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Séminaire du
plan national d'actions
en faveur du Puffin des Baléares

24 au 26 juin 2024

Global distribution, threats and population trends of the critically endangered Balearic shearwater *Puffinus mauretanicus*

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Séminaire du
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01 INTRODUCTION

Balearic Shearwater

Puffinus mauretanicus

ABSTRACT

Balearic Shearwater *Puffinus mauretanicus* has most recently been assessed for *The IUCN Red List of Threatened Species* in 2018. *Puffinus mauretanicus* is listed as Critically Endangered under criteria A4bcde.

THE RED LIST ASSESSMENT

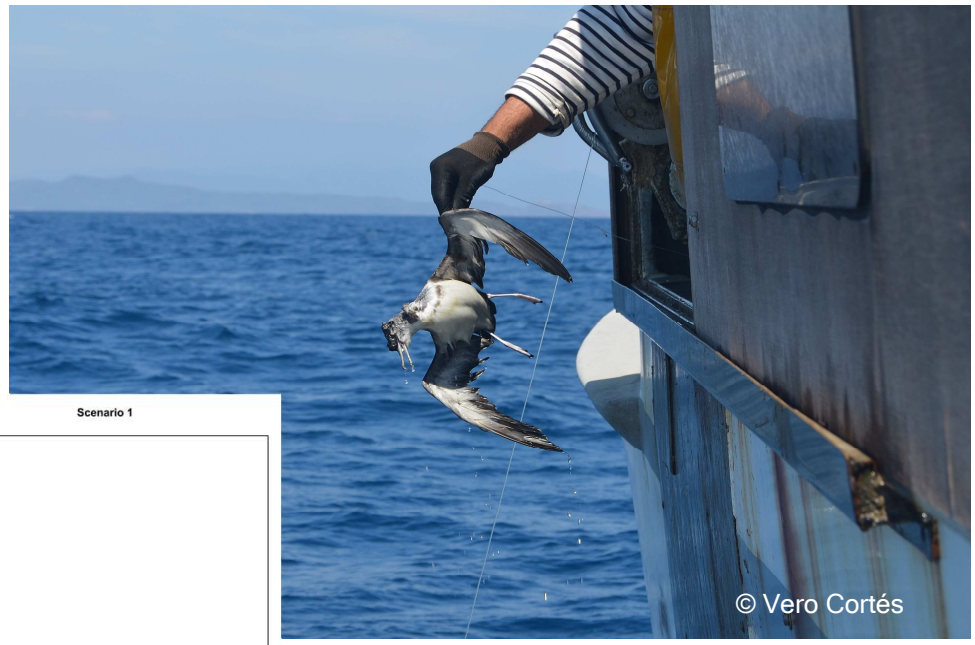
BirdLife International. 2018. *Puffinus mauretanicus. The IUCN Red List of Threatened Species* 2018: e.T22728432A132...

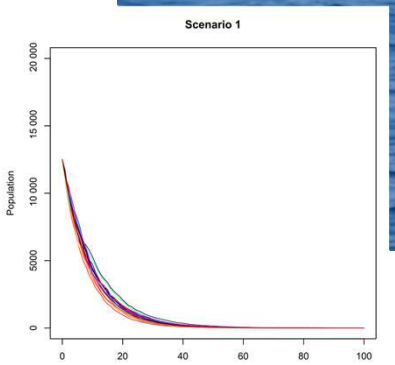
BirdLife International, 2024; Louzao et al., 2012

01 INTRODUCTION

- **2,000-4,500 breeding pairs**
- **30,000 total individuals**
- **Low productivity**
- **Introduced mammals**
- **Bycatch**

- **Declining 7.4% to 14%**
- **Extimated extintion 54-61 years**

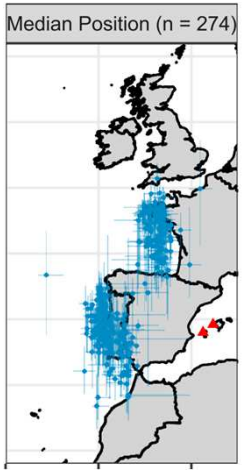


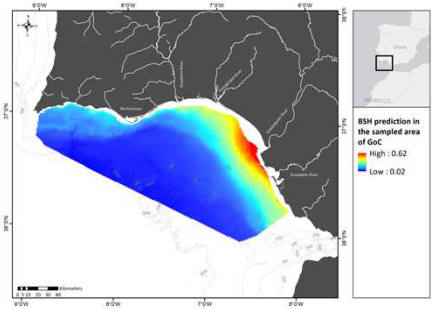


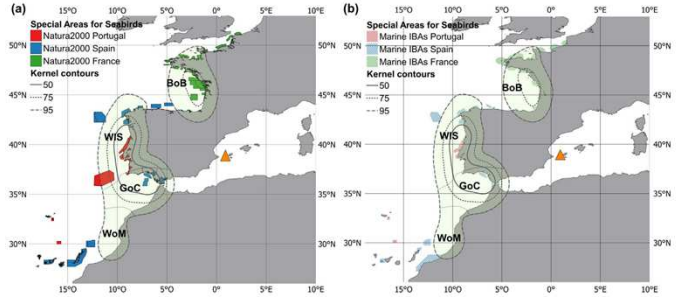
Arcos, 2011; Arroyo et al., 2016; Genovart et al., 2016; Jones et al., 2014; Guilherme et al., 2023; Cortés et al., 2017

