

1 **SUPPLEMENTARY MATERIAL**

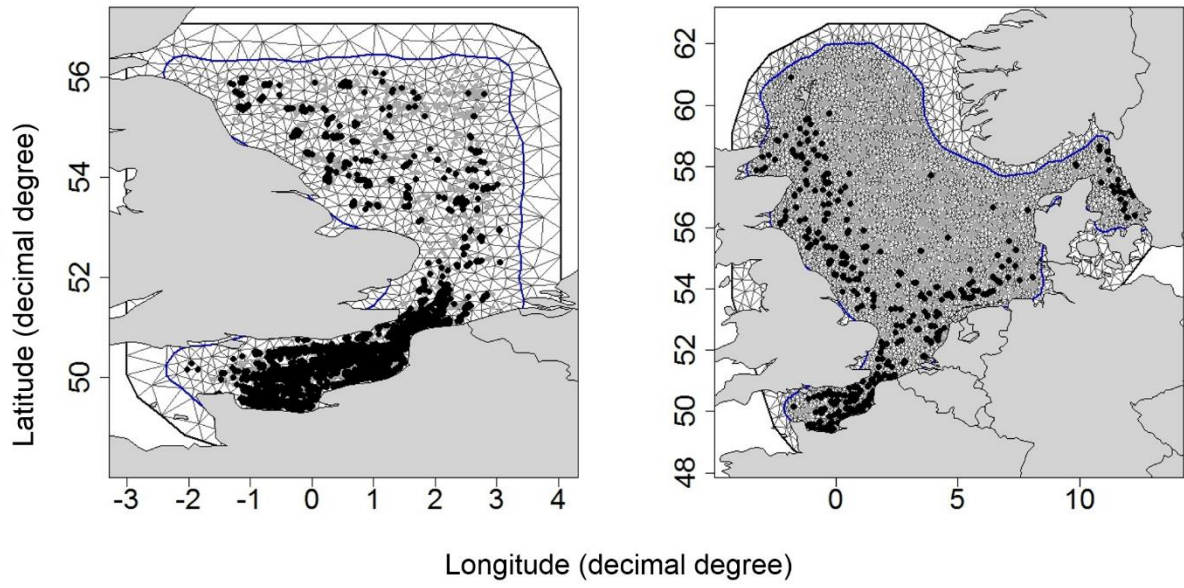
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Data source	Spatial coverage	Temporal coverage	Nb records	Nb of presence records
IBTS-Q1 survey data	North Sea+English Channel included since 2007	January/February 1995-2015	7496	912
IBTS-Q3 survey data	North Sea+English Channel included since 2007	August/September 1995-2015	6202	445
CGFS survey data	English Channel	October 1990-2014	1814	922
OBSMER commercial data	English Channel and Southern North Sea	Monthly data 2003-2015	4331	2041
Dataset A	See Fig.1	1995-2015	8391	3371
Dataset B	See Fig.1	1995-2015	13548	2279

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4 Table S1 Details of the four data sources used in this study, the number of records available
5 for each of them and the number of records where striped red mullet was present.

