**Table legends**

**Table 1.** Environmental context of sampling locations on the south coasts of Britain and South Korea.

**Table 2.** Nested PERMANOVA results for the different measurements; Co: Country, Re: Region, Sh: Shore, Pa: Patch, Rep: Replication, *df*: degree of freedom, P-F: Pseudo-F, ECV: Estimate Components of Variation, ECV%: percentage of ECV, Sqrt: square root of ECV, Bold values: *P* < 0.05.

**Table 3**. Nested PERMANOVA and PERMDISP results for the different measurements; Co: Country, Re: Region, Sh: Shore, Pa: Patch, Rep: Replication, *df*: degree of freedom, P-F: Pseudo-F, ECV: Estimate Components of Variation, ECV%: percentage of ECV, Sqrt: square root of ECV, AB: genera abundance, B-T: biological traits, F-T: feeding type, C-P: life history strategies, T-S: tail shape, Bold values: *P* < 0.05.

Table 1 Environmental context of sampling locations on the south coasts of Britain and South Korea

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **NO** | **Geographical****Region** | **Locality** | **Latitude N** | **Longitude****W** | **Tides****Range (m)** | **Annual****water****temperature****range (̊C)** | **Oceanic****Index**  |
| BW1 | Atlantic | Looe | 50°20'29.4"N | 4°27'39.7"W | 5.4 | 9~17 | 3 |
| BW2 | Atlantic | Heybrook Bay | 50°19'09.1"N | 4°06'51.7"W | 5.5 | 9~17 | 3 |
| BC1 | Atlantic | Portland Bill | 50°30'53.03"N | 2°27'19.44"W | 2.5 | 9~17 | 2 |
| BC2 | Atlantic | Swanage | 50°36'27.22"N | 1°56'39.38"W | 2.1 | 9~17 | 2 |
| BE1 | Atlantic | Brighton Marina | 50°48'39.87"N | 0°5'28.83"W | 6.5 | 8~17 | 1 |
| BE2 | Atlantic | Beachy Head | 50°44'15.0"N | 0°15'09.1"E | 7.3 | 9~17 | 1 |
| KW1 | Pacific | West-Wando | 34°17'47.6"N | 126°42'05.8"E | 4.0 | 9~23 | 2 |
| KW2 | Pacific | East-Wando | 34°18'13.5"N | 126°45'52.3"E | 4.0 | 9~23 | 2 |
| KC1 | Pacific | Yeosu | 34°49'08.8"N | 127°46'02.9"E | 3.7 | 7~25 | 1 |
| KC2 | Pacific | Namhae | 34°44'57.5"N | 127°54'37.4"E | 3.4 | 7~24 | 1 |
| KE1 | Pacific | Gueje | 34°59'51.4"N | 128°42'14.0"E | 2.2 | 12~23 | 3 |
| KE2 | Pacific | Busan | 35°09'39.9"N | 129°11'38.8"E | 1.4 | 11~23 | 3 |

Table 2 Nested PERMANOVA and PERMDISP results for genera density, richness and the estimated genus number. Co: Country, Re: Region, Sh: Shore, Pa: Patch, Rep: Replication, *df*: degree of freedom, P-F: Pseudo-F, ECV: Estimate Components of Variation, ECV%: percentage of ECV, Sqrt: square root of ECV, Bold values: *P* < 0.05.

|  |  |  |
| --- | --- | --- |
| 　 | PERMANOVA | PERMDISP |
| Term | *df* | P-F | *P* | ECV | ECV% | Sqrt | P-F | *P* |
| Genera richness | Co | 1 | 1.62 | 0.27 | 7.1 | 7 | 2.66 | 0.27 | 0.62 |
| Re | 4 | 4.91 | **0.02** | 27.16 | 27.16 | 5.21 | 2.87 | **0.046** |
| Sh | 6 | 1.43 | 0.21 | 4.23 | 4.17 | 2.05 | 1.82 | 0.15 |
| Pa | 24 | 1.7 | **0.03** | 11.97 | 11.8 | 3.46 | 1.3 | 0.96 |
| Rep | 72 |  |  | 50.96 | 50.24 | 7.13 |  |  |
| Density | Co | 1 | 2.76 | 0.17 | 17.18 | 18.2 | 4.14 | 10.12 | **0.03** |
| Re | 4 | 1.33 | 0.35 | 7.37 | 21.73 | 2.71 | 3.92 | **0.03** |
| Sh | 6 | 1.70 | 0.16 | 18 | 14.95 | 4.25 | 4.59 | **0.005** |
| Pa | 24 | 2.37 | **0.002** | 44.4 | 12.07 | 6.66 | 4.19 | **0.002** |
| Rep | 72 |  |  | 96.74 | 33.05 | 9.83 |  |  |
| EG(50) | Co | 1 | 0.71 | 0.43 | 2.78 | 3.4 | 1.67 | 0.01 | 0.9 |
| Re | 4 | 3.79 | 0.07 | 21.71 | 26.54 | 4.66 | 2.05 | 0,18 |
| Sh | 6 | 1.9 | 0.11 | 7.37 | 9 | 2.71 | 1.53 | 0.38 |
| Pa | 24 | 1.9 | **0.019** | 11.65 | 14.24 | 3.41 | 1.99 | 0.65 |
| Rep | 72 |  |  | 38.29 | 46.8 | 6.19 |  |  |

