

Satellite-derived environmental indices and their relationships to higher trophic levels in the bay of Biscay



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1: VIGIES 2: RBE, Nantes, France

- Identify spatial patterns and the temporal trends in the series 1999-2021 of monthly maps of SST and CHLa
- Explain these patterns and trends using forcing variables (meteo regimes and river outputs)
- Use these patterns and trends to explain trends in higher trophic levels: anchovy, sardine and dolphins

DATA

SST and CHLa satellite data (1999-2021)

AVHRR sensors. Daily temperatures are interpolated by kriging (Saulquin and Gohin, 2010)

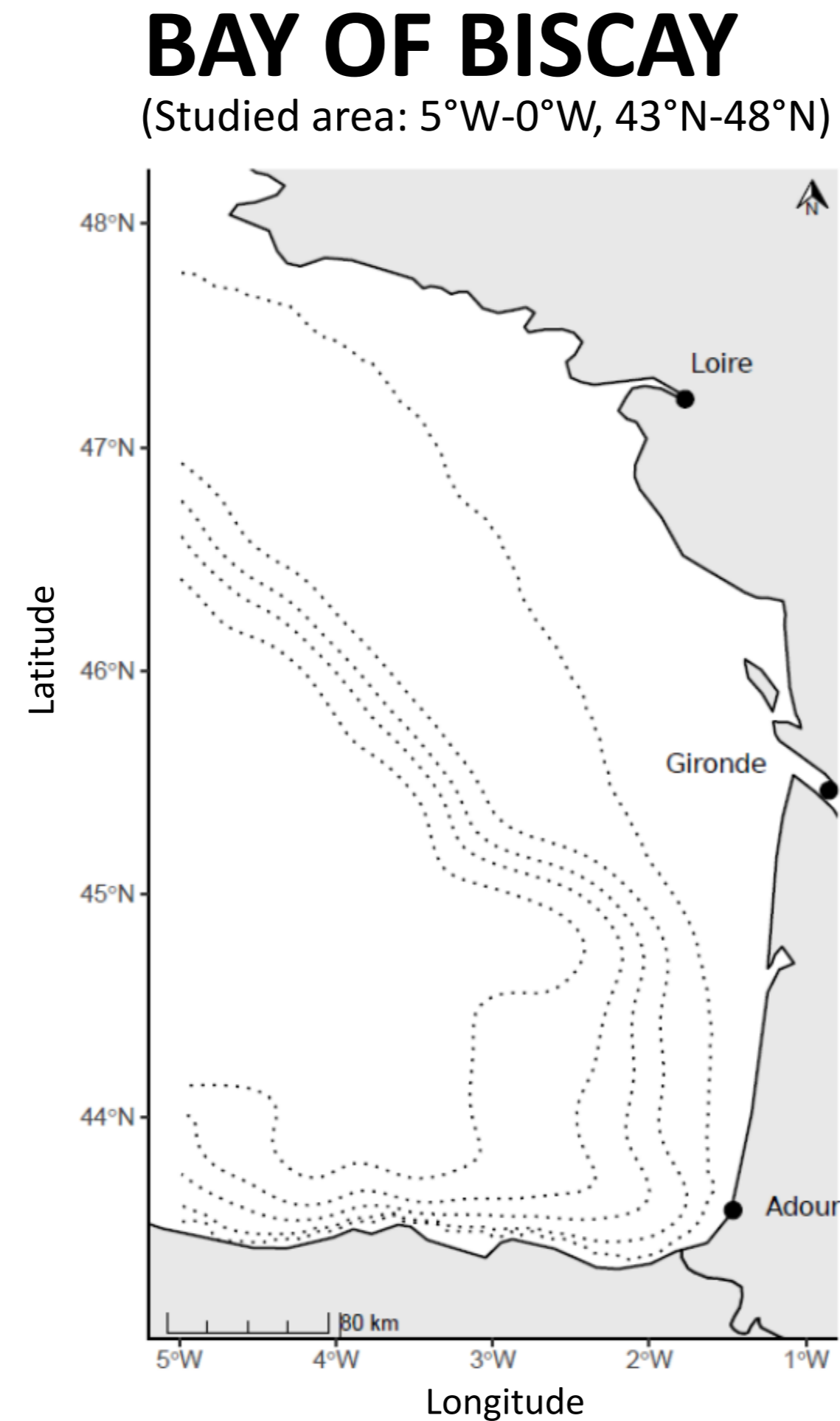
SeaWiFS, MERIS, MODIS sensors. The raw data are transformed into chlorophyll *a* concentrations with the OC5 algorithm (Gohin *et al.*, 2002) and interpolated according to Gohin (2011).

