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Holocene coastal paleoenvironmental record, Bay of Brest

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Coastal areas are sensitive environments regarding the risk of submersion and the impact on biodiversity induced by salinity changes. These areas thus provide good palaeocecological archives to monitor palaeo sea level changes and the associated adaptation of different biological communities. The north-western coast of France has poorly been investigated regarding its Holocene palaeoecological signatures (Morzadec-Kerfourn, 1974; Naughton et al., 2007). Chironomids have been recognized to be an efficient tool for palaeoclimate and palaeosalinity reconstructions in lakes (Brooks, 2006), and more recently in river floodplains (Gandouin et al, 2006). In this study, environmental changes related to both climate processes and human disturbances, were reconstructed over the last 5000 years, based on pollen and chironomid assemblages from two coastal cores retrieved at Pors Milin (Brittany, NW France). The sedimentary sequences consist of terrestrial peaty layers interdigited with marine clastic deposits. The study area is composed by a sandy beach, truncating the peat, limited by a high sandy bar, and a back marsh developed at + 4 m NGF. Pollen and chironomid results reveal that anthropogenic factors would mainly control environmental changes that occurred in this sector. The disappearance of many chironomid taxa (inhabitants of main river channel) and the dramatic fall in diversity may have been induced by the development of the Merovingian forest clearance at Pors Milin. Indeed, we suggest that the development of agriculture, the river embankment and the draining of wetlands may explain the chironomid habitat loss and the subsequent fall of biodiversity. This change in faunal assemblages occurred synchronously with a decrease in the “arborean / non arborean” pollen ratio reflecting the land opening of the watershed. Several nitrophilous and anthropogenic pollen taxa reinforce our hypothesis concerning the development of agricultural and livestock farming activities at that time.