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Mapping of coastal vulnerability using the coastal vulnerability index and geographic information system

Frida Aprilia Loinenak, author

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Abstrak

The mapping of coastal vulnerability using the Coastal Vulnerability Index (CVI) and the Geographic Information System (GIS) at Doreri Bay, Manokwari Regency, West Papua Province was carried out from September 2013 to March 2014. The aims of this study are to analyze and map the coastal vulnerability of Doreri Bay. The study was conducted using a combination of the CVI and GIS methods to assess the geological and physical parameters of the coastal region. The geological parameters consisted of geomorphology, coastline changes (accretion/erosion), the coastline slope, and physical processes. The physical parameters consisted of the relative changes in the sea surface height, the average wave height, and the average tidal height. The results of this research show that the CVI values were within the range of 6.7–43.3, and there were five class categories of coastal vulnerability: (1) very low vulnerability with an area of 6,635.4 Ha or 47.8%, (2) low vulnerability with an area of 2,654.1 Ha or 19.1%, (3) medium vulnerability with an area of 1,692.8 Ha or 12.2%, (4) high vulnerability with an area of 992.7 Ha or 7.2%, and (5) very high vulnerability with an area of 1,904.2 Ha or 13.7%.