturbed
S7	2.93	Slightly Disturbed

Station	AMBI Score	Disturbance Classification
S8	1.71	Slightly Disturbed
S9 REF	1.03	Undisturbed

Appendix 5 shows the non pollution indicator species recorded in frequencies greater than 100 individuals per m^2 (or equally high to the reference site if natural abundance is lower than this level). Table 5.3 shows the numbers of non pollution indicator taxa* present per station.

Table 5.3: Non pollution indicator taxa (>100/m^2 or equally high to reference) per station

Station	No. Non Pollution Indicator Species	Non Pollution Indicator Species
S1	2	*Caecum glabrum* (140/m^2) *Clausinella fasciata* (100/m^2)
S2	10	*Amphipholis squamata* (720/m^2) *Caecum glabrum* (500/m^2) *Protodrilus purpureus* (420/m^2) *Onoba semicostata* (220/m^2) *Thyone fusus* (220/m^2) *Alvania beanii* (160/m^2) *Clausinella fasciata* (160/m^2) *Gari* sp. (120/m^2) *Atelecyclus rotundatus* (100/m^2) *Rissoa parva* (100/m^2)
S3	5	*Amphipholis squamata* (740/m^2) *Protodrilus* sp. (520/m^2) *Thyone fusus* (300/m^2) *Gari tellinella* (260/m^2) *Leptochiton cancellatus* (100/m^2)
S4	3	*Modiolus* sp. (860/m^2) *Atelecyclus rotundatus* (60/m^2 Reference is 20/m^2) *Leptochiton asellus* (40/m^2 Reference is 40/m^2)
S5	3	*Protodrilus purpureus* (480/m^2) *Amphipholis squamata* (320/m^2) *Protodrilus* sp. (240/m^2)
S6	7	*Polygordius* sp. (740/m^2) *Protodrilus* sp. (400/m^2) *Polygordius lacteus* (360/m^2)

* Non pollution indicator species are those categorised as Ecological Group I in the AMBI Classification

Station	No. Non Pollution Indicator Species	Non Pollution Indicator Species
		Amphipholis squamata (260/m^2) *Leptochiton cancellatus* (100/m^2) Thyone sp. (100/m^2) Thyone fusus (100/m^2)
S7	1	*Aricidea (Aricidea) minuta* (80/m^2 Reference is 20/m^2)
S8	11	*Gammaropsis lobata* (1380/m^2) Aoridae (1340/m^2) *Pisione remota* (1280/m^2) *Amphipholis squamata* (1240/m^2) *Caecum glabrum* (680/m^2) *Leptochiton cancellatus* (440/m^2) *Paradiopatra quadricuspis* (320/m^2) *Polygordius* sp. (160/m^2) *Thracia* sp. (120/m^2) *Lysianassidae* (100/m^2) *Microdeutopus versiculatus* (100/m^2)
S9 REF	19	*Caecum glabrum* (6080/m^2) *Amphipholis squamata* (5580/m^2) *Ophiocomina nigra* (3360/m^2) *Leptochiton cancellatus* (1760/m^2) *Paradiopatra quadricuspis* (1400/m^2) *Polygordius* sp. (820/m^2) *Animoceradocus semiserratus* (720/m^2) *Pisione remota* (480/m^2) *Skenea serpuloides* (400/m^2) *Gari* sp. (400/m^2) *Gammaropsis lobata* (340/m^2) *Gari tellinella* (280/m^2) *Leptochiton* sp. (220/m^2) *Polygordius lacteus* (140/m^2) *Ephesiella peripatus* (120/m^2) *Rissoa parva* (120/m^2) *Parvicardium* sp. (100/m^2) Veneridae sp. (100/m^2) *Clausinella fasciata* (100/m^2)

6. Discussion

The survey carried out at the Deenish fish farm site on the 7th August 2014 involved the grab sampling of 9 stations - 2 at the edge of the pen, 3 within the AZE along set transects, 3 outside the AZE along the same transects and a reference site. Duplicate faunal samples were collected at each station and a Redox probe was used to measure redox potential (mV) in the sediment. As stated earlier, due to the coarse shelly nature of the sediment at this location and the associated compromised redox readings, Sediment Profile Imagery was also carried out at each station.

Redox potential values met the standard of >0 mV at all stations except stations S5 and S2 (replicate A). Mean redox depth from the SPI image from station S5 is 3.6cm. This compares favourably with mean depths from stations S3, S6, S7, S8 and S9 all of which had very high mV readings. Station S2 had a much lower mean redox depth (0.2cm) and a much lower redox potential reading would have been expected at this station.

Shannon Weiner diversity values met the standard of >3 at 6 of the stations, with stations S1, S4 and S5 returning values below the standard. Of these stations S4 had the lowest value (0.95) due to the super abundance of Nematoda at this site (*c.* 85% of the faunal abundance).

AMBI scores met the standard of ≤3.3 at 6 of the stations, with stations S1, S2 and S4 returning values >3.3. Station S4 was marginally over the standard (3.35). These 3 stations were closest to the pen and as expected were the most impacted and returned a disturbance classification of 'Moderately Disturbed'. The remaining stations were all classified as 'Slightly Disturbed' with the Reference station classified as 'Undisturbed'.

Eight of the 9 stations met the standard for numbers of non-pollution indicator species present at frequencies of ≥100/m^2 (or equally high to the reference site if natural abundance is lower than this level). Station S7 fell below the standard using this criterion. Table 6.1 summaries the results for each station with all results below the standard highlighted in yellow. Figures 6.1 to 6.4 shows the results in graphic form in relation to station locations. Again those stations highlighted in yellow fall below the standard.

In summary, Stations S3, S6, S8 and S9 passed the standard for all criteria. Station S7 fell below the standard for one criterion (no. non pollution indicator species). Station 2 fell below the standard for 2 criteria (redox potential and AMBI score). Stations S1 and S4 fell below the standard for two criteria (Shannon Weiner diversity and AMBI) and S5 also fell below the standard for 2 criteria (Redox potential and Shannon Weiner diversity).

Table 6.1: Summary results, Deenish 7th August 2014.

Station	Redox (mV)	Shannon Weiner Diversity	AMBI Score	No. Taxa
S1	16.2 to 17.7	2.87	4.12	2
S2	-2.0 to 5.6	3.41	3.75	10
S3	16.7 to 19.3	3.98	3.24	5
S4	3.6 to 21.5	0.95	3.35	3
S5	-7.8 to -5.4	2.70	2.89	3
S6	19.8 to 32.5	5.37	1.71	7
S7	19.5 to 36.4	4.60	2.93	1
S8	12.2 to 25.3	5.00	1.71	11
S9 REF	13.4 to 22.9	4.93	1.02	19

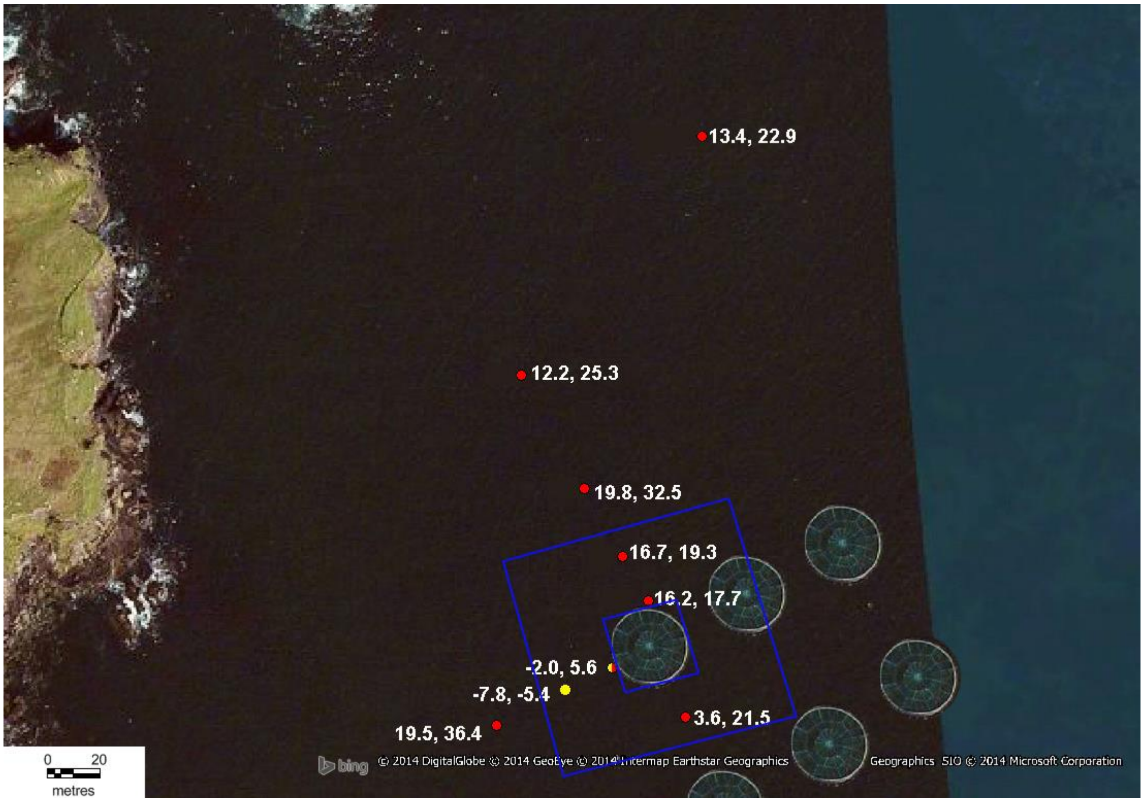


Figure 6.1: Redox potential at all 9 Deenish sites, August 7th 2014

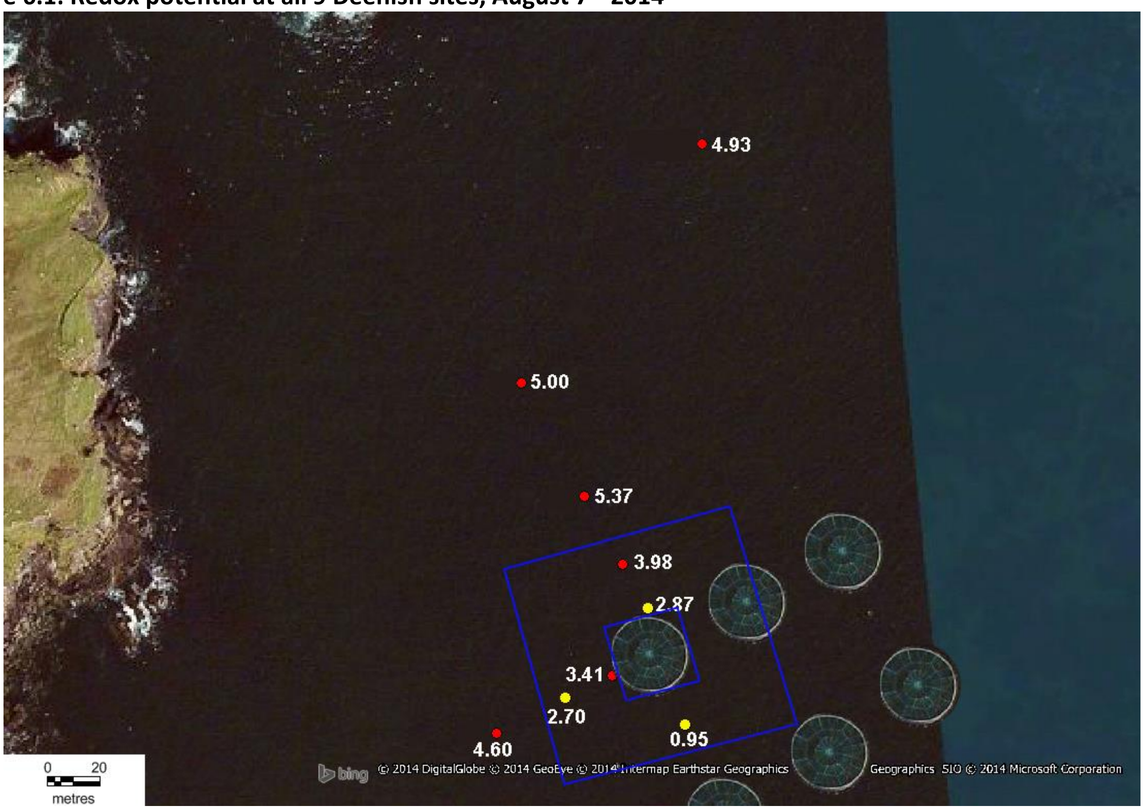


Figure 6.2: Shannon Weiner Diversity Scores at all 9 Deenish sites, August 7th 2014

