

Insights into the genetic structure of the rabbitfish *Chimaera monstrosa* (Holocephali) across the Atlantic-Mediterranean transition zone

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A comparison of the genetic structure of *Chimaera monstrosa* populations from the Atlantic Ocean and the Mediterranean Sea was carried out using mitochondrial DNA analysis. Results indicate high and significant pairwise Φ_{ST} values with no shared haplotypes between the two areas. Furthermore, migration rate estimates suggested absence of gene flow between the two basins. These findings, coupled with the species vertical distribution, suggest that the shallow depth of the Strait of Gibraltar may act as a barrier limiting the dispersal capabilities of these populations, which likely became separated at the end of the middle Pleistocene.

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INTRODUCTION

Chimaeras (Holocephali), also known as ghostfish and ratfish, are still one of the most mysterious groups in the deep sea. The family Chimaeridae is represented by the genus *Chimaera* L. 1758, with 16 valid species and the genus *Hydrolagus* Gill 1862 with at least 24 valid species worldwide (Weigmann, 2016). Only two species of Chimaeridae are currently reported in the north-east Atlantic Ocean, the wide-spread rabbitfish *Chimaera monstrosa* L. 1758 and the opal chimaera *Chimaera opalescens* Luchetti, Iglésias & Sellos 2011 (Luchetti *et al.*, 2011; Weigmann, 2016). Although *C. monstrosa* has been a recognized species for a long time, much of its ecology, behaviour and population structure is still unknown. The species has been reported worldwide in the past. At present, however it is accepted that its distribution is restricted to the north-eastern Atlantic Ocean (from northern Norway to Morocco) and Mediterranean Sea; records outside this range are considered questionable (Dagit *et al.*, 2007; Weigmann, 2016). *C. monstrosa* inhabits upper continental slopes mostly

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