

## Abstract

# Evidence of High Levels of Gene Flow in a Widely Distributed Catadromous Species: The Thin-Lippedgrey Mullet <sup>†</sup>

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**Abstract:** The thin-lipped grey mullet *Chelon ramada* (Risso, 1827) is a catadromous species that is distributed along the Northeast Atlantic, from the Norwegian coastline down to Mauritania, on the African coast (20–60° N, 18° E–42° W), and displays diverse patterns of habitat use and migratory behaviors. This widely distributed species is observed in large shoals throughout coastal areas and in brackish and freshwater environments, yet no previous studies have addressed the population's genetic structure. To study the patterns of genetic variation, gene flow and connectivity in the *C. ramada* distribution range, 457 fin clips sampled from 14 locations (Portuguese coast, Bay of Biscay, North seas, Celtic sea, Western Mediterranean and Eastern Mediterranean) were genotyped using 11 microsatellite DNA markers. No significant genetic differentiation among locations or geographic clustering of samples was observed, which points towards the existence of a unique genetic group. The results suggest strong gene flow from the Western Mediterranean to the Portuguese coast ( $N_m = 1$ ) and vice versa ( $N_m = 0.87$ ). The Portuguese coast has displayed the highest values of gene flow with all the sampling sites ([0.4–0.6]) whereas Northeast Atlantic coast and Eastern Mediterranean maintained symmetrical lower values of gene flow that ranged between [0.20–0.30]. The present study provides evidence that high levels of gene flow are maintained within the distribution range, contributing to the existence of a panmictic population.

**Keywords:** catadromy, panmixia; genetic structure; connectivity; dispersion; microsatellites; *Chelon ramada*



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