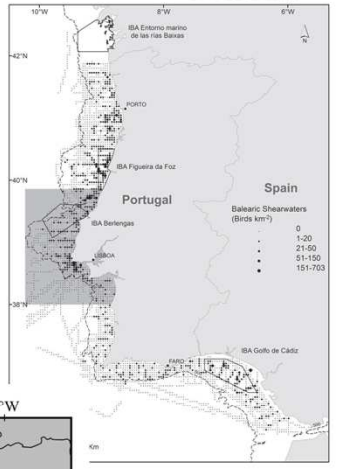
01 INTRODUCTION

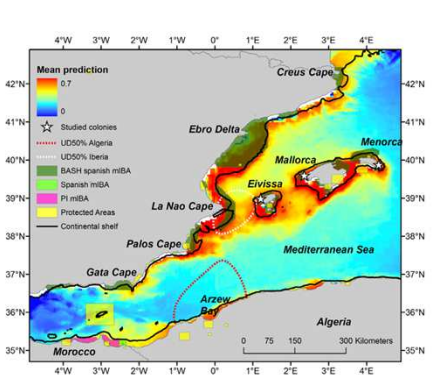
- **Distribution areas partially studied**
- **Remote tracking few individuals**

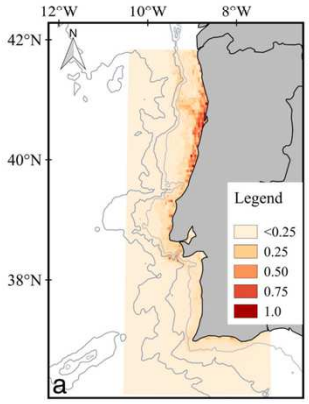










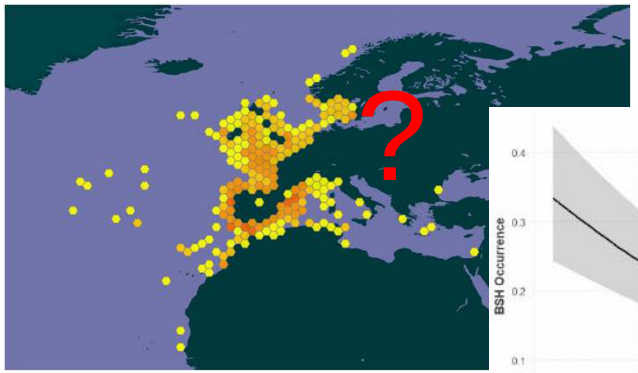


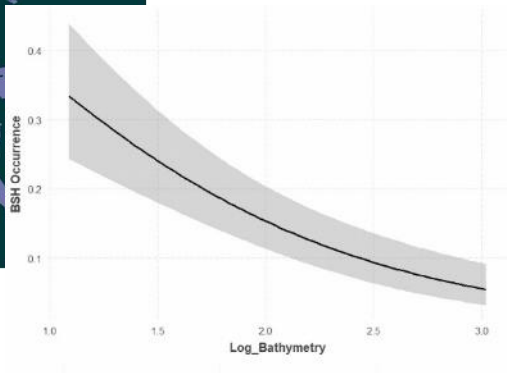
Louzao et al., 2012; De la Cruz et al., 2021; Oppel et al., 2012; Afán et al., 2021; Guilford et al., 2012; Lewin et al. 2024

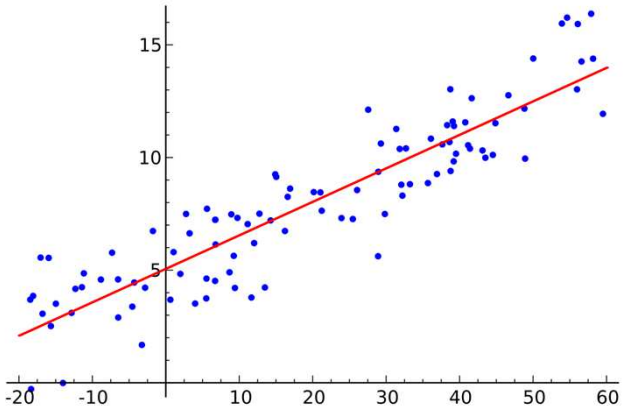
01 INTRODUCTION

Objectives

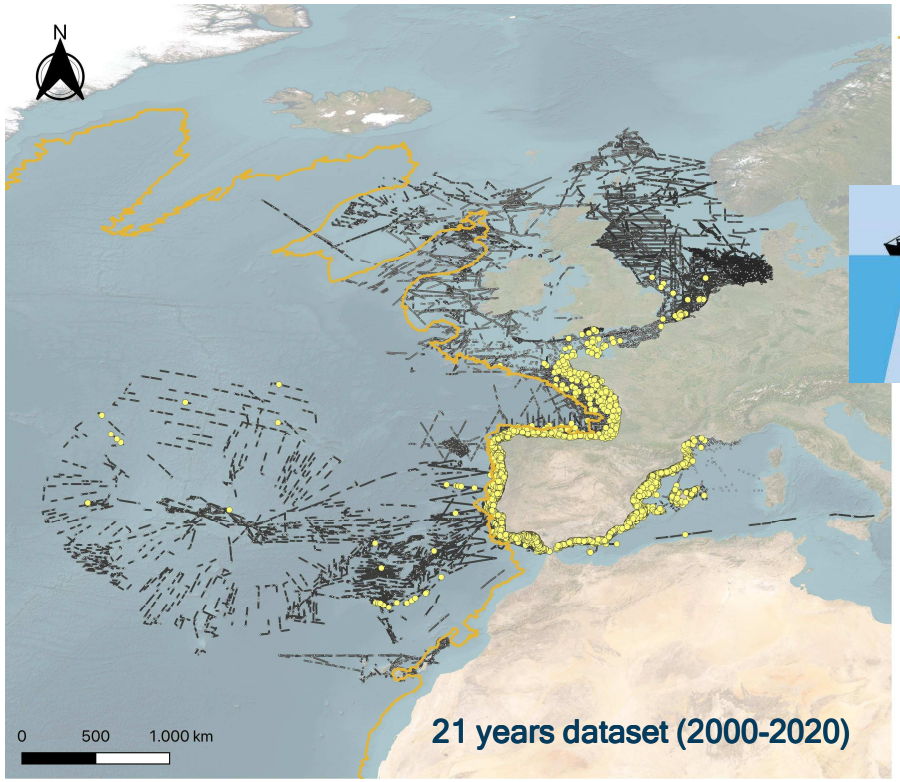
- **Global distribution**
- **Environmental variables importance**
- **Population trends**
- **At sea main threats**

