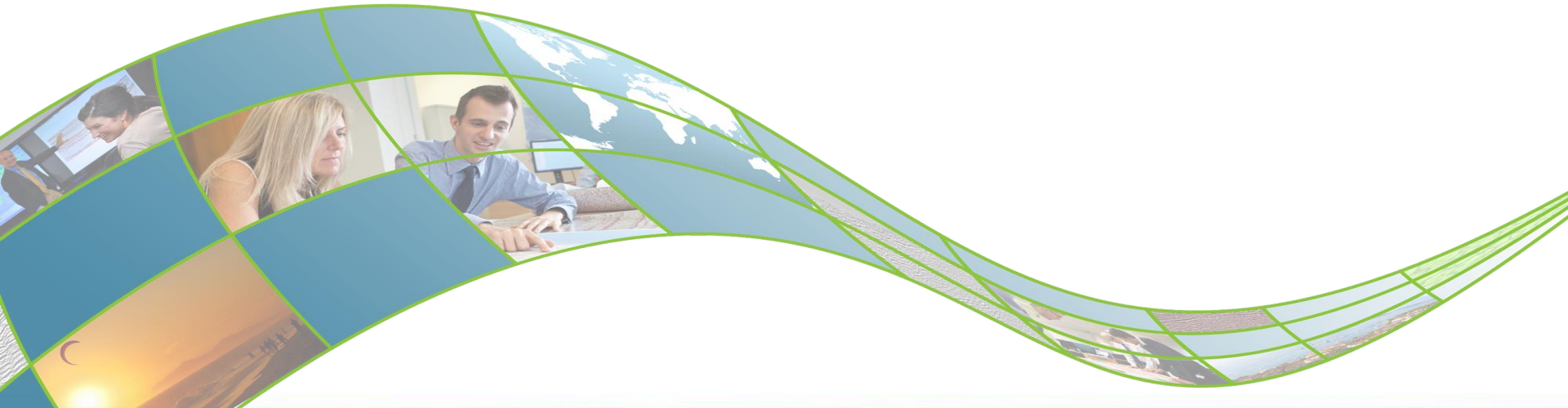


Light Shed on New Mesozoic and Tertiary Leads in the South Irish Rockall Basin



Ireland Atlantic Margin



Several Hydrocarbon Basins



Proven Petroleum Systems



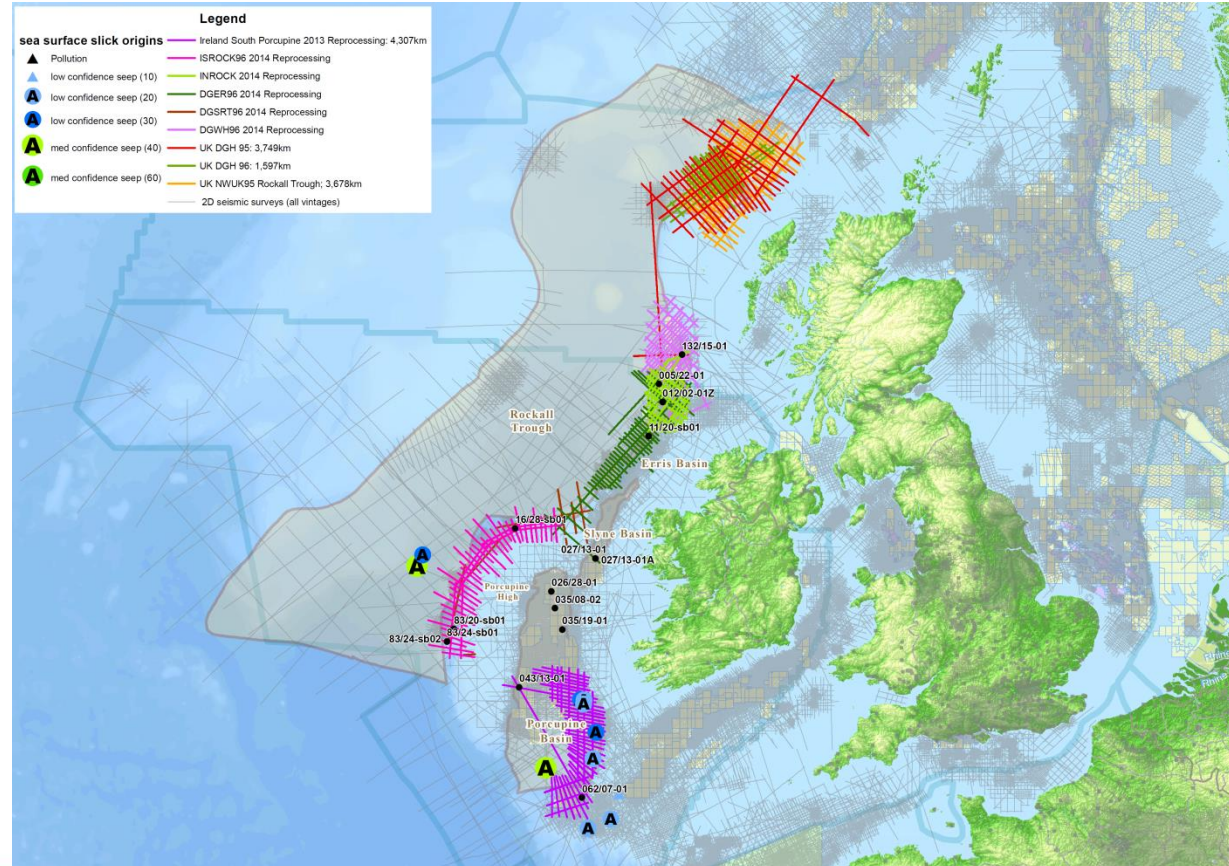
Six oil & gas discoveries



DHIs: Oil Seeps & Gas Chimneys



Extensive areas of open acreage Rockall Basin






Ireland Atlantic Margin: Proven Play Fairways





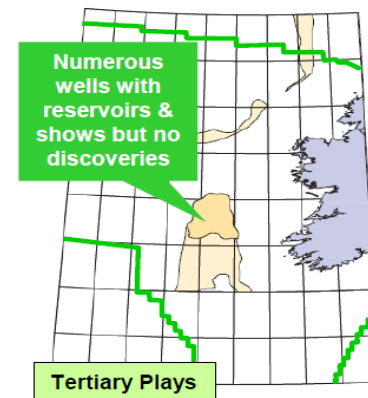
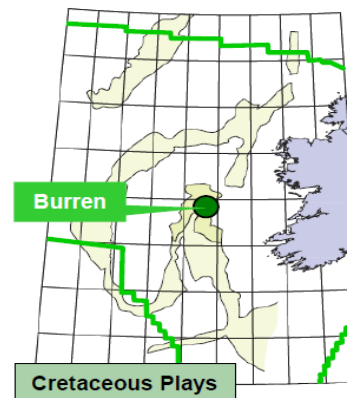
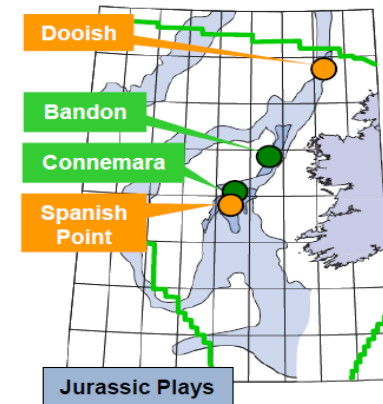
