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## **Petroleum Prospectivity of the MSGBC Basin Northwest Africa; an Emerging Deepwater Petroleum Province?**

The MSGBC (Mauritania-Senegal-Gambia-Bissau-Conakry) Basin covers some 600,000sq km of offshore Northwest Africa, extending almost 1500km along the margin from the Cap Blanc Fracture Zone in northern Mauritania, south through Senegal, Guinea Bissau and Conakry to the Guinea Fracture Zone.

The discovery of oil in Chinguetti-1 in deepwater Mauritania, in May 2001, elevates the ranking of the deepwater portion of MSGBC Basin from its former rank wildcat virgin frontier status, putting it on the map as an exciting potential new deepwater province, opening up much of the north-west quarter of the continent.

The deepwater MSGBC basin contains the necessary elements of a successful petroleum system:

The presence of effective oil prone source facies has been established. These source rocks may be regionally extensive and potentially capable of prolific generation.

A succession of down-slope turbidite systems delivering sand rich channels and fans into intra-slope and base-of-slope play fairways underlain by mature source rocks is present.

A dynamic structural regime associated with major basinward slumping and salt diapirism is evident in the outboard deepwater portion of the basin.

The MSGBC Basin is compartmentalized by a series of long-lived crustal scale fracture zones. The sub-basins between the fracture zones have similar overall architecture yet significant differences in structural style which can be simplistically related to the presence or absence of salt. The role of compartmentalization on MSGBC Basin play systems are illustrated with reference to new deepwater seismic surveys which have been acquired in Mauritania, Gambia, Senegal and Guinea Bissau.