



Labrada Martagón, V., **D. Auriolles Gamboa** & M.I. Castro González (2007). Relation of dental wear to the concentrations of essential minerals in teeth of the California sea lion *Zalophus californianus californianus*. Biological Trace Element Research, 115(2): 107-126. DOI: 10.1007/s12011-007-0002-3

## Relation of dental wear to the concentrations of essential minerals in teeth of the California sea lion *Zalophus californianus californianus*

Vanessa Labrada Martagón, David Auriolles Gamboa & Ma. Isabel Castro González

Tooth wear in marine mammals has been attributed to age, feeding habits, behavior, and contaminants. Advanced tooth wear in some California sea lions, including some of very young age (<5 yr), in the Gulf of California, suggests that there are variations in chemical composition of tooth parts, wherein the concentrations of certain trace minerals might be anomalous, making them more susceptible to erosion. The concentrations of the essential minerals Ca, P, K, Na, Fe, Mg, and Zn in the dentition of *Zalophus c. californianus* are documented for the first time and are compared for sea lion teeth with different degrees of wear. Canine teeth and molars from 45 skulls collected at 15 localities since 1978 were digested in perchloric acid and analyzed using atomic adsorption spectrometry, the results being expressed in milligrams per 100 g. An index of tooth wear (Id) was established, involving the average wear on the teeth and the age of the organism. No significant difference was detected in the variables, but there was one between ages ( $p=0.02$ ). A higher degree of wear was observed up to 7 yr of age than from this age onward. Mineral concentrations did not explain the excessive wear observed (correlation,  $p>0.09$ ; ANOVA,  $p>0.15$ ); however, the Ca concentration of the teeth was inversely proportional to the age of the animal (sexes combined,  $p=0.026$ ) and particularly significant for the females ( $r^2=0.112$ ,  $r=$

Palabras clave: california sea lion, zalophus californianus, dental wear, essential minerals, teeth

Para obtener copia del documento contacta con el autor (dgamboa@ipn.mx) o con el personal de la biblioteca (bibliocicimar@ipn.mx).