

Offshore Lamu Basin, Kenya: Deepwater Fold Belt

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The Northern Lamu Basin, offshore Kenya, contains a large, untested, passive margin deepwater fold belt with a thick Cretaceous and Tertiary sedimentary section.

Large, structural closures related to compressional toe-thrusts are identified over an area of over 7000sqkm.

The Early Cretaceous Anza Graben provided coarse clastic sediments into the offshore Lamu Basin through to present day. Rapid sediment loading resulted in extension on the shelf with linked, thin-skinned compression in the basin. The fold belt initiated in the Late Cretaceous and continued through to the Early-Mid Tertiary. With pre- and syn-kinematic, deep-marine reservoir intervals identified in wells and on seismic data and limited trap reactivation since the modelled onset of hydrocarbon generation and migration, the key uncertainty is the presence of an oil-prone source rock .

Previous wells in Kenya have focussed primarily on onshore and shelfal targets with some indications of an active petroleum system, however, none have definitively tested the deepwater petroleum system. To date the only deepwater well (920m water depth) was drilled south of the Davy-Walu high, in a separate basin to the northern Lamu Basin. The Woodside-led joint venture aims to drill the first ultra-deepwater well offshore East Africa, and the first offshore well in Kenya for 20 years.