

Hydrocarbon Potential of the Hartford Basin, CT and MA

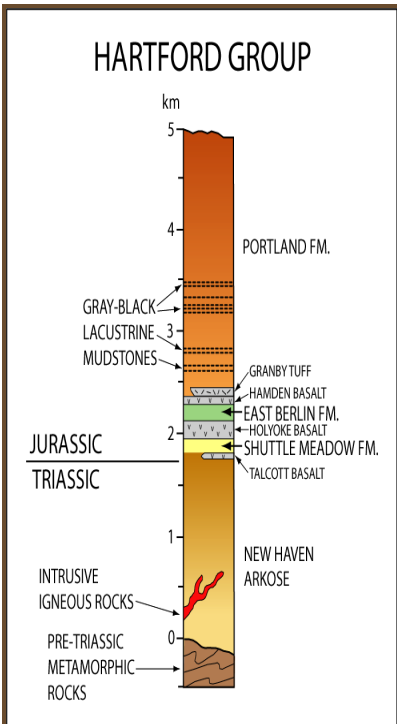
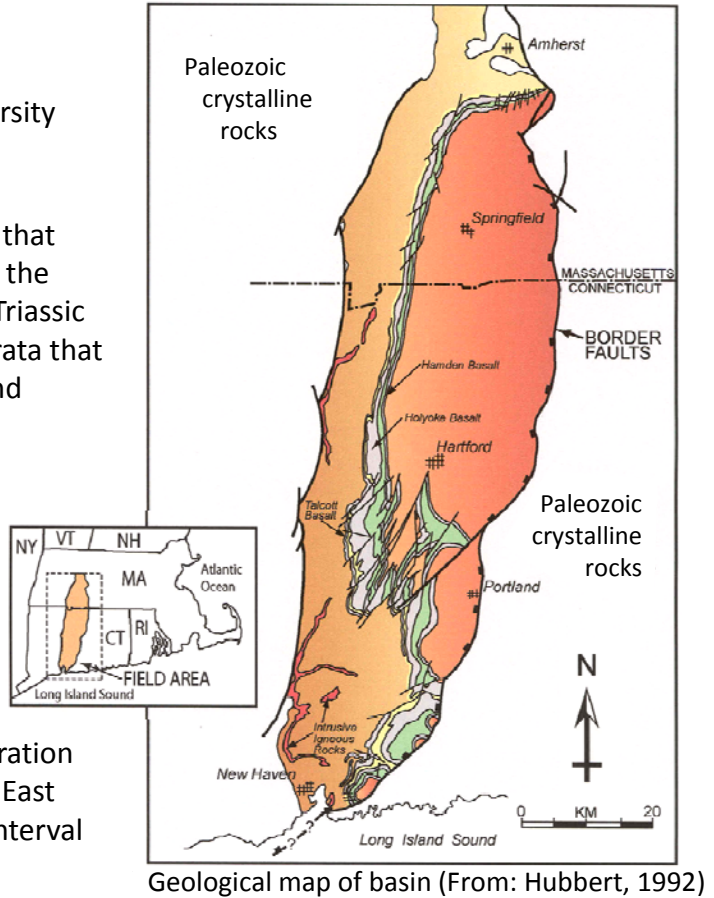


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The Mesozoic Hartford Basin is a half-graben that developed in association with the opening of the Atlantic Ocean. It is filled with up to 5 km of Triassic and Jurassic fluvial, alluvial, and lacustrine strata that record deposition under changing tectonic and climatic conditions.

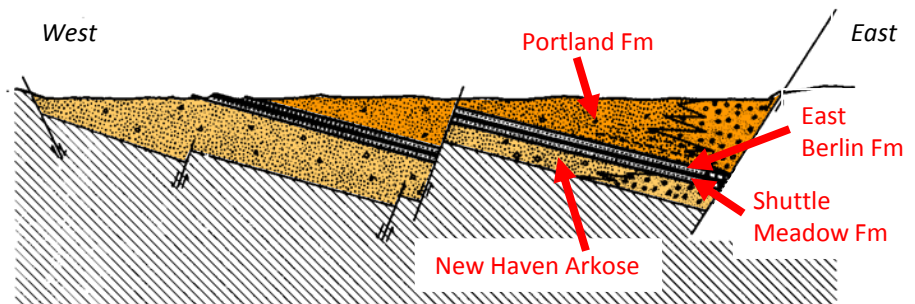
Hydrocarbon exploration in the basin has been limited. Two wells were drilled in the New Haven Formation in the early 1900's and a seismic survey was collected by Texaco in the 1980's.

The most prospective part of the stratigraphic column for future hydrocarbon exploration includes the Lower Jurassic Shuttle Meadow, East Berlin, and lower Portland Formations. This interval contains thin organic-rich black shale layers.