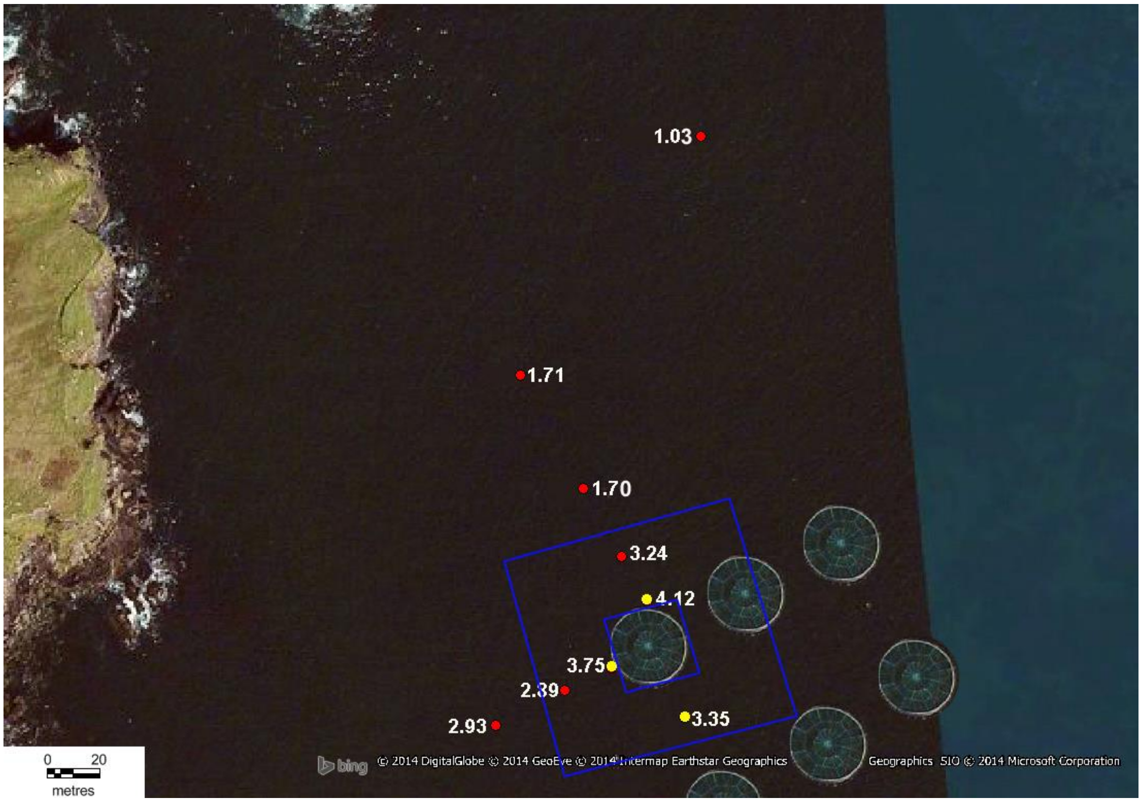


Figure 6.3: AMBI Scores at all 9 Deenish sites, August 7th 2014

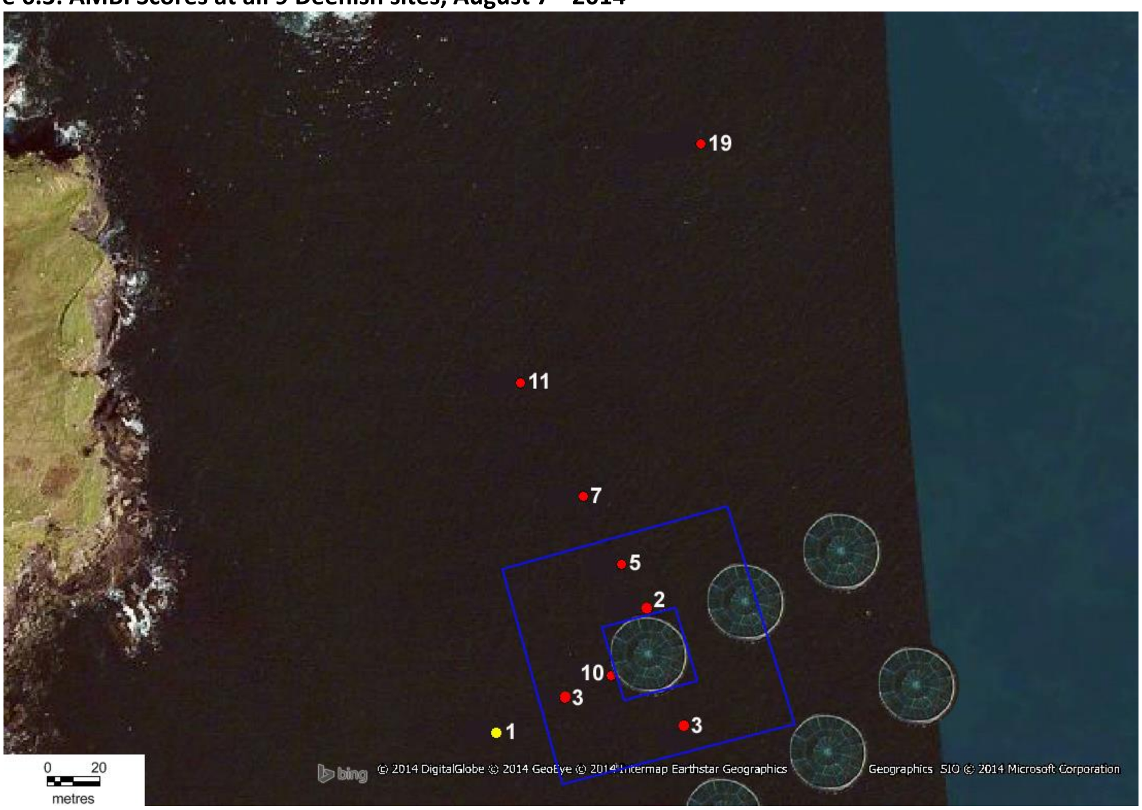


Figure 6.4: No. Non Pollution Indicator Species at all 9 Deenish sites, August 7th 2014

7. References

Clarke, K.R. and R.M. Warwick (1994). Changes in marine communities: An approach to statistical analysis and interpretation, 1st Edition. Plymouth Marine Laboratory. Plymouth.

Clarke, K.R. and R.M. Warwick (2001). Changes in marine communities: An approach to statistical analysis and interpretation. 2nd Edition. Primer-E Ltd.

Kruskall, J.B. and M. Wish (1978). Multidimensional scaling. *Sage Publications, Beverly Hills, California.*

Margalef, DR. (1958). Information theory in ecology. General Systems 3: 36-71.

Pielou, E.C. (1977). Mathematical ecology. Wiley-Water science Publication, John Wiley and Sons. pp.385.

Appendix 1

Sediment Profile Imagery (SPI)

A Sediment Profile Image (SPI) was also acquired at each of the 9 stations for the determination of Redox Potential. These images were acquired using a diver-deployed sediment profile imaging camera system. This system is comprised of a digital SLR camera in a water-tight pressure vessel that is mounted above a prism that penetrates the upper 25cm of sediment (see Figure 1 for image). The sediment profile is viewed through a plexiglass window. Its image is reflected to the camera lens via a plane mirror. Illumination is provided by an internally-mounted strobe.

The diver depresses the unit into the seafloor and manually triggers the camera. This process is repeated at each station investigated. The prism unit is filled with distilled water – thus ambient water clarity is never a limiting factor in image quality.

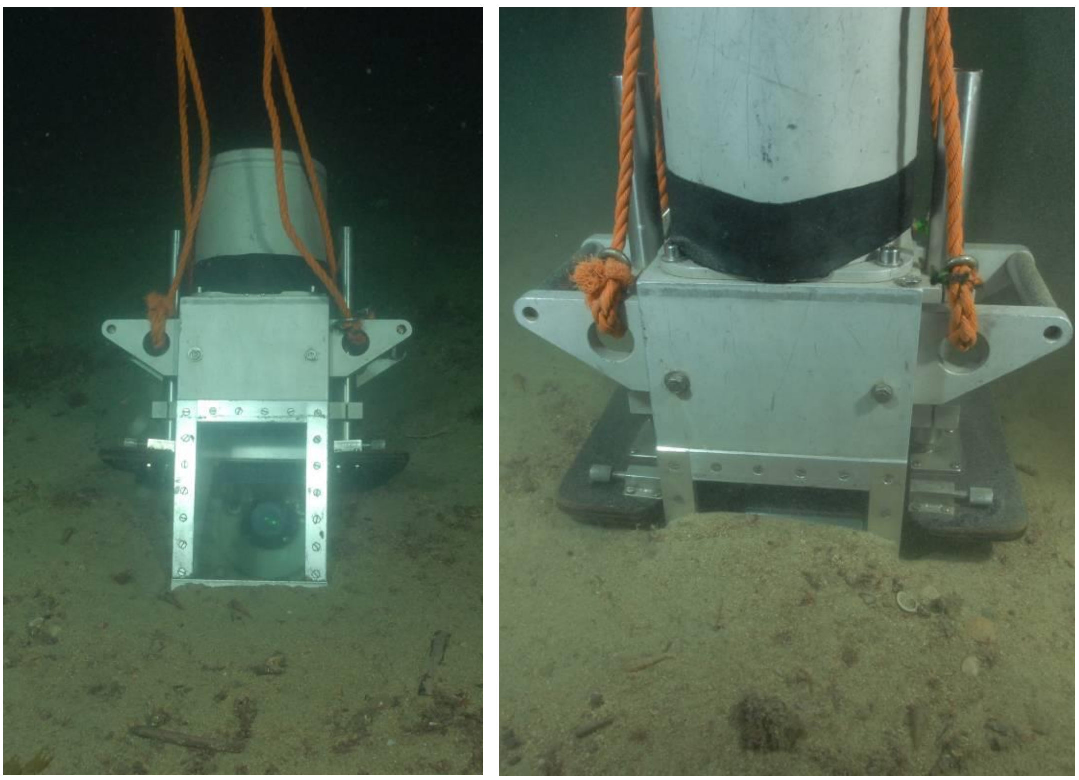


Figure 7.1. Diver operated Sediment Profile Imaging camera. The left-hand image gives a view of the camera at the sediment surface. The right-hand image shows the SPI camera when inserted into the sediment.

A great deal of information about benthic processes is available from sediment profile images. Measurable parameters, many of which are calculated directly by image analysis, include physical/chemical parameters (i.e. sediment type measured as grain size major mode, prism penetration depth providing a relative indication of sediment shear strength, sediment surface relief, condition of mud clasts, redox potential discontinuity depth and degree of contrast, sediment gas voids) and biological parameters (i.e. infaunal successional stage of a well documented successional paradigm for soft marine sediments (see Pearson and Rosenberg, 1978), degree of sediment reworking, dominant faunal type, epifauna and infauna, depth of faunal activity, presence of microbial aggregations).

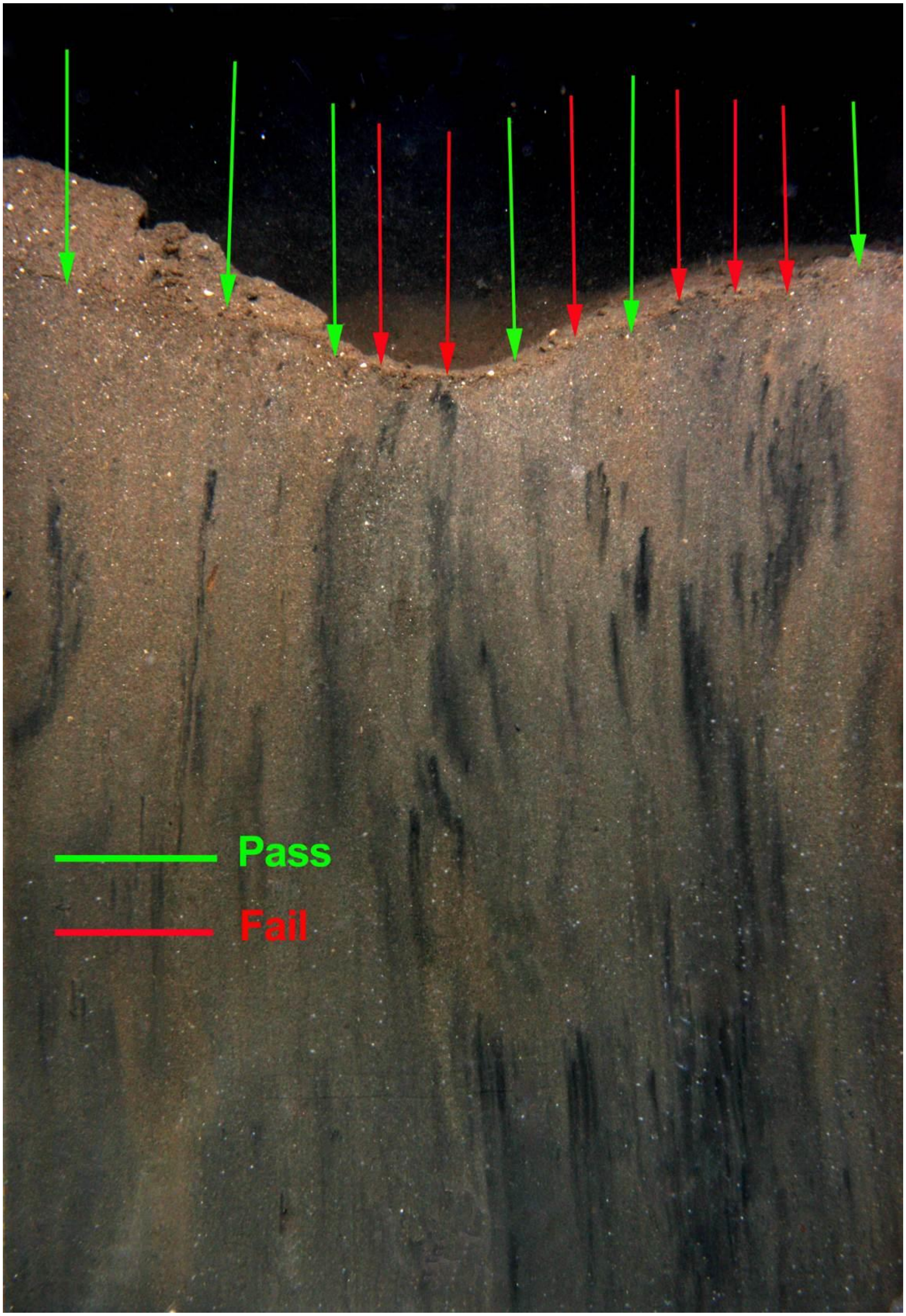
For the purposes of the current survey the primary feature of interest is the depth of oxygen penetration into the sediments in the vicinity of the finfish pens (this information is required to satisfy the requirements of the Benthic Monitoring Protocol (DAFF, 2008). In this case the apparent redox potential discontinuity or ARPD depth is measured. Features of particular interest that may be gleaned from SPI images taken in sediments in the vicinity of finfish pens include the presence of:

- uneaten feed pellets (and depth of this material)
- faecal casts
- and depth of shell gravel deposits
- of gas voids in the sediment (refer to Figure 2)

Figure 7.2. Typical sediment profile images with examples of features.

