**Supporting information on model interpretation:**

For continuous variables, a count ratio of 0.1 means that when the term is 1 standard deviation below its mean and all other terms are at their means, then the count is 10% of what it is when all terms are at their means. A count ratio of 1.1 means that when the term is 1 standard deviation above its mean and all other terms are at their means, then the count is 10% higher than when all terms are at their means. For the categorical variable of Gear, a count ratio of 0.28 means that the Moc10 gear retained 28 percent as much total GZ per unit volume as the other gear. Since the model is using categorical variables Daytime and Gear MOC1 as the baseline, the above examples are all relative to those baselines. As long as we don’t expect the categorical variables to interact with the continuous ones (which we don’t), the baseline categories should not make a difference.

**Table S1: AICc table of model selection for *Beroe* spp. counts**. Each row represents a model Columns “Depth”, “Oxygen”, “Salinity”, and “Temp” represent coefficient estimates for the continuous variables, which were scaled to have mean zero and unit variance across the entire dataset for comparability. Columns “Gear” and “Time” represent the presence of those factors in the models. A blank entry means that the fixed effect did not appear in the submodel. All models also included intercepts, an offset of log volume of water filtered, a dispersion parameter for the negative binomial distribution, and random effects of trawl

and site. Models are presented in ascending order of delta AICc (the last column), up to 7. The column “df” is the number of parameters estimated in the model, which does not count the offset. The full model is represented by df=10.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Depth** | **Oxygen** | **Gear** | **Salinity** | **Temp** | **Time** | **df** | **delta** |
| 1.15 |  | + | 1.33 |  |  | 7 | 0.00 |
| 1.94 | -0.52 | + | 0.99 | 1.55 |  | 9 | 1.52 |
| 1.12 |  | + | 0.91 | 0.42 |  | 8 | 1.59 |
| 0.79 |  | + |  | 1.00 |  | 7 | 2.05 |
| 1.15 |  | + | 1.32 |  | + | 8 | 2.09 |
| 1.20 | -0.03 | + | 1.39 |  |  | 8 | 2.19 |
| 1.09 | -0.22 | + |  | 1.44 |  | 8 | 3.53 |
| 1.94 | -0.52 | + | 0.99 | 1.55 | + | 10 | 3.65 |
| 1.12 |  | + | 0.90 | 0.42 | + | 9 | 3.70 |
| 0.79 |  | + |  | 0.99 | + | 8 | 4.09 |
| 1.20 | -0.03 | + | 1.39 |  | + | 9 | 4.31 |
|  | 0.31 | + |  |  |  | 6 | 4.33 |
| 1.09 | -0.22 | + |  | 1.43 | + | 9 | 5.61 |
| 0.08 | 0.34 | + |  |  |  | 7 | 6.07 |
|  | 0.31 | + |  |  | + | 7 | 6.37 |
|  | 0.33 | + |  | -0.03 |  | 7 | 6.49 |
|  | 0.30 | + | 0.01 |  |  | 7 | 6.51 |

**Table S2: AICc table of model selection for hydromedusae counts**. Each row represents a model.

Columns “Depth”, “Oxygen”, “Salinity”, and “Temp” represent coefficient estimates for the continuous

variables which were scaled to have mean zero and unit variance across the entire dataset for comparability.

Columns “Gear” and “Time” represent the presence of those factors in the models. A blank entry means that

the fixed effect did not appear in the submodel. All models also included intercepts, an offset of log volume

of water filtered, a dispersion parameter for the negative binomial distribution, and random effects of trawl

and site. Models are presented in ascending order of delta AICc (the last column), up to 7. The column “df”

