

Accepted Manuscript

The spatial heterogeneity of micro- and meio-organisms and their significance in understanding coastal system dynamics

Kelly L. Kirsten, Jessica Fell, Peter Frenzel, Stephanie Meschner, Thomas Kasper, Michael Wündsich, Michael Meadows, Torsten Haberzettl



PII: S0272-7714(17)30954-X

DOI: [10.1016/j.ecss.2018.08.011](https://doi.org/10.1016/j.ecss.2018.08.011)

Reference: YECSS 5939

To appear in: *Estuarine, Coastal and Shelf Science*

Received Date: 4 October 2017

Revised Date: 23 July 2018

Accepted Date: 15 August 2018

Please cite this article as: Kirsten, K.L., Fell, J., Frenzel, P., Meschner, S., Kasper, T., Wündsich, M., Meadows, M., Haberzettl, T., The spatial heterogeneity of micro- and meio-organisms and their significance in understanding coastal system dynamics, *Estuarine, Coastal and Shelf Science* (2018), doi: 10.1016/j.ecss.2018.08.011.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

1 **The spatial heterogeneity of micro- and meio-organisms and their significance in**
2 **understanding coastal system dynamics**

3
4 Kelly L. Kirsten^{1,2*}, Jessica Fell¹, Peter Frenzel³, Stephanie Meschner³, Thomas Kasper², Michael
5 Wündsche², Michael Meadows¹, Torsten Haberzettl⁴

6
7 ¹ Department of Environmental and Geographical Science, University of Cape Town, South Africa

8 ² Department of Physical Geography, Institute of Geography, Friedrich Schiller University Jena, Germany

9 ³ Institute of Geosciences, Friedrich Schiller University Jena, Germany

10 ⁴ Institute of Geography and Geology, University of Greifswald, Germany

11
12 *corresponding author: kelly.l.kirsten@gmail.com, tel: +27216503798, fax: +27216503456

13
14 **Abstract**

15 An array of sediment surface samples collected from the coastal lake Eilandvlei and its bar-built estuary,
16 on the southern Cape coast, South Africa were analysed for their micro- and meio-organism diversity to
17 understand the complexity in their distribution in relation to their habitat and in response to
18 physicochemical parameters. The variation in the diatom community proved to be a useful proxy in
19 tracking the movement of various source waters, namely riverine inputs and marine throughflow.
20 Particularly, the transport and deposition of freshwater diatom species are shown to represent the inflow
21 of riverine waters into the lake, revealing internal current flow and a dispersal pattern of inputs. A
22 comprehensive documentation of ostracods and foraminifera was undertaken for the system. Habitat-
23 specific factors, such as pH, macrophyte extent and water depth, are the primary determinant for these
24 species distribution. The combination of these organisms provides information on the provenance of the
25 organisms and assists in distinguishing allochthonous versus autochthonous assemblages. This study
26 shows that biological assemblages are useful indicators of system functionality, even in the most complex
27 environments, when recorded environmental data is absent.

Download English Version:

<https://daneshyari.com/en/article/8884593>

Download Persian Version:

<https://daneshyari.com/article/8884593>

[Daneshyari.com](https://daneshyari.com)