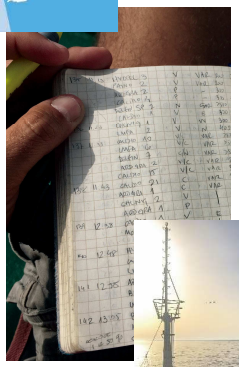






02 METHODOLOGY

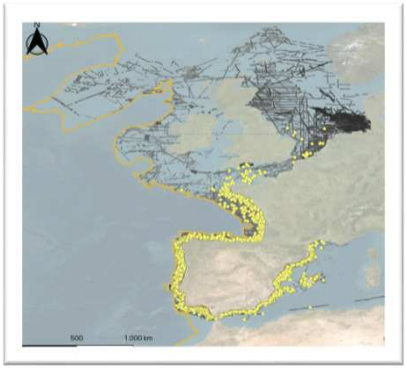


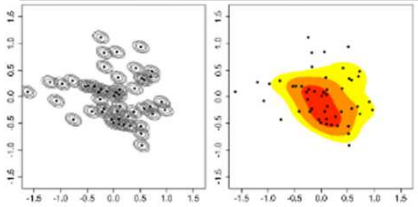


Organisation	Country
Wageningen Marine Research (Den Helder) (WMR)	The Netherlands
University College Cork (UCC)	Ireland
Royal Netherlands Institute for Sea Research (NIOZ)	The Netherlands
Research Institute for Nature and Forest (INBO)	Belgium
Joint Nature Conservation Committee, Aberdeen Office (JNCC)	UK
Institute of Avian Research~Research and Technology Centre (Buesum) (FTZ)	Germany
Federal Agency for Nature Conservation (BfN)~Research and Technology Centre (Buesum) (FTZ)	Germany
Cork Ecology	Ireland
SEO/BirdLife	Spain
SPEA/BirdLife	Portugal
AZTI	Spain
IEO-CSIC	Spain
Observatoire PELAGIS La Rochelle Université	France

02 METHODOLOGY

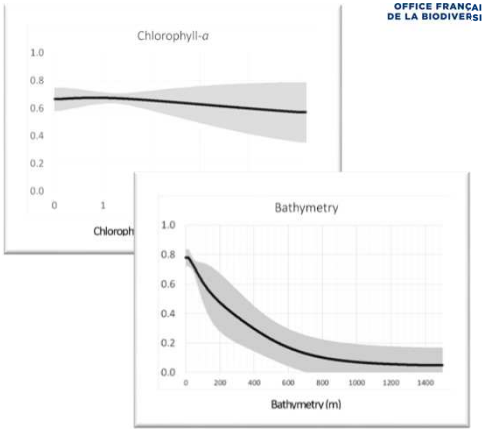
Spatial Distribution Models (GAM)



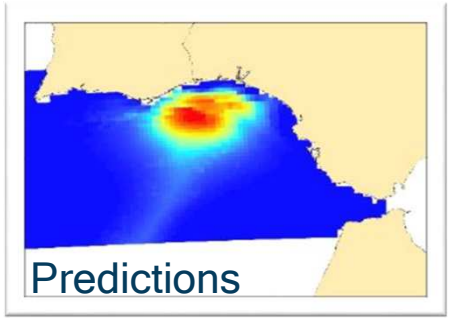


Relative abundance (birds/km^2)

Explicative variables

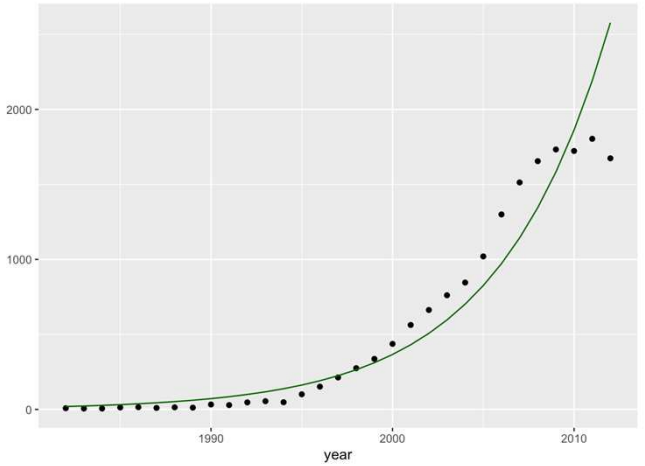


Explanations

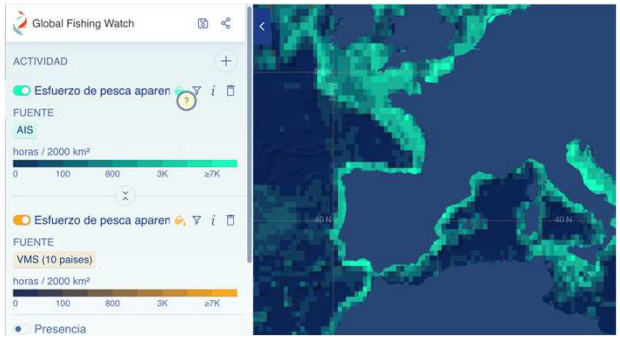


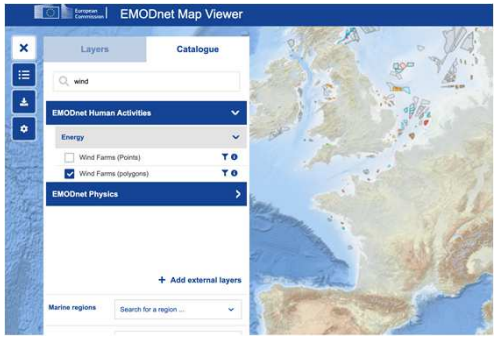
02 METHODOLOGY

Trends (GLM, Abundance vs YEAR)