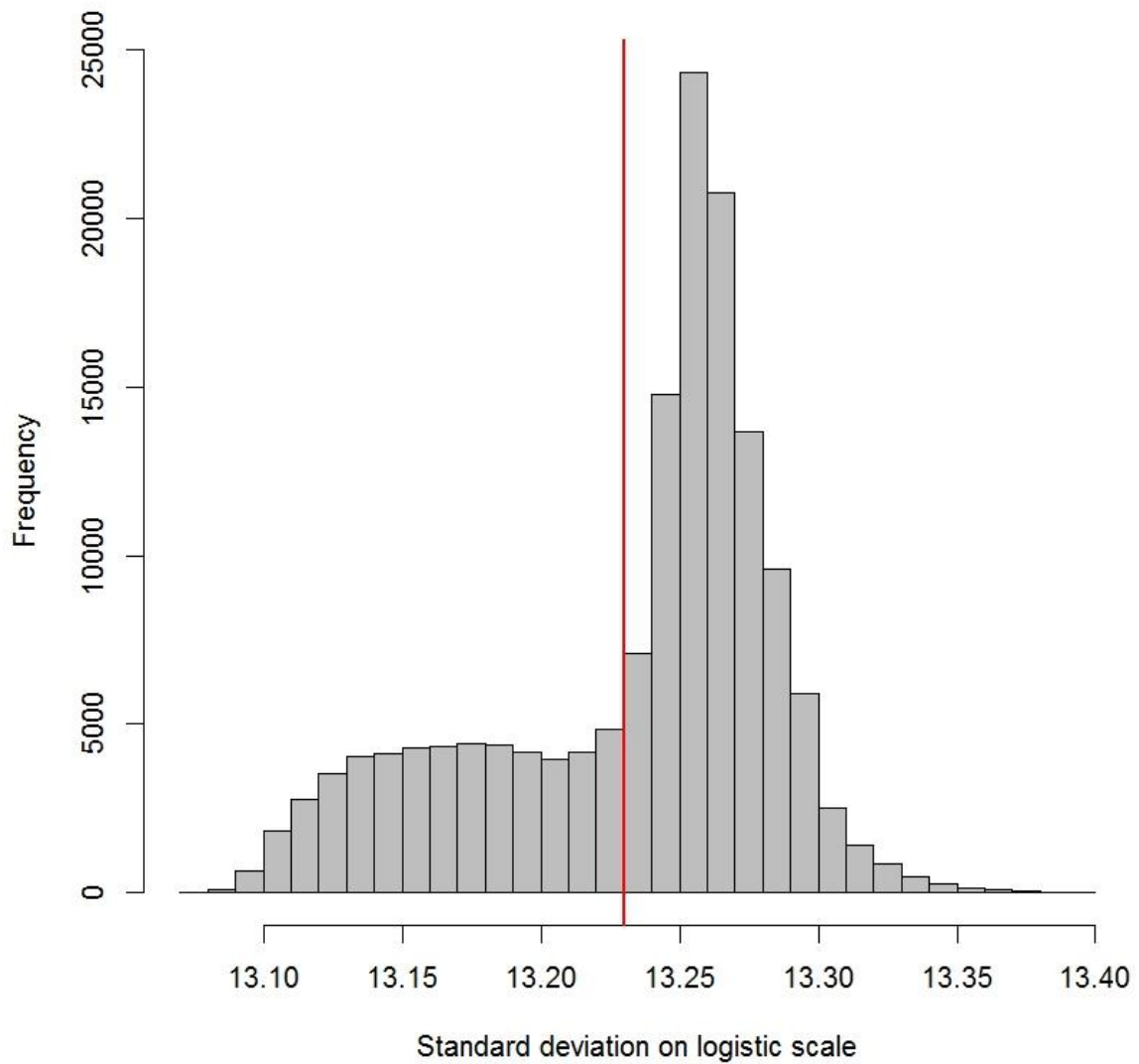
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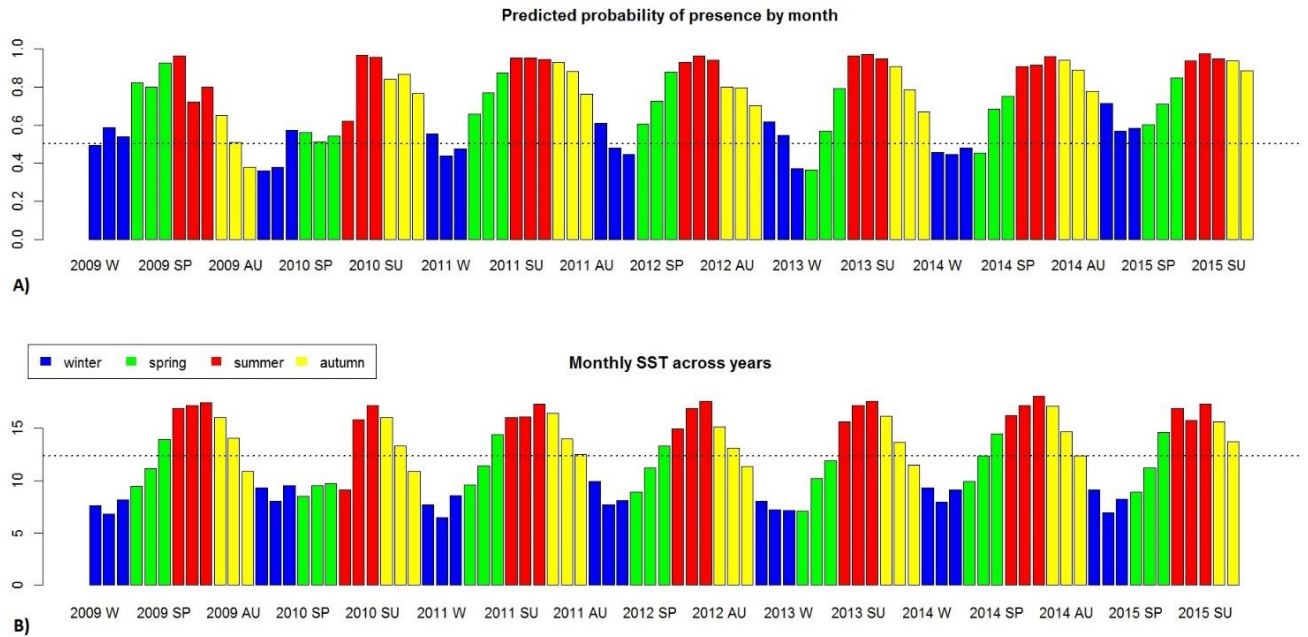
8 Figure S2 Best meshes built and selected for the SPDE model for dataset A (left) (max edge=0.3,0.8;
9 cutoff=0.1; offset=0.05,0.6) and dataset B (right) (max edge=0.25,0.6; offset=0.05,0.6). The black and
10 grey points represent the distribution of data (presence-absence in our case).

