

Coastal Morphology Changes in Dominican Republic

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Dominican Republic (DR) faces a dramatic coastal degradation with the tourism activity and the urban area growing as the main sectors impacting the marine resources, coral reef and mangroves ecosystem. The Dominican tourism industry requires high volume of drinking water, using groundwater as a complementary source. Any changes in the coastal morphology might cause salt intrusion and the groundwater reserve could be affected drastically. Unplanned urban development is affecting the tourism activity and the natural marine ecosystem. Samaná, located in the North coast is particularly affected by urban growing, where hotels have been built in wetland.

On the other hand, coastal dunes plays a crucial protective role during storm to protect the beach and urbanization close to the shoreline. Aeolian sedimentation creates the dunes barrier against storm waves and related sea surge. Human activities have interfered the natural processes for many decades causing important disturbances of either the sediment budget or the sediment transport patterns. Any coastal engineering structures usually moves the erosion areas elsewhere or intensify the local effect.

Under this framework, assess the coastal marine morphology changes and identify the relationship with urban growing and tourism activity is a relevant task to provide useful information in mitigation planning. Satellite images collected from Landsat data products will allow to quantify the coastal shoreline area due to human activity and inland sea water penetration. This coastal shoreline area changes will be correlated with urban growing, population growing and tourism activity. Information about urban growing, population growing and tourism activity are available in institutions from DR, such as INTEC, the National Statistic office, and INDRHI.