

Bovie Structure: A 3-D presentation of its changes along strike.

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ABSTRACT

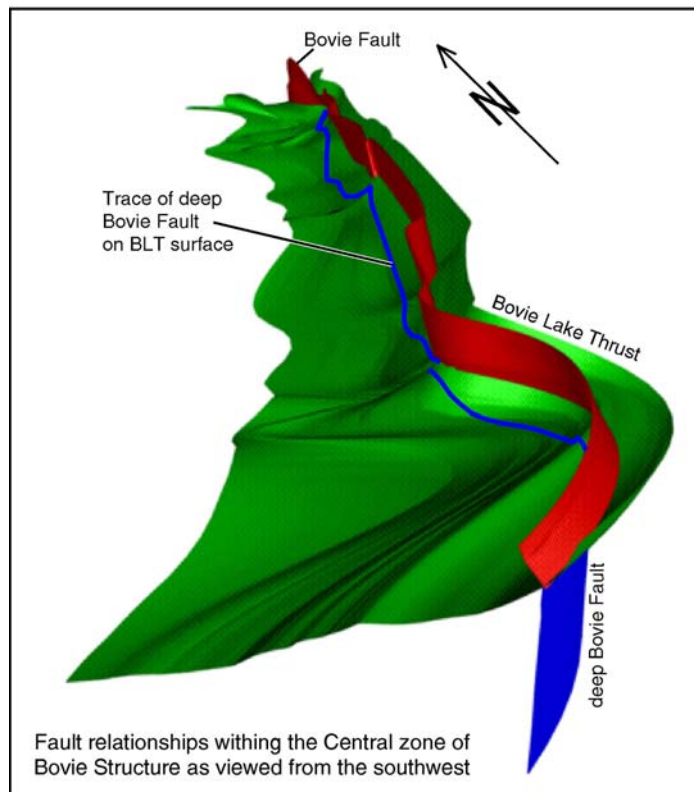
Bovie Structure was re-interpreted recently to be the product of two phases of tectonic development: 1) Post-Mississippian / pre-Cretaceous crustal uplift and compression on the steeply-dipping, crustal-scale Bovie (thrust) Fault; 2) Laramide compression on the shallow detachment Bovie Lake Thrust (BLT).

The structure can be divided into three zones – North, Central, and South. In the Central zone Bovie Structure is expressed at surface as Bovie Ridge, which consists of Bovie Anticline and is cored by Carboniferous strata. In the new model, the ridge is interpreted to consist of a severed (decapitated) segment of the hanging wall of Bovie Fault that has been carried eastwards by Bovie Lake Thrust. A 3-D view of the fault configurations within the Central zone is displayed here.

In the North zone, Bovie Fault diminishes and Bovie Lake Thrust is not present. Strata responded to uplift of the eastern block with a combination of faulting and monoclinal folding.

In the South zone, Bovie Structure swings to the southwest and the uplifted block acted as a buttress to Bovie Lake Thrust, directing it upwards.

Uplift on Bovie Fault occurred synchronous with development of the nearby Celibeta High, suggesting a causal link between the two.



Compressional tectonics at Bovie opens several new petroleum plays that are not present in the extension model that has long been used.