

Methodological proposal for ecological risk assessment of the coastal zone of Antioquia, Colombia

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Abstract

The coastline of the Department of Antioquia, in Colombia, supports a variety of ecosystems rich in diversity and abundance, but these are under intense pressure from human activities. Here, we propose a novel methodology for conducting ecological risk assessments of coastal areas that focuses on ecosystem health instead of benefits to humans, in which coastal zones are evaluated by prioritizing ecosystem risks based on four natural phenomena (erosion, sedimentation, mud diapirism, and invasive species) and two human pressures (pollution and land use changes). Ecological risk assessment of 16 ecosystems within the study area was performed using this new approach. Our research highlights the importance of monitoring land-use patterns as a primary factor influencing the threats and vulnerabilities of coastal ecosystems, in addition to demonstrating the usefulness of risk-management approaches based on ecological health.

keywords

Ecological risk, Ecosystem services, ICZM, Integrated Coastal Zone Management, Risk assessment, Vulnerability