Supplementary data 2. Results of the two-way PERMANOVA (Permutational multivariate analysis of variance) analysis and p-values of pairwise comparisons on the diet composition of a dominant prey item (fishes) of *Dissostichus mawsoni* caught in the subarea 88.3 of Southern Ocean, considering the factors research blocks and fishing seasons.

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| **(A) Two-way PERMANOVA** |  |  |  |  |  |
| **Source** | **df** | **MS** | **Pseudo-F** | **COV** | **P (perm)** |
| Research block | 5  | 10196.0  | 9.071  | 22.277  | **0.001**  |
| Fishing season | 4  | 2163.1  | 1.924  | 7.213  | 0.062  |
| Research block ⅹ Fishing season | 9  | 2290.0  | 2.037  | 12.138  | **0.005**  |
| **(B) Pairwise comparisons** |  |  |  |  |  |
| **Research block** | **Fishing season** |
| **2016**  | **2017**  | **2018**  | **2019**  | **2020**  |
| 1 v. 2 | 　 | 　 | 　 | **0.001**  | 　 |
| 1 v. 3 | 0.381  | 　 | 　 | 0.148  | 　 |
| 1 v. 4 | **0.046**  | 　 | 　 | **0.001**  | 　 |
| 1 v. 5 | 0.097  | 　 | 　 | 0.096  | 　 |
| 2 v. 3 | 　 | 0.137  | 　 | **0.001**  | 　 |
| 2 v. 4 | 　 | 0.316  | 　 | **0.001**  | 　 |
| 2 v. 5 | 　 | 0.284  | 　 | **0.005**  | 　 |
| 3 v. 4 | **0.013**  | **0.028**  | 0.173  | **0.019**  | **0.001**  |
| 3 v. 5 | **0.006**  | **0.005**  | **0.017**  | 0.570  | 　 |
| 3 v. 6 | 　 | 　 | 　 | 　 | 0.076  |
| 4 v. 5 | 0.347  | 0.578  | 0.090  | 0.524  | 　 |
| 4 v. 6 | 　 | 　 | 　 | 　 | **0.002**  |
| **Fishing season** | **Research block** |
| **88.3\_1** | **88.3\_2** | **88.3\_3** | **88.3\_4** | **88.3\_5** |
| 2016 v. 2017 | 　 | 　 | 0.112  | 0.631  | 0.730  |
| 2016 v. 2018 | 　 | 　 | 0.080  | 0.708  | 0.481  |
| 2016 v. 2019 | 0.242  | 　 | 0.482  | **0.003**  | 0.099  |
| 2016 v. 2020 | 　 | 　 | 0.324  | 0.197  | 　 |
| 2017 v. 2018 | 　 | 　 | 0.351  | 0.613  | 　 |
| 2017 v. 2019 | 　 | 0.110  | **0.032**  | **0.006**  | 0.145  |
| 2017 v. 2020 | 　 | 　 | 0.357  | 0.284  | 　 |
| 2018 v. 2019 | 　 | 　 | 0.264  | **0.002**  | **0.015**  |
| 2018 v. 2020 | 　 | 　 | 0.852  | **0.006**  | 　 |
| 2019 v. 2020 | 　 | 　 | 0.464  | **0.001**  | 　 |