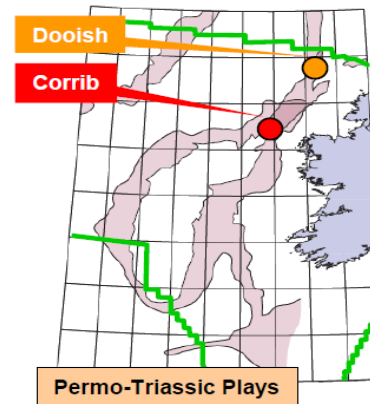
Several proven hydrocarbon plays

Three hydrocarbon source rocks:

-  Late Jurassic Kimmeridge Clay equivalent marine oil shales
-  Early Jurassic lacustrine shales
-  Carboniferous coals & oil shales

Unexplored potential:

-  Porcupine Basin
-  Rockall Basin



darker shading = proven areas

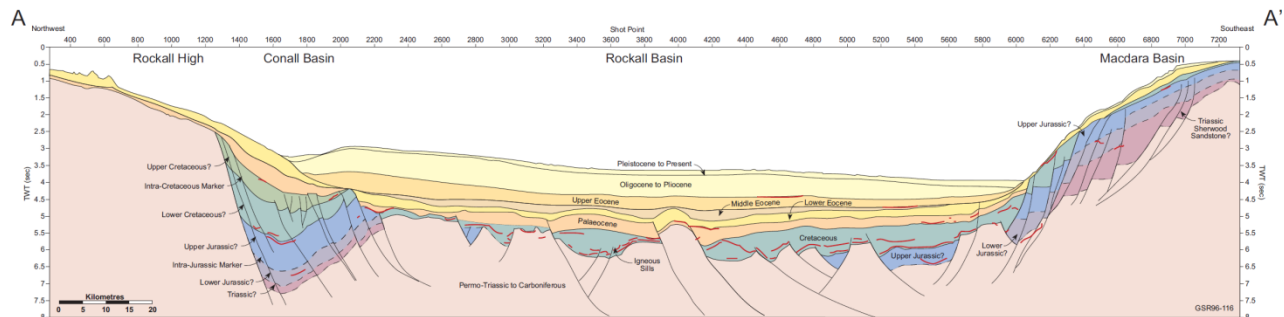
(Source: PAD/Ternan, 2006)

Ireland Atlantic Geoseismic Sections

Several episodes of rifting in Ireland Atlantic basins from Triassic to Cretaceous.

