

(Fal estuary copepods)

Sediment copepod assemblages (and other fauna) from five creeks of the Fal estuary, SW England, were analysed by Somerfield PJ, Gee JM, Warwick RM 1994, *Mar Ecol Prog Ser* 105: 79-88. The sediments of this estuary are characterised by high and varying concentrations of heavy metals, a result of tin and copper mining over hundreds of years. The copepod data consist of 23 species found in 27 samples, consisting of 5 replicate cores spanning each creek (Mylor: M1-M5; Pill: P1-P5; St Just: J1-J5; Percuil: E1-E5; and 7 from the largest creek, Restronguet: R1-R7). These are in directory C:\Examples v7\Fal benthic fauna, worksheet Fal copepod counts(.pri), with a factor *Creek* identifying samples from the 5 creeks. There are also environmental cores (of silt/clay ratios, heavy metals etc.) matching these 27 sample locations, held in an Excel file Fal environment(.xls), plus nematode densities, macrofaunal counts and biomass, and associated aggregation files.

File>Open the copepod data and take **Pre-treatment>Dispersion weighting>**(Factor: *Creek*) & (Test of dispersion index) & (Num perms: 1000) & (Stats to worksheet). The **Data1** sheet gives the dispersion weighted counts, which are either ready to go into the **Analyse>Resemblance** step of the next section, or could be mildly transformed before they do so, as shown earlier with **Pre-treatment>Transform(overall)>**(Transformation: *Square root*). There seems little need for the latter, however, since the dispersion weighting has already succeeded in downweighting the larger, erratic counts coming from *P. littoralis*, *R. celtica*, *E. gariene* and *T. discipes* and the somewhat less erratic *P. curticorne* and *M. falla* - the matrix **Data1** now has no dispersion-weighted 'counts' in double figures, and the subsequent untransformed analysis will not be dominated by a small set of species. In three columns, **Data2** gives: the mean dispersion indices \overline{D} for each species; the evidence for clumping (i.e. the % significance level for a test of $\overline{D} = 1$); and the actual divisor used for that species row, which is 1 if the test does not reject this hypothesis at 5% (or better). Thus, *T. discipes* values are divided by 13.67 but *Brianola sp.* remains unchanged, though $\overline{D} = 1.5$. You might now like to run the routine again for the **Fal nematode abundance** file, which inspection shows must be numbers scaled up to a density, not real counts (e.g. there are no entries of 1!). The tick box for the test must be unchecked, the resulting \overline{D} values are all $\gg 1$, but weighting by \overline{D} is still justifiable.

The screenshot displays the PRIMER 7 software interface. The main window shows a workspace with a data table titled "Fal estuary copepods Abundance". A "Dispersion Weighting" dialog box is open, with "Creek" selected as the factor, "Test of dispersion index" checked, and "Num perms" set to 1000. The "Stats to worksheet" checkbox is also checked. A context menu is visible over the data table, with "Dispersion Weighting..." selected. Two other data tables are shown: "Data1" (Abundance) and "Data2" (Index of Dispersion (D) Coefficients Other).

Factors

Label	Creek
R1	R
R2	R
R3	R
R4	R
R5	R
R6	R

Dispersion Weighting

Factor: Creek

Test of dispersion index

Num perms: 1000

Stats to worksheet

OK Cancel

Data1

Fal estuary copepods
Abundance

Variables	Samples							
	R1	R2	R3	R4	R5	R6	R7	M1
Brianola sp.	0	0	0	0	0	0	0	0
Pseudobradya	1.694	1.223	0.470	1.129	0.188	1.035	0.188	1.788
Pseudobradya	0	0	0	0	0	0	0	0
Halectinosoma	0	0	0	0	0	0	0	0
Tachidius disci	0.877	0	0.146	0.146	0	0.804	0.073	0.438
Microarthridion	0.174	0.523	1.745	0.872	0.872	4.014	0.610	9.598
Harpacticus fle	0	0	0	0	0	0	0	0
Stenhelia palus	0.313	0.469	2.974	2.974	2.817	5.948	0.156	0.469
Stenhelia elizab	0	0	0	0	0.167	0.503	0.167	0.167
Amphiascoides	0.429	3.218	0.858	0.214	0	0.214	0	0.214
Robertsonia ce	0	0	0	0	0	0	0	0.201

Data2

Index of Dispersion (D) Coefficients
Other

Variables	Samples		
	D	Sig%	Divisor
Brianola sp.	1.5	21.9	1
Pseudobradya	10.622	2.5863E-35	10.622
Pseudobradya	4.4365	6.7057E-07	4.4365
Halectinosoma	7.3333	0	7.3333
Tachidius disci	13.67	8.6698E-49	13.67
Microarthridion	11.46	5.4319E-39	11.46
Harpacticus fle	1.5	23	1
Stenhelia palus	6.3882	2.854E-17	6.3882
Stenhelia elizab	5.9618	0	5.9618
Amphiascoides	4.661	2.3127E-10	4.661
Robertsonia ce	19.853	5.6033E-56	19.853

Revision #4

Created 22 May 2024 00:07:35 by Arden

Updated 15 January 2025 00:31:22 by Abby Miller