Diversity of bivalves is not related to the range of sediments at local and global scales

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Introduction

At a global scale bivalve species richness shows a relationship with latitude and sea surface temperature (Roy et al 2000).

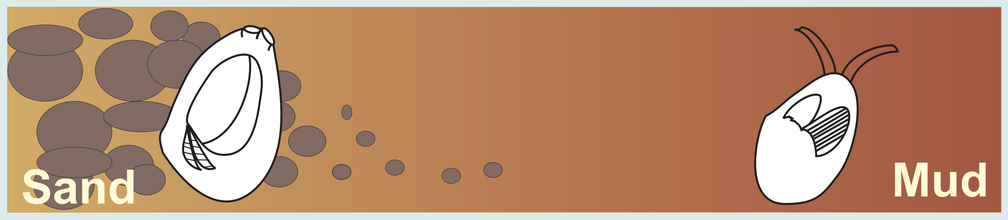
But to examine this pattern further species richness in relation to local abiotic and biotic factors needs examination.

As sediment is an important stress gradient and is strongly related to food on tidal flats we examine the relationship between species richness and sediment.

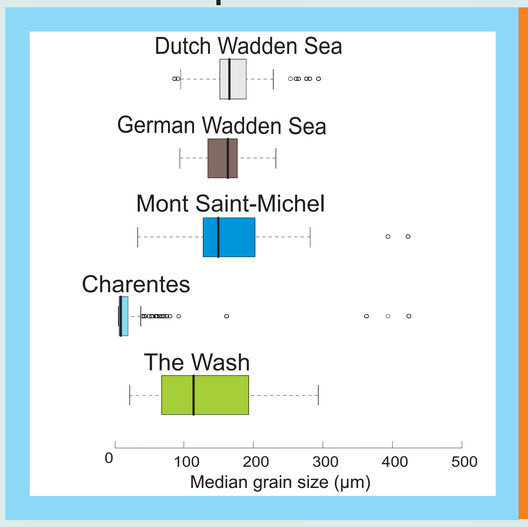
QUESTIONS

Is species richness related to the width of the sedimentary environment?

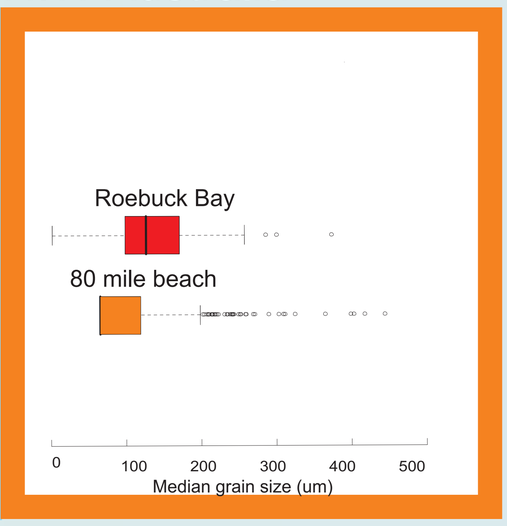
In a species diverse habitat do species spread over a wider sediment range?