is the number of parameters estimated in the model, which does not count the offset. The full model is represented by df=10.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Depth** | **Oxygen** | **Gear** | **Salinity** | **Temp** | **Time** | **df** | **delta** |
|  | -0.70 | + |  | 1.17 |  | 7 | 0.00 |
|  | -0.71 | + |  | 1.16 | + | 8 | 0.69 |
| -0.80 |  | + |  |  |  | 6 | 1.21 |
| -0.79 |  | + |  |  | + | 7 | 1.83 |
|  | -0.67 | + | 0.24 | 0.95 |  | 8 | 1.84 |
| -0.23 | -0.59 | + |  | 0.90 |  | 8 | 1.94 |
| -0.88 | -0.18 | + |  |  |  | 7 | 1.96 |
| -0.88 | -0.20 | + |  |  | + | 8 | 2.34 |
|  | -0.67 | + | 0.29 | 0.90 | + | 9 | 2.39 |
| -0.27 | -0.58 | + |  | 0.84 | + | 9 | 2.53 |
| -1.01 |  | + | -0.23 |  |  | 7 | 3.06 |
| -0.90 |  | + |  | -0.10 |  | 7 | 3.28 |
|  | -0.43 | + | 1.05 |  |  | 7 | 3.51 |
| -1.02 |  | + | -0.25 |  | + | 8 | 3.65 |
|  | -0.45 | + | 1.06 |  | + | 8 | 3.67 |
| -0.92 |  | + |  | -0.14 | + | 8 | 3.83 |
| -0.71 | -0.24 | + | 0.21 |  |  | 8 | 4.06 |
| -0.07 | -0.64 | + | 0.19 | 0.91 |  | 9 | 4.07 |
| -0.68 | -0.27 | + | 0.25 |  | + | 9 | 4.42 |
| -0.08 | -0.64 | + | 0.24 | 0.86 | + | 10 | 4.65 |
| -1.01 |  | + | -0.24 | 0.01 |  | 8 | 5.27 |
| -1.03 |  | + | -0.22 | -0.03 | + | 9 | 5.88 |

**Table S3: AICc table of model selection for total gelatinous zooplankton (GZ) counts**. Each row represents a model. Columns “Depth”, “Oxygen”, “Salinity”, and “Temp” represent coefficient estimates for the continuous variables which were scaled to have mean zero and unit variance across the entire dataset for comparability. Columns “Gear”

and “Time” represent the presence of those factors in the models. A blank entry means that the fixed effect did not appear in the submodel. All models also included intercepts, an offset of log volume of water filtered, a dispersion parameter for the negative binomial distribution, and random effects of trawl and site. Models are presented in ascending order of delta AICc (the last column), up to 7. The column “df” is the number of parameters estimated in the model, which does not count the offset.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Depth** | **Oxygen** | **Gear** | **Salinity** | **Temp** | **Time** | **df** | **delta** |
|  |  | + | -0.59 | 0.97 |  | 7 | 0.00 |
|  |  | + | -0.57 | 0.94 | + | 8 | 1.69 |
|  | -0.02 | + | -0.60 | 0.99 |  | 8 | 2.19 |
| -0.03 |  | + | -0.61 | 0.96 |  | 8 | 2.20 |
|  | -0.02 | + | -0.57 | 0.96 | + | 9 | 3.91 |
| -0.04 |  | + | -0.59 | 0.93 | + | 9 | 3.92 |
|  |  | + |  | 0.45 |  | 6 | 4.16 |
| 0.28 |  | + |  | 0.71 |  | 7 | 4.27 |
| 0.01 | -0.02 | + | -0.59 | 1.00 |  | 9 | 4.43 |
| 0.56 | -0.21 | + |  | 1.11 |  | 8 | 5.09 |
|  |  | + |  | 0.44 | + | 7 | 5.28 |
| 0.26 |  | + |  | 0.69 | + | 8 | 5.70 |
|  | 0.05 | + |  | 0.42 |  | 7 | 6.17 |
| 0.00 | -0.02 | + | -0.57 | 0.96 | + | 10 | 6.18 |
| 0.53 | -0.20 | + |  | 1.06 | + | 9 | 6.67 |
|  |  |  |  |  |  |  |  |