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Baffles and Barriers- Lessons from the Lower Cretaceous of the Channel Basin and Isle of Wight (southern England)

Numerous episodes of erosion, deposition and faunal colonization reflect multiple erosion/bypass events that culminate in condensation and abandonment of surfaces in the Aptian of the Lower Greensand of Southern England. These surfaces form a range of baffles and barriers to flow that cap reservoir quality sands. Baffles form readily at flooding surfaces on the parasequence scale. Flooding surfaces on parasequence sets form effective barriers and seals to flow at the local (field scale) and these are prone to lithification due to significant exposure and bioerosion on the sea floor. Amalgamated sequence boundaries and flooding surfaces can create barriers that are effective regional seals, mappable over a wide area.

Effective seals do not have to be formed during deposition of thick offshore marine shale successions during the highstand systems tract. Very good local and regional seals can be created during the transgressive systems tract, capping reservoir intervals, in nonmarine, shoreface and offshore successions.