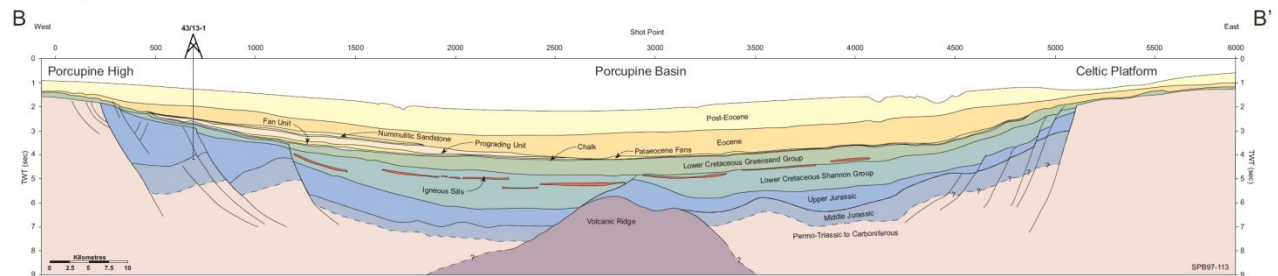
Rockall Basin

Modified after Naylor et. al (1999, 2002)

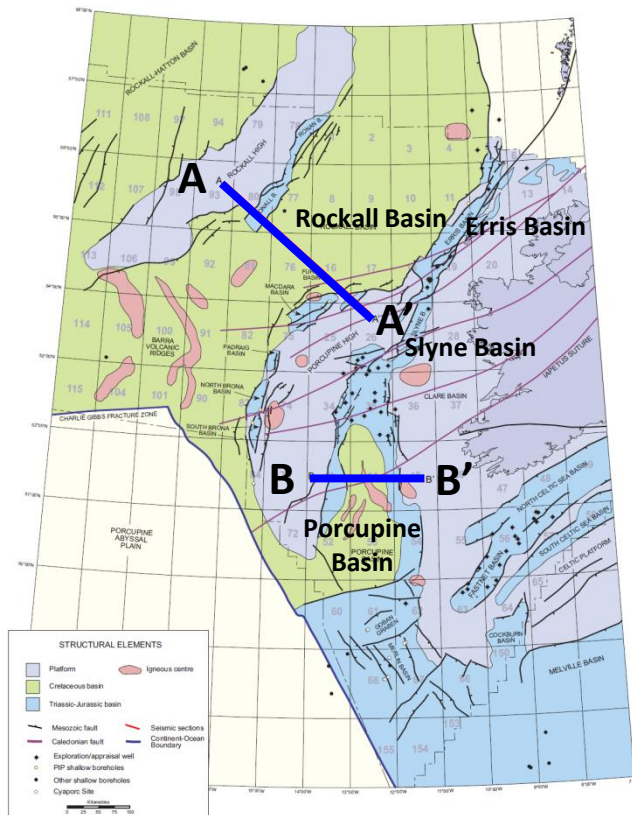


A typical section across the Rockall Basin displays the syn-rift nature of the Lower Cretaceous above a pre-rift Upper Jurassic section. With a thick Tertiary section of strata, imaging of the lower section is complicated by the presence of igneous sills. Much of the hydrocarbon potential of the basin is located in the shallower waters of the margins, where pre-Cretaceous rift basins are found including the Macdara and Connall Basins displayed above.

Porcupine Basin



The Porcupine Basin is typified by large scale rotated fault blocks formed of pre-rift Middle Jurassic strata, covered by the syn-rift Upper Jurassic section. Continuation of the faulting within the Lower Cretaceous section occurs towards the margins due to renewed rifting at that time. Tertiary strata has been deposited within the basin and upon the margins.

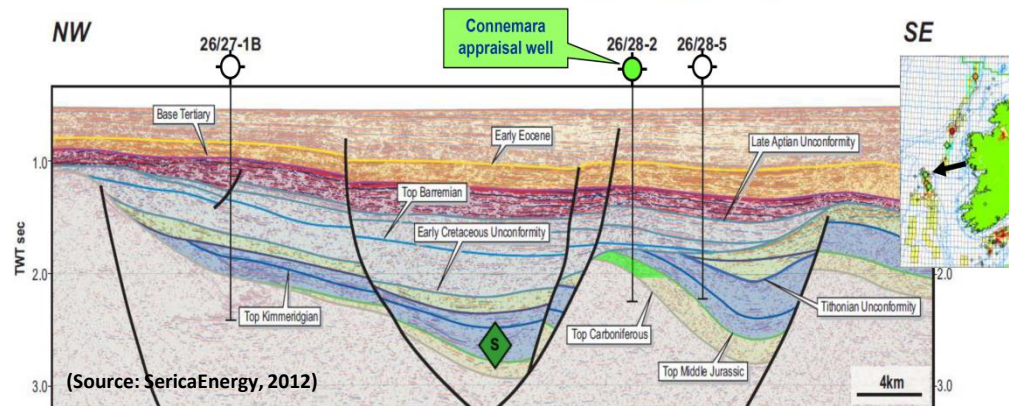


Porcupine Basin – Proven Jurassic Reservoir & Source Rock



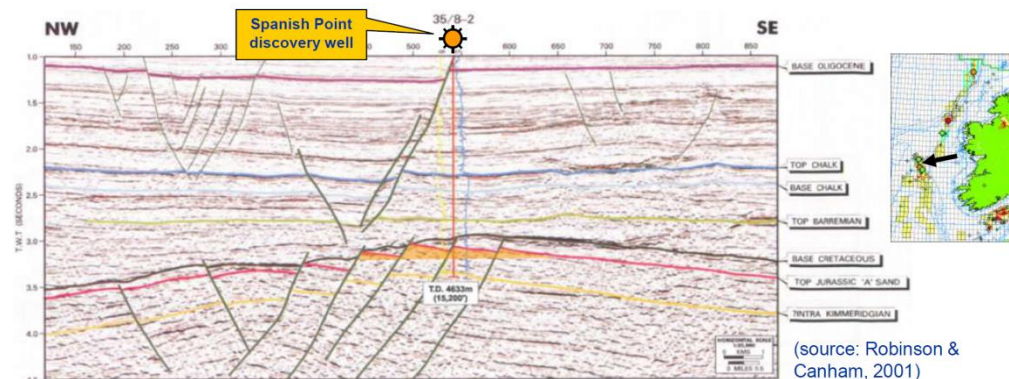
26/28-1 oil discovery (1979) “Connemara”

