

# Author's Accepted Manuscript

Predicting seasonal variations in coastal seabird habitats in the English Channel and the Bay of Biscay

A. Virgili, C. Lambert, E. Pettex, G. Doremus, O. Van Canneyt, V. Ridoux



www.elsevier.com/locate/dsr2

PII: S0967-0645(17)30095-4  
DOI: <http://dx.doi.org/10.1016/j.dsr2.2017.03.017>  
Reference: DSR114221

To appear in: *Deep-Sea Research Part II*

Received date: 6 July 2015  
Revised date: 29 November 2016  
Accepted date: 31 March 2017

Cite this article as: A. Virgili, C. Lambert, E. Pettex, G. Doremus, O. Van Canneyt and V. Ridoux, Predicting seasonal variations in coastal seabird habitats in the English Channel and the Bay of Biscay, *Deep-Sea Research Part II* <http://dx.doi.org/10.1016/j.dsr2.2017.03.017>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

# Predicting seasonal variations in coastal seabird habitats in the English Channel and the Bay of Biscay

A. VIRGILI<sup>1\*</sup>, C. LAMBERT<sup>1</sup>, E. PETTEX<sup>2</sup>, G. DOREMUS<sup>2</sup>, O. VAN CANNEYT<sup>2</sup>, V. RIDOUX<sup>1,2</sup>

<sup>1</sup>Centre d'Etudes Biologiques de Chizé - La Rochelle, UMR 7372 CNRS - Université de La Rochelle, Institut du Littoral et de l'Environnement, 17000 La Rochelle, France,

<sup>2</sup>Observatoire PELAGIS, UMS 3462 CNRS - Université de La Rochelle, Systèmes d'Observation pour la Conservation des Mammifères et des Oiseaux Marins, 17000 La Rochelle, France

\*Corresponding author Email address: [auriane.virgili@univ-lr.fr](mailto:auriane.virgili@univ-lr.fr) (Auriane Virgili)

## Abstract

Seabirds, like all animals, have to live in suitable habitats to fulfil their energetic needs for both somatic and reproductive growth and maintenance. Apart from migration trips, all coastal seabirds are linked to the coast, because they need to return daily to land for resting or breeding. Their use of marine habitats strongly depends on their biology, but also on environmental conditions, and can be described using habitat models. This study aimed to: (1) identify the processes that mostly influence seabird distributions along the coasts of the English Channel and the Bay of Biscay; (2) determine seasonal variations of these processes, (3) provide prediction maps that describe the species distributions. We collected data of coastal seabird sightings from aerial surveys carried out in the English Channel and the eastern North Atlantic in the winter 2011-2012 and summer 2012. We classified seabirds into morphological groups and described their habitats using physiographic and oceanographic variables in Generalised Additive Models (GAMs). Finally, we produced maps of predicted distributions by season for each group. The distributions of coastal seabirds were essentially determined by the distance to the nearest coast, with a weaker influence of oceanographic variables. The nature of the substrate, sand or rock, combined with the timing of reproduction, also contributed to determine seasonal at-sea distributions for some species. The highest densities were predicted near the coast, particularly in bays and estuaries for strictly coastal species with possible variations depending on the season. From this study, we were able to predict the seasonal distribution of the studied species according to varying environmental parameters that changed over time, allowing us to understand better their behaviour and ecology.

**KeyWords:** English Channel · eastern North Atlantic · Seabirds · Aerial surveys · Habitat modelling · Distribution · Generalised Additive Models

## 1. Introduction

Seabirds, like all animals, have to live in suitable habitats to fulfil their energetic needs for both somatic and reproductive growth and maintenance. Unlike other marine species,

Download English Version:

<https://daneshyari.com/en/article/5764933>

Download Persian Version:

<https://daneshyari.com/article/5764933>

[Daneshyari.com](https://daneshyari.com)