

Scaling_bias

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Introduction

The present study focuses on microphytobenthos (MPB) colonizing estuarine intertidal zones. MPB refers to photosynthetic unicellular microalgae forming biofilms at the sediment surface during low tides. This group includes diatoms, euglenids, cyanobacteria, and chlorophyta (Underwood, 2001). They can be associated to mud and sand, i.e. inorganic particles with size between 4 and 63 μm , and 63 and 2000 μm , respectively (Wentworth, 1922). In these soft-bottom sediments, MPB can be the main primary producer, notably in turbid estuaries.

MPB provides several ecosystem services (Julie A. Hope et al., 2020). In addition to its contribution to carbon fluxes, estimated between 30 and 230 g C/m²/year (Heip et al., 1995; Park et al., 2024), it stabilizes the sediment through the secretion of extracellular polymeric substances (EPS) (Gibbs, 1983; Riethmüller et al., 2000; Stal, 2010; Huiming et al., 2011; Fang et al., 2012; Gerbersdorf et al., 2020), and therefore reduces coastal erosion (J.A. Hope et al., 2020). It is a key element of food webs (Deppe, 1999; Aberle-Malzahn, 2004; Dauvin and Desroy, 2005), and it plays an important role in nutrient cycling, increasing water quality. It can also be used as a bioindicator of water quality (Oiry and Barillé, 2021)

Material and methods

Results

Discussion

References