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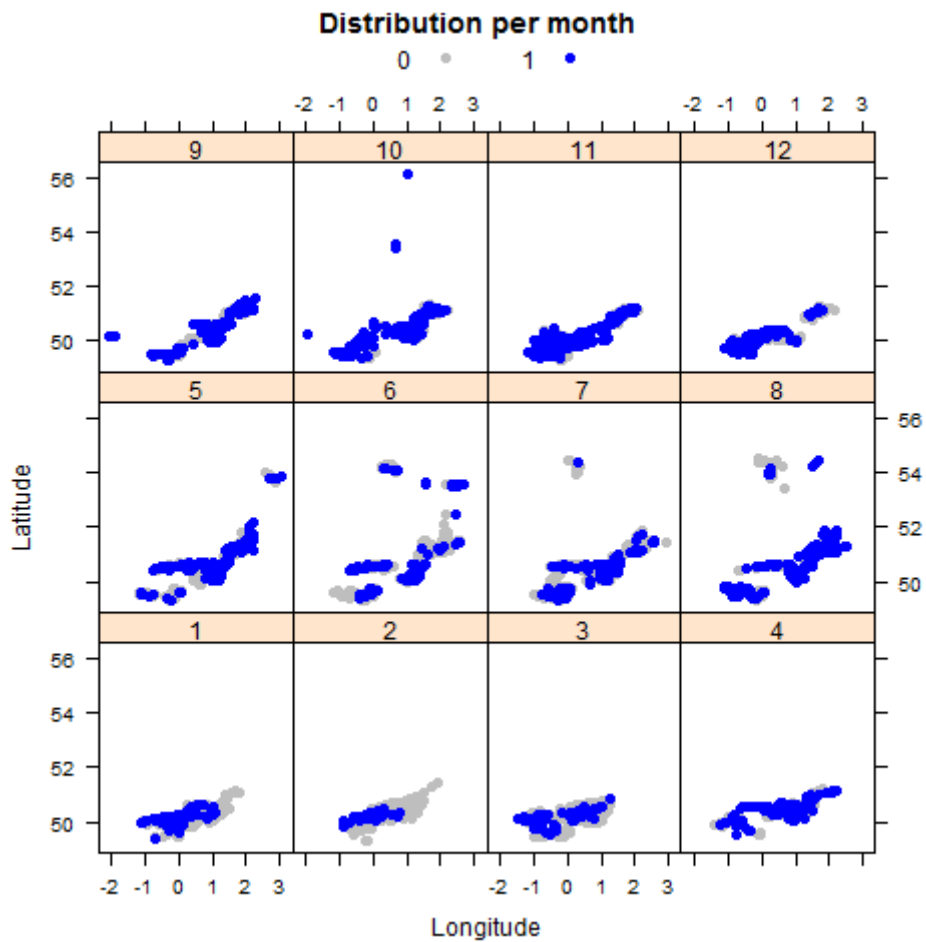
13 Figure S3 Distribution of the values of the predictions' standard deviation used to define the cutoff
 14 (red vertical line) defining the areas of predictions corresponding to an uncertainty too high to
 15 consider the predictions on the probability of presence of striped red mullet reliable.



