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***Abstract*:** Characteristics and formation of the tidal shear front off the Yellow River Mouth had been previously studied based on observations and models. However, its long-term variability and thus related mechanisms have not been investigated. In this study, a three-dimensional hydrodynamic model was used to examine the long-term evolution on the location, propagation, and magnitude (length, duration, and shear strength) of the tidal shear front from 1976 to 1996. Over the 20 years, a peninsula of about 27 km long and 7 km wide (above the high water line) was formed off the new river mouth, while the coastline retreated by 5-10 km, and the water depths increased by about 2m in the north (the abandoned river mouth). Results also show that for the period of each flood and ebb tidal cycle, the tidal shear front originated in the north of

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