Supplemental Information S3. Summary of the principal component analysis (PCA) of the environmental predictors of each model

**Habitat suitability of cetaceans in the Gulf of Mexico using an ecological niche modeling approach.**

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**Table S1.** Sperm whale model.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **PC1** | **PC2** | **PC3** |
| **SS loadings** | 2.89 | 2.38 | 1.82 |
| **Proportion Variance** | 0.32 | 0.26 | 0.20 |
| **Cumulative Variance** | 0.32 | 0.59 | 0.79 |
| **Proportion explained** | 0.41 | 0.34 | 0.26 |
| **Cumulative proportion**  | 0.41 | 0.74 | 1.00 |
| **Environmental predictors** |  |  |  |
| SSTm | 0.87 | -0.24 | -0.12 |
| SSTmin | 0.90 | -0.27 | 0.03 |
| SSTmax | -0.73 | 0.27 | -0.31 |
| Chl-*a*m | -0.23 | 0.93 | 0.08 |
| Chl-*a*min | 0.17 | 0.62 | 0.50 |
| Chl-*amax* | -0.20 | 0.93 | 0.07 |
| *D* | -0.24 | 0.09 | 0.91 |
| *S* | 0.67 | 0.17 | 0.03 |
| *D*200 | -0.39 | -0.14 | -0.79 |

**Table S2.** Dwarf sperm whale model.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **PC1** | **PC2** | **PC3** |
| **SS loadings** | 2.70 | 2.58 | 2.27 |
| **Proportion Variance** | 0.30 | 0.29 | 0.25 |
| **Cumulative Variance** | 0.30 | 0.59 | 0.84 |
| **Proportion explained** | 0.36 | 0.34 | 0.30 |
| **Cumulative proportion**  | 0.36 | 0.70 | 1.00 |
| **Environmental predictors** |  |  |  |
| SSTm | -0.53 | 0.74 | -0.11 |
| SSTmin | -0.22 | 0.88 | -0.28 |
| SSTmax | -0.39 | -0.66 | 0.36 |
| Chl-*a*m | 0.18 | -0.15 | 0.95 |
| Chl-*a*min | 0.7 | -0.12 | 0.45 |
| Chl-*amax* | 0.15 | -0.15 | 0.96 |
| *D* | 0.94 | -0.11 | 0.06 |
| *S* | 0.23 | 0.82 | 0.03 |
| *D*200 | -0.86 | -0.31 | -0.16 |

**Table S3.** Cuvier’s beaked whale model.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **PC1** | **PC2** | **PC3** |
| **SS loadings** | 2.70 | 2.32 | 1.46 |
| **Proportion Variance** | 0.30 | 0.26 | 0.16 |
| **Cumulative Variance** | 0.30 | 0.56 | 0.72 |
| **Proportion explained** | 0.42 | 0.36 | 0.23 |
| **Cumulative proportion**  | 0.42 | 0.77 | 1.00 |
| **Environmental predictors** |  |  |  |
| SSTm | -0.75 | 0.51 | -0.18 |
| SSTmin | -0.59 | 0.64 | -0.24 |
| SSTmax | -0.18 | -0.74 | 0.15 |
| Chl-*a*m | 0.57 | -0.07 | 0.70 |
| Chl-*a*min | 0.81 | 0.19 | 0.10 |
| Chl-*amax* | -0.03 | -0.09 | 0.93 |
| *D* | 0.78 | 0.13 | -0.01 |
| *S* | -0.18 | 0.68 | 0.03 |
| *D*200 | -0.38 | -0.76 | 0.03 |

**Table S4.** Short-finned pilot whale model.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **PC1** | **PC2** | **PC3** |
| **SS loadings** | 2.79 | 2.37 | 1.66 |
| **Proportion Variance** | 0.31 | 0.26 | 0.18 |
| **Cumulative Variance** | 0.31 | 0.57 | 0.76 |
| **Proportion explained** | 0.41 | 0.35 | 0.24 |
| **Cumulative proportion**  | 0.41 | 0.76 | 1.00 |
| **Environmental predictors** |  |  |  |
| SSTm | 0.90 | -0.10 | -0.04 |
| SSTmin | 0.95 | -0.03 | -0.06 |
| SSTmax | -0.75 | 0.05 | 0.09 |
| Chl-*a*m | -0.29 | 0.92 | 0.10 |
| Chl-*a*min | 0.24 | 0.75 | 0.32 |
| Chl-*amax* | -0.20 | 0.90 | 0.02 |
| *D* | -0.33 | 0.19 | 0.82 |
| *S* | 0.47 | -0.30 | 0.25 |
| *D*200 | -0.14 | -0.10 | -0.89 |

