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Meagre (*Argyrosomus regius*) movements between and within an important nursery and spawning area

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Abstract

The meagre (*Argyrosomus regius*, Asso 1801) is a long-lived commercially and recreationally important marine fish. The species forms ephemeral spawning aggregations that exacerbate the risk of overexploitation. Across the species distribution range in the Northeast Atlantic, Central Eastern Atlantic and Mediterranean, only five spawning areas are identified. The Tagus estuary (Portugal) is one of these areas. The estuary and adjacent coastal area congregate approximately two thirds of Portuguese meagre catch and constitute the main fishing area of the Iberian Peninsula. We aim to unravel the migratory movements of the meagre through an interdisciplinary approach combining tagging, natural markers, and bioacoustics, focusing on the use of the Tagus estuary as nursery and spawning area. We are using acoustic biotelemetry to obtain fine-scale information on habitat use within the estuary, but also on the movements to adjacent coastal areas and other estuarine systems. This will be achieved with MIGRACORV project arrays and CoastNet infrastructure (Portuguese Tracking Network). This infrastructure includes arrays of acoustic receivers throughout the coast and the estuarine systems where the meagre is known to occur in Portugal. Acoustic receivers deployed in the Tagus estuary have already provided information on the movements of three adults and twenty-four juveniles between 2019 and 2020. Two of the adults tagged in 2019, revisited the estuary one year later during spring and summer. Juvenile residency in the estuary appears to be longer, and some of the specimens have been detected through the autumn and winter, while others visited the estuary in consecutive years. In total, we aim to tag 50 juveniles and 25 adults. Acoustic tagging and our multi-faceted approach is expected to resolve the life history movements of meagre, provide the grounds for active and corrective management of the meagre fisheries and highlight alternative solutions for fisheries of other estuarine/coastal-dependent fisheries resources.

Keywords

Acoustic telemetry, Tagus estuary, Fisheries management, Habitat use