

## Mizzen – the First Oil Discovery in the Flemish Pass Basin, Offshore Newfoundland

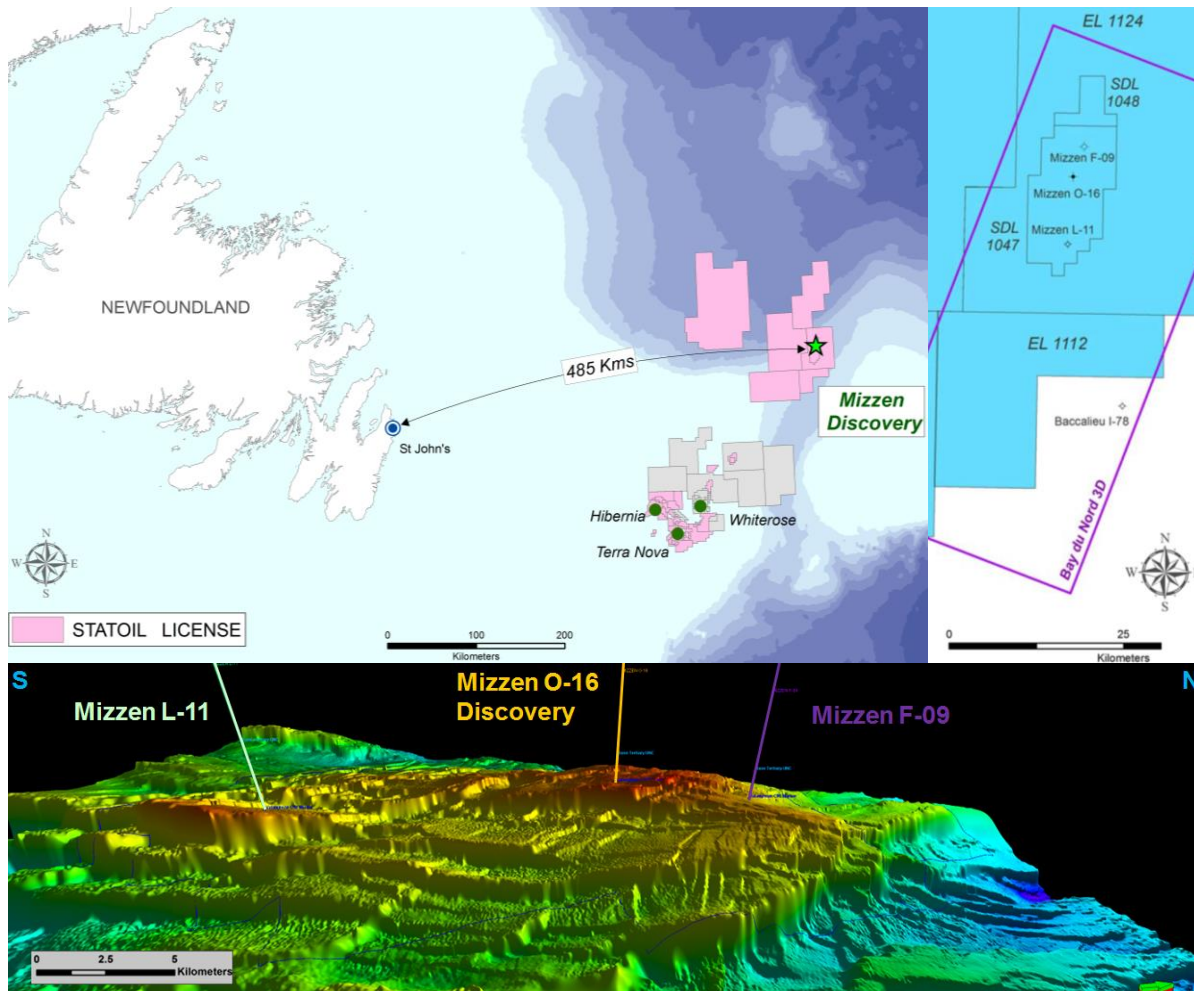
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The Mizzen Field is the first oil discovery in the underexplored Flemish Pass Basin, offshore Newfoundland, Canada in 1100m water depth. The field is located at the apex of a north-south striking, extensionally faulted, oblique-slip, doubly-plunging horst block, approximately 15 km in strike length, and up to 6 km in width.



The main structure is defined by 3D seismic acquired in 2000 and two wells (Statoil's Mizzen O-16 (2009) and Mizzen F-09 (2011)). The original "discovery" well, Petro-Canada's Mizzen L-11 (2003) represents a small oil accumulation in an isolated tilted fault block. A regional top seal over the entire structure is provided by marine shales of Lower Cretaceous Berriasian age.

The reservoir at Mizzen is a very fine to medium-grained sublitharenite of Tithonian (Upper Jurassic) age. This unit is informally referred to as the Ti-3 sandstone. Core analyses of the Ti-3 sands establish porosities averaging 21% with average permeability of 1.2 Darcies. A full-diameter core was obtained from the entire Ti-3 reservoir and the over- and underlying shales at Mizzen F-09 and will be discussed in more detail at the Mizzen F-09 core display (this conference).

Producible oil from the Ti-3 sandstone has been flowed to surface in Mizzen O-16, and was recovered via MDT in Mizzen L-11. After encountering an oil-down-to in the O-16 well, a drill stem test flowed medium gravity oil to surface at a sustainable rate.

The Mizzen F-09 well was subsequently drilled in 2011 on the north flank of the structure, and encountered a water-up-to situation, limiting the hydrocarbon column height, which indicates that the main reservoir in the Mizzen structure is approximately half-filled. Possible reasons for partial fill of the Tithonian structure at Mizzen include limited source adequacy or shallow thief zones.

A walk-away vertical seismic profile (WAVSP) was acquired at Mizzen F-09 in order to collect true amplitude versus angle (AVA) data from the Ti-3 sand. This led to an enhanced well to seismic tie and allowed for a calibration of the AVA response to the seismic. This together with other geological and geophysical well data led to an improved understanding of Tithonian depositional model and reservoir properties across the Mizzen Field.