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5, S3076-S3077, 2009

Interactive Comment

## Interactive comment on "Temporal variations in microbial activities and carbon turnover in subtidal sandy sediments" by S. I. Böer et al.

## Anonymous Referee #3

Received and published: 20 February 2009

General comments In this manuscript, the authors try to bring information on bacterial abundance, bacterial carbon production, extracellular enzymatic activities and respiration in subtidal sandy sediments. This is an exhaustive and meticulous study including the vertical distribution of physico-chemical parameters (T, pigment, substrate biodisponibility) as well as rates of bacterial activities. The follow-up was carried out bimonthly during one year. Although rather descriptive this study is certainly an interesting work. However, these data described the sampling site (only one) and it would be dangerous to extrapolate these conclusions to the sandy ecosystems. The authors have a good knowledge of the studied ecosystem but the conclusions are often speculative and not always supported by data reported in the present paper.

Specific comments Concerning the methods, there are some limitations which deserve



discussion. I know that it is sometimes inescapable but I think it is difficult to compare rates obtained with slurries and cores or compare oxygen fluxes and activities integrated on 5cm or more. Comparison with literature of oxygen consumption rates is based on the use of a factor of correction, I don't know if this factor can be used whatever the size grading of the sediment. Moreover oxygen fluxes were determined without carbon amendment whereas activities were potential activities showing the capabilities of the bacterial communities rather than their in situ activities. Why respiration rates were not included in statistical analyses?

Minor points: Hydrolysis rates were given in  $\mu$ mol per m2 (Fig 2), per L (Fig 3) and per cells (in the text). There is an error in the text with units for BCP mmol L-1 instead of mmol L-1D-1

Interactive comment on Biogeosciences Discuss., 5, 4271, 2008.

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