Appendix 2

SPI Image – Redox Potential


Pass
Fail

Appendix 3

Faunal Grab Species List – Deenish (/m^2)

Station			S1 A	S1 B	S2 A	S2 B	S3 A	S3 B	S4 A	S4 B	S5 A	S5 B	S6 A	S6 B	S7 B	S7 A	S8 A	S8 B	S9 REF A	S9 REF B
PORIFERA	C	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CALCAREA	C	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEUCOSOLENIDA	C	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sycettidae	C	126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sycon ciliatum	C	133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	+
CNIDARIA	D	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HYDROZOA	D	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEPTOLIDA	D	138	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Myriothelidae	D	203	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Candelabrum cf cocksii	D	205	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	80	0
ANTHOZOA	D	583	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEXACORALLIA	D	627	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CERIANTHARIA	D	628	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cerianthidae	D	630	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cerianthus lloydii	D	632	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0
ACTINIARIA	D	662	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Actiniaria (indet)	D	662	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	20
Edwardsiidae	D	759	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Edwardsiidae (partial/damaged)	D	759	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0
Edwardsiidae (juv)	D	759	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0
Edwardsia claparedii	D	766	0	40	0	20	0	0	0	0	20	0	0	0	0	0	0	0	0	0
PLATYHELMINTHES	F	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TURBELLARIA	F	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turbellaria (indet)	F	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0
NEMATODA	HD	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nematoda (indet)	HD	1	1300	100	0	10120	580	660	185600	98080	3980	6880	0	680	380	160	1380	2900	2480	2120

Station			S1 A	S1 B	S2 A	S2 B	S3 A	S3 B	S4 A	S4 B	S5 A	S5 B	S6 A	S6 B	S7 B	S7 A	S8 A	S8 B	S9 REF A	S9 REF B
NEMERTEA	G	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nemertea (indet)	G	1	20	0	0	220	60	0	0	0	20	120	140	40	60	0	140	180	440	240
CHAETOGNATHIA	L	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chaetognathia (juv)	L	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	140	0	0
SIPUNCULA	N	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SIPUNCULIDEA	N	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GOLFINGIIFORMES	N	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golfingiidae	N	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golfingiidae (juv)	N	11	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0
ANNELIDA	P	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
POLYCHAETA	P	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHYLLODOCIDA	P	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chrysopetalidae	P	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pisionidae	P	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pisione remota	P	15	0	0	0	0	0	0	0	0	0	0	0	80	0	0	160	1120	120	360
Polynoidae	P	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polynoidae (partial/damaged)	P	25	40	40	0	80	120	0	0	20	60	40	20	20	0	0	60	420	460	520
Polynoidae (indet)	P	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	340	0	0	0
Polynoidae (juv)	P	25	0	0	0	0	0	0	0	0	0	0	0	320	0	0	0	0	0	0
Alentia gelatinosa	P	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0
Harmothoe sp. (partial/damaged)	P	50	0	0	0	0	0	0	0	0	0	0	60	0	0	0	140	0	0	20
Malmgreniella arenicolae	P		0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Malmgreniella darbouxi	P		0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0
Harmothoe fraglis	P	59	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0
Malmgreniella ljungmani	P	66	0	0	0	0	0	0	0	0	0	0	0	20	0	0	40	60	80	40

Station			S1 A	S1 B	S2 A	S2 B	S3 A	S3 B	S4 A	S4 B	S5 A	S5 B	S6 A	S6 B	S7 B	S7 A	S8 A	S8 B	S9 REF A	S9 REF B
Lepidonotus squamatus	P	83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0
Pholoidae	P	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pholoe sp. (partial/damaged)	P	91	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0
Pholoe inornata	P	92	0	0	0	0	20	0	20	0	0	0	80	0	0	0	60	0	280	60
Phyllodocidae	P	114	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phyllodocidae (partial/damaged)	P	114	20	0	0	0	40	20	0	0	20	0	0	20	0	0	40	20	40	0
Eteone sp. (partial/damaged)	P	115	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eteone longa agg.	P	118	180	20	0	40	100	0	40	0	40	100	40	60	0	0	0	20	0	0
Pseudomystides limbata	P	136	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0
Phyllodoce mucosa	P	145	180	0	0	20	0	40	0	0	0	0	0	0	0	0	0	0	0	20
Phyllodoce rosea	P	148	40	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0
Eumida sp. (partial/damaged)	P	163	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	0	0	0
Eumida bahusiensis	P	164	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0
Nereiphylla rubiginosa	P	171	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	160	60
Paranaitis kosteriensis	P	176	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0
Phyllodoce sp. (partial/damaged)	P	178	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Glyceridae	P	254	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Glycera sp. (partial/damaged)	P	255	100	40	0	0	0	0	0	0	0	0	40	0	0	0	100	40	60	0
Glycera sp. (juv)	P	255	0	0	0	200	60	0	0	0	60	100	0	80	0	0	0	80	40	0
Glycera alba	P	256	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0
Glycera lapidum agg.	P	260	0	20	0	140	180	0	0	0	140	180	20	400	0	0	100	220	40	20
Goniadidae	P	266	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Goniadidae (partial/damaged)	P	266	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0

Station			S1 A	S1 B	S2 A	S2 B	S3 A	S3 B	S4 A	S4 B	S5 A	S5 B	S6 A	S6 B	S7 B	S7 A	S8 A	S8 B	S9 REF A	S9 REF B
Sphaerodoridae	P	277	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ephesiella peripatus	P		0	0	0	0	0	0	0	0	0	0	0	0	0	0	80	0	100	20
Hesionidae	P	293	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hesionidae (partial/damaged)	P	293	0	0	0	40	0	0	0	0	0	0	20	40	0	20	80	20	60	20
Hesionidae (juv)	P	293	0	0	0	0	60	0	0	0	0	0	0	60	0	0	0	100	0	0
Gyptis propinqua	P	300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
Hesiospina aurantiaca	P		0	0	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	0
Psamthe fusca	P	305	0	60	0	20	0	0	20	0	0	0	20	20	0	0	220	120	0	0
Nereimyra punctata	P	311	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0
Podarkeopsis helgolandica	P		0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0
Syllidia armata	P	321	0	20	20	0	0	0	0	0	0	20	120	80	20	0	280	60	0	0
Microphthalmus fragilis	P	330	0	0	0	40	20	0	0	0	40	40	0	0	0	0	0	0	0	0
Pilargidae	P	336	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pilargidae (partial/damaged)	P	336	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0
Pilargis verrucosa	P	344	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	20
Syllidae	P	346	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Syllis cornuta	P	349	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	140	0
Syllis pontxioi	P		20	0	0	0	0	0	0	0	0	20	0	0	0	0	0	20	20	40
Syllis garciai	P		20	0	0	0	0	0	40	0	0	0	0	0	0	0	20	40	20	20
Trypanosyllis coeliaca	P	362	0	20	0	60	0	0	0	0	20	20	20	0	0	0	400	20	500	420
Syllis armillaris	P	365	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
Odontosyllis sp. (partial/damaged)	P	385	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0
Odontosyllis ctenostoma	P	386	0	0	0	0	40	0	0	0	0	0	0	0	0	0	0	0	0	0
Exogoninae	P	410	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Station			S1 A	S1 B	S2 A	S2 B	S3 A	S3 B	S4 A	S4 B	S5 A	S5 B	S6 A	S6 B	S7 B	S7 A	S8 A	S8 B	S9 REF A	S9 REF B
Sphaerosyllis bulbosa	P	425	80	100	0	120	0	0	0	0	40	40	0	40	0	0	1240	820	1400	860
Sphaerosyllis hystrix	P	427	0	0	0	80	60	0	0	0	0	0	60	360	0	0	480	380	500	180
Myrianida sp. (partial/damaged)	P	434	0	0	0	20	0	0	0	0	0	0	20	0	0	0	0	20	0	0
Nereididae	P	458	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nereididae (juv)	P	458	0	0	0	0	0	0	0	20	0	0	60	0	0	0	140	40	60	0
Platynereis dumerilii	P	482	0	0	0	0	0	0	0	0	0	0	60	0	0	0	0	20	40	0
Nephtyidae	P	490	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nephtys sp. (juv)	P	494	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0	0	0
AMPHIMOMIDA	P	511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Amphinomidae	P	512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paramphinone jeffreysii	P	518	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0
Pareurythoe borealis	P	520	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	540	140
EUNICIDA	P	536	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Onuphidae	P	537	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Onuphidae (partial/damaged)	P	537	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0
Paradiopatra quadricuspis	P	550	20	0	0	20	0	0	0	0	0	40	0	20	0	0	300	20	940	460
Eunicidae	P	553	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lysidice unicornis	P	568	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0
Lumbrineridae	P	569	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lumbrineris cf cingulata	P		0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dorvilleidae	P	598	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ophryotrocha sp. (juv)	P	613	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	0	20	0
Ophryotrocha sp. (partial/damaged)	P	613	20	0	0	140	0	0	0	0	0	0	0	60	0	0	100	360	0	0
Protodorvillea kefersteini	P	638	300	60	0	140	140	40	1400	40	100	60	0	40	0	0	60	0	0	20

Station			S1 A	S1 B	S2 A	S2 B	S3 A	S3 B	S4 A	S4 B	S5 A	S5 B	S6 A	S6 B	S7 B	S7 A	S8 A	S8 B	S9 REF A	S9 REF B
Schistomeringos sp. (partial/damaged)	P	641	0	0	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Schistomeringos neglecta	P	642	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0
Schistomeringos rudolphi	P	643	60	0	0	0	0	0	40	0	0	0	0	0	0	20	0	0	0	0
ORBINIIDA	P	654	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orbiniidae	P	655	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scoloplos armiger	P	672	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0
Paraonidae	P	674	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aricidea (Arcidea) minuta	P	677	0	0	0	0	0	0	0	0	0	0	0	0	60	20	0	0	0	20
Aricidea (Acmira) cerrutii	P	685	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0
Paradoneis lyra	P	699	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0
SPIONIDA	P	707	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spionidae	P	720	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spionidae (partial/damaged)	P	720	0	0	0	0	100	20	0	0	0	0	0	0	0	0	0	0	0	0
Spionidae (juv)	P	720	0	0	0	80	0	0	0	0	0	0	20	0	0	0	0	0	0	0
Aonides sp. (partial/damaged)	P	721	0	0	0	0	0	0	0	0	40	20	20	0	0	0	0	0	0	0
Aonides oxycephala	P	722	480	40	0	80	240	40	20	0	0	40	40	140	0	0	0	60	0	0
Aonides paucibranchiata	P	723	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0
Laonice bahusiensis	P	733	0	0	0	0	0	0	0	0	0	20	0	20	0	0	0	0	0	0
Malacoceros sp. (indet)	P	736	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0	20	0	0
Malacoceros sp. (partial/damaged)	P	736	380	480	0	0	0	0	340	2080	20	0	0	0	0	0	0	0	0	0
Malacoceros fuliginosus	P	737	800	840	0	0	0	360	2260	3080	0	0	0	0	0	20	0	0	0	0
Malacoceros tetracerus	P	738	0	0	0	0	0	0	0	0	0	40	0	0	0	0	0	0	0	0

Station			S1 A	S1 B	S2 A	S2 B	S3 A	S3 B	S4 A	S4 B	S5 A	S5 B	S6 A	S6 B	S7 B	S7 A	S8 A	S8 B	S9 REF A	S9 REF B
Prionospio sp. (partial/damaged)	P	763	0	0	0	40	20	0	0	0	0	0	0	0	20	0	0	60	0	20
Prionospio sp. (juv)	P	763	0	0	0	0	0	0	0	0	0	0	0	60	0	0	20	0	0	0
Prionospio fallax	P	765	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0	0	0
Prionospio multibranchiata	P		0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	60	0	0
Spio sp. (indet)	P	787	0	0	0	0	0	0	0	0	0	0	0	0	180	60	0	0	0	0
Spio sp. (partial/damaged)	P	787	0	0	0	0	0	0	0	0	0	0	0	0	20	20	0	0	0	0
Spio sp. (juv)	P	787	0	0	0	0	0	0	0	0	0	0	0	0	80	60	20	0	0	0
Spiophanes bombyx	P	794	0	0	0	0	0	0	0	0	0	0	0	0	100	160	0	0	0	0
Magelonidae	P	802	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Magelona alleni	P	804	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0
Magelona filiformis	P	805	0	0	0	0	0	0	0	0	0	0	0	0	40	20	0	0	0	0
Magelona minuta	P	806	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0
Cirratulidae	P	822	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cirratulidae (partial/damaged)	P	822	0	0	0	80	0	0	80	660	0	0	0	0	60	0	0	0	0	0
Caulleriella alata	P	829	80	40	0	240	100	0	60	420	60	140	0	0	0	20	0	0	0	0
Cirratulus sp. (juv)	P		0	0	0	0	0	0	40	0	0	0	20	0	0	0	0	0	0	0
Cirriformia tentaculata	P	839	0	0	0	0	0	0	0	40	0	0	0	0	0	0	0	0	0	0
Acrocirridae	P	886	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macrochaeta clavicornis	P	891	0	0	0	0	0	0	0	0	0	0	0	40	0	0	20	60	0	0
CAPITELLIDA	P	902	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capitellidae	P	903	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capitellidae (partial/damaged)	P	903	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0
Capitella sp. complex	P	906	9820	7580	3800	3140	520	2600	6460	22660	520	340	20	40	60	200	60	20	0	20
Mediomastus fragilis	P	919	13460	2660	0	11380	4120	800	1780	40	3220	3160	440	1320	120	100	60	420	40	0