Environmental data

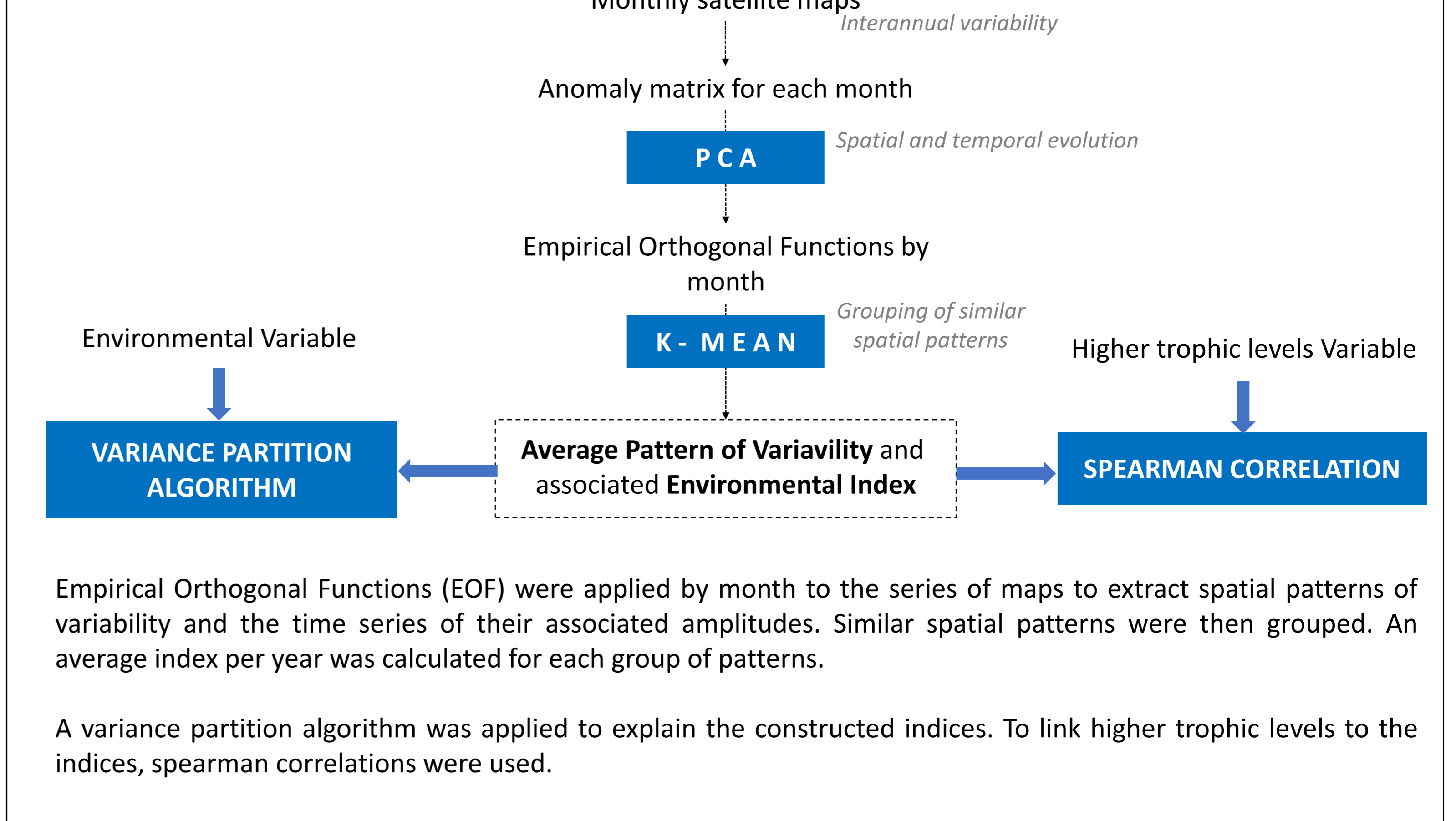
Climate indices (NAO, SCAN, EA, AMO) are from NOAA. Average river flow is provided by SCHAPI. Nitrogen and phosphorus inputs are available from the ODIMS platform. Wind-induced turbulence was calculated using data collected off the Vilaine estuary. Wind direction was also calculated and tested.

