**Appendix**



Fig. A1. Sampling design diagram with spatial and habitat scales that correspond to the factors of the ANOVA: Habitats (V, NV) orthogonal to spatial nested scales of Estuaries (BEN, VIB, PAE), Areas (A1, A2), Sites (S1, S2) and Plots (P1, P2, P3), with three replicates each.

Table A1. Similarity percentages (SIMPER) analysis with contribution (%) for each taxa that most contributed to dissimilarities among habitats in each area and estuary at the cutoff level of 80%.

|  |  |  |  |
| --- | --- | --- | --- |
| **BEN A1 V - BEN A1 NV** |  |  |  |
| **Species** | **Av.Diss** | **Contrib%** | **Cum.%** |
| **Kalliapseudidae** | 39.24 | 51.95 | 51.95 |
| **Oligochaeta** | 12.36 | 16.36 | 68.31 |
| **Capitellidae** | 3.8 | 5.03 | 73.34 |
| **Ampharetidae** | 3.79 | 5.02 | 78.36 |
| **Polychaeta sp1** | 3.4 | 4.5 | 82.86 |
|  |  |  |  |
| **PAE A1 V - PAE A1 NV** |  |  |  |
| **Species** | **Av.Diss** | **Contrib%** | **Cum.%** |
| **Oligochaeta** | 20.02 | 27.98 | 27.98 |
| **Capitellidae** | 13.2 | 18.44 | 46.42 |
| **Nereididae** | 7.22 | 10.09 | 56.51 |
| **Pilargidae** | 4.21 | 5.89 | 62.4 |
| **Ampharetidae** | 4.07 | 5.69 | 68.09 |
| **Nemertea** | 3.89 | 5.44 | 73.52 |
| **Bivalvia not ID** | 2.64 | 3.69 | 77.21 |
| **Spionidae** | 2.63 | 3.67 | 80.88 |
|  |  |  |  |
| **VIB A1 V - VIB A1 NV** |  |  |  |
| **Species** | **Av.Diss** | **Contrib%** | **Cum.%** |
| **Oligochaeta** | 21.25 | 32.28 | 32.28 |
| **Spionidae** | 10.31 | 15.66 | 47.94 |
| **Capitellidae** | 7.4 | 11.24 | 59.18 |
| **Nereididae** | 5.72 | 8.69 | 67.87 |
| **Pilargidae** | 2.64 | 4.01 | 71.88 |
| **Polychaeta sp2** | 2.2 | 3.34 | 75.21 |
| **Bivalvia not ID** | 2.09 | 3.18 | 78.39 |
| **Sipuncula** | 1.95 | 2.96 | 81.35 |

Table A2. Similarity percentages (SIMPER) analysis with contribution (%) for each taxa that most contributed to dissimilarities in NV habitats among estuaries at the cutoff level of 80%.

|  |  |  |  |
| --- | --- | --- | --- |
| **BEN A1 NV – PAE A1 NV** |  |  | **BEN A1 NV – VIB A1 NV** |
| **Species** | **Av.Diss** | **Contrib%** | **Cum.%** |  |  | **Species** | **Av.Diss** | **Contrib%** | **Cum.%** |
| **Kalliapseudidae** | 49.96 | 56.29 | 56.29 |  |  | **Kalliapseudidae** | 41.34 | 48.25 | 48.25 |
| **Oligochaeta** | 15.05 | 16.95 | 73.24 |  |  | **Spionidae** | 13.7 | 15.99 | 64.24 |
| **Capitellidae** | 5.24 | 5.91 | 79.15 |  |  | **Oligochaeta** | 12.6 | 14.71 | 78.95 |
| **Nereididae** | 3.6 | 4.05 | 83.2 |  |  | **Capitellidae** | 3.48 | 4.06 | 83.01 |
|  |  |  |  |  |  |  |  |  |  |
| **VIB A1 NV - PAE A1 NV** |  |  |  |
| **Species** | **Av.Diss** | **Contrib%** | **Cum.%** |  |  |  |  |  |  |
| **Spionidae** | 30.31 | 38.92 | 38.92 |  |  |  |  |  |  |
| **Capitellidae** | 11.2 | 14.38 | 53.29 |  |  |  |  |  |  |
| **Nereididae** | 7.96 | 10.22 | 63.51 |  |  |  |  |  |  |
| **Oligochaeta** | 5.61 | 7.2 | 70.71 |  |  |  |  |  |  |
| **Bivalvia not ID** | 4.65 | 5.97 | 76.69 |  |  |  |  |  |  |
| **Pilargidae** | 4.43 | 5.69 | 82.37 |  |  |  |  |  |  |

