

## Quantification on sediment reworking by macroinvertebrates on a Korean tidal flat

JAEHWAN SEO<sup>1</sup> AND BON JOO KOO<sup>12\*</sup>

<sup>1</sup>Department of Marine biology, Korean University of Science Technology, Daejeon 34113, Korea  
([playersjh@kiost.ac.kr](mailto:playersjh@kiost.ac.kr))

<sup>2</sup>Marine Life and Ecosystem Division, KIOST, Busan 49111, Korea (\*Correspondence: [bjkoo@kiost.ac.kr](mailto:bjkoo@kiost.ac.kr))

Bioturbation, especially sediment reworking by the macroinvertebrates resulted from activities such as feeding and burrowing, is one of the major processes that affect the physical, chemical and biological characteristics of marine sediments. Given the importance of sediment reworking, this study was designed to evaluate the sediment reworking rates of a polychaete, *Perinereis aibuhitensis* and a crustacean, *Scopimera globosa*, which are dominant species in the upper tidal flats on the west coast of Korea, based on quantification of pellets and burrow sediment production. The quantification was carried out two times (spring and fall) for the former and four times (season-based) for the latter. As for *Perinereis*, hourly pellet production per inhabitant and density were closely related, with pellet production gradually decreasing as density increased. Daily pellet production was much higher in spring than in fall, mostly due to an increase in daytime production. By contrast, daily pellet production and burrow sediment production of *Scopimera* were highest in fall among seasons, mostly due to an increase in daytime production on pellet and nighttime production on burrow sediment. The sediment reworking rate of *Perinereis* was similar in the two seasons while that of *Scopimera* was highest in the fall followed by spring and summer and depended on its density as well as the sediment reworking rate per individual for both species. The overall sediment reworking rates of *Perinereis* and *Scopimera* were 31 mm yr<sup>-1</sup> and 35 cm yr<sup>-1</sup>, respectively, based on its density in the study area.