**Supplementary - Table 1**

Identification of the most parsimonious models quantifying the effect of the age, sex, area, and the three first axis of PCA performed on reserve lipid fatty acids on the sardines’ total length.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Response variable** | **Main effects** | **Dropped variable** | **Retained variables** | **Parameter estimate (SE)** | **t-value** | **Deviance** | **F-value** | ***P*** |
| Sardine total length | (PC1+PC2)\*Age+(PC1+PC2)\*Area+Sex | Sex |  | NA | NA | 405 | 2.10 | 0.13 |
|  | (PC1+PC2)\*Age+(PC1+PC2)\*Area | PC2:Area |  | NA | NA | 254 | 2.98 | 0.07 |
|  | (PC1+PC2)\*Age+PC1:Area+Area | PC2 |  | 1.13 | 0.59 | NA | NA | 0.55 |
|  | PC1:Age+PC1:Area+Area | PC1 |  | -2.19 | -2.09 | NA | NA | 0.06 |
|  | **Age+Area** |  | **Age** | NA | NA | 83056 | 211 | **<0.001** |
|  |  |  | **Area** | NA | NA | 34945 | 1204 | **<0.001** |