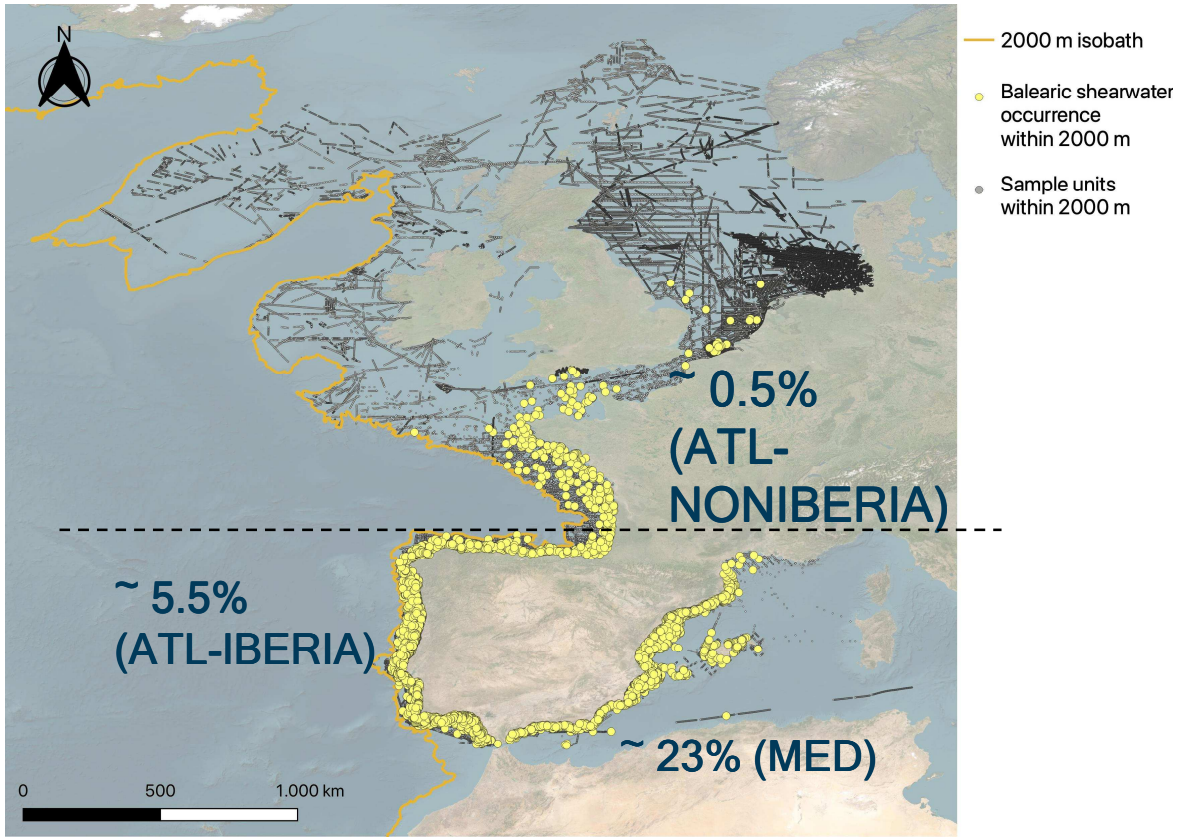
Main threats at sea: Overlap Habitat suitability with (Fisheries, OWF)





03 RESULTS

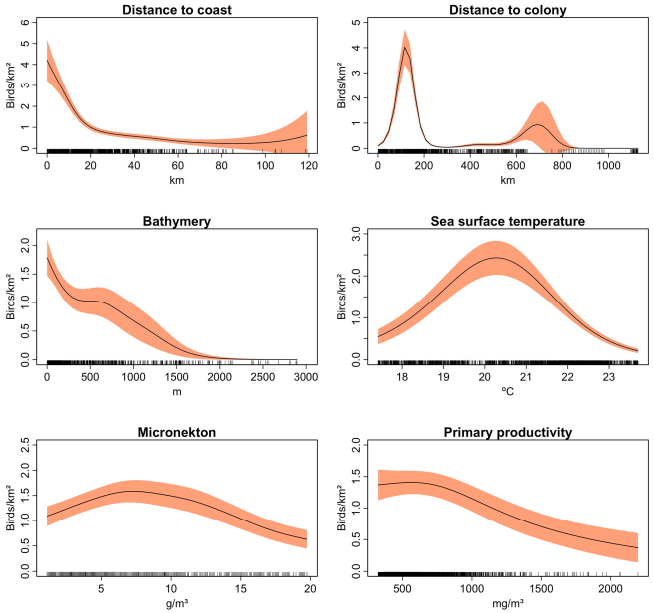
- **1,336,820 sample units.**
- **21 years of data.**
- **Coastal distribution**
- **Med: 1.03 ± 7.43 birds/km²**
- **Atl Iberia: 0.35 ± 5.35birds/km²**
- **Atl Non-Iberia: 0.004 ± 0.15 birds/km²**