Table A3. Macrofaunal densities (ind.m-2) reported in mangroves and tidal flats in different tropical (\*), subtropical (\*\*) and temperate (\*\*\*) estuaries. Min.= minimum value; max.= maximum value.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Location** | **Macrofaunal density****(min. – max.)****(ind.m−2)** | **Macrofaunal biomass (min. – max.)****(g AFDW m-2)** | **Macrofaunal secondary production (min. – max.) (mg m-2 day-1)** | **Habitat** | **Mesh size (mm)** | **Reference** |
| Rio Grande MarineEcoregion of Brazil  | Up to 7,250 |  |  | Mangrove\*\* | 0.5 | Netto & Galluci 2003 |
| Kenya | 265 to 4,125 (mean of 1,933) |  |  | Mangrove\* | 1 | Schrijvers et al. 1995 |
| Florida | 22,591 to 52,914  |  |  | Mangrove\*\* | 0.5 | Sheridan 1997 |
| New Zealand | Approx. 8,000  |  |  | Mangrove\*\*\* | 0.5 | Alfaro 2006 |
| Eastern Brazil MarineEcoregion | < 1,000 to 6,000 |  |  | Tidal flats\* | 0.5 | Mariano & Barros, 2014 |
| Southeastern Brazil MarineEcoregion | 500 to 3,000 |  |  | Tidal flats\*\* | 0.5 | Morais et al. 2016 |
| England (UK) |  | average 8.65 |  | Tidal flats\*\*\* | 0.86 | Fujii 2007 |
| NW Europe (Netherlands and Belgium) | 0 to 225,568 | 0 to 466.5 |  | Tidal flats\*\*\* | 1 | Ysebaert et al. 2003 |
| New Zealand |  | approximately 1 | approximately 10 | Intertidal estuary \*\*\* | 0.5 to 8.0 | Cowles et al. 2009 |
| Eastern Brazil Marine  | 3,013 (847 - 10,904) | 2.1805 | 38.3 | Mangrove BEN A1\*  | 1 mm | Present study |
| Ecoregion | 11,802 (2,655 - 27,740) | 2.8302 | 58.4 | Mangrove VIB A1\* |  |  |
|  | 4,391 (1,695 - 8,983) | 4.466 | 65 | Mangrove PAE A1\* |  |  |
| (Mean values) | 33,023 (1,808 – 60,056) | 7.6774 | 137.8 | Tidal flats BEN A1\* |  |  |
|  | 3,349 (452 – 7,458) | 0.53 | 13.5 | Tidal flats VIB A1\* |  |  |
|  | 1,033 (0 – 6,554) | 0.1007 | 3.5 | Tidal flats PAE A1\* |  |  |
|  | 3,336 (847 – 11,243) | 2.5655 | 46.7 | Mangrove BEN A2\* |  |  |
|  | 2,006 (0 – 5,198) | 1.9347 | 30 | Mangrove PAE A2\* |  |  |
|  | 12,068 (1,469 – 25,254) | 4.4803 | 86.7 | Tidal flats BEN A2\* |  |  |
|  | 785 (0 – 1,864) | 0.0501 | 2.1 | Tidal flats PAE A2\* |  |  |