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Coastal erosion hazard and vulnerability using sig tools. Comparison between “La Barra town, Buenaventura, (Pacific Ocean of Colombia) and Providence - Santa Catalina islands (Colombian Caribbean Sea)

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Analysis of hazards and vulnerability associated to coastal erosion along coastlines is a first issue in order to establish plans for adaptation to climate change in coastal areas. La Barra Town, Buenaventura (Pacific ocean of Colombia) and Providence - Santa Catalina Islands (Colombian Caribbean) were selected to develop a detailed analysis of coastal erosion hazard and vulnerability from different perspectives: i) physical (hazard) , ii) social , iii) conservation approach and iv) cultural heritage (Raizal). The analysis was made by a semi quantitative approximation method, applying variables associated with the intrinsic coastal zone properties (i.e. type of beach, exposure of the coast to waves, etc.). Coastal erosion data and associated variables as well land use; conservation and heritage data were used to carry out a further detailed analysis of the human - structural vulnerability and exposure to hazards. The data shows erosion rates close to -17 m yr-1 in La Barra Town (highlighting their critical condition and urgent relocation process), while in some sectors of Providence Island, such as Old Town, erosion rate was -5 m yr-1. The observed erosion process affects directly the land use and the local and regional economy. The differences between indexes and the structural and physical vulnerability as well the use of methodological variables are presented in the context of each region. In this work, all the information was worked using a GIS environment since this allows editing and updating the information continuously. The application of this methodology generates useful information in order to promote risk management as well prevention, mitigation and reduction plans. In both areas the adaptation must be a priority strategy to be considered, including relocation alternatives and sustainable protection with the support of studies of uses and future outlooks in the coast. The methodology is framed into the use of GIS tools and it highlights their benefits in the analysis of information.