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Combined use of otolith shape, parasites and genetic markers for stock identification of the common dentex (*Dentex dentex*) around Corsica Island (NW Mediterranean)

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on size. Using significance tests we show that for juveniles, our results with respect to transforms are significant but those with respect to classification algorithms are not. This study suggests that current operational methods of stock discrimination of Clupeids based on measurements of early incremental growth are likely to be effective, with little benefit in supplementing this information with shape indices derived from morphological outlines..

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Combined use of otolith shape, parasites and genetic markers for stock identification of the common dentex (*Dentex dentex*) around Corsica Island (NW Mediterranean)

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The common dentex *Dentex dentex* (Linnaeus, 1758) is an iconic marine coastal fish in the Mediterranean Sea. As a high trophic level predator, it holds a key position in the coastal marine food webs. It is highly valued by both commercial and recreational fisheries. *D. dentex* is now classified by the International Union for the Conservation of Nature (IUCN) as “vulnerable” in the Red List of Threatened Species in the Mediterranean Sea. Despite its economic and ecological importance, data on the stock structure of this species are still very limited. Information on stock identity and spatial structure are necessary for understanding fish population dynamics and enable reliable resource assessment for fisheries management. Consequently, a holistic approach is probably the most relevant way to define stock structure and favor the sustainable spatial management of an exploited species. The aim of this study was to examine the stock structure of the common dentex, using a combination of markers: otolith shape analysis (Elliptic Fourier descriptors, geometric morphometrics), parasites communities from the digestive tract and genetic markers (microsatellite loci). A sample of 103 specimens of *D. dentex* (46-91 cm total length) was collected in four locations around Corsica, in two consecutive years (2012 and 2013). The information produced by otolith shape analysis, parasites communities establishment and genotypic marker are combined in order to discriminate geographic ecological entities of *D. dentex* around Corsica. This study provides new insights into the population structure of common dentex at the spatial scale of the Corsica Island.