**Table S2.** Generalized Additive Models (GAM) significance test relating the abundance of different size classes of *P. magellanicus* and a series of environmental predictors (Fig. 5). Dev: Model fit or deviance, represents the difference between the estimated model and the saturated model. AIC: Akaike information Criteria

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Explanatory variable | Recruits and Juv (< 11 mm) | | | | Adults I (11-16 mm) | | | | Adults II (> 16 mm) | | | |
| Dev | F | *p* | AIC | Dev | F | *p* | AIC | Dev | F | *p* | AIC |
| Depth | 258.8 | 1.84 | 0.17 | 318.2 | 1198.2 | 3.11 | < 0.05 | 1382.4 | 1126.07 | 3.03 | < 0.05 | 1238.2 |
| Structural complexity | 209.7 | 6.71 | < 0.005 | 247.9 | 841.1 | 16.50 | < 0.001 | 940.6 | 858.62 | 13.84 | < 0.001 | 941.1 |
| Sediment content | 248.4 | 3.26 | < 0.05 | 291.5 | 1034.1 | 8.96 | < 0.001 | 1153.8 | 1121.29 | 3.45 | < 0.05 | 1223.3 |
| Seaweed availabiilty | 276.2 | 0.8 | 0.45 | 347.4 | 1279.8 | 1.45 | 0.24 | 1499.5 | 1119.51 | 3.23 | < 0.05 | 1231.7 |

d.f. null model: 72.