03 RESULTS

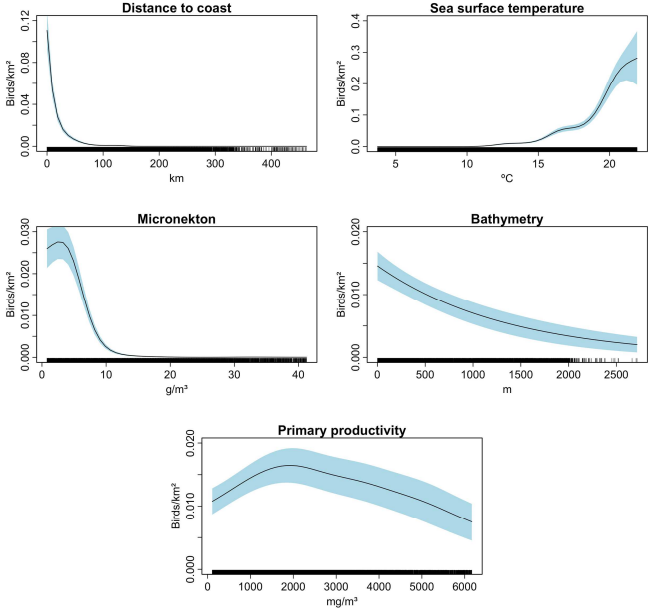
Mediterranean distribution model

23.9% Explained Deviance



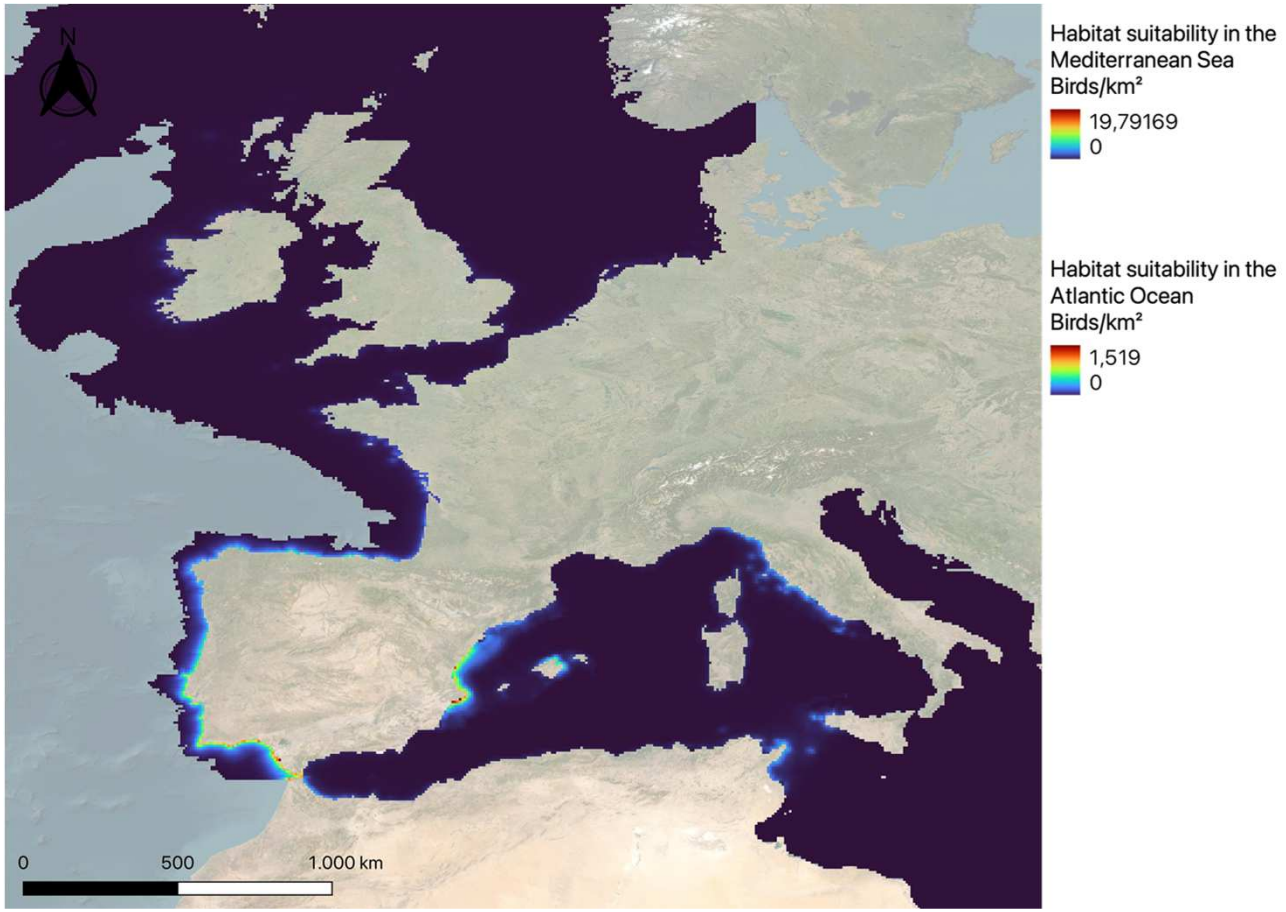
Atlantic distribution model

50.2% Explained Deviance



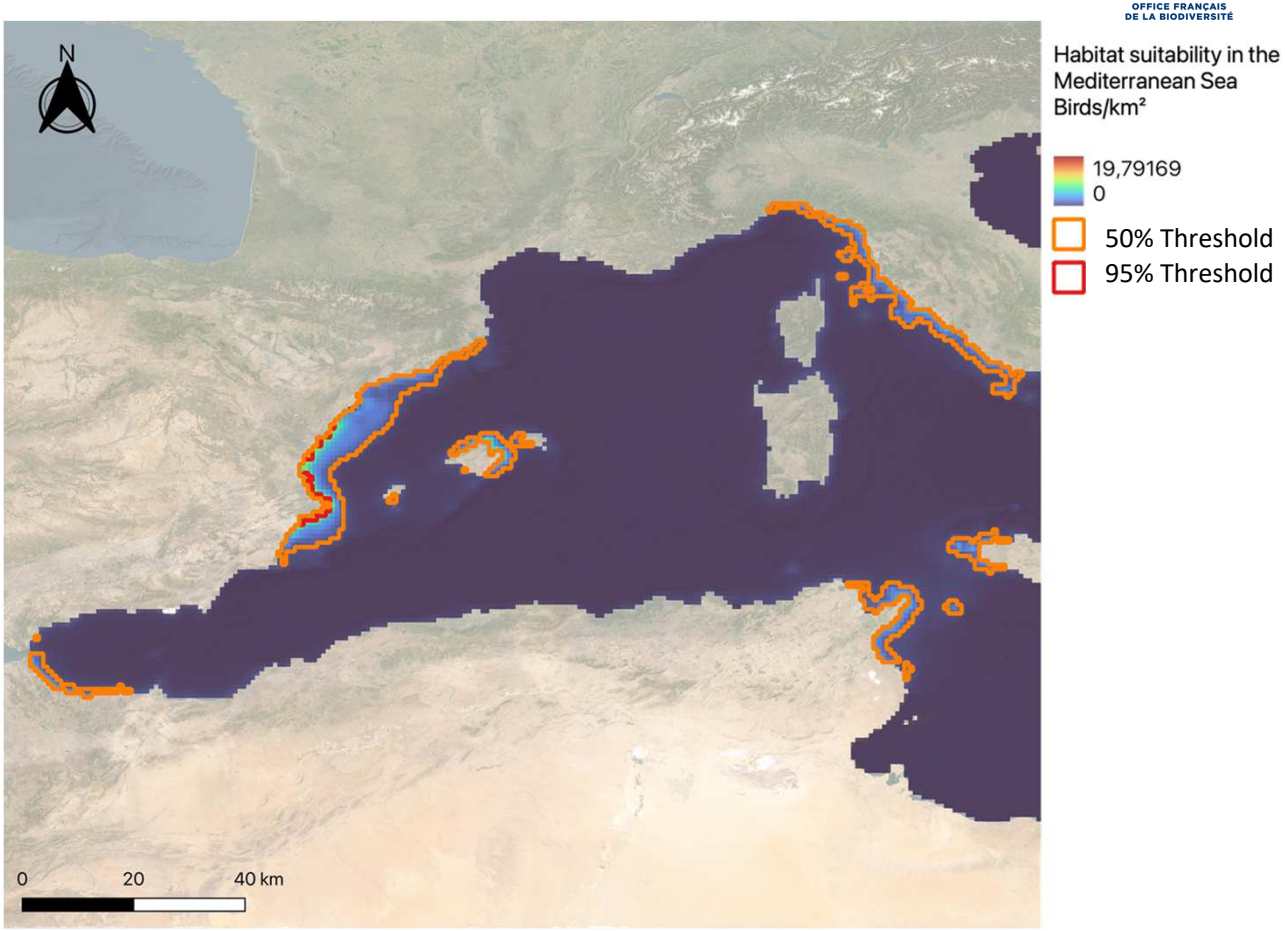
03 RESULTS

Predicted habitat suitability



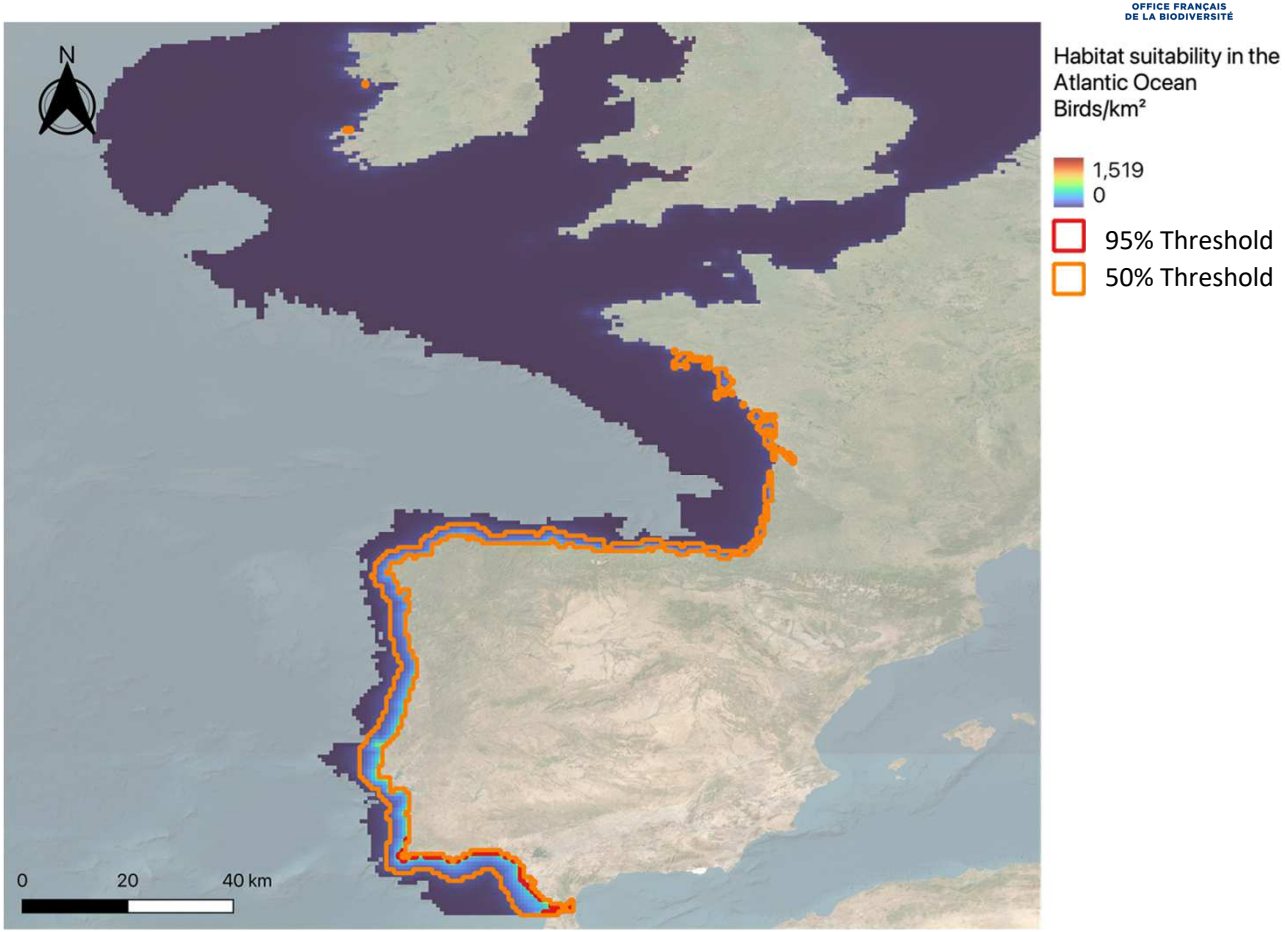