Station			S1 A	S1 B	S2 A	S2 B	S3 A	S3 B	S4 A	S4 B	S5 A	S5 B	S6 A	S6 B	S7 B	S7 A	S8 A	S8 B	S9 REF A	S9 REF B
OPHELIIDA	P	992	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Opheliidae	P	993	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Opheliidae (juv)	P	993	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0
Polyophthalmus pictus	P	1019	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	20	0	0
POLYGORDIIDA	P	1060	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polygordiidae	P	1061	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polygordius sp. (partial/damaged)	P	1062	40	0	0	0	0	0	0	20	20	0	100	640	0	0	20	140	20	800
Polygordius appendiculatus	P	1063	0	0	0	0	20	0	0	0	0	0	20	60	0	0	0	0	0	0
Polygordius lacteus	P	1065	0	0	0	0	0	0	0	0	0	0	80	280	0	0	0	40	0	140
PROTODRILIDA	P	1067	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Protodrilidae	P	1068	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Protodrilus sp. (partial/damaged)	P	1069	0	40	0	0	0	0	0	0	0	0	180	0	0	0	0	40	0	0
Protodrilus sp. (indet)	P	1069	0	0	0	0	520	0	0	0	240	0	0	220	0	0	0	0	0	20
Protodrilus purpureus	P	1079	0	0	0	420	0	0	0	0	0	480	0	0	0	0	0	20	20	0
OWENIIDA	P	1089	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oweniidae	P	1090	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Owenia fusiformis	P	1098	0	20	0	20	20	20	0	0	0	20	0	0	20	80	0	0	0	0
TEREBELLIDA	P	1099	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pectinariidae	P	1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pectinariidae (juv)	P	1100	0	0	0	0	0	0	0	0	0	0	0	0	60	0	0	0	0	0
Terebellidae	P	1179	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Terebellidae (juv)	P	1179	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
Terebellidae (partial/damaged)	P	1179	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pista sp. (juv)	P	1216	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0
Pista sp.	P	1216	0	0	0	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Station			S1 A	S1 B	S2 A	S2 B	S3 A	S3 B	S4 A	S4 B	S5 A	S5 B	S6 A	S6 B	S7 B	S7 A	S8 A	S8 B	S9 REF A	S9 REF B
(partial/damaged)																				
Polycirrus sp. (juv)	P	1235	0	0	0	100	60	0	0	0	0	80	100	420	20	0	80	140	100	20
Polycirrus sp. (partial/damaged)	P	1235	0	0	0	0	0	0	0	40	60	40	0	20	0	120	100	40	60	60
Polycirrus denticulatus	P	1239	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0
Polycirrus norvegicus	P	1243	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120
SABELLIDA	P	1256	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Serpulidae	P	1324	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Serpulidae (partial/damaged)	P	1324	0	0	0	20	0	20	0	0	0	0	40	0	0	0	80	0	60	0
Serpulidae (juv)	P	1324	0	0	0	0	0	0	0	0	0	20	120	40	0	0	80	60	40	0
Hydroides norvegica	P	1334	0	0	0	0	60	0	0	0	20	40	20	0	0	0	60	0	60	40
Spirobranchus sp. (juv)	P	1339	0	0	0	0	0	0	0	0	60	120	20	0	0	0	120	60	0	0
Spirobranchus sp. (partial/damaged)	P	1339	0	0	0	0	20	0	20	0	0	0	140	0	0	0	0	0	0	0
Spirobranchus lamarcki	P	1340	60	20	80	0	140	60	0	0	60	0	400	20	0	0	40	120	40	0
Spirobranchus triqueter	P	1341	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	20	0
OLIGOCHAETA	P	1402	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TUBIFICIDA	P	1403	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Naididae	P	1405	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tubificidae	P	1425	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tubificoides pseudogaster aggregate	P	1498	0	0	0	0	0	0	0	0	0	0	0	0	160	40	0	0	0	0
Tubificoides benedii	P	1490	40	0	0	0	40	20	0	0	40	60	0	20	0	0	0	0	0	0
Enchytraeidae	P	1501	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grania sp. (indet)	P	1524	240	100	0	40	60	0	0	0	0	60	20	0	0	0	60	20	0	0
CRUSTACEA	R	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MAXILLOPODA	R	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CIRRIPEDIA	R	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Station			S1 A	S1 B	S2 A	S2 B	S3 A	S3 B	S4 A	S4 B	S5 A	S5 B	S6 A	S6 B	S7 B	S7 A	S8 A	S8 B	S9 REF A	S9 REF B
THORACICA	R	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Verrucidae	R	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Verruca stroemia	R	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
COPEPODA	R	142	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HARPACTICOIDA	R	785	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Longipediidae	R	787	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Longipedia sp. (partial/damaged)	R	788	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0
Tisbidae	R	974	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tisbidae (indet)	R	974	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0
Tisbe sp. (partial/damaged)	R	983	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0
Peltidiidae	R	1034	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alteutha interrupta	R	1035	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0
Thalestridae	R	1061	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thalestridae (partial/damaged)	R	1061	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0
Thalestridae (indet)	R	1061	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	20
Phyllothalestris mysis	R	1076	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0
Thalestris longimana	R	1079	0	0	0	0	0	0	0	0	0	0	0	80	0	0	0	0	20	0
Ambunguipedidae	R	1132	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ambunguipes rufocincta	R	1134	0	0	0	80	0	0	0	0	0	20	0	180	0	0	0	360	0	0
Ambunguipes vanhoeffeni	R		0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	220	0	0
Miraciidae	R	1144	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Miraciidae (indet)	R	1144	200	20	0	1440	140	0	500	0	0	0	0	740	0	0	240	540	0	0
Bulbamphiasus denticulatus	R	1178	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Tetragonicipitidae	R	1436	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Station			S1 A	S1 B	S2 A	S2 B	S3 A	S3 B	S4 A	S4 B	S5 A	S5 B	S6 A	S6 B	S7 B	S7 A	S8 A	S8 B	S9 REF A	S9 REF B
Tetragoniceps scotti	R	1452	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0
Laophonitdae	R	1667	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Laophonte cornuta	R	1702	0	0	0	40	0	0	0	0	0	0	0	40	0	0	40	20	20	0
Pseudolaophonte spinosa	R	1744	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0
SIPHONOSTOMATOIDA	R	2061	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OSTRACODA	R	2412	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ostracoda (partial/damaged)	R	2412	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0
Ostracoda (indet)	R	2412	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	1180	0
MALACOSTRACA	S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEPTOSTRACA	S	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nebaliidae	S	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nebalia sp. (juv)	S		40	120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nebalia sp. (partial/damaged)	S		0	0	60	0	0	0	40	0	0	0	0	0	0	0	0	0	0	0
Nebalia kocatasi (juv)	S		0	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nebalia kocatasi	S		20	120	0	0	0	0	280	0	40	0	0	0	0	0	0	0	0	0
EUMALACOSTRACA	S	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AMPHIPODA	S	97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oedicerotidae	S	118	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Perioculodes longimanus	S	131	0	0	0	0	0	0	20	0	0	0	0	0	80	60	0	0	0	0
Amphilochidae	S	152	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Amphilochidae (partial/damaged)	S	152	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0
Gitana sarsi	S	164	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	60	0	0
Stenothoidae	S	187	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stenothoe monoculoides	S	214	0	0	0	0	0	0	0	0	0	0	0	20	0	0	140	420	0	140

Station			S1 A	S1 B	S2 A	S2 B	S3 A	S3 B	S4 A	S4 B	S5 A	S5 B	S6 A	S6 B	S7 B	S7 A	S8 A	S8 B	S9 REF A	S9 REF B
Urothoidae	S	245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Urothoe elegans	S	248	0	0	0	0	0	0	0	0	0	0	0	0	80	0	0	0	0	0
Lysianassidae	S	271	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lysianassidae (partial/damaged)	S	271	0	0	0	0	0	0	0	0	0	0	0	20	0	0	60	40	0	0
Socarnes sp. (indet)	S	329	0	0	0	0	0	0	0	0	0	0	0	0	0	0	80	0	0	0
Socarnes erythrophthalmus	S	330	0	0	20	120	360	200	20	40	0	20	460	980	0	20	1760	3640	120	140
Tryphosella sp. (partial/damaged)	S	341	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0
Liljeborgiidae	S	394	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Liljeborgiidae (indet)	S	394	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	80	0
Liljeborgia pallida	S	397	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	60	20	0
Ampeliscidae	S	422	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ampelisca brevicornis	S	427	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0	0	0
Ampelisca typica	S	442	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0
Melitidae	S	495	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Melitidae (partial/damaged)	S	495	0	0	0	0	0	0	100	0	0	0	0	20	0	0	60	0	0	20
Animoceradocus semiserratus	S	502	0	0	0	0	20	0	0	0	0	0	60	0	0	0	60	20	680	40
Isaeidae	S	537	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gammaropsis lobata	S	540	0	0	0	0	0	0	0	0	0	0	20	0	0	0	40	1340	60	280
Photidae	S		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Photis longicaudata	S	552	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0
Ischyroceridae	S	558	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jassa sp. (juv)	S	568	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0
Jassa herdmani	S		0	0	0	0	0	0	0	40	0	0	0	0	0	0	0	0	0	0
Aoridae	S	577	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Station			S1 A	S1 B	S2 A	S2 B	S3 A	S3 B	S4 A	S4 B	S5 A	S5 B	S6 A	S6 B	S7 B	S7 A	S8 A	S8 B	S9 REF A	S9 REF B
Aoridae (partial/damaged)	S	577	0	0	0	0	0	0	0	0	0	0	0	80	0	0	320	1020	20	40
Leptocheirus hirsutimanus	S	588	0	0	0	0	0	0	0	0	0	20	0	0	0	0	980	4460	400	1300
Microdeutopus versiculatus	S	598	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0
Caprellidae	S	639	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Caprella acanthifera	S	641	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	0
Pariambus typicus	S	651	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0
Phtisicidae	S	655	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phtisica marina	S	657	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	20	20
ISOPODA	S	790	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gnathiidae	S	792	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gnathia sp. (pranzia)	S	793	0	0	0	0	0	20	0	0	0	0	0	0	0	0	40	20	40	0
Gnathia oxyuraea	S	796	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0
Anthuridae	S	801	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Anthura gracilis	S	803	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0
Sphaeromatidae	S	857	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cymodoce truncata	S	863	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0
Janiridae	S	883	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Janira maculosa	S	892	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0
Microcharon harrisi	S	896	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	220	0	20
Paramunnidae	S	909	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paramunna bilobata	S	911	0	0	0	0	0	0	0	0	0	0	0	20	0	0	240	100	60	200
TANAIDACEA	S	1099	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tanaidae	S	1102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tanaidae (partial/damaged)	S	1102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0

Station			S1 A	S1 B	S2 A	S2 B	S3 A	S3 B	S4 A	S4 B	S5 A	S5 B	S6 A	S6 B	S7 B	S7 A	S8 A	S8 B	S9 REF A	S9 REF B
Tanaidae (indet)	S	1102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	0	40
Leptognathidae	S	1130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leptognathidae (partial/damaged)	S	1130	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CUMACEA	S	1183	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bodotriidae	S	1184	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vaunthompsonia cristata	S	1191	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0
Iphinoe trispinosa	S	1203	0	0	0	0	0	0	20	0	0	0	0	0	20	20	0	0	0	0
Nannastacidae	S	1214	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nannastacus unguiculatus	S	1228	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120	20
Pseudocumatidae	S	1231	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pseudocuma sp. (partial/damaged)	S	1234	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0
DECAPODA	S	1276	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda larvae	S	1276	20	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0
PAGUROIDEA	S	1436	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paguridae	S	1445	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paguridae (partial/damaged)	S	1445	0	0	0	0	100	0	0	0	0	0	0	120	0	0	0	0	0	0
Paguridae (juv)	S	1445	100	0	0	0	0	20	0	0	0	40	0	0	0	0	0	0	0	0
Anapagurus hyndmanni	S	1448	0	0	0	0	0	0	0	0	0	20	20	0	0	0	0	0	0	0
Porcellanidae	S	1480	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pisidia longicornis	S	1482	0	0	0	0	0	0	0	20	0	0	0	0	0	40	0	0	0	0
BRACHYURA	S	1485	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura (juv)	S	1485	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0
Leucosiidae	S	1502	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ebalia tuberosa	S	1508	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0

Station			S1 A	S1 B	S2 A	S2 B	S3 A	S3 B	S4 A	S4 B	S5 A	S5 B	S6 A	S6 B	S7 B	S7 A	S8 A	S8 B	S9 REF A	S9 REF B
Majidae	S	1512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Inachus sp. (partial/damaged)	S	1525	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0
Atelecyclidae	S	1553	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Atelecyclus rotundatus	S	1555	60	20	0	100	0	0	0	60	0	0	0	0	0	0	0	0	0	20
BRACHYRHYNCHA	S	1567	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Portunidae	S	1569	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Liocarcinus sp. (partial/damaged)	S	1577	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0
Liocarcinus sp. (juv)	S	1577	0	0	0	40	20	0	0	0	0	0	20	0	0	20	0	0	0	0
Liocarcinus depurator	S	1580	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0
Liocarcinus marmoreus	S	1582	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0
Liocarcinus pusillus	S	1584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0
Necora puber	S	1589	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Goneplacidae	S	1603	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monodaeus couchi	S	1609	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0
MOLLUSCA	W	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CHAETODERMATIDA	W	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chaetodermatidae	W	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chaetoderma nitidulum	W	9	0	0	0	0	0	0	0	0	0	0	0	20	0	0	20	40	0	0
POLYPLACOPHORA	W	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NEOLORICATA	W	47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leptochitonidae	W	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leptochiton sp. (juv)	W	51	0	0	0	0	0	0	80	0	0	0	0	0	0	0	20	0	100	120
Leptochiton sp. (partial/damaged)	W	51	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leptochiton asellus	W	53	0	0	0	0	0	0	40	0	0	0	20	0	0	0	0	0	0	40
Leptochiton cancellatus	W	54	20	0	20	0	40	60	20	0	20	0	100	0	0	0	440	0	1300	460

Station			S1 A	S1 B	S2 A	S2 B	S3 A	S3 B	S4 A	S4 B	S5 A	S5 B	S6 A	S6 B	S7 B	S7 A	S8 A	S8 B	S9 REF A	S9 REF B
GASTROPODA	W	88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda (indet)	W	88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0	540	260
Gastropoda (partial/damaged)	W	88	20	0	0	0	0	0	0	0	0	0	20	0	0	0	80	0	0	0
ARCHAEOGASTROPODA	W	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trochidae	W	140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gibbula sp. (juv)	W	157	0	0	20	0	0	0	0	0	0	0	20	0	0	0	20	0	0	0
Gibbula tumida	W	161	20	0	20	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gibbula cineraria	W	163	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jujubinus montagui	W	174	0	0	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Osilinus lineatus	W	177	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0
Skeneidae	W	194	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Skenea serpuloides	W	198	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	480	0
PATELLOGASTROPODA	W	219	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MESOGASTROPODA	W	256	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turritellinae	W	267	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turritella communis	W	270	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0
Littorinidae	W	283	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lacuna vincta	W	292	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0
Rissoidae	W	324	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rissoa parva	W	334	0	20	60	40	0	0	0	20	0	0	40	0	0	0	0	0	120	0
Alvania beanii	W	338	0	0	160	0	20	0	20	0	0	0	0	0	0	0	0	0	0	0
Onoba semicostata	W	371	0	0	220	0	0	20	0	0	0	0	20	0	0	0	0	0	0	0
Caecidae	W	411	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Caecum trachea	W	414	60	0	20	20	0	0	40	0	20	60	0	40	0	0	0	40	0	0
Caecum glabrum	W	418	120	20	0	500	0	0	0	0	0	20	0	60	0	0	600	80	5100	980
Naticidae	W	482	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Euspira sp. (juv)	W	492	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0

