**Evaluating movement and population dynamics of meagre (*Argyrosomus regius*) using an interdisciplinary approach**

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Meagre (*Argyrosomus regius*) forms ephemeral aggregations during the reproductive season that, given the large size and high commercial value of this species, lead to increased risk of overexploitation. Data paucity together with the inability to apply classical fisheries assessment techniques and management measures due to the seasonally-elusive dynamics of adult meagre, and the diffuse nature of artisanal fishing pressure, demonstrate the importance to search for innovative alternatives that can inform fisheries management and safeguard the reproductive resilience of this iconic species. Here, we use an interdisciplinary approach that combines tagging, natural markers, and bioacoustics. Molecular markers are used to assess population structure of meagre throughout its distribution range, with emphasis on the stocks associated to Portuguese estuaries. Genetic population structure is complemented by fatty acid composition of heart tissue phospholipids, a promising tool to assess population structure at small spatial scale. Otolith chemistry of meagre is used to reconstruct ontogenetic migration patterns and to determine natal or nursery origin of adults. Acoustic tags are used to study the movement patterns of juvenile and adult meagre, particularly to understand the use of estuaries as spawning and nursery habitats and to track movements along the Portuguese Coast. The distinct sounds produced by meagre are used in passive bioacoustics monitoring to delimit spawning aggregations and describe their dynamics within estuaries. This multifaceted approach aims to explore spatial population structure and assess connectivity at different degrees of resolution, and thus providing key information towards the sustainable management of meagre fisheries.

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