03 RESULTS

Predicted habitat suitability



03 RESULTS

Predicted habitat suitability



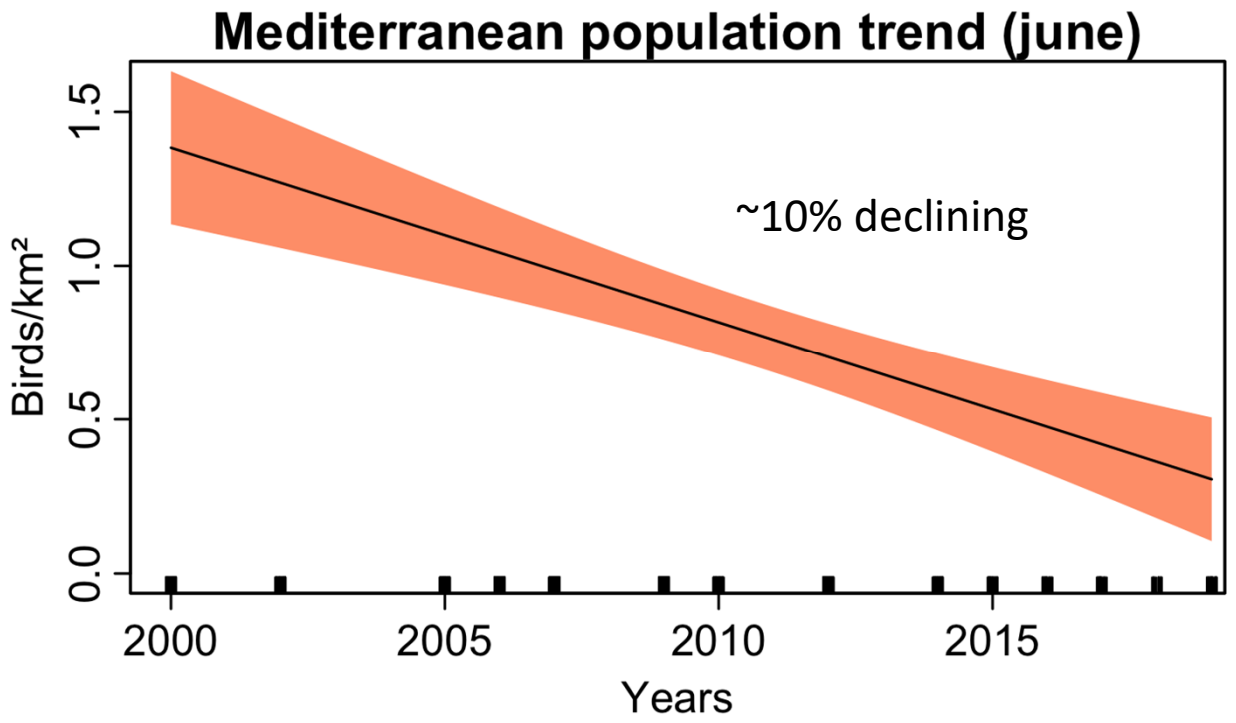
03 RESULTS

Trends

Mediterranean sea		Parametric coefficients:	Estimate	Std. Error	t value	Pr(>|z|)
		(Intercept)	114.89	42.7623	2.687	0.0073
		YEAR	-0.0568	0.02127	-2.669	0.0077
Atlantic ocean	Iberian Peninsula (< 44 °N)	Parametric coefficients:	Estimate	Std. Error	t value	Pr(>|z|)
		(Intercept)	69.796	14.2647	4.893	<0.001
		YEAR	-0.0345	0.00708	-4.878	<0.001
	Central and North Europe (> 44 °N)	Parametric coefficients:	Estimate	Std. Error	t value	Pr(>|z|)
		(Intercept)	-435.76	57.7021	-7.552	<0.001
		YEAR	0.2139	0.02864	7.47	<0.001