Station			S1 A	S1 B	S2 A	S2 B	S3 A	S3 B	S4 A	S4 B	S5 A	S5 B	S6 A	S6 B	S7 B	S7 A	S8 A	S8 B	S9 REF A	S9 REF B
Euspira nitida	W		60	20	0	80	20	0	0	0	40	40	0	80	20	20	60	80	0	0
NEOGASTROPODA	W	670	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buccinidae	W	702	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nassarius sp. (juv)	W	743	120	220	20	0	80	40	20	60	0	0	60	0	0	0	20	0	80	20
Nassarius sp. (partial/damaged)	W	743	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0
Nassarius incrassatus	W	747	200	100	0	40	20	20	0	0	0	20	0	0	0	0	20	0	0	0
Nassarius pygmaeus	W	748	2880	1680	0	740	40	440	0	160	0	0	40	0	0	0	0	0	0	40
Nassarius nitidus	W		0	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OPISTHOBRANCHIA	W		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CEPHALASPIDEA	W	1002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diaphanidae	W	1053	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diaphana minuta	W	1059	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0
Retusidae	W	1073	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retusa truncatula	W	1080	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0
NUDIBRANCHIA	W	1243	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nudibranch (indet)	W	1243	0	20	0	0	0	0	0	0	0	20	20	140	0	0	0	20	0	0
PELECYPODA	W	1560	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalvia (partial/damaged)	W	1560	0	0	80	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0
Bivalvia (indet)	W	1560	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
MYTILOIDA	W	1689	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mytilidae	W	1691	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mytilidae (juv)	W	1691	560	160	2540	700	60	100	140	3520	40	120	40	20	0	0	160	40	1940	660
Mytilus edulis	W	1695	80	380	120	0	100	0	20	140	0	0	0	20	0	0	0	0	0	0
Modiolus sp. (juv)	W	1698	0	0	0	0	0	0	0	860	0	0	0	0	0	0	0	0	0	0
Modiolus modiolus	W	1702	20	0	80	0	0	0	60	0	0	0	0	0	0	0	0	0	0	0
OSTREOIDA	W	1752	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Station			S1 A	S1 B	S2 A	S2 B	S3 A	S3 B	S4 A	S4 B	S5 A	S5 B	S6 A	S6 B	S7 B	S7 A	S8 A	S8 B	S9 REF A	S9 REF B
Anomiidae	W	1805	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Anomiidae (juv)	W	1805	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	80	40
Anomia ephippium	W	1807	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0
VENEROIDA	W	1815	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Montacutidae	W	1888	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kurtiella bidentata	W	1906	60	40	240	140	0	40	60	0	40	40	0	0	0	0	60	0	180	100
Astartidae	W	1921	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Goodallia triangularis	W	1929	20	40	0	20	0	40	0	0	0	20	0	40	0	0	340	140	280	820
Cardiidae	W	1938	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cardiidae (juv)	W	1938	0	0	0	0	0	0	0	0	0	20	0	0	0	0	40	20	0	0
Parvicardium sp. (juv)	W	1947	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	100
Parvicardium pinnulatum	W	1951	0	20	0	20	0	0	0	0	0	0	0	20	0	0	20	0	40	0
Mactridae	W	1967	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mactridae (juv)	W	1967	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0
Spisula subtruncata	W	1978	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0
Psammobiidae	W	2042	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gari sp. (juv)	W	2044	0	0	0	120	80	0	0	0	0	0	0	0	0	20	80	0	240	160
Gari tellinella	W	2049	40	0	0	20	240	20	0	0	0	80	0	60	0	0	0	80	120	160
Semelidae	W	2057	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Abra sp. (juv)	W	2058	0	0	0	0	0	0	0	20	0	0	0	0	0	20	0	0	0	0
Veneridae	W	2086	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Veneridae (juv)	W	2086	0	0	0	0	20	0	20	20	0	0	0	0	0	0	60	0	100	0
Gouldia minima	W	2095	0	0	20	0	20	20	0	0	0	0	0	0	0	0	0	0	20	20
Clausinella fasciata	W	2100	100	0	160	0	0	20	60	20	0	40	20	20	0	0	20	20	40	60
Timoclea ovata	W	2104	0	0	40	0	20	20	0	0	0	0	0	20	0	20	40	0	0	80
Polititapes rhomboides	W	2113	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0
Dosinia sp. (juv)	W	2126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	20	20

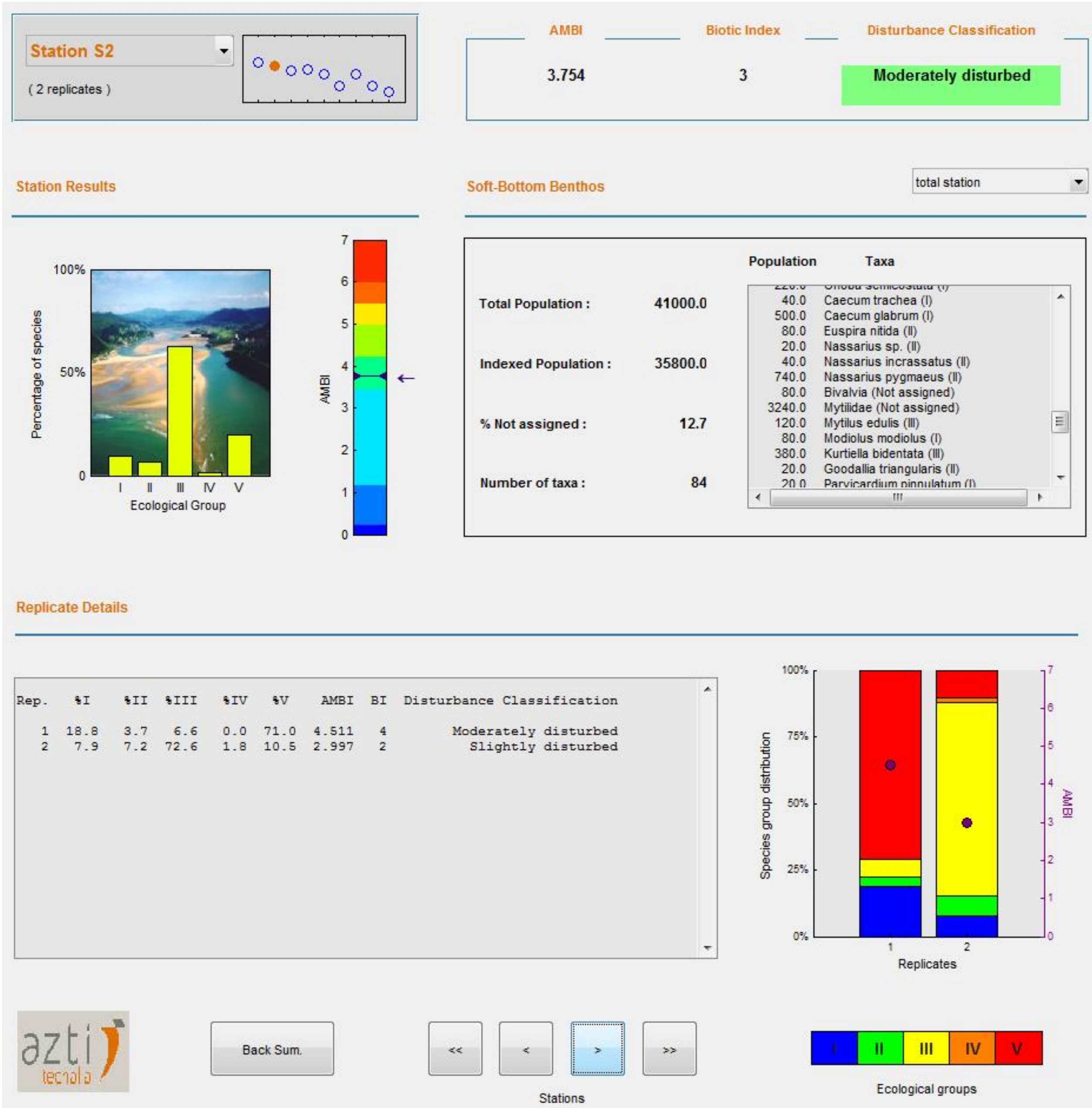
Station			**S1 A**	**S1 B**	**S2 A**	**S2 B**	**S3 A**	**S3 B**	**S4 A**	**S4 B**	**S5 A**	**S5 B**	**S6 A**	**S6 B**	**S7 B**	**S7 A**	**S8 A**	**S8 B**	**S9 REF A**	**S9 REF B**
Dosinia lupinus	W	2128	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0
MYOIDA	W	2140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hiatellidae	W	2164	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hiatella arctica	W	2166	20	0	0	20	20	0	0	0	0	0	0	0	0	0	0	0	20	0
PHOLADOMYOIDA	W	2220	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thraciidae	W	2226	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thracia sp. (juv)	W	2228	0	0	20	40	0	20	0	0	0	20	0	40	0	0	100	20	20	0
Thracia phaseolina	W	2231	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
Thracia villosiuscula	W	2233	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BRACHIOPODA	X	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ARTICULATA	X	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Megathirididae	X	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gwynia capsula	X	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	80	20
ECHINODERMATA	ZB	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CRINOIDEA	ZB	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COMATULIDA	ZB	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Antedonidae	ZB	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Antedonidae (juv)	ZB	8	0	0	0	0	0	0	0	40	0	0	0	0	0	0	0	0	0	0
Antedonidae (partial/damaged)	ZB	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0
Antedon bifida	ZB	10	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ASTEROIDEA	ZB	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asteroidea (juv)	ZB	18	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	20	0
Astropectinidae	ZB	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Astropecten irregularis	ZB	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0
OPHIUROIDEA	ZB	105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ophiuroidea (juv)	ZB	105	0	0	0	160	0	0	0	0	0	20	20	0	0	0	0	0	1340	20
OPHIURIDA	ZB	121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

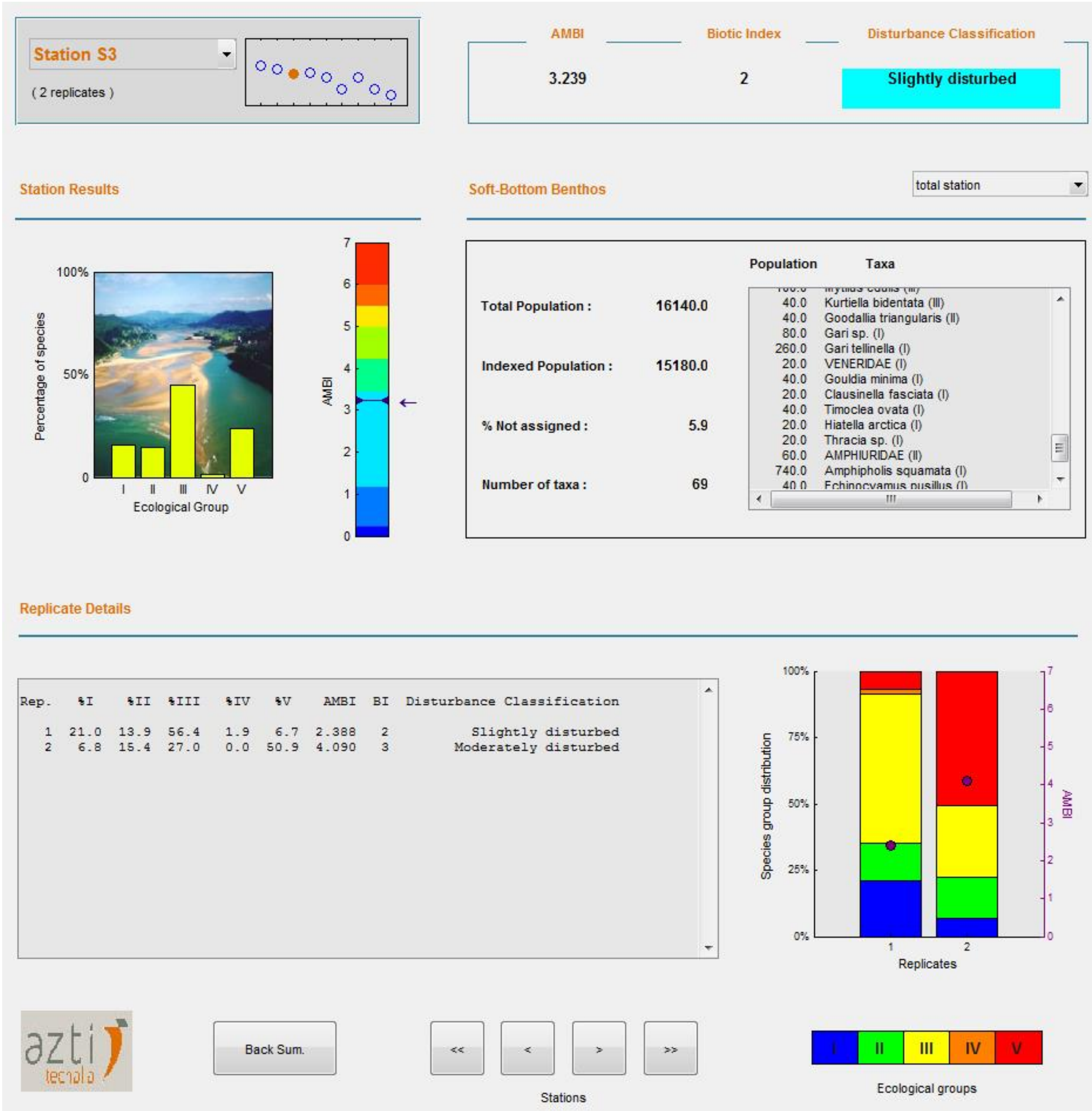
Station			S1 A	S1 B	S2 A	S2 B	S3 A	S3 B	S4 A	S4 B	S5 A	S5 B	S6 A	S6 B	S7 B	S7 A	S8 A	S8 B	S9 REF A	S9 REF B
Ophiocomidae	ZB	126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ophiocomina nigra	ZB	128	0	0	0	0	0	0	0	0	0	0	40	0	0	0	0	0	3360	0
Amphiuridae	ZB	148	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Amphiuridae (juv)	ZB	148	20	0	0	140	60	0	0	0	20	40	0	0	0	0	400	320	400	640
Amphiuridae (partial/damaged)	ZB	148	0	0	0	0	0	0	0	0	0	0	0	0	0	0	320	0	0	0
Amphipholis squamata	ZB	161	0	0	80	640	740	0	0	0	180	140	200	60	0	0	1000	240	3280	2300
Ophiuridae	ZB	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ophiura sp. (partial/damaged)	ZB	166	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ECHINOIDEA	ZB	181	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Echinoidea (juv)	ZB	181	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0
ECHINOIDA	ZB	190	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Parechinidae	ZB	191	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Psammechinus miliaris	ZB	193	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	20	0
Echinidae	ZB	194	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Echinocyamus pusillus	ZB	212	0	0	0	20	20	20	0	0	0	0	0	0	20	0	0	20	0	0
SPATANGOIDA	ZB	213	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Loveniidae	ZB	221	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Echinocardium sp. (juv)	ZB	222	20	0	0	20	0	0	0	0	0	0	0	0	60	20	20	0	0	20
HOLOTHURIOIDEA	ZB	229	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DENDROCHIROTIDA	ZB	249	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phyllophoridae	ZB	258	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thyone sp. (juv)	ZB	261	0	0	0	80	20	0	0	0	0	20	0	100	0	0	40	0	60	20
Thyone fusus	ZB	262	20	0	0	0	120	180	0	0	0	0	80	20	0	0	0	40	0	20
Thyone fusus (juv)	ZB	262	0	0	0	220	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cucumariidae	ZB	266	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cucumariidae (juv)	ZB	266	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0

