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Biometric analysis of the teeth of fossil and Recent hexanchid sharks and its taxonomic implications

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A biometric analysis of the lower teeth of Recent cow sharks (Hexanchidae) investigates the ontogenetic and phylogenetic aspects of the dental characters employed by many ichthyologists and palaeontologists. The dental characters currently used to separate two extant species of sixgill sharks (*Hexanchus griseus* and *H. nakamurai*) are analysed and the fossil record of their relatives reviewed. The main results suggest that the cusp number ratio (number of cusps per mm) is preferable to width of the lower tooth for inference of total body size, at least in species of *Hexanchus*. The presence of a serrated edge or an enlarged acrocone appears to depend on ontogeny and care must be taken when using these as taxomomic characters. Three Eocene species of *Hexanchus*, *H. collinsonae, H. hookeri*, and *H. agassizi*, and a new assemblage of fossil teeth from the late Ypresian/early Lutetian (Early/Middle Eocene) of south-western France, are also analysed. The first two of these species may be ontogenetic states of *H. agassizi*. *Hexanchus agassizi*, belonging to the vituliform lineage and closely related to the living *H. nakamurai*, is considered here to be the only species of *Hexanchus* in the Lower to Middle Eocene. A brief overview of Palaeogene *Hexanchus*, suggests no evidence of the grisiform group (closely related to living *H. griseus*) before the Late Eocene.

Key words: Elasmobranchii, Hexanchidae, shark teeth, biometry, Eocene.

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