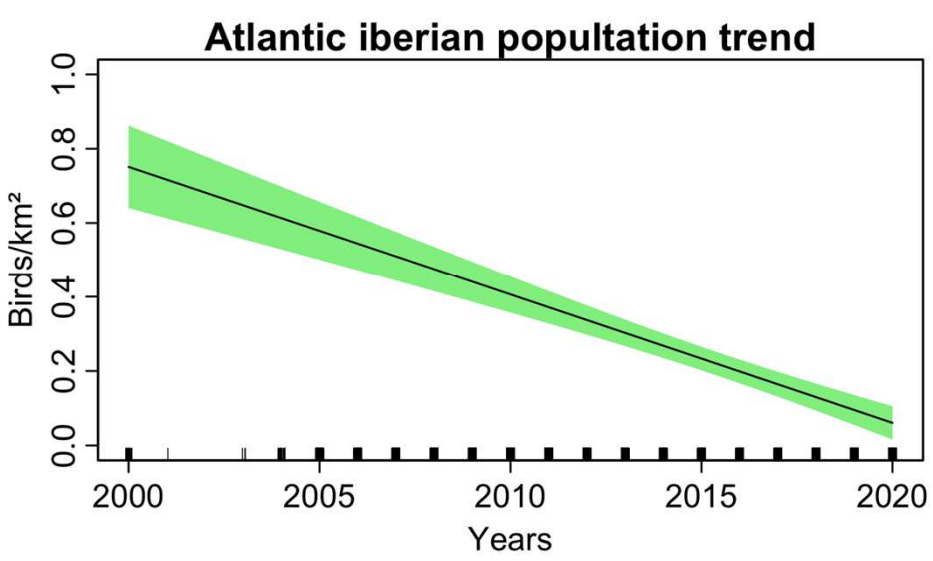
03 RESULTS

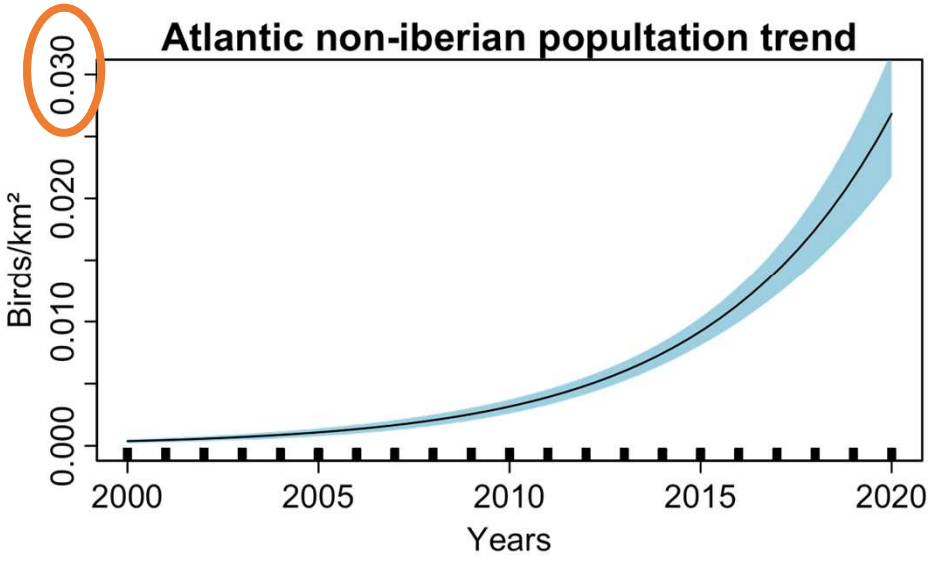
Trends



03 RESULTS

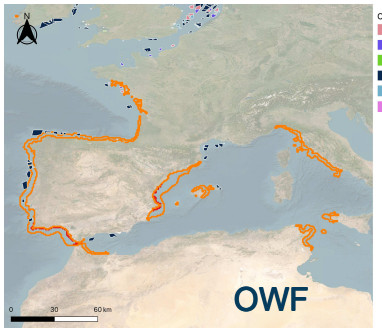
Trends

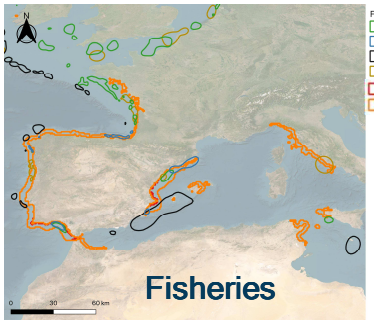


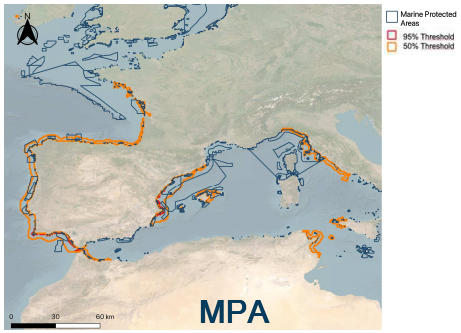


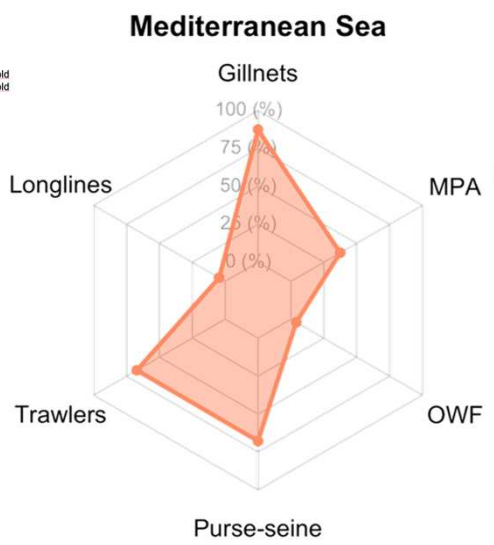
03 RESULTS

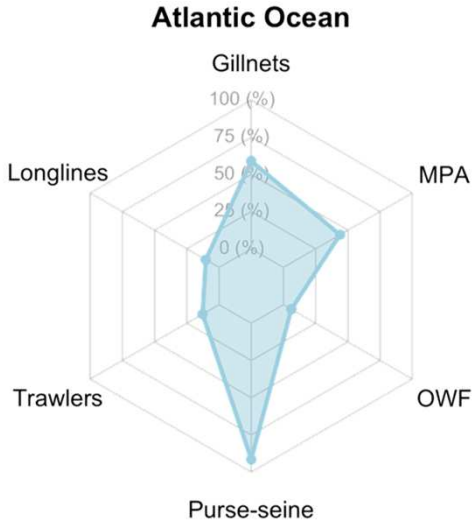
Overlap with at sea main threats and MPA











HIGHLIGHTS

- **21 years dataset (2000-2020) of evaluation of Global Balearic shearwater's distribution.**
- **Significant decline in Mediterranean and Iberian Atlantic.**
- **Fisheries as main threats at sea, but more studies are needed.**
- **Species situation requires greater effort for their effective conservation.**

Thanks!

We will be happy to answer any questions

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