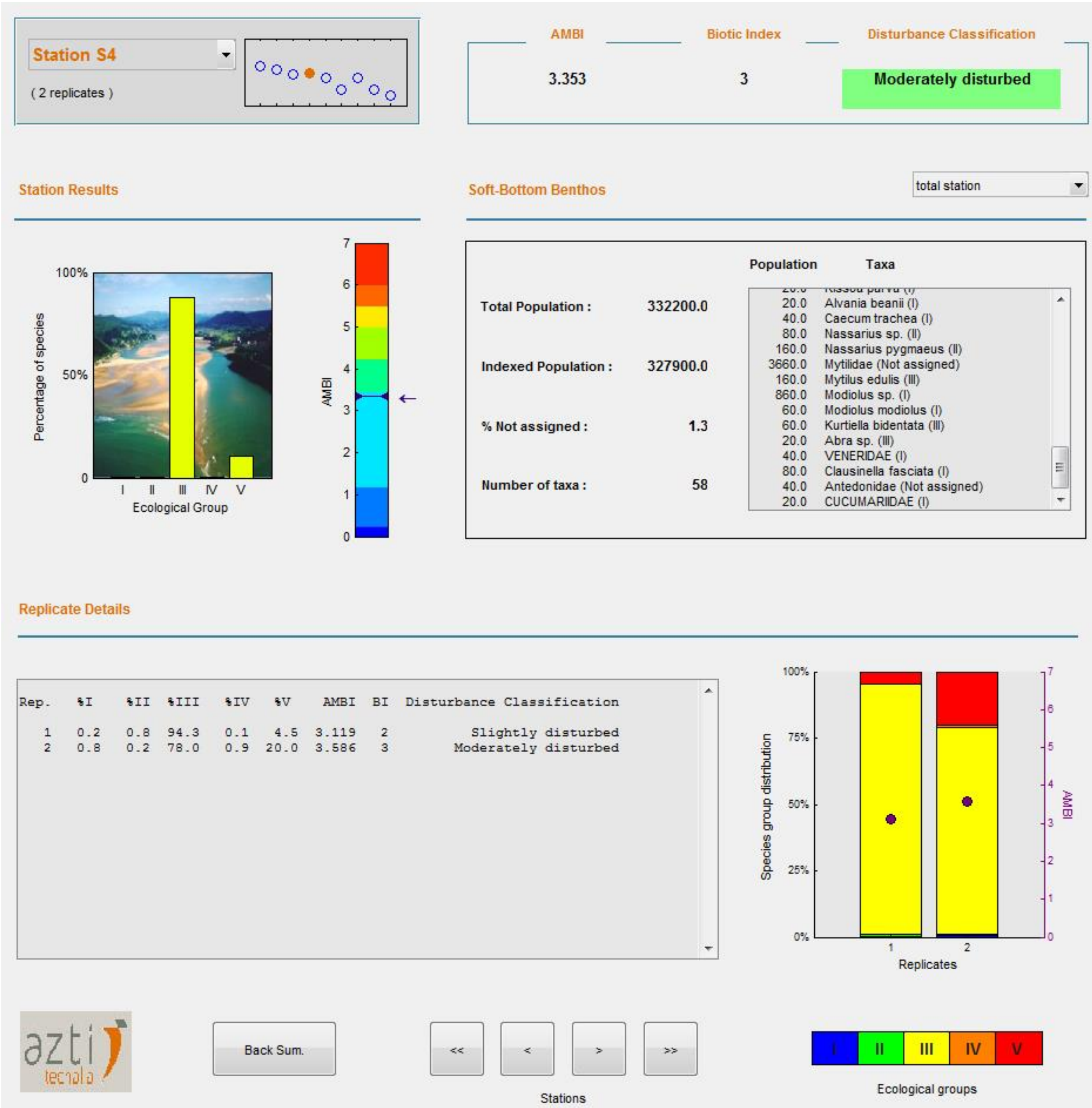
Station			**S1 A**	**S1 B**	**S2 A**	**S2 B**	**S3 A**	**S3 B**	**S4 A**	**S4 B**	**S5 A**	**S5 B**	**S6 A**	**S6 B**	**S7 B**	**S7 A**	**S8 A**	**S8 B**	**S9 REF A**	**S9 REF B**
Oncus brunneus	ZB	274	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APODIDA	ZB	289	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Synaptidae	ZB	290	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leptosynapta sp. (partial/damaged)	ZB	291	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0
Leptosynapta minuta	ZB	297	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	80

Appendix 4
AMBI Scores

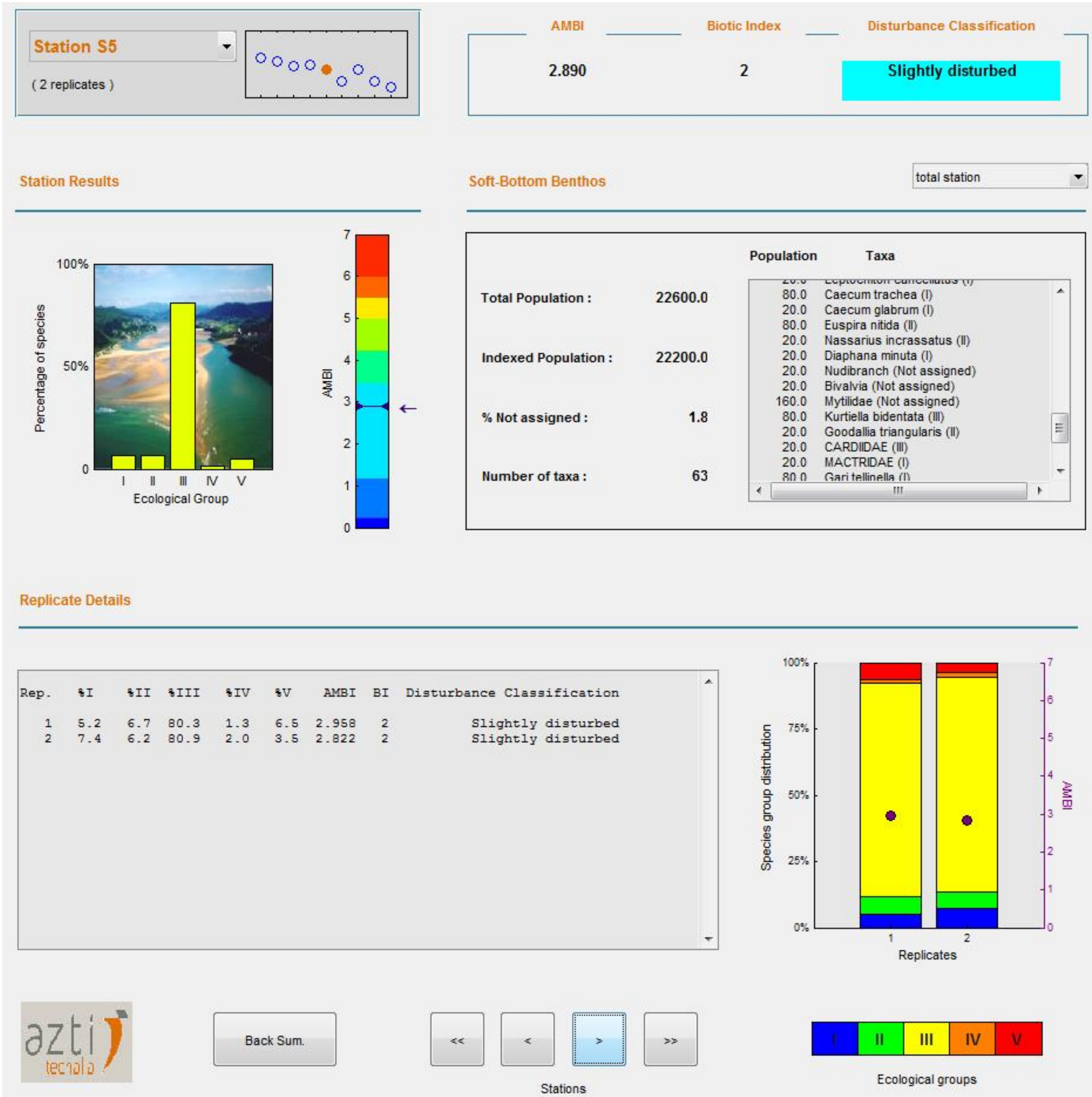

Station S1
(2 replicates)
AMBI
Biotic Index
Disturbance Classification
4.117
3
Moderately disturbed
Station Results
Soft-Bottom Benthos
total station
100%
50%
0
Percentage of species
I II III IV V
Ecological Group
AMBI
Population
Taxa
Total Population : 48540.0
Indexed Population : 47320.0
% Not assigned : 2.5
Number of taxa : 68
720.0 Mytilidae (Not assigned)
460.0 Mytilus edulis (III)
20.0 Modiolus modiolus (I)
100.0 Kurtiella bidentata (III)
60.0 Goodallia triangularis (II)
20.0 Parvicardium pinnulatum (I)
40.0 Gari tellinella (I)
100.0 Clausinella fasciata (I)
20.0 Tapes rhomboides (I)
20.0 Hiatella arctica (I)
20.0 Thracia villosiuscula (I)
20.0 AMPHIURIDAE (II)
20.0 Echinocardium sp. (Not assigned)
20.0 Thyone fusus (I)
Replicate Details
Rep. %I %II %III %IV %V AMBI BI Disturbance Classification
1 1.9 12.5 50.7 0.5 34.4 3.794 3 Moderately disturbed
2 0.9 16.8 24.8 0.3 57.2 4.440 4 Moderately disturbed
Species group distribution
100%
75%
50%
25%
0%
Replicates
AMBI
Back Sum.
<<
<
>
>>
Stations
I II III IV V
Ecological groups
azti tecnalia

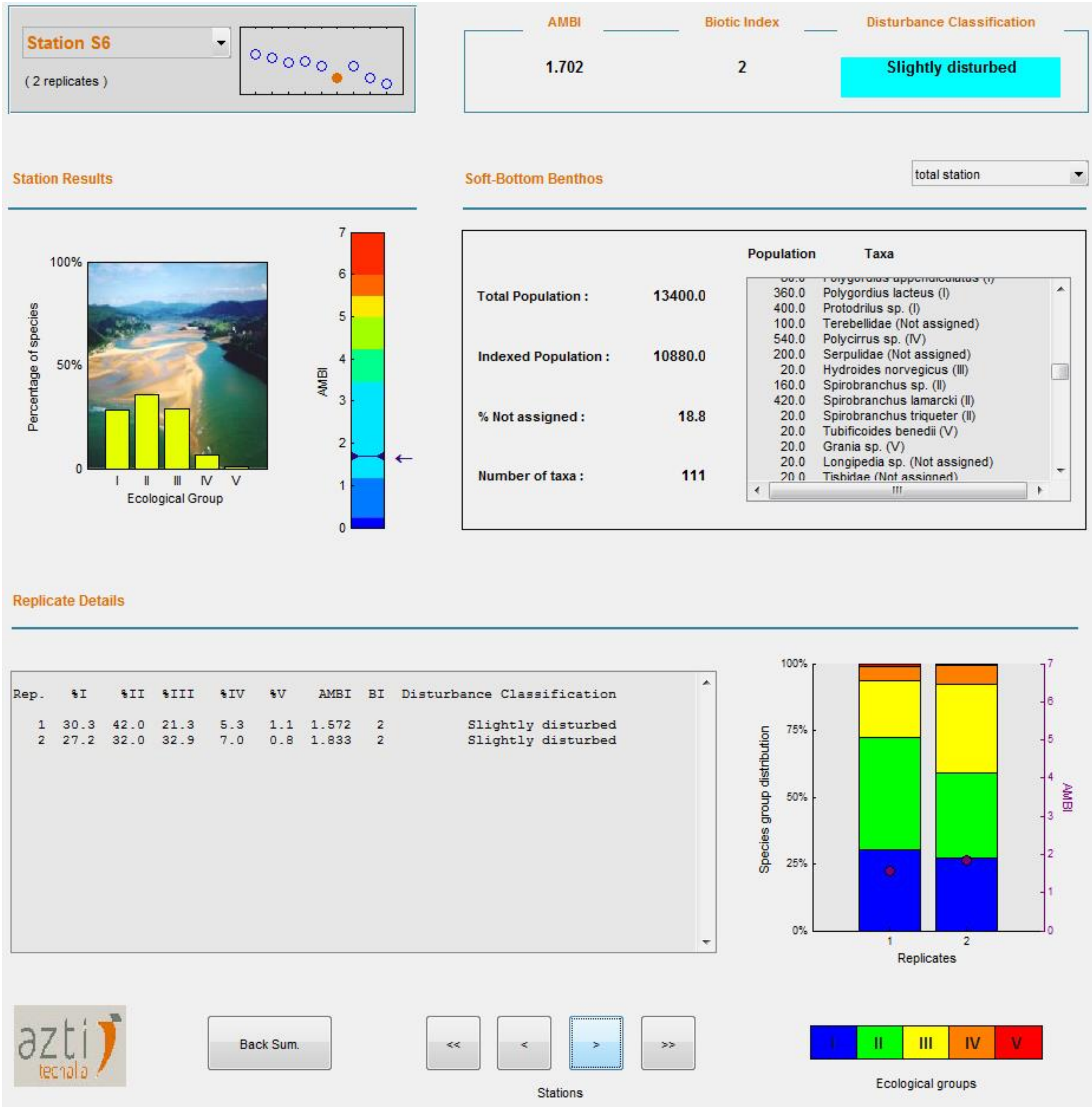

Station S2
(2 replicates)
AMBI
Biotic Index
Disturbance Classification
3.754
3
Moderately disturbed
Station Results
Soft-Bottom Benthos
total station
100%
50%
0
Percentage of species
I II III IV V
Ecological Group
AMBI
Population
Taxa
Total Population :
41000.0
Indexed Population :
35800.0
% Not assigned :
12.7
Number of taxa :
84
40.0 Caecum trachea (I)
500.0 Caecum glabrum (I)
80.0 Euspira nitida (II)
20.0 Nassarius sp. (II)
40.0 Nassarius incrassatus (II)
740.0 Nassarius pygmaeus (II)
80.0 Bivalvia (Not assigned)
3240.0 Mytilidae (Not assigned)
120.0 Mytilus edulis (III)
80.0 Modiolus modiolus (I)
380.0 Kurtiella bidentata (III)
20.0 Goodallia triangularis (II)
Replicate Details
Rep. %I %II %III %IV %V AMBI BI Disturbance Classification
1 18.8 3.7 6.6 0.0 71.0 4.511 4 Moderately disturbed
2 7.9 7.2 72.6 1.8 10.5 2.997 2 Slightly disturbed
100%
75%
50%
25%
0%
Species group distribution
AMBI
1 2
Replicates
Back Sum.
<< < > >>
Stations
I II III IV V
Ecological groups

