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The fisheries history of small pelagics in the Northern Mediterranean.

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# **Supplementary material: Table S2**

Table S2 The candidate models (GAMs) for each response variable (landings of sardine, anchovy and mackerel), with both the results for the time series with and without Marseille (ending respectively in 1993 and 2013) and including or excluding the Rhône debit (beginning respectively in 1920 and 1865). The table shows the effective degrees of freedom (edf), deviance (dev.), AIC (Aikake Information Criterion) and ΔAIC (the difference between the AIC of the corresponding model and the AIC of the best model). The variable “landingst-1”is the one year lagged response variable, which was included to remove residual autocorrelation. For mackerel, no edf is given because no smoother was used on the year effect. The best model for each case is indicated in red.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| y | | Model | edf | dev. | AIC | ΔAIC | Without the Rhône outflow (1865-…) |
|  | |  | With Marseille | | | |
| Sard. | | NAO+WeMO+AMO+SST+landingst-1 + s(year) | 8.30 | 7.41 | 2017.62 | 3.49 |
| WeMO+AMO+SST+landingst-1 + s(year) | 8.32 | 7.40 | 2015.57 | 1.44 |
| AMO+SST+landingst-1 + s(year) | 8.33 | 7.47 | 2014.80 | 0.67 |
| AMO+landingst-1 + s(year) | 8.35 | 7.55 | 2014.13 | 0 |
| Anch. | | NAO+WeMO+AMO+SST+landingst-1 + s(year) | 6.12 | 44.01 | 1672.96 | 0.54 |
| NAO+WeMO+AMO+ landingst-1 + s(year) | 6.00 | 44.83 | 1673.02 | 0.60 |
| WeMO+AMO+ landingst-1 + s(year) | 6.09 | 45.26 | 1672.42 | 0 |
| Mack. | | NAO+WeMO+AMO+SST+landingst-1 + year |  | 20.45 | 1676.80 | 6.43 |
| WeMO+AMO+SST+landingst-1 + year |  | 20.48 | 1674.96 | 4.59 |
| WeMO+ SST+landingst-1 + year |  | 20.50 | 1673.07 | 2.70 |
| SST+landingst-1 + year |  | 20.57 | 1671.54 | 1.17 |
| landingst-1 + year |  | 20.71 | 1670.37 | 0 |
|  | |  | Without Marseille | | | |
| Sard. | | NAO+WeMO+AMO+SST+landingst-1 + s(year) | 8.16 | 15.08 | 2363.87 | 5.95 |
| WeMO+AMO+SST+landingst-1 + s(year) | 8.19 | 15.08 | 2361.83 | 3.91 |
| AMO+SST+landingst-1 + s(year) | 8.21 | 15.07 | 2359.83 | 1.91 |
| AMO+landingst-1 + s(year) | 8.23 | 15.08 | 2357.92 | 0 |
| Anch. | | NAO+WeMO+AMO+SST+landingst-1 + s(year) | 6.34 | 62.92 | 2049.97 | 3.49 |
| NAO+WeMO+AMO+ landingst-1 + s(year) | 6.32 | 63.08 | 2048.29 | 1.81 |
| WeMO+AMO+ landingst-1 + s(year) | 6.36 | 63.12 | 2046.48 | 0 |
| Mack. | | NAO+WeMO+AMO+SST+landingst-1 + year |  | 26.66 | 1922.17 | 3.17 |
| WeMO+AMO+SST+landingst-1 + year |  | 26.79 | 1920.88 | 1.88 |
| WeMO+ SST+landingst-1 + year |  | 26.90 | 1919.46 | 0.46 |
| SST+landingst-1 + year |  | 27.25 | 1919.33 | 0.33 |
