

The Guyanese Oil Discoveries and their Relevance to the MSGBC Basin

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Just as happened in Ghana where years of uncertainty were rewarded by the discovery of the giant Jubilee Field, large volumes of oil were finally encountered in Guyana by the Liza-1 well. Guyana's dramatic success is relevant to the future of the MSGBC Basin since prior to the opening of the Equatorial Atlantic Guyana, as can be seen from Figure 1, lay directly to the south of this Basin before the Equatorial Atlantic opened.

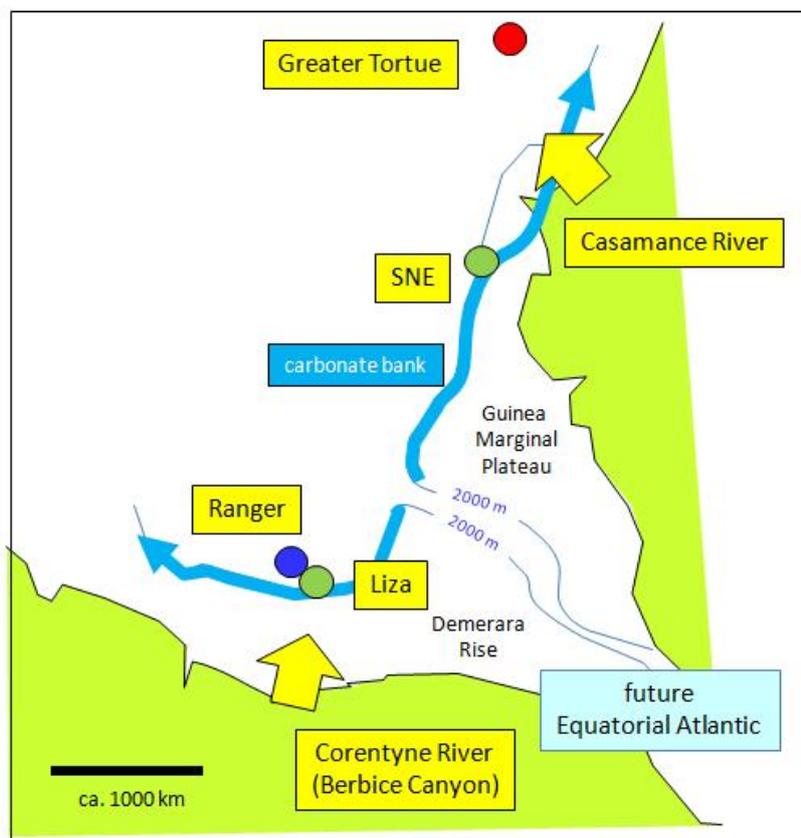


Figure 1. MSGBC Basin and Guyana discoveries compared using an Early Cretaceous plate reconstruction.

Little has been released about the Liza and subsequent discoveries, but by combining the previous literature with discovery-related, web site releases, understanding from Guyana can be applied to the MSGBC Basin. Already evident are:

- 1) Rich mid-Cretaceous source rocks are present in both areas. In Guyana the source is the Cenomanian to Turonian Canje Formation.

2) One river on each margin delivered the bulks of the sands, the Tamna Arm of the now extinct Casamance in the MSGBC Basin and the Corentyne which exits at the Guyana and Suriname border (the influence of the Essequibo in Guyana remains to be assessed, as does that of the Orinoco). A once predicted by FEC proto-Amazon exit between the Guinea Marginal Plateau and the Demerara Rise (see Figure 1) now seems unlikely.

3) The Liza pay lies above the Canje Formation and not within, as occurs in Northern Senegal, the Mid-Cretaceous source succession. Nevertheless, 'just right' source burial depths are still required for oil pay. Successful analogues to Liza remain to be found in the MSGBC Basin, though 'source below reservoir' couplings exist, for example at SNE and Chinguetti. Given Liza's younger Cretaceous reservoir age, this may be an appropriate time to search for BFFs related to the equivalent age succession in the MSGBC Basin, for example in the Maastrichtian where thick sands of this age are commonly present (Figure 2). Young lobes of the Casamance Delta are targets, though gas rather than oil may be outcomes.



Figure 2. Maastrichtian sandstones exposed in cliffs at Cap Rouge near Dakar (Senegal).

4) Carbonates are the reservoir in the Ranger discovery in Guyana. The well's location suggests a new play positioned outboard of the carbonate bank (see Figure 1). A Jurassic created, outer horst may be the setting. If this surmise is correct, a MSGBC analogue is the Outer High of the Guinea Marginal Plateau, though in this case the structure post dates carbonate formation.

In relation to Figure 1, the identification by FEC of a regional Jurassic source in the MSGBC Basin will allow similar sources to be widely developed in Guyana. Such

sources are already known in Suriname. In Guyana they are present onshore in the Takutu Basin.

More information may be obtained from First Exchange Corporation whose contact details are provided below. Updates to this release will follow as new information on Guyana and Suriname becomes available.

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