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## **Stable isotopic composition of bivalve shell organic matrix: *Mytilus edulis* collected along the Scheldt estuary**

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Bivalve shells are biostructures composed of a mineral and an organic phase. For paleoclimatology applications, the mineral part (carbonates) is most widely studied. In contrast, understanding of the composition and the proxy-function of the organic matrix is much less developed. The quantity of organic matrix in shells is relatively small compared to the mineral phase (a few wt %) and the biochemical composition is quite complex, consisting mainly of sugars and proteins. Lipids, which represent a small fraction of the organic matrix, are rather poorly known. We studied the potential of stable isotope composition (C, N, H) of bulk organic matrix and specific lipid compounds of *Mytilus edulis* shells, as environmental and climatic proxies, with special focus on the effects due to changing salinity. *Mytilus* specimens were collected along the salinity gradient of the Scheldt estuary (The Netherlands) and we analysed the isotopic composition of the organic matrix and associated specific lipid compounds and related these to averaged physico-chemical characteristics of the water, in particular salinity. We discuss these relationships in the light of their usefulness as proxies for reconstructing past environmental conditions.