

## PHYLOGENETIC RELATIONSHIPS OF FOSSIL HERRING-LIKE FISHES (CLUPEIFORMES, TELEOSTEI)

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Fishes of the Order Clupeiformes (herrings, shads, anchovies and allies) comprise more than 400 modern distinct species, are economically important and play a crucial ecological role. Clupeiformes have left a rich fossil record, with more than 100 species described so far. However, little is known about the evolutionary history of this order, largely due to the fact that the systematics of most of these fossils remain uncertain. Here we examine the phylogenetic affinities of about a fifth of all described fossil species, from the earliest putative representatives, dating to the Cretaceous, to species from the Pleistocene. The studied fossils come from different parts of the world, but most of the material originates from the Circum-Mediterranean realm, where such fossils are common. We constructed a phylogenetic matrix comprising more than 200 morphological characters for 70 modern species, based on X-ray images,  $\mu$ CT scans and cleared and stained specimens, as well as literature data. Preliminary results indicate that the first identifiable representatives or close relatives of several modern genera date back to the Oligocene and Miocene. Our results are also relevant to discussions concerning faunal turnovers in the Mediterranean and corroborate the idea that during the Neogene, the (Circum-) Mediterranean was inhabited by taxa which today are regarded as tropical or invading species.