GROWTH CHARACTERISTICS OF NORTH AMERICAN HIODONTIDAE (TELEOSTEI) FROM THE LATE CRETACEOUS TO RECENT

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Age/length characteristics for Late Cretaceous and Eocene Hiodontidae were compared to those of extant *Hiodon* in North America. Several relationships show extinct and extant forms differ by characteristics of age, total length (TL), longevity, and sexual size dimorphism (SSD). The centra and TL of contemporary *H. alosoides* and *H. tergisus* were compared to hiodontids in the fossil record, including: centra from the Cretaceous Dinosaur Park Formation; scales, centra, and TL of middle Eocene *Eohiodon rosei* and *E. woodruffi*; centra and TL from the late Eocene *H. consteniorum*; and unidentified hiodontid scales from the late Eocene Clarno Formation. The results suggest an evolutionary trend toward larger, longer-lived individuals that mature at older ages. Cretaceous hiodontids lived up to at least age five but only attained 86% of the centrum radial distance of Eocene *Eohiodon*. These data suggest that Cretaceous hiodontids were smaller than the *Eohiodon*. *Eohiodon* species lived up to at least age 11 but only attained 46% of the TL of extant *Hiodon*, which live up to 16 years of age. *Eohiodon rosei* and *E. woodruffi* have overlapping growth patterns as seen in the scales, vertebrae, and TL. *Eohiodon woodruffi* (= *E. falcatus*) from the Green River Formation grew faster and had shorter life spans than those in more northerly localities; however they attained the same TL as *E. woodruffi* from British Columbia, as might be expected from a population living in a warmer climate. Sexual size dimorphism is apparent in the centra of the Cretaceous hiodontids after age two but is also apparent in the scales of *E. woodruffi* and *E. rosei* after age three. Anal fin dimorphism is apparent in *Eohiodon* as early as age one. Modern *Hiodon* reach sexual maturity as early as age four, at about 300 mm TL, but show SSD in TL after age five. Extant *Hiodon* inhabiting cooler environments tend to live longer and mature more slowly than those in warmer latitudes; these observations suggest the hypothesis that longer-lived hiodontids with delayed sexual maturity may have been better adapted for the cooler climatic conditions since the Cretaceous.