

## Impact of Marine Hydrodynamics and Coastal Morphology on Changes in Mangrove Forests (Case Study: West of Strait of Hormuz, Iran)

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**Abstract :** The mangrove forests are natural and valuable gifts that exist in some parts of the world, including Iran. Regarding the threats faced by these forests and the declining area of them all over the world, as well as in Iran, it is very necessary to manage and monitor them. The current study aimed to investigate the changes in mangrove forests and the relationship between these changes and the marine hydrodynamics and coastal morphology in the area between qeshm island and the west coast of the Hormozgan province (i.e. the coastline between Mehran river and Bandar-e Pol port) in the 49-year period. After preprocessing and classifying satellite images using the SVM, MLC, and ANN classifiers and evaluating the accuracy of the maps, the SVM approach with the highest accuracy (the Kappa coefficient of 0.97 and overall accuracy of 98) was selected for preparing the classification map of all images. The results indicate that from 1972 to 1987, the area of these forests have had experienced a declining trend, and in the next years, their expansion was initiated. These forests include the mangrove forests of Khurkuran wetland, Muriz Deraz Estuary, Haft Baram Estuary, the mangrove forest in the south of the Laft Port, and the mangrove forests between the Tabl Pier, Maleki Village, and Gevarzin Village. The marine hydrodynamic and geomorphological characteristics of the region, such as average intertidal zone, sediment data, the freshwater inlet of Mehran river, wave stability and calmness, topography and slope, as well as mangrove conservation projects make the further expansion of mangrove forests in this area possible. By providing significant and up-to-date information on the development and decline of mangrove forests in different parts of the coast, this study can significantly contribute to taking measures for the conservation and restoration of mangrove forests.

**Keywords :** mangrove forests, marine hydrodynamics, coastal morphology, west of strait of Hormuz, Iran

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