

# Models of Coastal Development and Management of Northern Hangzhou Bay

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Especially Important to Shanghai economics is further development of the coast of Northern Hangzhou Bay which is located between Changjiang and Qiantangjiang Estuary. So with the support of Doctoral Fund of National Education Committee, we have studied the coastal environment characteristics and evolution of the coast of Northern Hangzhou Bay basing on the data base of digitized maps of recent forty years.

In the present paper, 3D Empirical Orthogonal Function was used to calculate the structure of temporal and spatial variation of the coastal evolution. After analysing the annual changes of -5.0m isobath along the Northern Hangzhou Bay, the authors concluded that the coast evolution could be defined as a accretion/erosion wave which is very similar to a forced vibration expressed by zero-order Bessel Function and which is controlled by the variation of hydrographical nature of Changjiang Estuary. In the mean time, the social economic situation concerning the economic reform of China and the development of Pudong area was also reviewed in the present paper.

On the base of above analysis of nature and social economics, the authors proposed three models of coastal development and management of Northern Hangzhou Bay with special emphasis on the cooperation of development and protection: (1) model of city-industry coastal development and management from Jinsanzui to Zhapu; (2) model of village-agriculture coastal development and management from Luchaogang to Jinsanzui; (3) model of tourist coastal development and management from Nanhuizui Cape to Luchaogang. These three models are likely to be valuable in the development and management of muddy coast in China.