

# Assessment of Anthropogenic Impacts and Global Changes on Coastal Ecosystems of Eastern Morocco: Comparative Study of the Mouths of the Moulouya and Kert Rivers

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## Abstract

The coastal ecosystems of the Eastern Rif, particularly the river mouths of Moulouya and Kert, are increasingly subjected to anthropogenic pressures, including urbanization, intensive agriculture, and discharges of domestic and industrial waste. These biodiverse coastal ecosystems play a crucial role in biological productivity and the regulation of biogeochemical cycles. However, human activities have resulted in significant habitat degradation, exacerbated by the impacts of global climate change. This comparative study aims to analyze the effects of anthropogenic pressures and global changes on the mouths of the Moulouya and Kert rivers, utilizing multidisciplinary biotic and abiotic data. The analyses include benthic macrofauna, which serve as indicators of ecological quality, and sediments that act as a medium for various contaminants, such as heavy metals and pesticides. A network of sampling stations has been established to cover both river mouths, and multiple analyses of the biotic environment are currently underway. Multivariate statistical methods will be applied to compare the ecosystems based on local and global environmental pressures. The anticipated results will enhance our understanding of the spatiotemporal dynamics of these coastal ecosystems and propose sustainable management measures to preserve their ecological integrity. Additionally, this study will contribute to the development of adaptation strategies in response to the impacts of global changes and increasing local pressures.

## Keywords

Coastal Ecosystems, Moulouya and Kert River Mouths, Benthic Macrofauna, Sediment, Anthropogenic Pressures, Global Changes