

ABSTRACT

APPLICATION OF THE BOMB RADIOCARBON METHOD TO SHORTFIN MAKO (*ISURUS OXYRINCHUS*) AGE VALIDATION

Age estimation is an issue for the shortfin mako (*Isurus oxyrinchus*) because of disagreement on vertebral band pair deposition periodicity. In the 1950s–1960s, thermonuclear testing released large amounts of radiocarbon into the atmosphere, which diffused into the ocean through gas exchange. This influx created a time-specific marker that can be used in age validation. Campana et al. (2002) validated annual band-pair deposition in the porbeagle (*Lamna nasus*) and indicated annual deposition in the shortfin mako, using four samples from one vertebra. In the present study, age estimates from 54 shortfin mako vertebrae collected in 1950–1984 ranged 1–31 years. Aging error between readers was consistent, with 76% of the estimates ranging within 2 years. Twenty-one $\Delta^{14}\text{C}$ values from eight shortfin mako vertebrae (collected in the western North Atlantic in 1963–1984) ranged -154.8‰ – 86.8‰ . The resulting conformity with the porbeagle record supported annual band-pair deposition in vertebrae of the shortfin mako.

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December 2005