A severe drop in Eurasian ichthyosaur diversity prior to their late Cenomanian extinction: local or global signal?

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During the last decade, our knowledge of the taxonomic diversity of the Early Cretaceous ichthyosaurs (Mesozoic marine reptiles) has increased significantly, with the recognition of new species, genera, and subfamilies from Canada, Europe, and Russia. New data from England, France, and western Russia suggest ichthyosaurs remained diverse and abundant in western Eurasian marine ecosystems up to the late Albian–early Cenomanian, with the co-occurrence of three to four taxa occupying two to three distinct ecological niches in each formation considered (Cambridge Greensand Member, England; Marnes Bleues Formation, France; Stoïlensky quarry, Russia). However, the overlying formations (middle–late Cenomanian), consisting of chalk or glauconiferous sands, have yielded a very depauperate ichthyosaur fauna. These ichthyosaur assemblages are monospecific and comprise medium to large-sized, presumably opportunistic predators belonging the genus *Platypterygius*. This suggests a severe drop in ichthyosaur diversity some 5 millions years before their final extinction, which presumably occurred at or near the Cenomanian–Turonian boundary. However, it is difficult to know if this pattern is biased or genuine: the diversity drop may very well be an effect of preservational/ecological biases as well as a genuine extinction linked to the profound environmental changes occurring during the Cenomanian. The presence of similar impoverished assemblages in Cenomanian sediments worldwide favours the latter hypothesis, but the question remains open for now.