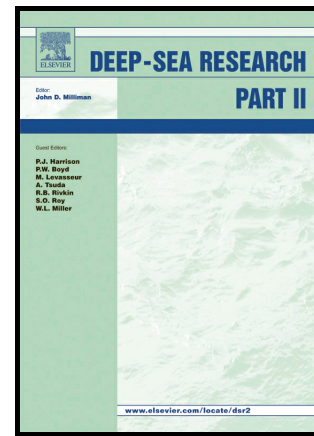


Author's Accepted Manuscript

How does ocean seasonality drive habitat preferences of highly mobile top predators? Part I: the north-western Mediterranean Sea

C. Lambert, S. Laran, L. David, G. Dorémus, E. Pettex, O. Van Canneyt, V. Ridoux



www.elsevier.com/locate/dsr2

PII: S0967-0645(16)30173-4
DOI: <http://dx.doi.org/10.1016/j.dsr2.2016.06.012>
Reference: DSR114088

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

Received date: 30 June 2015
Revised date: 3 February 2016
Accepted date: 22 June 2016

Cite this article as: C. Lambert, S. Laran, L. David, G. Dorémus, E. Pettex, O. Van Canneyt and V. Ridoux, How does ocean seasonality drive habitat preferences of highly mobile top predators? Part I: the north-western Mediterranean Sea, *Deep-Sea Research Part II* <http://dx.doi.org/10.1016/j.dsr2.2016.06.012>

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.



How does ocean seasonality drive habitat preferences of highly mobile top predators? Part I: the north-western Mediterranean Sea.

C. Lambert^{a,*}, S. Laran^b, L. David^c, G. DorÅlmus^b, E. Pettex^b, O. Van Canneyt^b, V. Ridoux^{a,b}

^aCentre d'Etude Biologique de ChizÅl, UMR 7372 CNRS - UniversitÅl de La Rochelle, Institut du Littoral et de l'Environnement, 17000 La Rochelle, France

^bObservatoire PELAGIS, UMS 3462 CNRS - UniversitÅl de La Rochelle, SystÅlmes d'Observation pour la Conservation des MammifÅlres et des Oiseaux Marins, 17000 La Rochelle, France

^cEcoOcÅlan Institut, 18 rue des Hospices, 34090 Montpellier, France

Abstract

Contrasting to the overall oligotrophic Mediterranean Sea, the north-western basin is characterised by high productivity and marked by seasonality, which induces spatiotemporal heterogeneity of habitat. Cetaceans and seabirds are expected to perceive this repetition of the seasonal cycle and to anticipate the recurrent variability of their environment. Because phenology imposes strong constraints over marine predators, especially through reproduction, we expected them to exhibit variations in their habitat preferences over seasons. Indeed, during reproductive period, marine predators have to face their own needs and those of their young, while out of this period, they can focus on maximizing their own survival only. We therefore hypothesised that some species would change their habitat preferences to exploit the most favourable habitat during each season, while other species might accommodate the same habitat all year-round, for example thanks to the use of an habitat favourable all the year. To explore these hypotheses, we used aerial surveys data conducted over north-western Mediterranean Sea during winter 2011-2012 and summer 2012. Generalized Additive Models were used to link the species density to a set of 12 physiographic and oceanographic predictors describing their environment. Habitat models resulted in deviances from 12 to 47%. Our results provided the first assessment of habitat preferences for the winter season for most of our studied species. Small-sized delphinids (mostly striped dolphins), fin whales, *Globicephalinae* (long-finned pilot whales and Risso's dolphins) and small-sized shearwaters (Yelkouan and Balearic shearwaters) exhibited no habitat variations between seasons, although for the first two, abundances were lower in winter. On the contrary, bottlenose dolphins switched from coastal habitat in summer to pelagic habitat in winter, while Cory's shearwaters and storm petrels exhibited the largest habitat variations between seasons with a complete absence during winter.

Keywords: Seabirds, Cetaceans, Habitat modelling, Mediterranean, Seasons

1. Introduction

Physical and biological processes in marine ecosystems are generally strongly heterogeneous in space and time [1]. This high environmental variability in ecosystem conditions induces patchy and variable distributions of forage resources for top predators and, as a consequence, implies the necessity for predators

*Corresponding author

Email address: charlotte.lambert@univ-lr.fr (C. Lambert)

Download English Version:

<https://daneshyari.com/en/article/5764925>

Download Persian Version:

<https://daneshyari.com/article/5764925>

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