

# SHELTER FROM THE STORM? USE AND MISUSE OF BIOSHIELDS FOR MANAGING NATURAL DISASTERS ON THE COAST

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Vegetated coastal ecosystems provide goods and services to billions of people. In the aftermath of a series of recent natural disasters, including the Indian Ocean Tsunami, Hurricane Katrina and Cyclone Nargis, coastal vegetation has been widely promoted for the purpose of reducing the impact of large storm surges and tsunamis. In this paper, we review the use of coastal vegetation as a 'bioshield' against these extreme events. We begin with an overview of the scientific literature, in particular focusing on studies published since the Indian Ocean Tsunami in 2004 and discuss the science of wave attenuation by vegetation. We then explore case studies and evaluate the detrimental impacts bioshield plantations may have upon native ecosystems, drawing a distinction between coastal restoration and the introduction of exotic species in inappropriate locations. The values of coastal ecological systems are realized over the long term and we must find better ways to communicate the value of conserving these ecosystems. For example, vegetation can, over the long-term, alter topography and bathymetry through processes of sediment accretion, reducing the vulnerability of the landscape to future inundation (Day *et al.* 2007). Finally, we place bioshield policies into a political context, and outline a new direction for coastal vegetation policy and research.