**APPENDIX S1** Bathymetric and geomorphic variables used for sperm whale distribution modelling.

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| Variable and abbreviations | Unit | Source | Rationale |
| Depth (depth) | m | General Bathymetry of the World’s Ocean (GEBCO, www.gebco.net/) | Shallow seabeds promote elevated productivity and can offer favourable foraging opportunities for predators (Block et al. 2011) |
| Slope (slope) | % | GEBCO derived using QGIS | Sperm whales typically forage near steep bathymetry near the edge of continental slopes (Jaquet & Whitehead 1996) |
| Distance to 1000m isobath (di\_1000m) | Km | GEBCO derived using QGIS | Specific depth contours associated with deep habitat of prey typical of sperm whales (Johnson et al. 2016) |
| Distance to seamount (di\_seaM) | Km | Seamount predictions (Yesson et al. 2021) and derived using QGIS | Seamounts, guyots, trenches, troughs, and ridges are often sperm whale and other cetacean hotspots (Davis et al. 2007; Bouchet et al. 2015; Johnson et al. 2016; Letessier et al. 2019; Sahri et al. 2020) |
| Distance to spreading ridge (di\_spRid) | Km | Seafloor geomorphic feature map (Harris et al. 2014) and derived using QGIS |