- Pre-Cretaceous subcrop, tilted fault block trap
- Middle Jurassic reservoir, Oil in three zones; 5587bopd aggregate flow
- Jurassic moderate to good oil source up to 2.9% TOC



35/8-2 oil & gas discovery (1981) “Spanish Point”

- Pre-Cretaceous subcrop, tilted fault block trap
- Oil & gas discoveries in two zones; 925bopd
 - Early Cretaceous Barremian sandstones
 - Kimmeridgian sandstones
- Late Jurassic moderate to good oil source



Jurassic Half-grabens in Porcupine Basin



NW

Well

235 km

Well

SE

PORC97-60 PSTM REPRO 2014

Gas chimneys

Top L. Olig

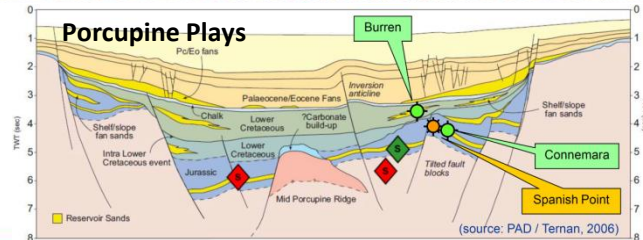
Top E. Palaeo

Top Cre

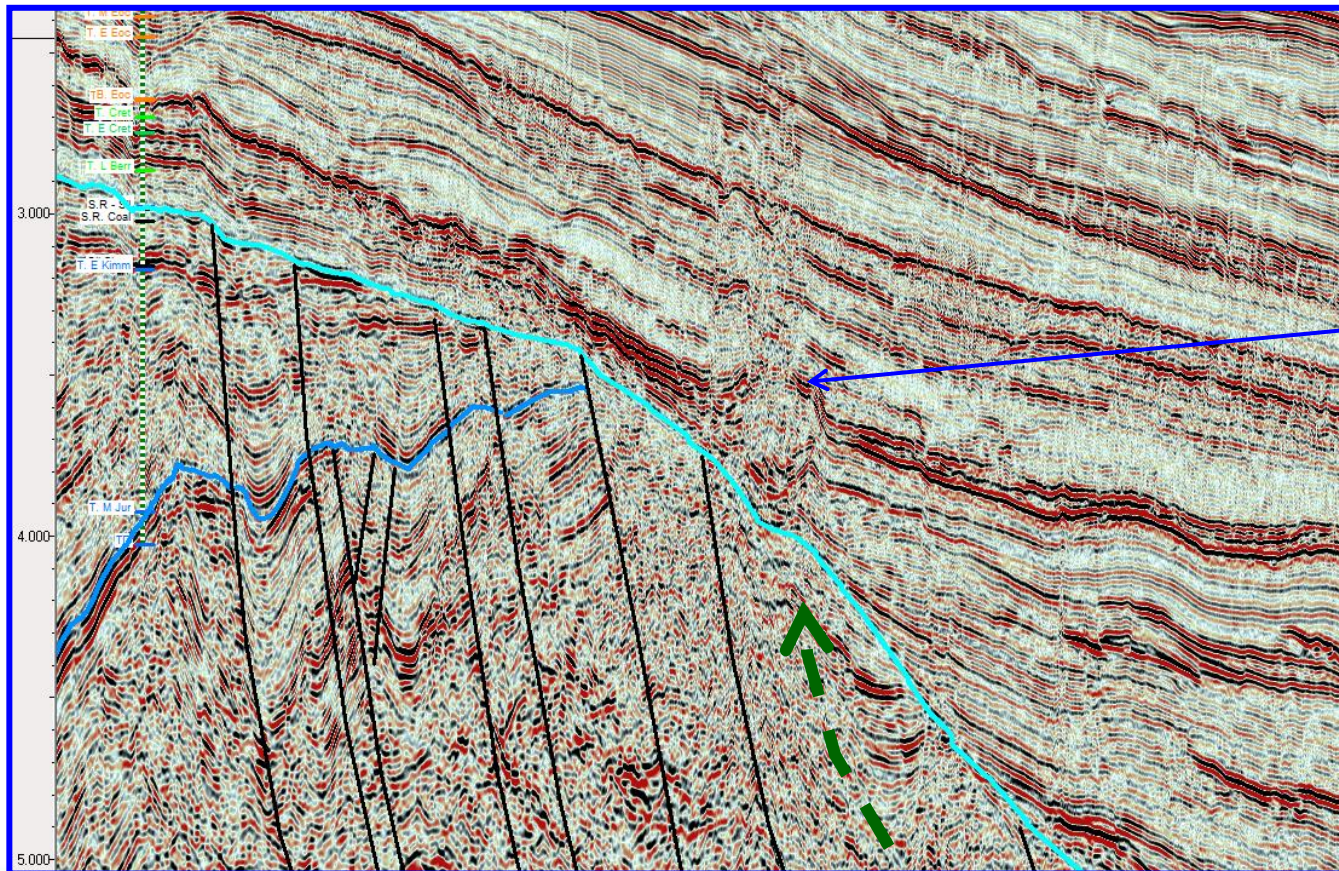
Top Triassic?