N.W Europe



N.W Australia

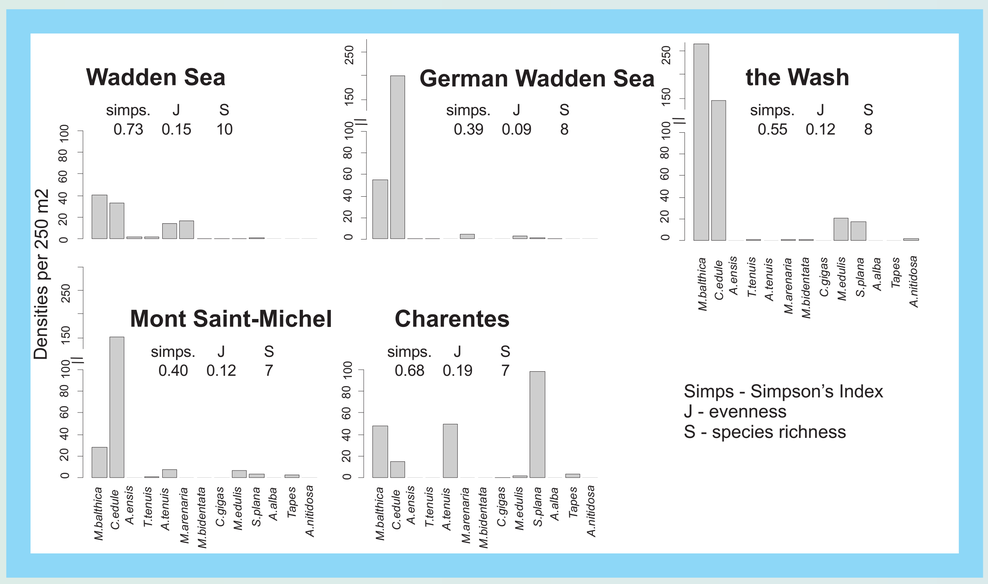


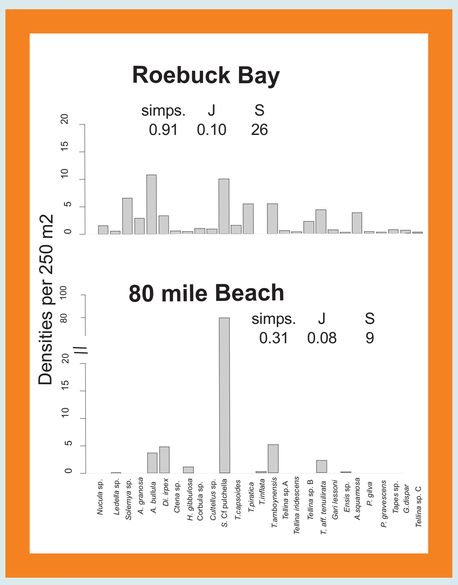
Results

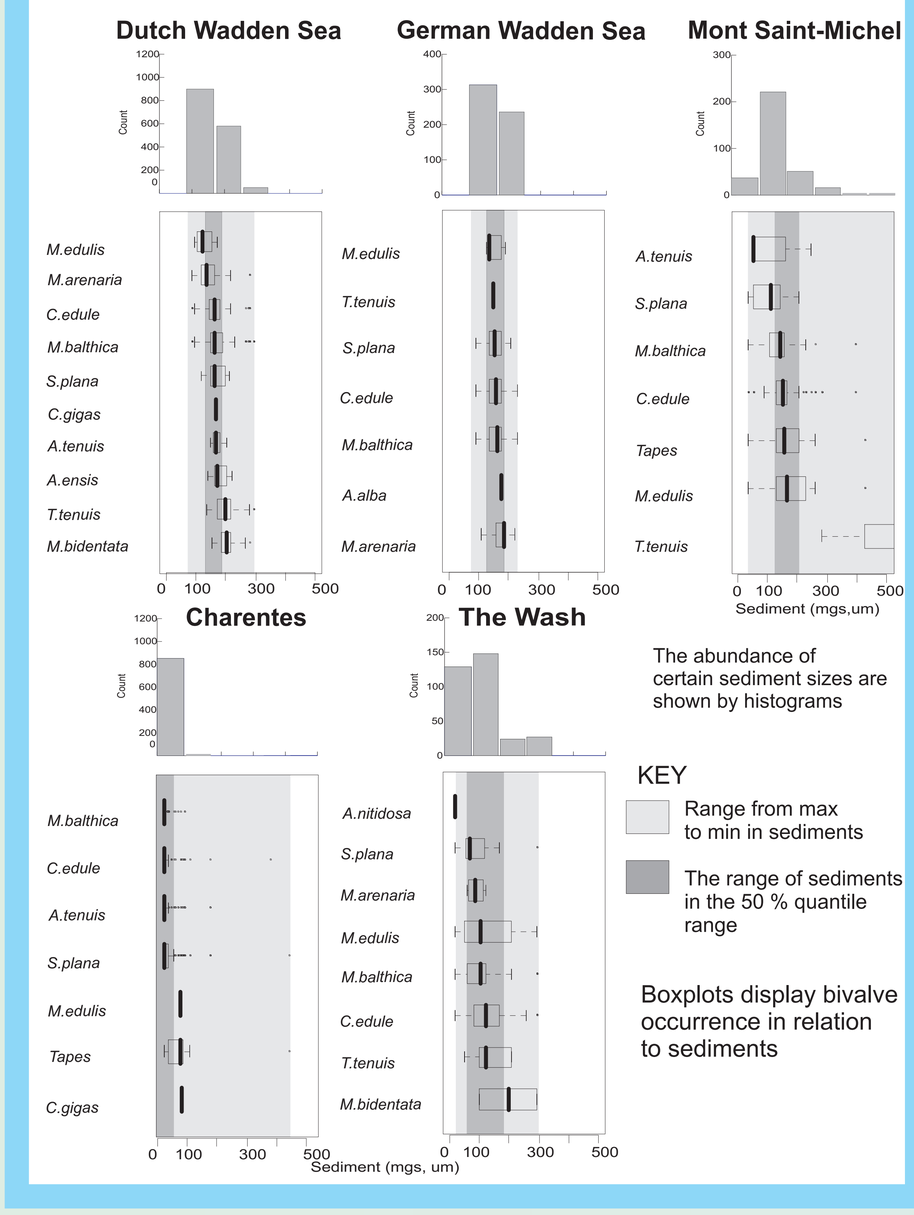
In N.W Europe The Wash has the largest sedimentary gradient. In Australia Roebuck Bay has the largest gradient.

