

Aptian/Albian Reservoir Development in the Jeanne d'Arc Basin, Offshore Eastern Canada

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Abstract

The Jeanne d'Arc Basin is one of several fault-bounded Mesozoic rift-basins located within the Grand Banks region of offshore Eastern Canada. Formation of the Jeanne d'Arc Basin is attributed to episodic extension associated with Pangean disassembly and the formation of the modern Atlantic Basin. The Jeanne d'Arc itself is also one of Canada's most explored and prolific offshore petroleum basins; providing a significant component of Canadian petroleum production and continued explorative interest. Reservoir intervals present within the Jeanne d'Arc Basin are largely constrained to syn-tectonic silici-clastic formations, ranging in age from Late Jurassic to Early/Middle Cretaceous; the latter of which is considered the most consistently hydrocarbon-bearing interval throughout the basin. As such, the predominantly Aptian/Albian Ben Nevis and Avalon Formations have been identified as key reservoir targets within the Jeanne d'Arc Basin; containing substantial hydrocarbon accumulations within the Hibernia, Hebron, and White Rose Fields.

However, relatively little information is available regarding regional evolution and development of Avalon/ Ben Nevis reservoir intervals outside of key producing fields. As a result, a regional study was initiated in order to integrate key learning's from individual fields, providing a new regional context. Thus, understanding regional Aptian/Albian reservoir development and distribution may prove to reduce reservoir presence risk in previously untested/unproven areas of the Jeanne d'Arc Basin. Development of regional-scale Avalon /Ben Nevis depositional models may also prove beneficial in unlocking Aptian/Albian prospectivity in other, proximally situated extensional basins.