Top M. Jurassic
(Syn-rift I)

Top L. Jurassic
(Syn-rift II)



GAS Chimney – Western Flank Porcupine Basin



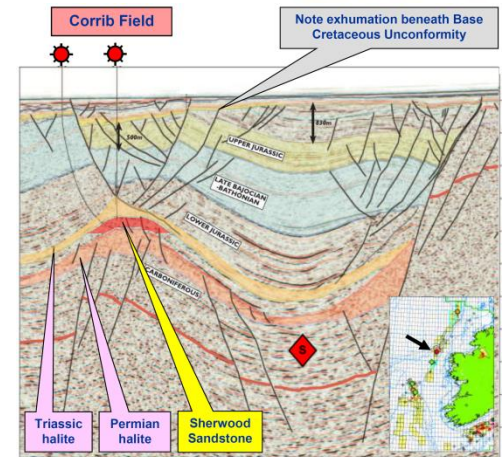
Gas chimneys with push down velocity effect, charges from Jurassic lacustrine half-graben

Slyne Trough – Bandon Oil & Corrib Gas Discoveries

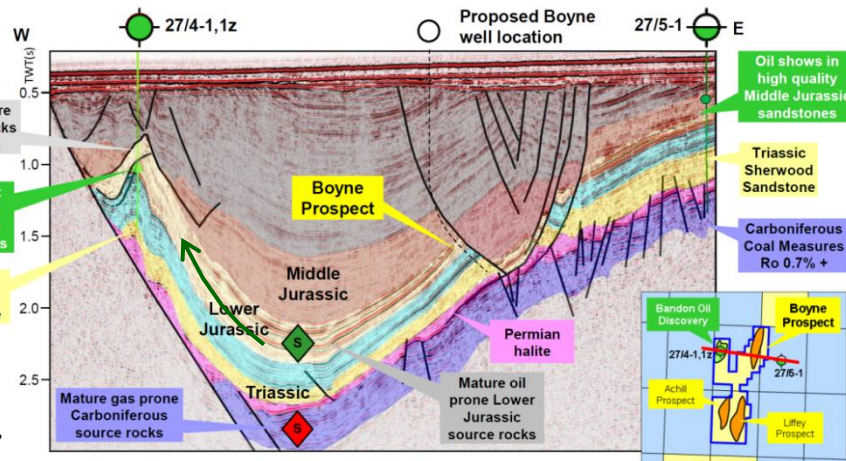


Proven Carboniferous source rock: 18/20-1 & 2z (1996) “Corrib”

- Anticlinal trap with complex faulted overburden.
- 61m gas column Triassic Sherwood Sandstone
- 185m gas column in appraisal well
- 63mmscfd
- Carboniferous source rocks proven (not penetrated)



(Source: Corcoran & Meckelenburgh, 2005)



(Source: SericaEnergy, 2013)

Proven Early Jurassic reservoir & source rock: 27/4-1, 1z (2009) “Bandon”