Characteristics of the organic-rich shale layers include:

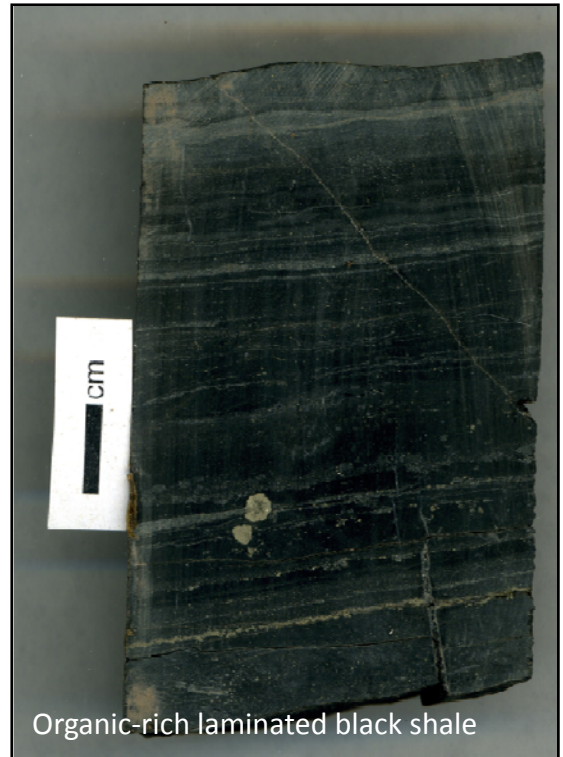
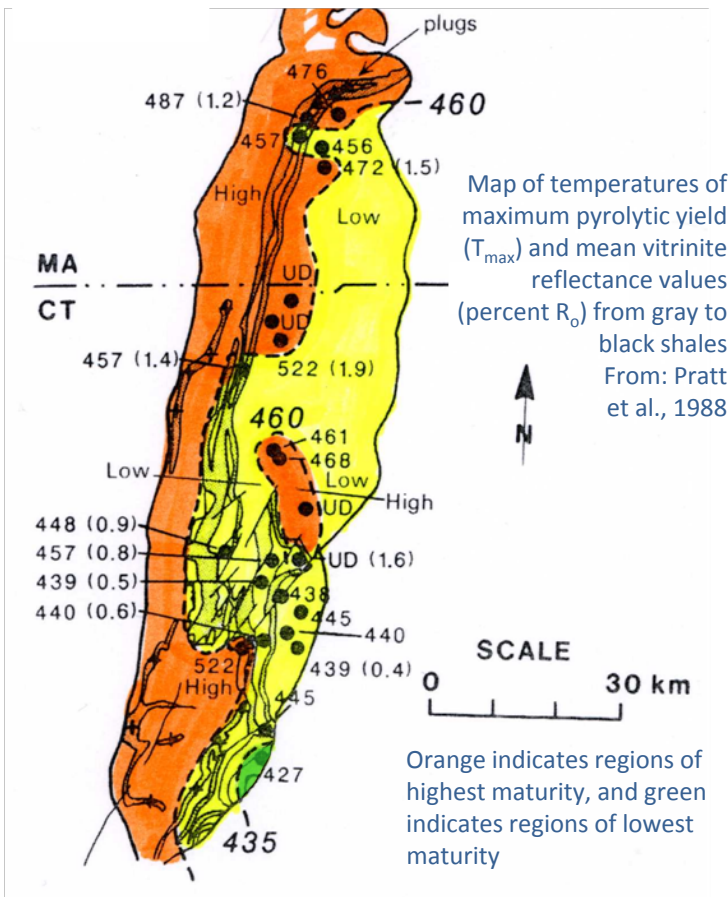
- 15 to 20 black shale layers
- Thin (typically 1-2 feet thick)
- Continuous across the basin
- 2.8% to 7.6% (average 4.4%) TOC
- Vascular and non-vascular organic material
- Beds thicken to the east
- Triassic New Haven Formation is mature; overlying Jurassic formations are not mature; maturity decreases to the south



Stratigraphic column (from: Hubbert, 1992) and simplified structural cross-section (from Lorenz 1988) of the basin.

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Bitumen preserved in fractures and faults and the relatively high temperatures derived from maturation studies indicate that the Hartford Basin was once an active hydrocarbon system. The potential for future traditional hydrocarbon production is greatest in the southern part of the basin, where structures and low maturation temperatures may support active hydrocarbon generation and trapping. Shale gas production may be feasible in the black shale layers across the basin, but more geological data is needed to assess this.



Data required to more fully understand basin geology and hydrocarbon potential include:

- Deep stratigraphic test well with core
- Seismic survey
- Comprehensive geochemical study
- Thermal maturation, structural, and fluid flow modeling