

Coastal Hazards and Integrated Coastal Zone Management: Examining Current Coastal Protection Strategies

Abstract

As sea levels continue to rise, coastal communities and ecosystems around the world are at increasing risk from intensifying coastal hazards. Coastal armouring (CA), the first and foremost approach to coastal protection, is now a subject of some controversy in the scientific literature. An increased understanding of the ecological impacts of CA, combined with the advent and adoption of integrated coastal zone management (ICZM), has increased the popularity of alternative, soft protection methods like beach nourishment (BN). While BN is less disruptive than CA, neither approach is an innocuous or sustainable solution to coastal protection. Although ICZM has been a priority for many nations since the 1990s, a true realization of the approach has been lacking. Regulating any sort of development in the coastal zone remains a complex issue and, in this paper, I have identified some of the barriers which must be addressed, namely: a lack of legal/institutional framework, ambiguous terms/definitions, private property rights, and educational gaps. If true ICZM is to become a reality, future coastal protection strategies must work with, not against, the natural processes of the coastal ecosystem. Where possible, a focus should be placed on incorporating natural features which can adapt to sea-level rise, over other, artificial structures. Managed realignment should be thoroughly explored as the foremost protection strategy where possible, as it is arguably most in line with the spirit of ICZM. In the instances where it is not feasible to abandon hard structural defences, modifications should be made considering current scientific understanding to mitigate any resulting negative ecological impacts. While the dynamic nature of the coastline renders it impractical to ever adopt a universal solution to coastal protection, all efforts should be made to continuously reevaluate current coastal management practices to ensure environmental and economic integrity for future generations.