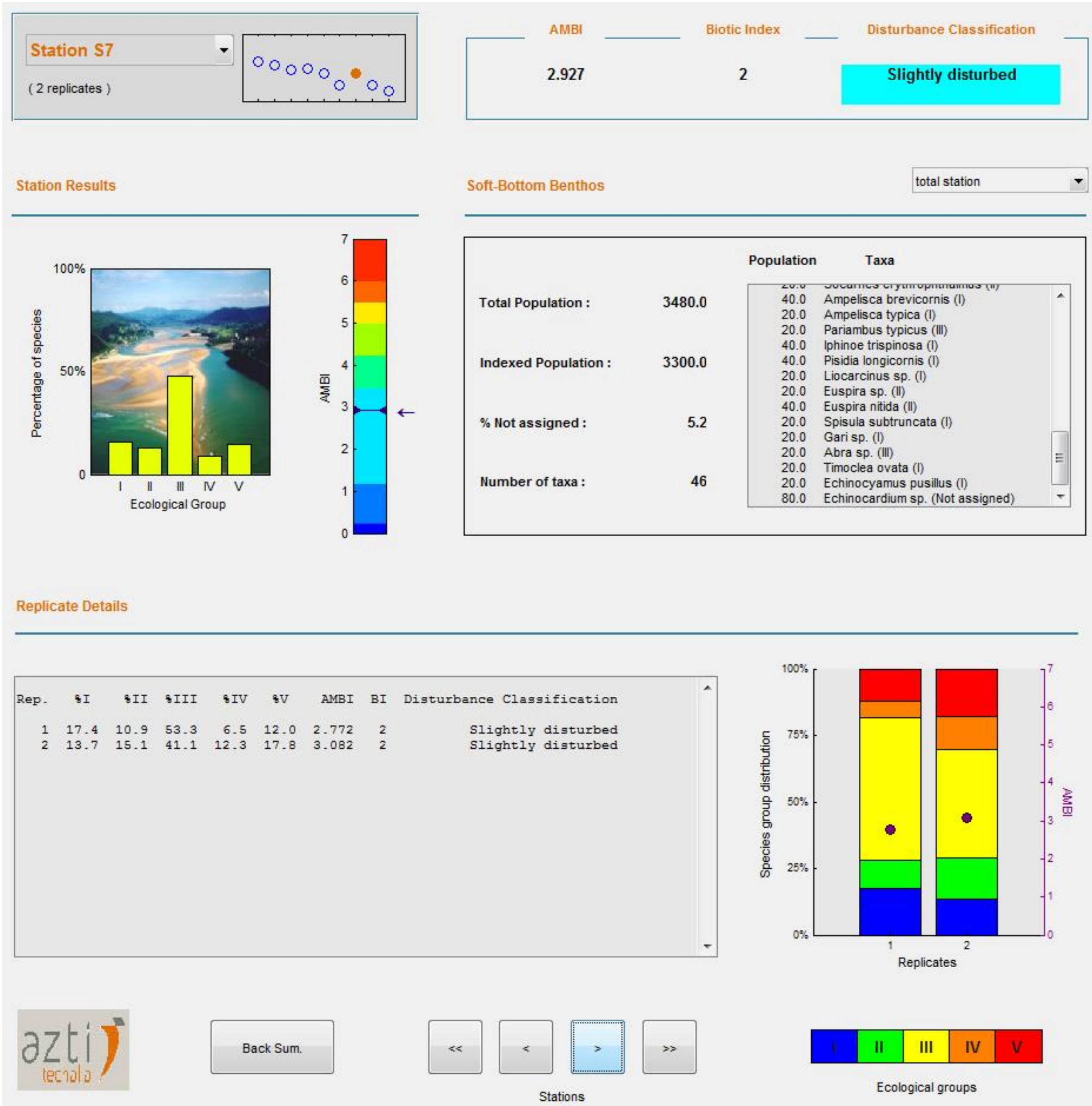

Station S3
(2 replicates)
AMBI
Biotic Index
Disturbance Classification
3.239
2
Slightly disturbed
Station Results
Soft-Bottom Benthos
total station
100%
50%
0
Percentage of species
I II III IV V
Ecological Group
AMBI
7 6 5 4 3 2 1 0
Population
Taxa
Total Population : 16140.0
Indexed Population : 15180.0
% Not assigned : 5.9
Number of taxa : 69
40.0 Kurtiella bidentata (III)
40.0 Goodallia triangularis (II)
80.0 Gari sp. (I)
260.0 Gari tellinella (I)
20.0 VENERIDAE (I)
40.0 Gouldia minima (I)
20.0 Clausinella fasciata (I)
40.0 Timoclea ovata (I)
20.0 Hiatella arctica (I)
20.0 Thracia sp. (I)
60.0 AMPHIURIDAE (II)
740.0 Amphipholis squamata (I)
Replicate Details
Rep. %I %II %III %IV %V AMBI BI Disturbance Classification
1 21.0 13.9 56.4 1.9 6.7 2.388 2 Slightly disturbed
2 6.8 15.4 27.0 0.0 50.9 4.090 3 Moderately disturbed
100% 75% 50% 25% 0%
Species group distribution
Replicates
1 2
AMBI
Back Sum.
<< < > >>
Stations
I II III IV V
Ecological groups

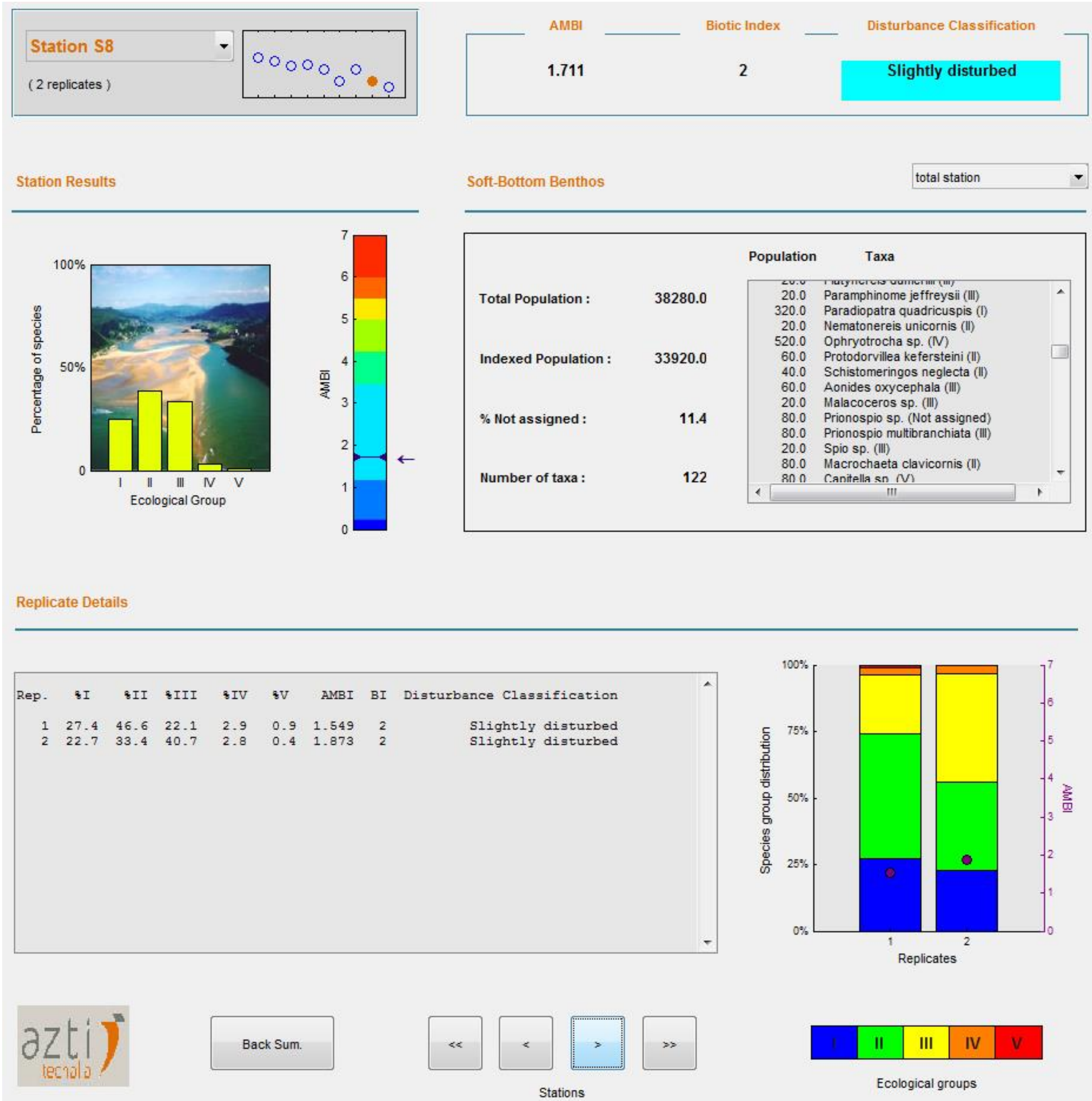


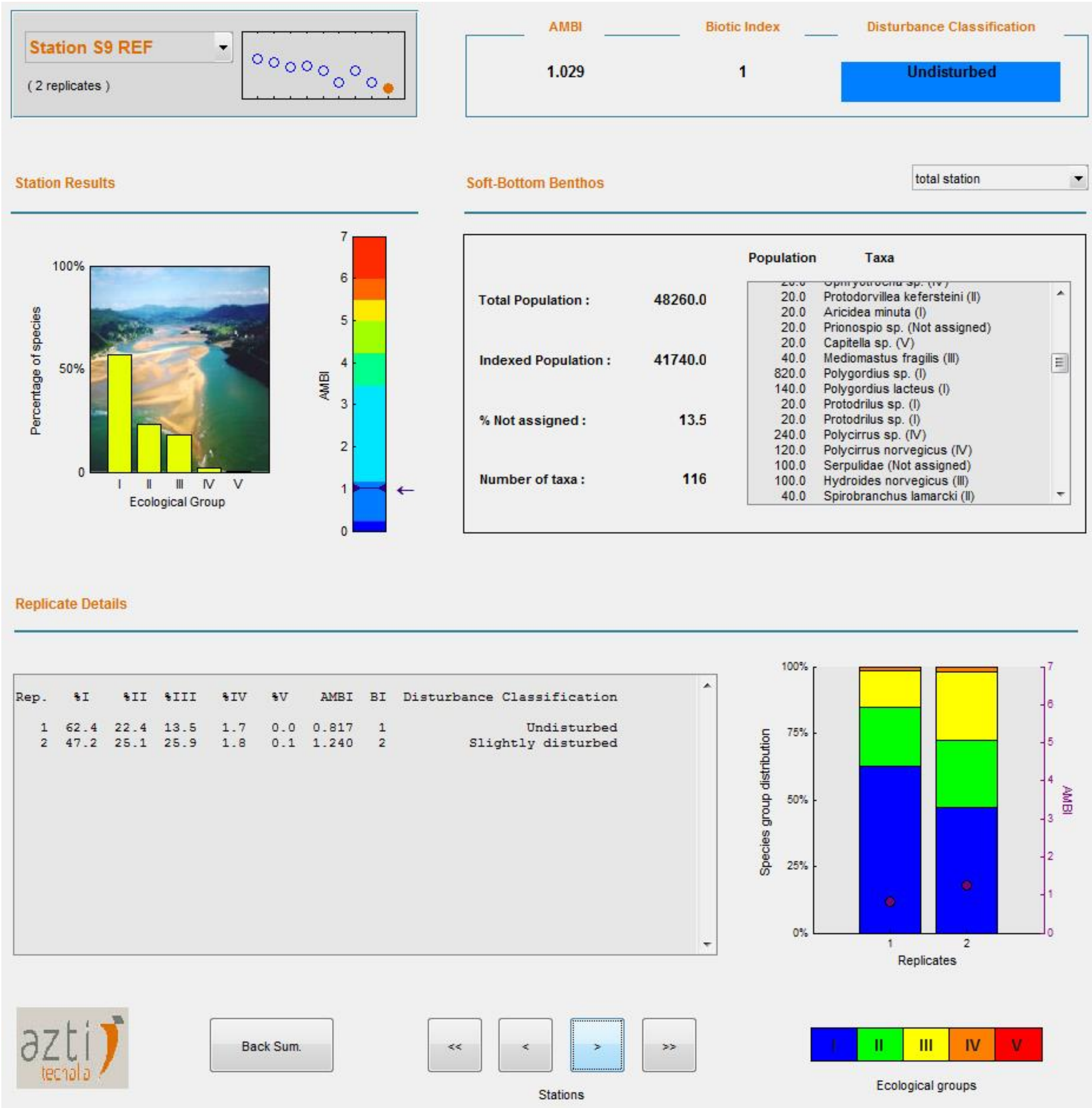
Station S4
(2 replicates)
AMBI
Biotic Index
Disturbance Classification
3.353
3
Moderately disturbed
Station Results
Soft-Bottom Benthos
total station
100%
50%
0
Percentage of species
I II III IV V
Ecological Group
AMBI
Population
Taxa
Total Population : 332200.0
Indexed Population : 327900.0
% Not assigned : 1.3
Number of taxa : 58
20.0 Alvania beanii (I)
40.0 Caecum trachea (I)
80.0 Nassarius sp. (II)
160.0 Nassarius pygmaeus (II)
3660.0 Mytilidae (Not assigned)
160.0 Mytilus edulis (III)
860.0 Modiolus sp. (I)
60.0 Modiolus modiolus (I)
60.0 Kurtiella bidentata (III)
20.0 Abra sp. (III)
40.0 VENERIDAE (I)
80.0 Clausinella fasciata (I)
40.0 Antedonidae (Not assigned)
20.0 CUCUMARIIDAE (I)
Replicate Details
Rep. %I %II %III %IV %V AMBI BI Disturbance Classification
1 0.2 0.8 94.3 0.1 4.5 3.119 2 Slightly disturbed
2 0.8 0.2 78.0 0.9 20.0 3.586 3 Moderately disturbed
Species group distribution
Replicates
Back Sum.
Stations
Ecological groups


