



## **Geometry and Evolution of the Cangdong Sag in the Bohai Bay Basin, China: Implications for Subduction of the Pacific Plate**

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The Cangdong Sag is a complex Cenozoic rift basin at the center of the Bohai Bay Basin. Cenozoic structures in the Cangdong Sag can be subdivided into the Cangdong Fault System in the west and the Xuxi Fault System in the east. The geometry of the boundary faults varies along the axes of half-grabens. According to the cross-sectional strata geometry, unconformity and planar structural pattern, the Cenozoic structural evolution of the Cangdong Sag can be divided into four distinct stages: (1) major Paleocene initial rift, (2) latest Paleocene–early Eocene intensive rift, (3) late Eocene–Oligocene strike–slip superimposed rift, and (4) Neogene to present-day post-rift depression. The extensional deformation was mainly derived from horizontal stress induced by the upwelling of asthenosphere. The strike–slip structure of the Cangdong Sag provides important information related to the subduction of the Western Pacific Plate. It was found that the strike–slip movement of the southern Xuxi Fault Zone was activated during the deposition of the third member of Shahejie Formation to the Dongying Formation; therefore, ~43 Ma probably marks the time when the Western Pacific Plate initially changed its subduction direction from northwest to nearly west.