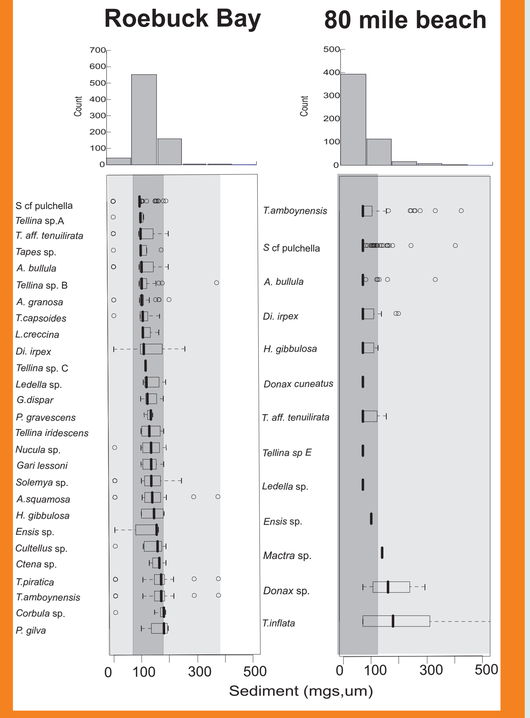
M.balthica and *C.edule* dominate the European mudflats. Densities of other species are low.

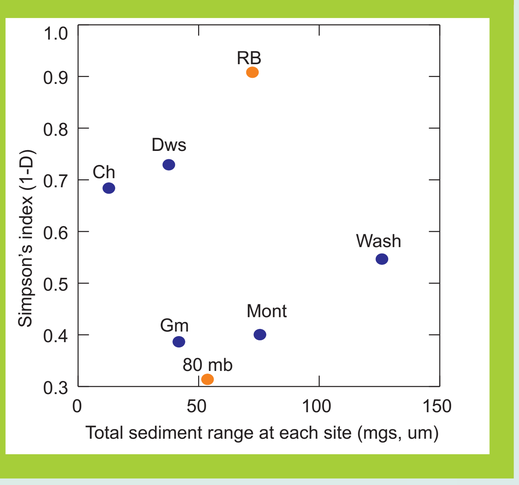
In N.W Australia densities are low relative to Europe, and species abundances are more similar than in Europe.











Species occur mainly in the abundant sediment range at each tidal flat.

Within the range of muddy to sandy sediments of each tidal flat, there is a gradient of habitat separation between the bivalve species.

Strikingly, the very diverse tropical tidal flat (Roebuck Bay) shows large overlap between species rather than occupation of a wider range of sediments.

At a global-scale the Simpson's (diversity) index shows no relationship with local sedimentary ranges.

CONCLUSIONS

At a local and global scale diversity is NOT related to the width of the sedimentary gradient.

Species did NOT spread over a wider sediment range in a diverse habitat.