Station S5
(2 replicates)
AMBI
Biotic Index
Disturbance Classification
2.890
2
Slightly disturbed
Station Results
Soft-Bottom Benthos
total station
100%
50%
0
Percentage of species
I II III IV V
Ecological Group
AMBI
Population
Taxa
Total Population : 22600.0
Indexed Population : 22200.0
% Not assigned : 1.8
Number of taxa : 63
80.0 Caecum trachea (I)
20.0 Caecum glabrum (I)
80.0 Euspira nitida (II)
20.0 Nassarius incrassatus (II)
20.0 Diaphana minuta (I)
20.0 Nudibranch (Not assigned)
20.0 Bivalvia (Not assigned)
160.0 Mytilidae (Not assigned)
80.0 Kurtiella bidentata (III)
20.0 Goodallia triangularis (II)
20.0 CARDIIDAE (III)
20.0 MACTRIDAE (I)
Replicate Details
Rep. %I %II %III %IV %V AMBI BI Disturbance Classification
1 5.2 6.7 80.3 1.3 6.5 2.958 2 Slightly disturbed
2 7.4 6.2 80.9 2.0 3.5 2.822 2 Slightly disturbed
Species group distribution
Replicates
Back Sum.
<< < > >>
Stations
I II III IV V
Ecological groups


Station S6
(2 replicates)
AMBI
Biotic Index
Disturbance Classification
1.702
2
Slightly disturbed
Station Results
Soft-Bottom Benthos
total station
100%
50%
0
Percentage of species
I II III IV V
Ecological Group
AMBI
Population
Taxa
Total Population : 13400.0
Indexed Population : 10880.0
% Not assigned : 18.8
Number of taxa : 111
360.0 Polygordius lacteus (I)
400.0 Protodrilus sp. (I)
100.0 Terebellidae (Not assigned)
540.0 Polycirrus sp. (IV)
200.0 Serpulidae (Not assigned)
20.0 Hydroides norvegicus (III)
160.0 Spirobranchus sp. (II)
420.0 Spirobranchus lamarcki (II)
20.0 Spirobranchus triqueter (II)
20.0 Tubificoides benedii (V)
20.0 Grania sp. (V)
20.0 Longipedia sp. (Not assigned)
Replicate Details
Rep. %I %II %III %IV %V AMBI BI Disturbance Classification
1 30.3 42.0 21.3 5.3 1.1 1.572 2 Slightly disturbed
2 27.2 32.0 32.9 7.0 0.8 1.833 2 Slightly disturbed
100%
75%
50%
25%
0%
Species group distribution
1 2
Replicates
AMBI
Back Sum.
<< < > >>
Stations
I II III IV V
Ecological groups


Station S7
(2 replicates)
AMBI
Biotic Index
Disturbance Classification
2.927
2
Slightly disturbed
Station Results
Soft-Bottom Benthos
total station
100%
50%
0
Percentage of species
I II III IV V
Ecological Group
AMBI
7 6 5 4 3 2 1 0
Population
Taxa
Total Population :
3480.0
Indexed Population :
3300.0
% Not assigned :
5.2
Number of taxa :
46
40.0 Ampelisca brevicornis (I)
20.0 Ampelisca typica (I)
20.0 Pariambus typicus (III)
40.0 Iphinoe trispinosa (I)
40.0 Pisidia longicornis (I)
20.0 Liocarcinus sp. (I)
20.0 Euspira sp. (II)
40.0 Euspira nitida (II)
20.0 Spisula subtruncata (I)
20.0 Gari sp. (I)
20.0 Abra sp. (III)
20.0 Timoclea ovata (I)
20.0 Echinocyamus pusillus (I)
80.0 Echinocardium sp. (Not assigned)
Replicate Details
Rep. %I %II %III %IV %V AMBI BI Disturbance Classification
1 17.4 10.9 53.3 6.5 12.0 2.772 2 Slightly disturbed
2 13.7 15.1 41.1 12.3 17.8 3.082 2 Slightly disturbed
100%
75%
50%
25%
0%
Species group distribution
1 2
Replicates
AMBI
azti tecnalia
Back Sum.
<< < > >>
Stations
I II III IV V
Ecological groups


Station S8
(2 replicates)
AMBI
Biotic Index
Disturbance Classification
1.711
2
Slightly disturbed
Station Results
Soft-Bottom Benthos
total station
100%
50%
0
Percentage of species
I II III IV V
Ecological Group
AMBI
0 1 2 3 4 5 6 7
Population
Taxa
Total Population : 38280.0
Indexed Population : 33920.0
% Not assigned : 11.4
Number of taxa : 122
20.0 Paramphinome jeffreysii (III)
320.0 Paradiopatra quadricuspis (I)
20.0 Nematonereis unicornis (II)
520.0 Ophryotrocha sp. (IV)
60.0 Protodorvillea kefersteini (II)
40.0 Schistomeringos neglecta (II)
60.0 Aonides oxycephala (III)
20.0 Malacoceros sp. (III)
80.0 Prionospio sp. (Not assigned)
80.0 Prionospio multibranchiata (III)
20.0 Spio sp. (III)
80.0 Macrochaeta clavicornis (II)
Replicate Details
Rep. %I %II %III %IV %V AMBI BI Disturbance Classification
1 27.4 46.6 22.1 2.9 0.9 1.549 2 Slightly disturbed
2 22.7 33.4 40.7 2.8 0.4 1.873 2 Slightly disturbed
100%
75%
50%
25%
0%
Species group distribution
AMBI
1 2
Replicates
azti tecnalia
Back Sum.
<< < > >>
Stations
I II III IV V
Ecological groups



Station S9 REF
(2 replicates)
AMBI
Biotic Index
Disturbance Classification
1.029
1
Undisturbed
Station Results
Soft-Bottom Benthos
total station
100%
50%
0
Percentage of species
I II III IV V
Ecological Group
AMBI
Population
Taxa
Total Population : 48260.0
Indexed Population : 41740.0
% Not assigned : 13.5
Number of taxa : 116
20.0 Protodorvillea kefersteini (II)
20.0 Aricidea minuta (I)
20.0 Prionospio sp. (Not assigned)
20.0 Capitella sp. (V)
40.0 Mediomastus fragilis (III)
820.0 Polygordius sp. (I)
140.0 Polygordius lacteus (I)
20.0 Protodrilus sp. (I)
20.0 Protodrilus sp. (I)
240.0 Polycirrus sp. (IV)
120.0 Polycirrus norvegicus (IV)
100.0 Serpulidae (Not assigned)
100.0 Hydroides norvegicus (III)
40.0 Spirobranchus lamarcki (II)
Replicate Details
Rep. %I %II %III %IV %V AMBI BI Disturbance Classification
1 62.4 22.4 13.5 1.7 0.0 0.817 1 Undisturbed
2 47.2 25.1 25.9 1.8 0.1 1.240 2 Slightly disturbed
100%
75%
50%
25%
0%
Species group distribution
Replicates
AMBI
azti tecnalia
Back Sum.
<<
<
>
>>
Stations
I II III IV V
Ecological groups

Appendix 5
Non Pollution Indicator Taxa

Station	S1
Capitella sp. complex	17400
Mediomastus fragilis	16120
Nassarius pygmaeus	4560
Malacoceros fuliginosus	1640
Nematoda	1400
Malacoceros sp.	860
Mytilidae	720
Aonides oxycephala	520
Mytilus edulis	460
Protodorvillea kefersteini	360
Grania sp.	340
Nassarius sp.	340
Nassarius incrassatus	300
Nassarius nitidus	240
Miraciidae	220
Nebalia kocatasi	220
Eteone longa agg.	200
Phyllodoce mucosa	180
Sphaerosyllis bulbosa	180
Nebalia sp.	160
Glycera sp.	140
Caecum glabrum	140
Caulleriella alata	120
Paguridae	100
Kurtiella bidentata	100
Clausinella fasciata	100

Station	S2
Mediomastus fragilis	11380
Nematoda	10120
Capitella sp. complex	6940
Mytilidae	3240
Miraciidae	1440
Nassarius pygmaeus	740
Amphipholis squamata	720
Caecum glabrum	500
Protodrilus purpureus	420
Kurtiella bidentata	380
Caulleriella alata	240

Nemertea	220
Onoba semicostata	220
Thyone fusus	220
Glycera sp.	200
Alvania beanii	160
Clausinella fasciata	160
Ophiuroidea	160
Glycera lapidum agg.	140
Ophryotrocha sp.	140
Protodorvillea kefersteini	140
Socarnes erythrophthalmus	140
Amphiuridae	140
Sphaerosyllis bulbosa	120
Mytilus edulis	120
Gari sp.	120
Polycirrus sp.	100
Atelecyclus rotundatus	100
Rissoa parva	100

Station	**S3**
Mediomastus fragilis	4920
Capitella sp. complex	3120
Nematoda	1240
Amphipholis squamata	740
Socarnes erythrophthalmus	560
Protodrilus sp.	520
Nassarius pygmaeus	480
Malacoceros fuliginosus	360
Thyone fusus	300
Aonides oxycephala	280
Gari tellinella	260
Spirobranchus lamarcki	200
Glycera lapidum agg.	180
Protodorvillea kefersteini	180
Mytilidae	160
Miraciidae	140
Polynoidae	120
Spionidae	120
Paguridae	120
Nassarius sp.	120

Eteone longa agg.	100
Caulleriella alata	100
Bulbamphiasus denticulatus	100
Leptochiton cancellatus	100
Mytilus edulis	100

Station	S4	Reference
Nematoda	283680	
Capitella sp. complex	29120	
Malacoceros fuliginosus	5340	
Mytilidae	3660	
Malacoceros sp.	2420	
Mediomastus fragilis	1820	
Protodorvillea kefersteini	1440	
Modiolus sp.	860	
Cirratulidae	740	
Miraciidae	500	
Caulleriella alata	480	
Nebalia kocatasi	280	
Nassarius pygmaeus	160	
Mytilus edulis	160	
Melitidae	100	
Atelecyclus rotundatus	60	20
Leptochiton asellus	40	40

Station	S5
Nematoda	10860
Mediomastus fragilis	6380
Capitella sp. complex	860
Protodrilus purpureus	480
Glycera lapidum agg.	320
Amphipholis squamata	320
Protodrilus sp.	240
Caulleriella alata	200
Polycirrus sp.	180
Spirobranchus sp.	180
Glycera sp.	160
Protodorvillea kefersteini	160
Mytilidae	160
Nemertea	140

Eteone longa agg.	140
Polynoidae	100
Tubificoides benedii	100

Station	**S6**
Mediomastus fragilis	1760
Socarnes erythrophthalmus	1440
Polygordius sp.	740
Miraciidae	740
Nematoda	680
Polycirrus sp.	540
Glycera lapidum agg.	420
Sphaerosyllis hystrix	420
Spirobranchus lamarcki	420
Protodrilus sp.	400
Polynoidae	360
Polygordius lacteus	360
Amphipholis squamata	260
Syllidia armata	200
Serpulidae	200
Nemertea	180
Aonides oxycephala	180
Ambunguipes rufocincta	180
Spirobranchus sp.	160
Nudibranch	160
Glycera sp.	120
Hesionidae	120
Paguridae	120
Eteone longa agg.	100
Terebellidae	100
Leptochiton cancellatus	100
Thyone sp.	100
Thyone fusus	100

Station	**S7**	**Control**
Nematoda	540	
Spio sp.	420	
Spiophanes bombyx	260	
Capitella sp. complex	260	
Mediomastus fragilis	220	

Tubificoides pseudogaster aggregate	200	
Polycirrus sp.	140	
Perioculodes longimanus	140	
Owenia fusiformis	100	
Aricidea (Arcidea) minuta	80	20

Station	**S8**
Leptocheirus hirsutimanus	5440
Socarnes erythrophthalmus	5400
Nematoda	4280
Sphaerosyllis bulbosa	2060
Gammaropsis lobata	1380
Aoridae	1340
Pisione remota	1280
Amphipholis squamata	1240
Amphiuridae	1040
Sphaerosyllis hystrix	860
Polynoidae	820
Miraciidae	780
Caecum glabrum	680
Stenothoe monoculoides	560
Ophryotrocha sp.	520
Mediomastus fragilis	480
Goodallia triangularis	480
Leptochiton cancellatus	440
Trypanosyllis coeliaca	420
Polycirrus sp.	360
Ambunguipes rufocincta	360
Psamthe fusca	340
Syllidia armata	340
Paramunna bilobata	340
Nemertea	320
Glycera lapidum agg.	320
Paradiopatra quadricuspis	320
Ambunguipes vanhoeffeni	260
Glycera sp.	220
Serpulidae	220
Microcharon harrisi	220
Hesionidae	200
Mytilidae	200
Nereididae	180

Spirobranchus sp.	180
Polygordius sp.	160
Spirobranchus lamarcki	160
Chaetognathia	140
Harmothoe sp.	140
Euspira nitida	140
Gastropoda	120
Thracia sp.	120
Malmgreniella ljungmani	100
Lysianassidae	100
Microdeutopus versiculatus	100

Station	**S9 REF**
Caecum glabrum	6080
Amphipholis squamata	5580
Nematoda	4600
Ophiocomina nigra	3360
Mytilidae	2600
Sphaerosyllis bulbosa	2260
Leptochiton cancellatus	1760
Leptocheirus hirsutimanus	1700
Paradiopatra quadricuspis	1400
Ophiuroidea	1360
Ostracoda	1180
Goodallia triangularis	1100
Amphiuridae	1040
Polynoidae	980
Trypanosyllis coeliaca	920
Polygordius sp.	820
Gastropoda	800
Animoceradocus semiserratus	720
Nemertea	680
Sphaerosyllis hystrix	680
Pareurythoe borealis	680
Pisione remota	480
Skenea serpuloides	480
Gari sp.	400
Pholoe inornata	340
Gammaropsis lobata	340
Kurtiella bidentata	280

Gari tellinella	280
Socarnes erythrophthalmus	260
Paramunna bilobata	260
Polycirrus sp.	240
Nereiphylla rubiginosa	220
Leptochiton sp.	220
Syllis cornuta	140
Polygordius lacteus	140
Stenothoe monoculoides	140
Nannastacus unguiculatus	140
Malmgreniella ljungmani	120
Ephesiella peripatus	120
Polycirrus norvegicus	120
Rissoa parva	120
Anomiidae	120
Glycera sp.	100
Serpulidae	100
Hydroides norvegica	100
Nassarius sp.	100
Parvicardium sp.	100
Veneridae	100
Clausinella fasciata	100
Gwynia capsula	100