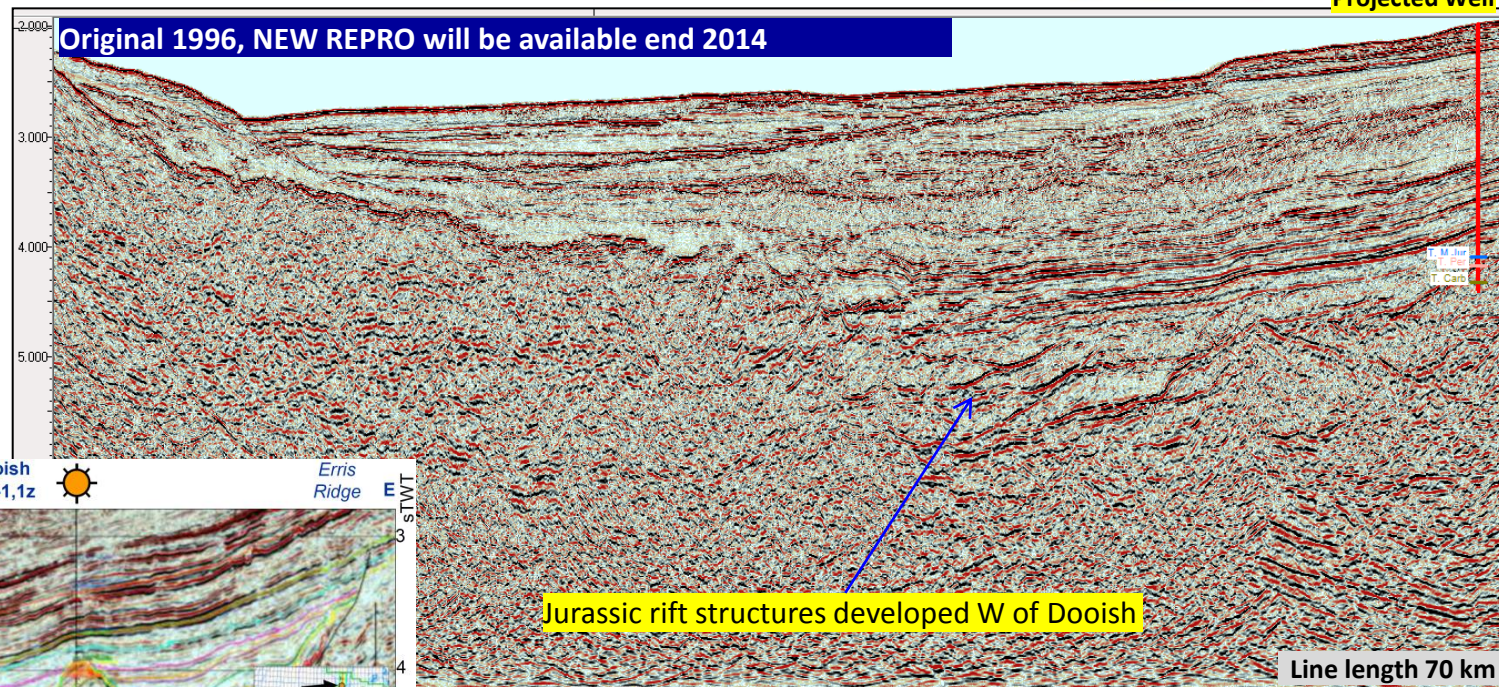
- Roll-over structural trap on a bounding fault, shallow 1100mss
- 16 degree API Oil in Early Jurassic sandstone
- 50m gross oil column
- Liassic source rocks proven, up-dip migration charge

Slyne-Erris Basin – Dooish Gas & Condensate Discovery

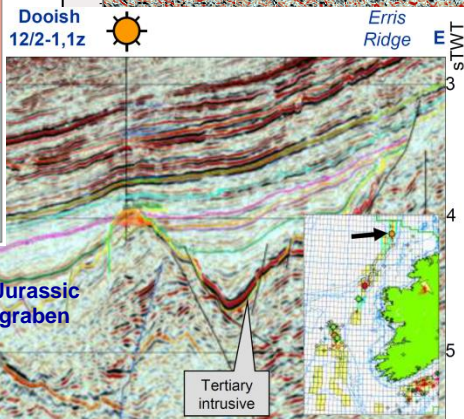


Projected Well

Original 1996, NEW REPRO will be available end 2014



Line length 70 km



Dooish
12/2-1, 1z

Erris
Ridge

E
3
4
5
STWT

Late Jurassic
half-graben

Tertiary
intrusive

Top
Maastrichtian

Top
Turonian

Base
Cretaceous



Fault/dip closed structural trap



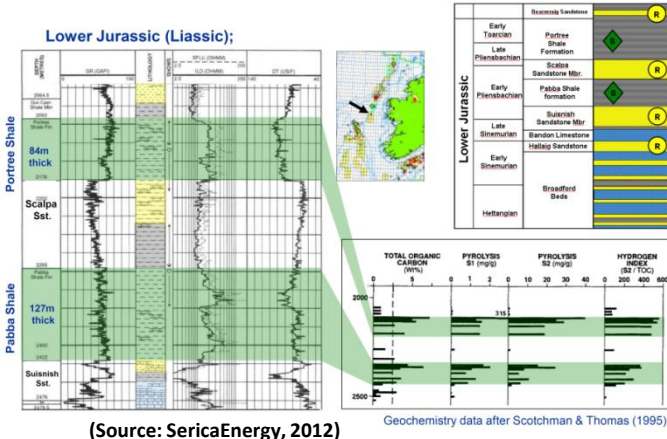
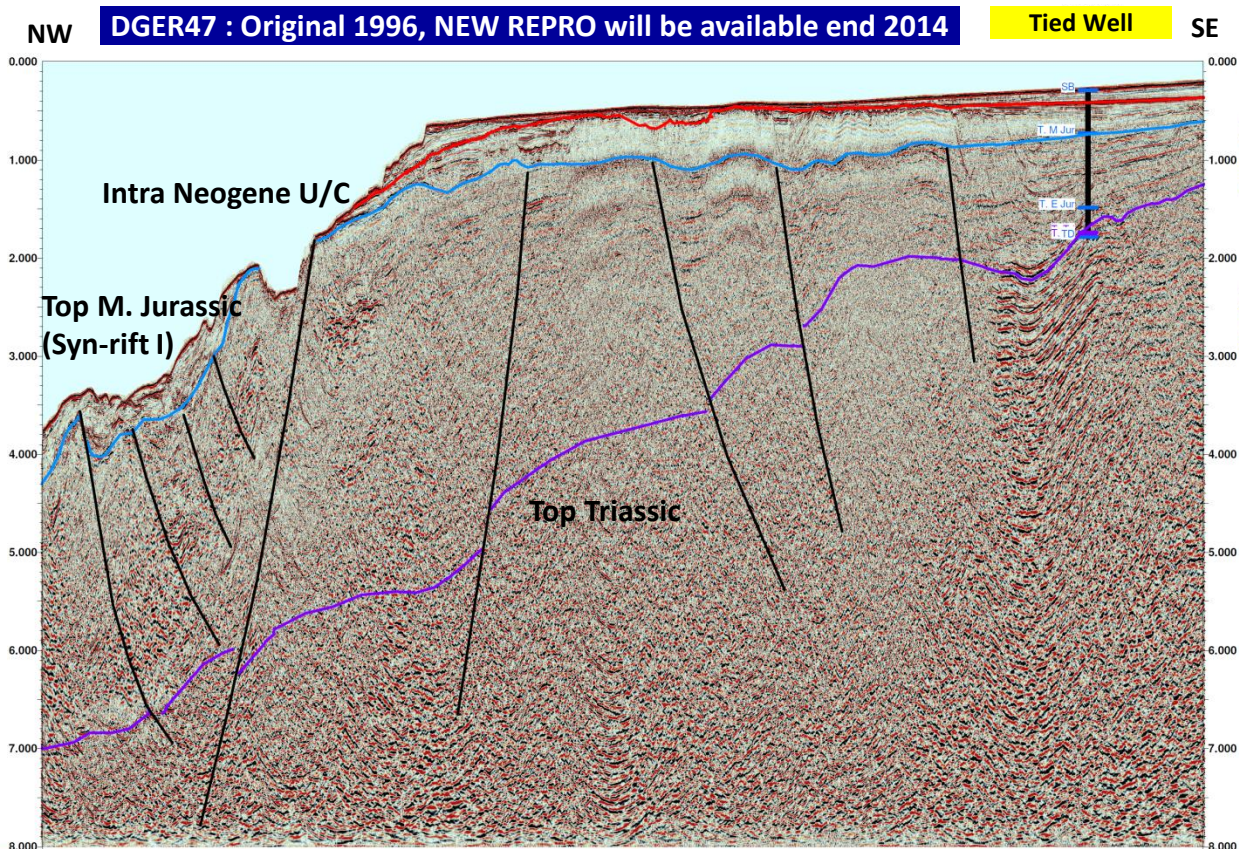
187m net retrograde gas & condensate column

