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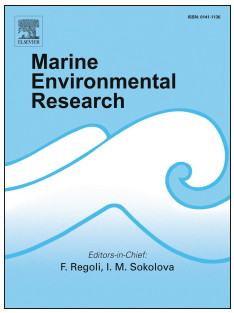

Coral reefs as the first line of defense: Shoreline protection in face of climate change

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Coral reefs as the first line of defense: shoreline protection in face of climate change

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Abstract

Coral reefs are responsible for a wide array of ecosystem services including shoreline protection. However, the processes involved in delivering this particular service have not been fully understood. The objective of the present review was to compile the main results in the literature regarding the study of shoreline protection delivered by coral reefs, identifying the main threats climate change imposes to the service, and discuss mitigation and recovery strategies that can and have been applied to these ecosystems. While different zones of a reef have been associated with different levels of wave energy and wave height attenuation, more information is still needed regarding the capacity of different reef morphologies to deliver shoreline protection. Moreover, the synergy between the main threats imposed by climate change to coral reefs has also not been thoroughly investigated. Recovery strategies are being tested and while there are numerous mitigation options, the challenge remains as to how to implement them and monitor their efficacy.

Keywords: ecosystem services, shoreline protection, climate change, coral reefs, ecosystem management, coastal zone.