High trophic levels data

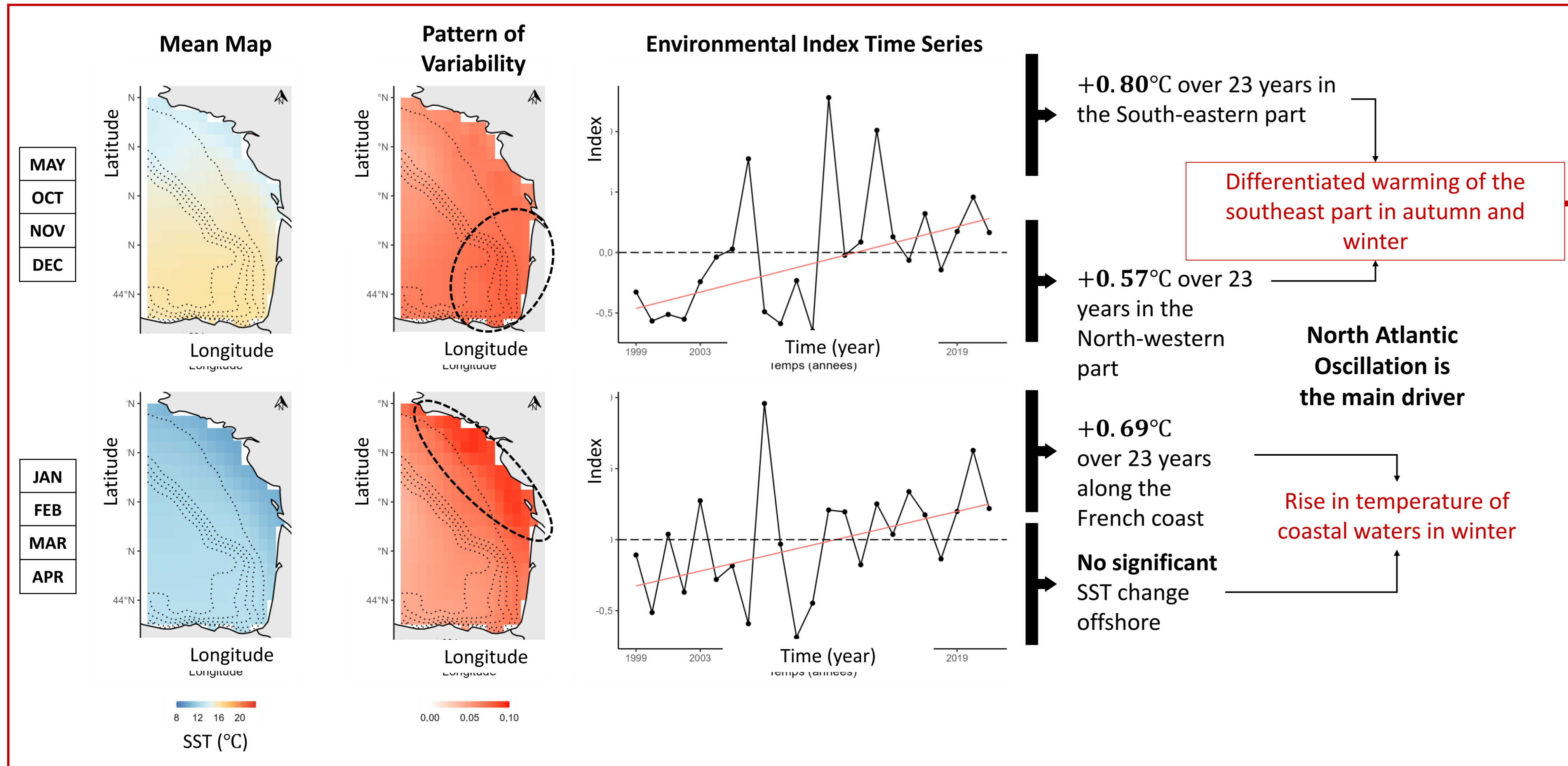
Average fish length and recruitment (age 1) for anchovy and sardine come from the PELGAS survey (Doray *et al.*, 2016). Common dolphin mortality is estimated between 2010 and 2021 by PELAGIS (Peltier *et al.*, 2016).