**Table S5.** Rough-toothed dolphin model.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **PC1** | **PC2** | **PC3** |
| **SS loadings** | 2.71 | 2.62 | 1.60 |
| **Proportion Variance** | 0.30 | 0.29 | 0.18 |
| **Cumulative Variance** | 0.30 | 0.59 | 0.77 |
| **Proportion explained** | 0.39 | 0.38 | 0.23 |
| **Cumulative proportion**  | 0.39 | 0.77 | 1.00 |
| **Environmental predictors** |  |  |  |
| SSTm | 0.14 | 0.92 | 0.06 |
| SSTmin | 0.13 | 0.92 | -0.10 |
| SSTmax | 0.02 | -0.07 | 0.76 |
| Chl-*a*m | 0.96 | 0.08 | -0.02 |
| Chl-*a*min | 0.75 | -0.46 | -0.31 |
| Chl-*amax* | 0.93 | 0.13 | 0.05 |
| *D* | 0.44 | -0.64 | -0.17 |
| *S* | -0.30 | 0.52 | -0.45 |
| *D*200 | -0.21 | 0.13 | 0.82 |

**Table S6.** Risso’s dolphin model.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **PC1** | **PC2** | **PC3** |
| **SS loadings** | 2.36 | 2.30 | 2.23 |
| **Proportion Variance** | 0.26 | 0.26 | 0.25 |
| **Cumulative Variance** | 0.26 | 0.52 | 0.77 |
| **Proportion explained** | 0.34 | 0.33 | 0.32 |
| **Cumulative proportion**  | 0.34 | 0.68 | 1.00 |
| **Environmental predictors** |  |  |  |
| SSTm | -0.22 | 0.85 | -0.25 |
| SSTmin | -0.07 | 0.92 | -0.26 |
| SSTmax | -0.44 | -0.49 | 0.33 |
| Chl-*a*m | 0.19 | -0.18 | 0.93 |
| Chl-*a*min | 0.65 | 0.03 | 0.52 |
| Chl-*amax* | 0.04 | -0.20 | 0.90 |
| *D* | 0.89 | -0.15 | 0.03 |
| *S* | 0.29 | 0.60 | 0.09 |
| *D*200 | -0.89 | -0.17 | -0.15 |

**Table S7.** Atlantic spotted dolphin model.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **PC1** | **PC2** | **PC3** |
| **SS loadings** | 2.64 | 2.15 | 1.42 |
| **Proportion Variance** | 0.29 | 0.24 | 0.16 |
| **Cumulative Variance** | 0.29 | 0.53 | 0.69 |
| **Proportion explained** | 0.43 | 0.35 | 0.23 |
| **Cumulative proportion**  | 0.43 | 0.77 | 1.00 |
| **Environmental predictors** |  |  |  |
| SSTm | 0.83 | -0.15 | 0.32 |
| SSTmin | 0.88 | -0.17 | 0.23 |
| SSTmax | -0.49 | 0.01 | 0.30 |
| Chl-*a*m | -0.10 | 0.92 | -0.06 |
| Chl-*a*min | -0.17 | 0.70 | -0.47 |
| Chl-*amax* | -0.07 | 0.80 | 0.09 |
| *D* | -0.59 | 0.32 | 0.49 |
| *S* | 0.70 | -0.04 | 0.07 |
| *D*200 | -0.22 | 0.12 | -0.84 |

**Table S8.** Pantropical spotted dolphin model.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **PC1** | **PC2** | **PC3** |
| **SS loadings** | 2.42 | 2.29 | 1.64 |
| **Proportion Variance** | 0.27 | 0.25 | 0.18 |
| **Cumulative Variance** | 0.27 | 0.52 | 0.71 |
| **Proportion explained** | 0.38 | 0.36 | 0.26 |
| **Cumulative proportion**  | 0.38 | 0.74 | 1.00 |
| **Environmental predictors** |  |  |  |
| SSTm | 0.07 | 0.94 | -0.04 |
| SSTmin | 0.01 | 0.94 | -0.16 |
| SSTmax | 0.08 | -0.10 | 0.57 |
| Chl-*a*m | 0.97 | -0.06 | 0.01 |
| Chl-*a*min | 0.82 | 0.02 | 0.06 |
| Chl-*amax* | 0.77 | -0.02 | -0.06 |
| *D* | 0.33 | -0.60 | -0.53 |
| *S* | -0.19 | 0.36 | -0.52 |
| *D*200 | -0.20 | 0.14 | 0.85 |

