## Accepted Manuscript

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

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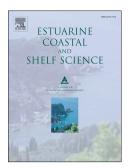
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## ACCEPTED MANUSCRIPT

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

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