The Gulf Stream frontal system: a key oceanographic feature in the habitat selection of the leatherback turtle?

Philippine Chambault, Fabien Roquet, Simon Benhamou, Alberto Baudena, Etienne Pauthenet, Benoît de Thoisy, Marc Bonola, Virginie Dos Reis, Rodrigue Crasson, Mathieu Brucker, Yvon Le Maho, Damien Chevallier

PII: S0967-0637(16)30301-6
DOI: http://dx.doi.org/10.1016/j.dsr.2017.03.003
Reference: DSRI2762

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

Received date: 12 September 2016
Revised date: 1 March 2017
Accepted date: 8 March 2017

Cite this article as: Philippine Chambault, Fabien Roquet, Simon Benhamou Alberto Baudena, Etienne Pauthenet, Benoît de Thoisy, Marc Bonola, Virginie Dos Reis, Rodrigue Crasson, Mathieu Brucker, Yvon Le Maho and Damien Chevallier, The Gulf Stream frontal system: a key oceanographic feature in the habitat selection of the leatherback turtle?, *Deep-Sea Research Part I* http://dx.doi.org/10.1016/j.dsr.2017.03.003

The Gulf Stream frontal system: a key oceanographic feature in the habitat selection of the leatherback turtle?

Philippine Chambault[1*], Fabien Roquet[2], Simon Benhamou[3], Alberto Baudena[4], Etienne Pauthenet[2], Benoît de Thoisy[5], Marc Bonola[1], Virginie Dos Reis[5], Rodrigue Crasson[5], Mathieu Brucker[1], Yvon Le Maho[1], Damien Chevallier[1]

[1]Université de Strasbourg, CNRS, IPHC UMR 7178 CNRS, F-67000 Strasbourg, France.

[2]Stockholm University, Department of Meteorology (MISU), Sweden.

[3]Centre d'Étude Fonctionnelle et Évolutive, CNRS, 1919 route de Mende, 34293 Montpellier Cedex, France.

[4]Sorbonne Universités, UPMC Université Paris 06, CNRS-IRD-MNHN-IPSL Laboratory, 4 Place Jussieu, F-75005 Paris, France.

[5]Association Kwata, 16 avenue Pasteur, BP 672, F-97335 Cayenne Cedex, France.

*Corresponding author: philippine.chambault@gmail.com (PC)

Abstract

Although some associations between the leatherback turtle *Dermochelys coriacea* and the Gulf Stream current have been previously suggested, no study has to date demonstrated strong affinities between leatherback movements and this particular frontal system using thorough oceanographic data in both the horizontal and vertical dimensions. The importance of the Gulf Stream frontal system in the selection of high residence time (HRT) areas by the North Atlantic leatherback turtle is assessed here for the first time using state-of-the-art ocean reanalysis products. Ten adult females from the Eastern French Guianese rookery were satellite tracked during post-nesting migration to relate (1) their horizontal movements to physical gradients (Sea Surface Temperature (SST), Sea Surface Height (SSH) and filaments)