



A multi-axial growth analysis of stable isotopes in modern *Saxidomus gigantea*: sclerochronological implications

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Stable-isotope ratios of two modern *Saxidomus gigantea* specimens from Namu, British Columbia are presented to show intra- and inter-specimen isotopic variation. Isotopic profiles ($\delta^{13}\text{C}_{\text{shell}}$, $\delta^{18}\text{O}_{\text{shell}}$) were generated along the axis of maximum growth. The profiles show that analogous seasonal variation is recorded in $\delta^{18}\text{O}_{\text{shell}}$ however, significant variability is recorded in $\delta^{13}\text{C}_{\text{shell}}$. We suggest this is caused by differences in metabolic activity between individuals. Intra-shell variability along a growth horizon shows good reproducibility in $\delta^{13}\text{C}_{\text{shell}}$, but significant variability in $\delta^{18}\text{O}_{\text{shell}}$, especially at the sinistral margin. A multi-axial growth analysis generated several profiles from a single valve. Similar seasonal variations are recorded in $\delta^{18}\text{O}_{\text{shell}}$ along all axes. $\delta^{13}\text{C}_{\text{shell}}$ show significantly less co-variation, possibly related to internal metabolic activity. This study highlights that $\delta^{18}\text{O}_{\text{shell}}$ profiles generated from any portion of the shell can be used to evaluate seasonal fluctuations, and may be excellent to evaluate types and rates of shell growth.