

## Deepwater play types of the Black Sea: a brief overview

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The numerous, mostly untested deepwater Black Sea play types can be subdivided into syn-rift and post-rift plays. The largest targets are syn-rift fault blocks, such as, for example, the Andrusov and Tetyaev highs in Turkey and Ukraine, respectively. Whereas their internal stratigraphy is poorly constrained (i.e. proportion of pre-and syn-rift versus basement) translating to not only to reservoir risk but also to reservoir quality risk, the trap sizes are very large. Also, the assumed lateral charge from the Miocene-Oligocene Maikop Formation and perhaps even from Eocene sources makes these structures extremely attractive. The overall structure of the Shatsky Ridge is not as clear as it has elements of an extremely large carbonate platform on top. The Polshkov High is unique in the sense that it represents a large rotated syn-rift fault block along the lower plate edge of the Western Black Sea in Bulgaria. On the conjugate upper plate margin, very large inverted syn-rift structures, such as the Kozlu Anticline, are recognized in the Turkish sector.

On top of most of the syn-rift highs described above, various typical carbonate geometries can be interpreted on seismic data such as backreef pinnacles, lowstand buildups, raised rims, backstepping, aggradation and prograding clinoforms. These syn- to post-rift carbonate platforms tend to grow on footwall blocks of syn-rift faults and can reach more than 800 meters in thickness. The age of these carbonate features is just as poorly constrained at present as the exact opening age of the Black Sea basins, i.e. anywhere between Jurassic to Eocene.

Several intra-Tertiary reservoirs could be targeted in the compactional anticlines above the large syn-rift highs. Another play associated with Tertiary sands is that of the deepwater extension of the Subbotina discovery in Ukraine. The Subbotina structure is a compressional anticline situated in a dominantly Miocene, southvergent folded belt offshore Kerch Peninsula. Similar folded belts are also known in the Russian, Georgian, Turkish and Bulgarian sectors of the Black Sea. Also, pure stratigraphic traps may exist in a widely recognized Eocene low-stand wedge along the basin margins. However, reservoir quality is a definite risk for the Tertiary reservoir intervals in certain segments of the Black Sea as the function of the provenance area(s).