

Impact of an invasive species,



We investigated the impact of an invasive species, *Crepidula fornicata* on the hydrodynamics and transport properties of the benthic boundary layer. We present results obtained by three different approaches: 1) in-situ measurements of near-bottom current and suspended sediment concentration on two sites in the Bay of Brest (Brittany, France), 2) velocity measurements in controlled laboratory experiments of flows over a bed of artificial *Crepidula* shells, and 3) numerical simulations of the flow over two-dimensional shell-like bed forms. Numerical and laboratory experiments showed that both the bed erosion and the exchange velocity between the canopy and the outer flow decrease as the roughness density increases. These results suggest a sheltering effect by the *Crepidula* shells increasing with the surface density of shells. This trend was also found in field measurements: during spring tides, higher particle resuspension was observed on the muddy sand bottom with few chains of slipper limpets compared with the high-density area. However, other processes may explain these data; their importance is thus discussed in this study.

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