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17 Figure S4 A) Monthly predicted probability of presence obtained from dataset A, from 2009 to 2015.
 18 Each color represents a seasonal quarter and the horizontal dotted line marks the average predicted
 19 probability of presence across all years. B) Monthly average SST used to analyze dataset A, from 2009
 20 to 2015. Each color represents a seasonal quarter and the horizontal dotted line marks the average
 21 SST across all year

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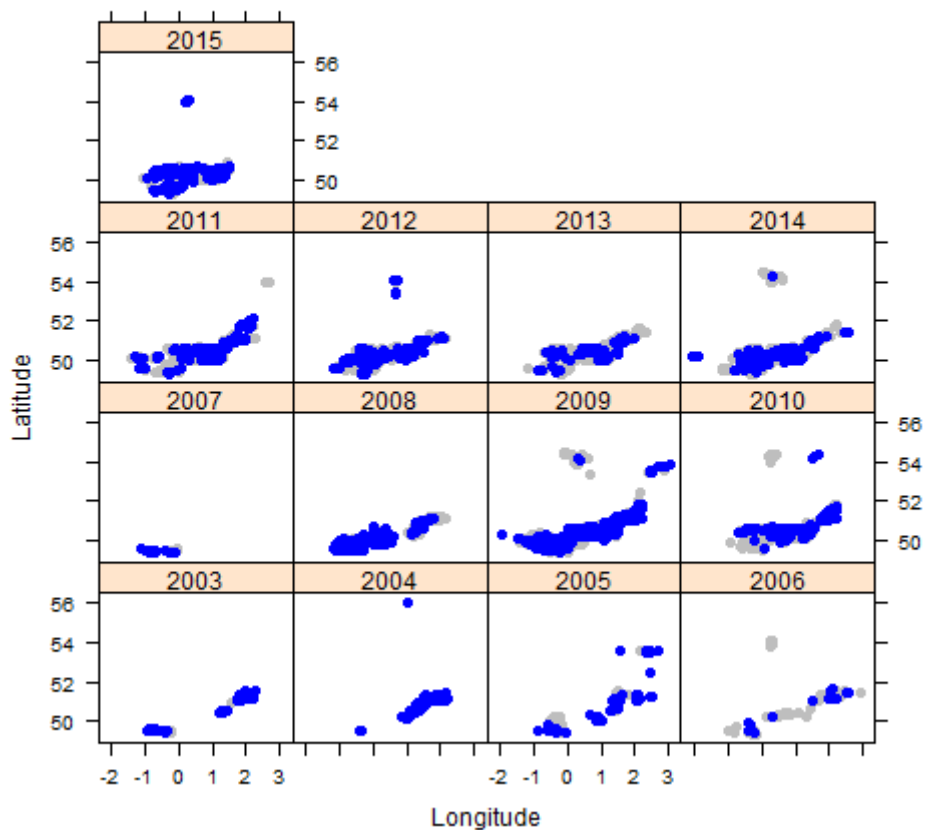
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24 Figure S5 Summary of the monthly records across years available from the OBSMER
 25 program, for bottom-trawlers using a mesh size between 70-90mm. Both total records and
 26 records where red mullet was present are indicated.

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Distribution per year

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29 Figure S6 Summary of the yearly records across years available from the OBSMER program,
30 for bottom-trawlers using a mesh size between 70-90mm. Both total records and records
31 where red mullet was present are indicated.

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