Abstract

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Sea Level Rise Impacts on Egyptian Mediterranean Coast

The global warming from the greenhouse effect will raise sea level due to expanding ocean water, melting mountain glaciers, and causing ice sheets to thaw or slide into the oceans. Such a rise would flood deltas, coral atoll islands, and other coastal lowlands, erode beaches, aggravate coastal flooding, and intimidate water quality in estuaries and aquifers. Alexandria city is considered at risk from the effects of any sea level rise resulting from climate change and global warming. This research predicts the values of Alexandria shoreline displacement in the coming twenty and fifty years due to sea level rise at the area of study which extends 1.5 km long from Sidi Bisher to Bir Masouad. This study shows that the flooded lost areas at Alexandria beaches at the study area is expected to be 4 m width in year 2027 and 10 m width in year 2057 for each meter long. The cost of loss these areas is expected to be L.E 9700 / m2 in year 2027 and L.E. 290000 / m2 in year 2057. Because of the decrease of the beach width, Alexandria's summer visitors is expected to be reduced by 14% in year 2027 and 37% in year 2057. It is recommended to study a strategy plan to protect Alexandria coastline. This plan should include the impacts of sea level rise and introduce a complete study on different techniques to reduce these impacts. The Environmental Impact Assessment (EIA) studies should be implemented before the construction of any projects along Alexandria coastline.