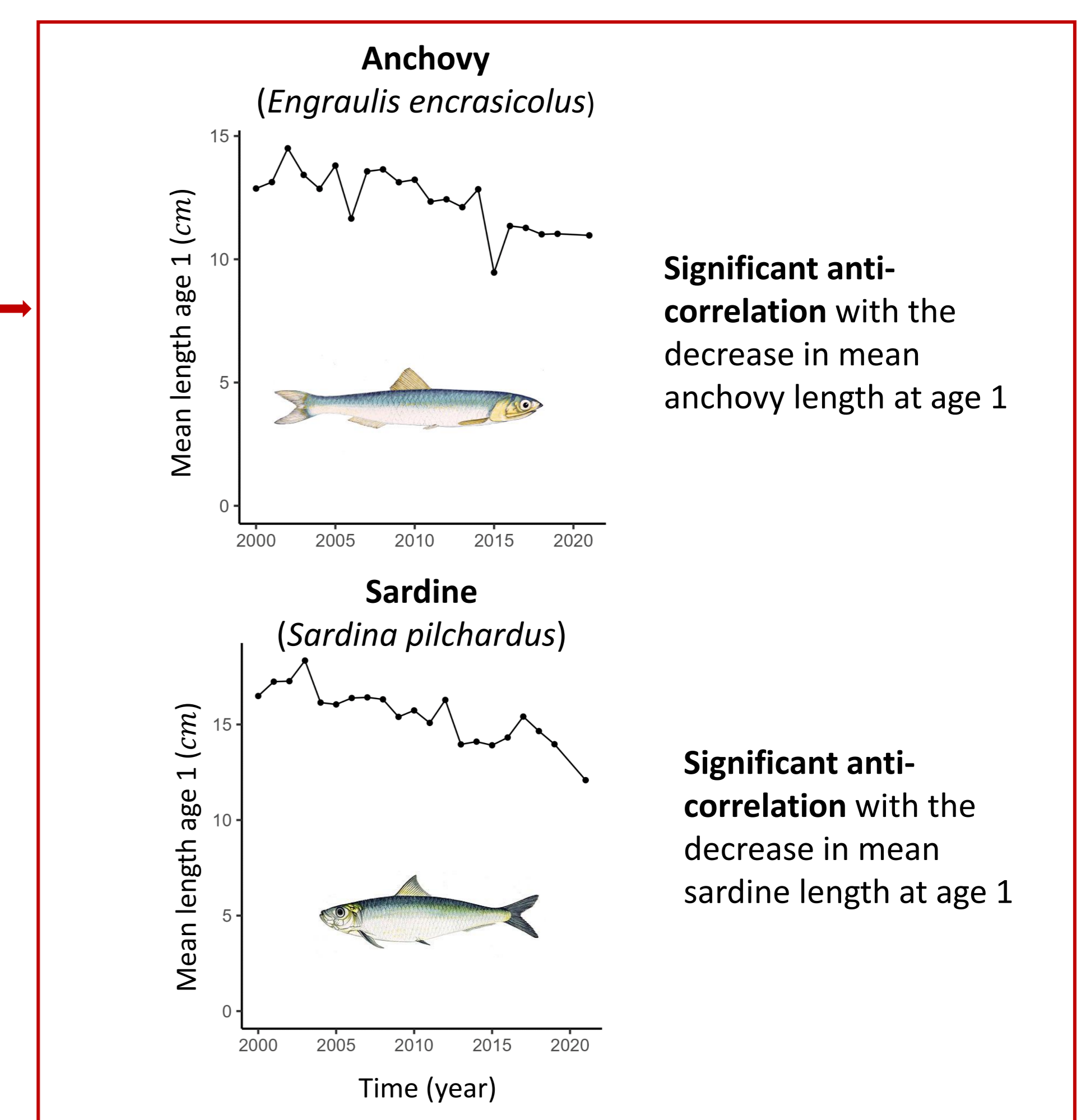
METHOD



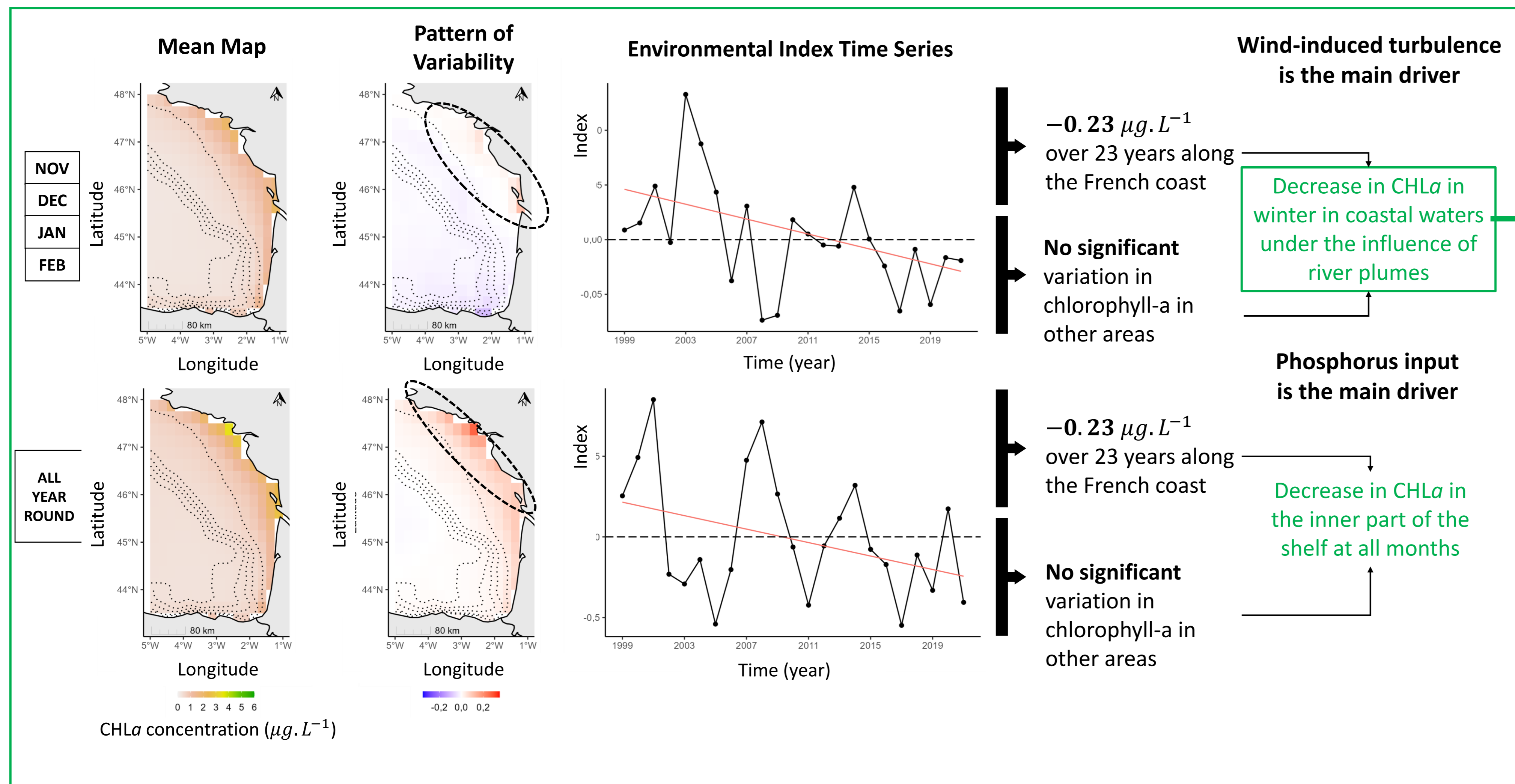
SEA SURFACE TEMPERATURE



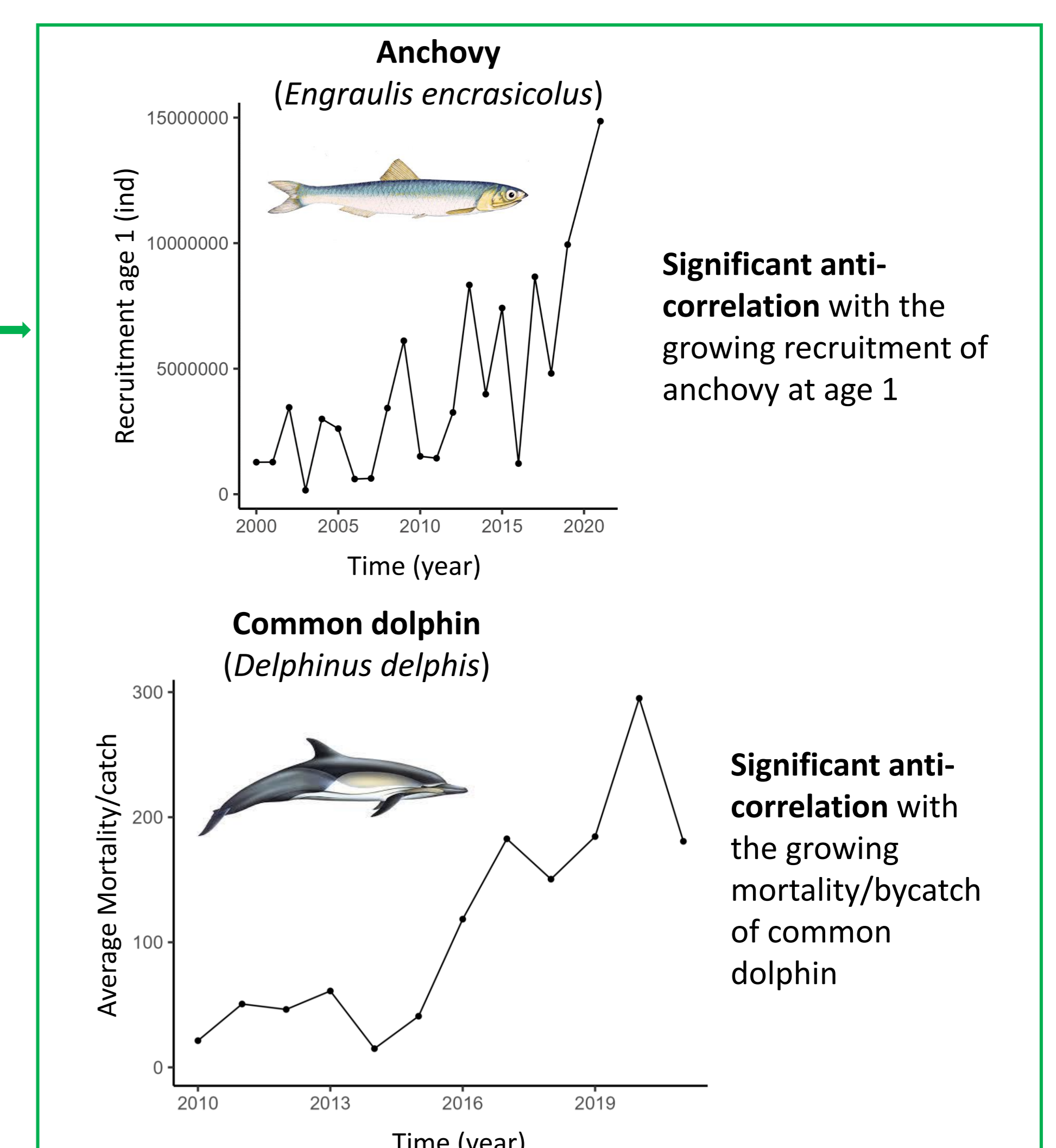
HIGHER TROPIC LEVELS



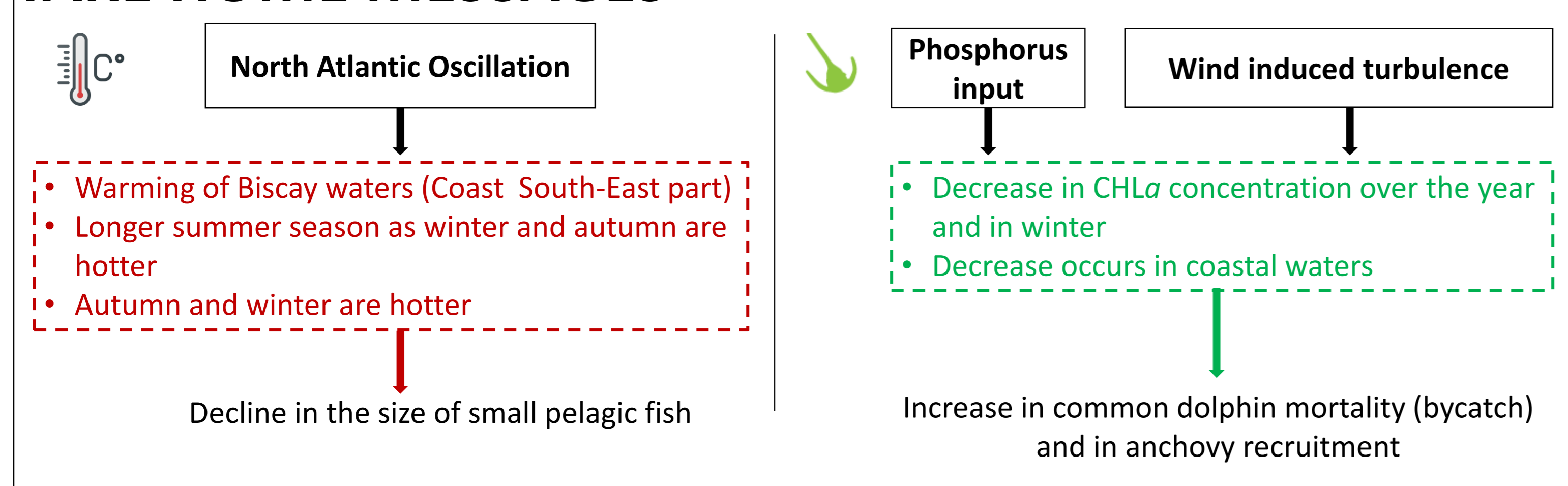
CHLOROPHYLL-A



HIGHER TROPIC LEVELS



TAKE HOME MESSAGES



ABOUT



Hi! I am Baptiste and I had the pleasure to work with Pierre and Antoine on this subject. If you have any questions about my work or would like to have access to my manuscript: please don't hesitate to contact me! I'd also like to pursue in marine sciences by continuing to work on interactions between trophic levels, this time with a greater focus on higher levels. If you have any opportunities that might fit the description, I'd be delighted to discuss them with you! We kindly thank the Delmoges project for supporting this work!



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