**SUPPORTING INFORMATION**

**Appendix S8**

**A framework for mapping the distribution seabirds by integrating tracking, demography and phenology**

More details can be found at <https://github.com/anacarneiro/DensityMaps>

**TABLE S1** Average relative differences (± standard error) in overlap score between the full framework (i.e. all life-history stages) and 1) scaled adult breeders, 2) scaled adult breeders and non-breeders, and 3) stage replacements calculated per quarter and averaged per season (summer being an average of quarters 1 and 4, and winter the average of quarters 2 and 3). Negative numbers represent underestimation of overlap score when using 1), 2) and 3) compared to the full framework.

|  |  |  |  |
| --- | --- | --- | --- |
|   | Summer  | Winter  | Year-round |
| Scaled adult breeders | -28.6 ± 14.0 % | -42.4 ± 8.6 % | -36.2 ± 7.8 % |
| Scaled adult breeders and non-breeders  | -18.3 ± 9.8 % | -36.3 ± 10.5 % | -28.3 ± 7.3 % |
| Stage replacements | -4.0 ± 18.3 % | -29.1 ± 15.0 % | -17.9 ± 11.7 % |
| Sample size\* | 16 | 20 | 36 |
| \*Results only include populations and year-quarters for which we had a good representation of all life-history stages.  |