**Table S9.** Striped dolphin model.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **PC1** | **PC2** | **PC3** |
| **SS loadings** | 3.32 | 2.77 | 1.81 |
| **Proportion Variance** | 0.37 | 0.31 | 0.20 |
| **Cumulative Variance** | 0.37 | 0.68 | 0.88 |
| **Proportion explained** | 0.42 | 0.35 | 0.23 |
| **Cumulative proportion**  | 0.42 | 0.77 | 1.00 |
| **Environmental predictors** |  |  |  |
| SSTm | 0.35 | 0.88 | -0.05 |
| SSTmin | 0.21 | 0.94 | 0.12 |
| SSTmax | 0.18 | -0.68 | -0.53 |
| Chl-*a*m | 0.98 | 0.06 | 0.00 |
| Chl-*a*min | 0.92 | 0.17 | 0.26 |
| Chl-*amax* | 0.97 | 0.04 | -0.03 |
| *D* | 0.50 | -0.69 | 0.31 |
| *S* | -0.04 | 0.22 | 0.84 |
| *D*200 | -0.35 | 0.30 | -0.80 |

**Table S10.** Spinner dolphin model.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **PC1** | **PC2** | **PC3** |
| **SS loadings** | 2.77 | 2.32 | 1.48 |
| **Proportion Variance** | 0.31 | 0.26 | 0.16 |
| **Cumulative Variance** | 0.31 | 0.57 | 0.73 |
| **Proportion explained** | 0.42 | 0.35 | 0.23 |
| **Cumulative proportion**  | 0.42 | 0.77 | 1.00 |
| **Environmental predictors** |  |  |  |
| SSTm | 0.87 | -0.17 | 0.06 |
| SSTmin | 0.93 | 0.02 | 0.08 |
| SSTmax | -0.80 | -0.10 | 0.10 |
| Chl-*a*m | -0.13 | 0.95 | 0.11 |
| Chl-*a*min | 0.21 | 0.83 | 0.06 |
| Chl-*amax* | -0.27 | 0.73 | -0.05 |
| *D* | -0.17 | 0.30 | 0.85 |
| *S* | 0.52 | -0.16 | 0.11 |
| *D*200 | -0.30 | 0.17 | -0.84 |

**Table S11.** Clymene dolphin model.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **PC1** | **PC2** | **PC3** |
| **SS loadings** | 2.98 | 2.72 | 1.46 |
| **Proportion Variance** | 0.33 | 0.30 | 0.16 |
| **Cumulative Variance** | 0.33 | 0.63 | 0.80 |
| **Proportion explained** | 0.42 | 0.38 | 0.20 |
| **Cumulative proportion**  | 0.42 | 0.80 | 1.00 |
| **Environmental predictors** |  |  |  |
| SSTm | 0.02 | 0.42 | 0.64 |
| SSTmin | 0.15 | 0.93 | 0.11 |
| SSTmax | -0.08 | 0.90 | 0.07 |
| Chl-*a*m | 0.53 | -0.65 | 0.44 |
| Chl-*a*min | 0.74 | -0.55 | -0.15 |
| Chl-*amax* | 0.37 | -0.33 | 0.64 |
| *D* | 0.90 | 0.10 | 0.14 |
| *S* | 0.52 | -0.14 | -0.63 |
| *D*200 | -0.95 | -0.05 | -0.02 |

**Table S12.** Bottlenose dolphin model.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **PC1** | **PC2** | **PC3** |
| **SS loadings** | 2.59 | 2.51 | 1.06 |
| **Proportion Variance** | 0.29 | 0.28 | 0.12 |
| **Cumulative Variance** | 0.29 | 0.57 | 0.68 |
| **Proportion explained** | 0.42 | 0.41 | 0.17 |
| **Cumulative proportion**  | 0.42 | 0.83 | 1.00 |
| **Environmental predictors** |  |  |  |
| SSTm | 0.86 | -0.26 | 0.20 |
| SSTmin | 0.82 | -0.37 | 0.08 |
| SSTmax | -0.04 | 0.19 | 0.89 |
| Chl-*a*m | -0.12 | 0.86 | -0.05 |
| Chl-*a*min | -0.52 | 0.32 | 0.15 |
| Chl-*amax* | -0.20 | 0.92 | 0.11 |
| *D* | -0.21 | 0.72 | 0.28 |
| *S* | -0.58 | 0.11 | 0.08 |
| *D*200 | 0.69 | 0.22 | -0.34 |