| landingst-1 + year |  | 27.56 | 1919.00 | 0 |
|  | |  |  |  |  |  |
| y | **Model** | | **edf** | **dev.** | **AIC** | **ΔAIC** | **With the Rhône outflow (1920-…)** |
|  |  | | With Marseille | | | |
| Sard. | NAO+WeMO+AMO+SST+Rhône+landingst-1+s(year) | | 6.96 | 3.26 | 1177.84 | 2.41 |
| WeMO+AMO+SST+Rhône+landingst-1+s(year) | | 7.12 | 3.22 | 1175.43 | 0 |
| WeMO+AMO +Rhône+landingst-1+s(year) | | 7.03 | 3.33 | 1175.39 | -0.04 |
| AMO+ Rhône+landingst-1+s(year) | | 7.00 | 3.47 | 1176.24 | 0.81 |
| AMO+ landingst-1+s(year) | | 7.06 | 3.53 | 1175.43 | 0 |
| Anch. | NAO+WeMO+AMO+SST+Rhône+landingst-1+s(year) | | 7.91 | 21.58 | 951.89 | 5.27 |
| WeMO+AMO+SST+Rhône+landingst-1+s(year) | | 7.92 | 21.58 | 949.91 | 3.29 |
| WeMO+AMO+SST+landingst-1+s(year) | | 7.89 | 22.05 | 949.34 | 2.72 |
| WeMO+AMO+landingst-1+s(year) | | 8.00 | 22.00 | 947.42 | 0.80 |
| WeMO+landingst-1+s(year) | | 8.09 | 22.33 | 946.62 | 0 |
| landingst-1+s(year) | | 8.06 | 23.76 | 948.99 | 2.37 |
| s(year) | | 8.08 | 24.42 | 948.98 | 2.36 |
| Mack. | NAO+WeMO+AMO+SST+Rhône+landingst-1+s(year) | |  | 12.57 | 964.17 | 9.18 |
| NAO+WeMO+AMO+SST+ landingst-1+s(year) | |  | 12.57 | 962.17 | 7.18 |
| NAO+WeMO+SST+ landingst-1+s(year) | |  | 12.58 | 960.18 | 5.19 |
| WeMO+ SST+landingst-1+s(year) | |  | 12.59 | 958.27 | 3.28 |
| WeMO+landingst-1+s(year) | |  | 12.62 | 956.43 | 1.44 |
| landingst-1+s(year) | |  | 12.73 | 954.99 | 0 |
|  |  | | Without Marseille | | | |
| Sard. | NAO+WeMO+AMO+SST+Rhône+landingst-1+s(year) | | 7.88 | 7.75 | 1532.43 | 9.04 |
| NAO+WeMO+AMO+Rhône+landingst-1+s(year) | | 7.90 | 7.75 | 1530.48 | 7.09 |
| NAO+ AMO+Rhône+landingst-1+s(year) | | 7.91 | 7.76 | 1528.67 | 5.28 |
| NAO+ AMO+landingst-1+s(year) | | 7.86 | 7.85 | 1527.58 | 4.19 |
| NAO+ landingst-1+s(year) | | 8.01 | 7.78 | 1525.19 | 1.80 |
| landingst-1+s(year) | | 8.16 | 7.78 | 1523.39 | 0 |
| Anch. | NAO+WeMO+AMO+SST+Rhône+landingst-1+s(year) | | 8.35 | 33.31 | 1310.74 | 7.07 |
| NAO+WeMO+AMO+SST+ landingst-1+s(year) | | 8.35 | 33.31 | 1308.74 | 5.07 |
| NAO+WeMO+AMO+landingst-1+s(year) | | 8.38 | 33.33 | 1306.85 | 3.18 |
| WeMO+AMO+landingst-1+s(year) | | 8.38 | 33.34 | 1304.89 | 1.22 |
| WeMO+landingst-1+s(year) | | 8.47 | 33.48 | 1303.46 | -0.21 |
| landingst-1+s(year) | | 8.45 | 34.51 | 1304.23 | 0.56 |
| s(year) | | 8.52 | 35.00 | 1303.67 | 0 |
| Mack. | NAO+WeMO+AMO+SST+Rhône+landingst-1+s(year) | |  | 15.50 | 1225.09 | 8.00 |
| NAO+WeMO+AMO+SST+landingst-1+s(year) | |  | 15.50 | 1223.10 | 6.01 |
| NAO+WeMO+AMO+ landingst-1+s(year) | |  | 15.50 | 1221.50 | 4.41 |
| WeMO+AMO+ landingst-1+s(year) | |  | 15.50 | 1219.13 | 2.04 |
| AMO+landingst-1+s(year) | |  | 15.52 | 1217.20 | 0.11 |
| landingst-1+s(year) | |  | 15.85 | 1217.09 | 0 |