- Permo-Triassic and Middle Jurassic? continental (fluvial) sandstone



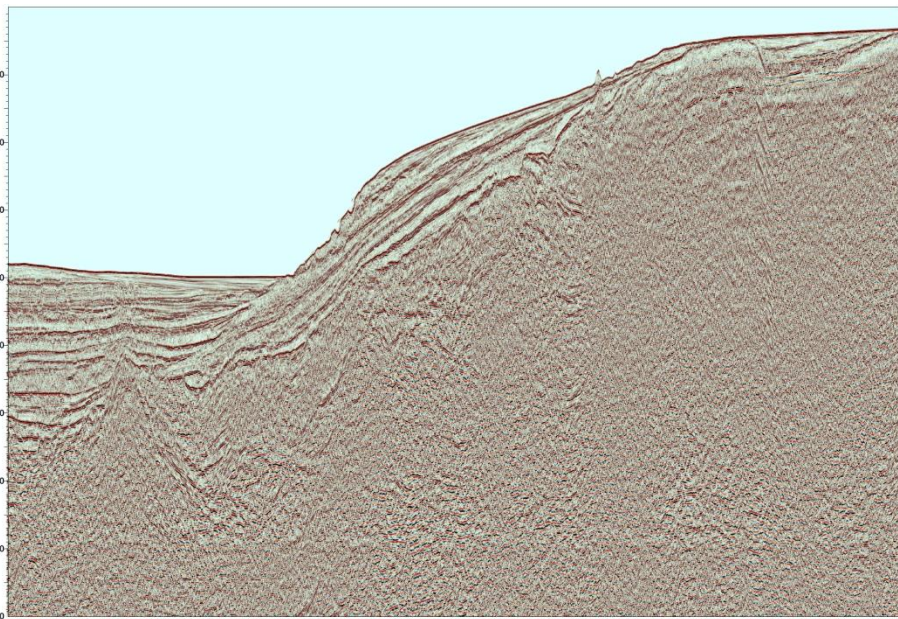
TD Upper Carboniferous fluvial sandstone, mudstone and coal

