



On the Use of Sagittal Otoliths of *Serranus scriba* (Linnaeus, 1758) from the Southern Aegean Sea in Prey-Predator Studies

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Abstract

Sagittal otoliths are widely used in stomach content analysis in fisheries biology, other than age determination or ichthyo-archeological studies, because they have species specific morphological features. And, also there is strong relationships between fish and otolith size. So, it is possible determine size and species of the prey fishes in the digestive system of the piscivorous aquatic predators. In this study, the relationships were calculated between sagittal otoliths (otolith length (OL), height (OH) and weight (OW)) and fish size (length (TL), weight (W)) in painted comber *Serranus scriba* (Linnaeus, 1758) specimens (N=763, 68–241 mm in TL and 3.66–228.72 g) captured via bottom trawl vessels from off the Gulluk Bay (Southern Aegean Sea) between January and December 2013. Regression equations were calculated as follows: $TL = 20.11 * OL + 40.28$, $TL = 44.07 * OH + 50.24$, $TL = 969.1 * OW^{0.410}$, $W = 1.212 * OL^{2.194}$, $W = 11.16 * OH^{1.850}$, $W = 5913 * OW - 12.22$, $OH = 0.218 * OL + 1.213$, $OW = 0.00045 * OL^{1.843}$, $OW = 0.002 * OH^{1.672}$. Left otolith pairs were used for calculations, because no statistical differences between left and right otoliths ($p > 0.05$). Calculated regressions were displayed a high coefficient of determinations ranging between 0.822-0.890. The linear and non-linear functions provided the best fit for %44 and %56, respectively. The aim of this study was to examine the otolith and fish size relation of *S. scriba* in the southern Aegean Sea in order to provide a reliable tool for researchers studying food habits of top predators to determine the size and weight of prey fish from the length or weight of the otoliths recovered.

Keywords:

Painted comber, Serranidae, sagittae, otolith biometry
