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Environmental forcing of intertidal benthic macrofauna of Bodo creek, Nigeria: preliminary index to evaluate cleanup of Ogoniland

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Abstract

Pristine and before-disturbance baseline data are essential tools in monitoring and measurement of progress and net success or otherwise of restoration of degraded ecosystems. These are usually lacking in regions such as the Niger Delta where demands for such data is pressing due to impending pollution. We present a rare case of available pre-spill data of how distribution and abundance of macrobenthic infauna were structured by some physical and chemical variables of interstitial water in Bodo Creek, lower eastern Niger Delta, Nigeria, before two major oil spills impacted the creek in 2008. Monthly composite samples of macrobenthos and interstitial water in four soft-bottom unvegetated intertidal flats were analysed for one year. Forty taxa, twenty-six families and four classes of macrozoobenthos were recorded. The bivalves *Lorepis aberrans*, *Macoma innominata*, *Senilia senilis*, and polychaetes *Nereis diversicolor*, *N. virens*, *N. pelagic* and *Clymenella torquata* were eurizonal in distribution and abundant, attaining sub-dominant and dominant status at the sites. The observed pattern of reduction in rainy season macrofauna abundance in some river systems of the Niger Delta due to sediment instability was counterbalanced by increased recruitment of the dominant taxa. Canonical Correspondence Analysis (CCA) showed the explanatory (physicochemical) variables only accounted for 31.8% of variation in the species data. The species-environmental correlations were: 0.64, 0.74 and 0.72 for the first, second and third axes, respectively. Plans for cleanup, remediation and 'restoration' of Bodo Creek, have reached implementation stage as the Federal Government of Nigeria flagged off cleanup of Ogoniland on June 2, 2016. The usefulness of these data as potential

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