Table 3 Nested PERMANOVA and PERMDISP results for the different measurements; Co: Country, Re: Region, Sh: Shore, Pa: Patch, Rep: Replication, *df*: degree of freedom, P-F: Pseudo-F, ECV: Estimate Components of Variation, ECV%: percentage of ECV, Sqrt: square root of ECV, AB: genera abundance, B-T: biological traits, F-T: feeding type, C-P: life history strategies, T-S: tail shape, Bold values: *P* < 0.05.

|  |  |  |
| --- | --- | --- |
| 　 | PERMANOVA | PERMDISP |
| Term | *df* | P-F | *P* | ECV | ECV% | Sqrt | P-F | *P* |
| AB | Co | 1 | 2.67 | **0.02** | 454.11 | 16.68 | 21.31 | 0.29 | 0.6 |
| Re | 4 | 2.26 | **0.004** | 456.12 | 16.76 | 21.357 | 3.73 | **0.005** |
| Sh | 6 | 3.27 | **0.001** | 502.08 | 18.44 | 22.407 | 1.45 | 0.29 |
| Pa | 24 | 2.04 | **0.001** | 339.05 | 12.46 | 18.413 | 4.86 | **0.02** |
| Rep | 72 | 　 | 　 | 970.89 | 35.67 | 31.159 |  |  |
| B-T | Co | 1 | 2.65 | **0.048** | 331.61 | 18.2 | 18.21 | 3.41 | 0.08 |
| Re | 4 | 2.91 | **0.001** | 395.88 | 21.73 | 19.897 | 2.78 | **0.03** |
| Sh | 6 | 2.94 | **0.001** | 272.46 | 14.95 | 16.506 | 1.28 | 0.35 |
| Pa | 24 | 2.09 | **0.001** | 219.85 | 12.07 | 14.827 | 3.57 | **0.049** |
| Rep | 72 | 　 | 　 | 602.13 | 33.05 | 24.538 |  |  |
| F-T | Co | 1 | 0.55 | 0.647 | 25.26 | 6.25 | 5.02 | 3.25 | 0.07 |
| Re | 4 | 3.84 | **0.018** | 124.73 | 30.9 | 11.168 | 1.01 | 0.37 |
| Sh | 6 | 2.45 | **0.009** | 52.075 | 12.9 | 7.2163 | 0.85 | 0.7 |
| Pa | 24 | 2.27 | **0.001** | 60.023 | 14.8 | 7.7474 | 2.48 | 0.33 |
| Rep | 72 | 　 | 　 | 141.49 | 35.05 | 11.895 |  |  |
| C-P | Co | 1 | 1.4 | 0.303 | 29.24 | 5.74 | 5.4 | 0.77 | 0.42 |
| Re | 4 | 6.67 | **0.004** | 191.17 | 37.56 | 13.82 | 1.83 | 0.13 |
| Sh | 6 | 1.29 | 0.226 | 15.27 | 3 | 3.9 | 1.72 | 0.11 |
| Pa | 24 | 2.67 | **0.001** | 98.03 | 19.26 | 9.9 | 3.25 | **0.03** |
| Rep | 72 | 　 | 　 | 175.14 | 34.41 | 13.23 |  |  |
| T-S | Co | 1 | 0.26 | 0.823 | 2.17 | 11.08 | 1.47 | 1.69 | 0.22 |
| Re | 4 | 4.3 | **0.005** | 6.78 | 34.64 | 2.6 | 1.49 | 0.27 |
| Sh | 6 | 3.35 | **0.001** | 2.89 | 14.76 | 1.7 | 1.08 | 0.52 |
| Pa | 24 | 1.82 | **0.001** | 1.66 | 8.48 | 1.28 | 2.84 | 0.44 |
| Rep | 72 | 　 | 　 | 6.07 | 31.01 | 2.46 |  |  |