**Table S1**: Density variability of *Diopatra* spp. (complex *cuprea*) on SBB beaches. Both published and unpublished data (grey literature and personal observations) are provided. For details see M&M text.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Source/Observer | Beach | Locality | Year | Max. Density | Mean Density | Species |
| Nonato | Lamberto | Ubatuba | 1974 | 150 | 20 | non-identified |
| Amaral 1979 [8] | Pereque-Mirim | Ubatuba | 1974 | 30 | 15 | non-identified |
| Amaral 1979 [8] | Saco da Ribeira | Ubatuba | 1974 | 20 | 10 | non-identified |
| Amaral 1979 [8] | Enseada | Ubatuba | 1974 | 20 | - | non-identified |
| Amaral 1979 [8] | Praia Grande | Ubatuba | 1974 | 130 | 30 | non-identified |
| Paiva | Boqueirão | Santos | 1980 | 10 | - | non-identified |
| Corbisier 1991 [9] | Codó | Ubatuba | 1985 | 19 | 8 | non-identified |
| Morgado et al. 1990 [54] | Arrastão | São Sebastião | 1988 | 30 | - | *D.marinae* |
| Morgado et al. 1990 [54] | Enseada | Caraguatatuba | 1988 | 20 | - | *D.marinae* |
| Petti | Lázaro | Ubatuba | 1988 | 10 | 2.5 | *D.hannelorae* |
| Shimizu 1989 [55] | Baraqueçaba | São Sebastião | 1988 | 4 | 2.5 | *D.marinae* |
| Rizzo &Amaral 2001 [56] | Engenho D’Água | Ilhabela | 1995 | 5 | 0.65 | *D.victoriae* |
| Rizzo &Amaral 2001 [56] | São Francisco | São Sebastião | 1996 | 2 | 0.26 | *D.* sp1 |
| Garcia 2003 [10] | Ubatuba | Ubatuba | 2002 | 1 | 0 | *D.victoriae* |
| Garcia 2003 [10] | Boqueirão | Santos | 2001 | 1 | 0.1 | *D.hannelorae* |
| Garcia 2003 [10] | Astúrias | Guarujá | 2002 | 2 | - | *D.victoriae* |
| Paiva | Baraqueçaba | São Sebastião | 2008 | 5 | 0.3 | *D.marinae* |
| Alves 2011 [57] | Biguaçu | Palhoça | 2010 | 4 | - | *D.marinae* |
| Paiva | Boqueirão | Santos | 2010 | 3 | 0.4 | *D.marinae* |
| Paiva | Pereque-Açú | Guarujá | 2020 | 5 | 0.5 | *D.marinae* |
| Paiva | Ubatumirim | Ubatuba | 2021 | 3 | 0.3 | *D.marinae* |
| Gonçalves 2019 [58] | Boqueirão | Santos | 2018 | 2 | - | *D.marinae* |

Gráfico

Descrição gerada automaticamente com confiança média

**Figure S1:** Species of *Diopatra* referred to the Brazilian Coast. Pattern of geographic distribution and variation over time time (1974-2021).

Uma imagem contendo Mapa

Descrição gerada automaticamente

**Figure S2**: Mean SST (Mean) and Mean SST of the warmest month (MWMT) of the years 1970 and 2021

|  |  |
| --- | --- |
| Gráfico  Descrição gerada automaticamente | Gráfico, Mapa  Descrição gerada automaticamente |
| Mapa  Descrição gerada automaticamente com confiança média | Mapa  Descrição gerada automaticamente |

**Figure S3**: Spatial variation of selected variables: SST range and Salinity (sea-water). Maximum Air Temperature and Precipitation (air). Marine data were obtained from Bio-Oracle (Assis et al. 2017). and terrestrial/air from WorldClim (Fick & Hijmans. 2017).



**Figure S4**: Relative importance of each environmental variables from ensemble models.