Slyne Trough – Proven Jurassic Reservoir & Source Rock

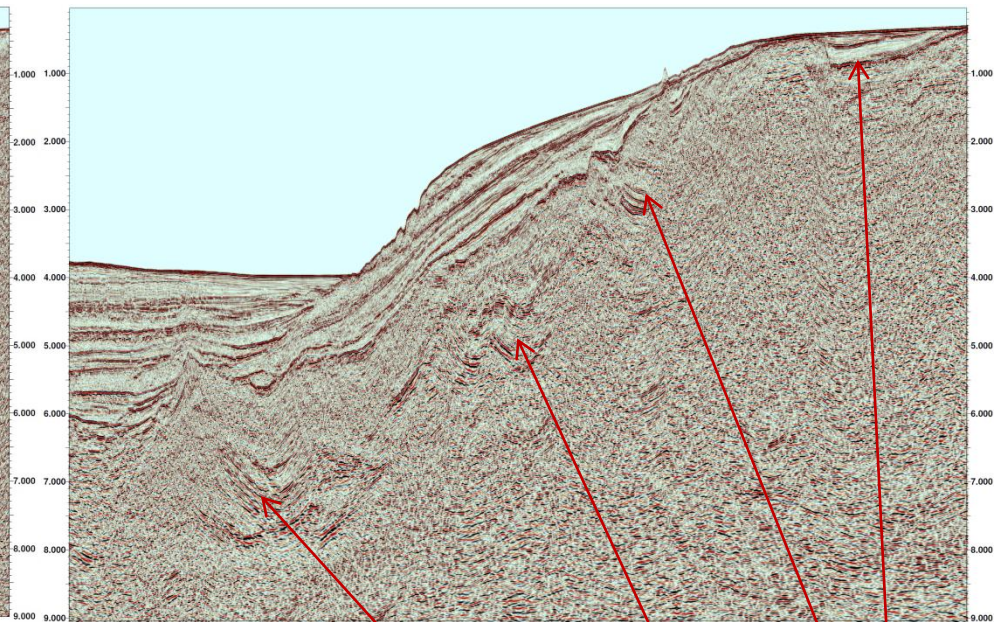


- Encountered Middle Jurassic to Triassic continental section within tilted fault block
- No Cretaceous or Palaeogene section

ISROCK Survey Original 1996 and After REPRO 2014



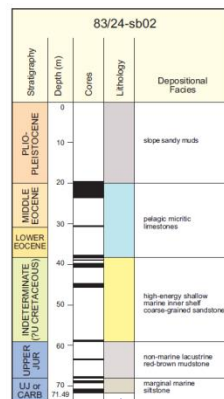
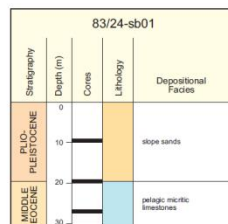
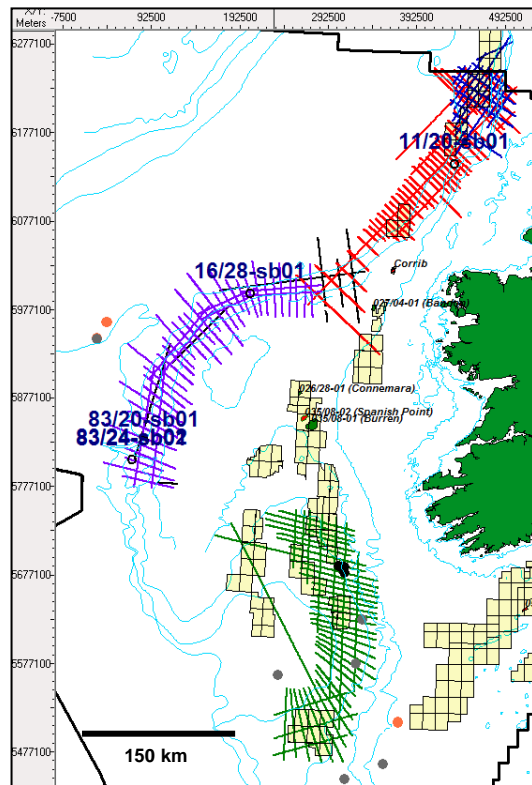
Final Mig 1996



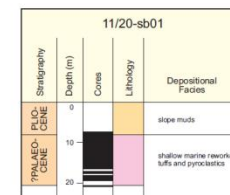
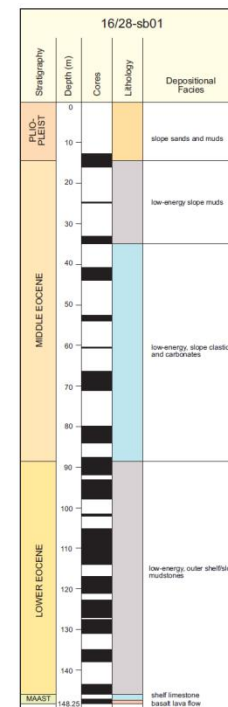
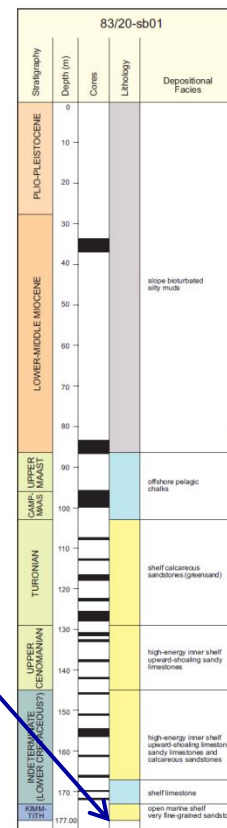
PSTM 2014

Significantly improved imaging of Triassic-Jurassic syn-rift half-grabens

BGR Shallow Boreholes drilled on the Eastern flank of the Rockall Basin



TD at Late Jurassic marine clastics



(Source: PAD/Ternan, 2006)

Five boreholes were drilled on the eastern flank of the Rockall Basin in 1999 as part of a wider research programme carried out by the PIP Rockall Studies Group. The results of this work have been published in a series of RSG reports. A summary is given in Haughton *et al.* (2005).

BGR Shallow Borehole 83/20-sb01 – S. Rockall Basin

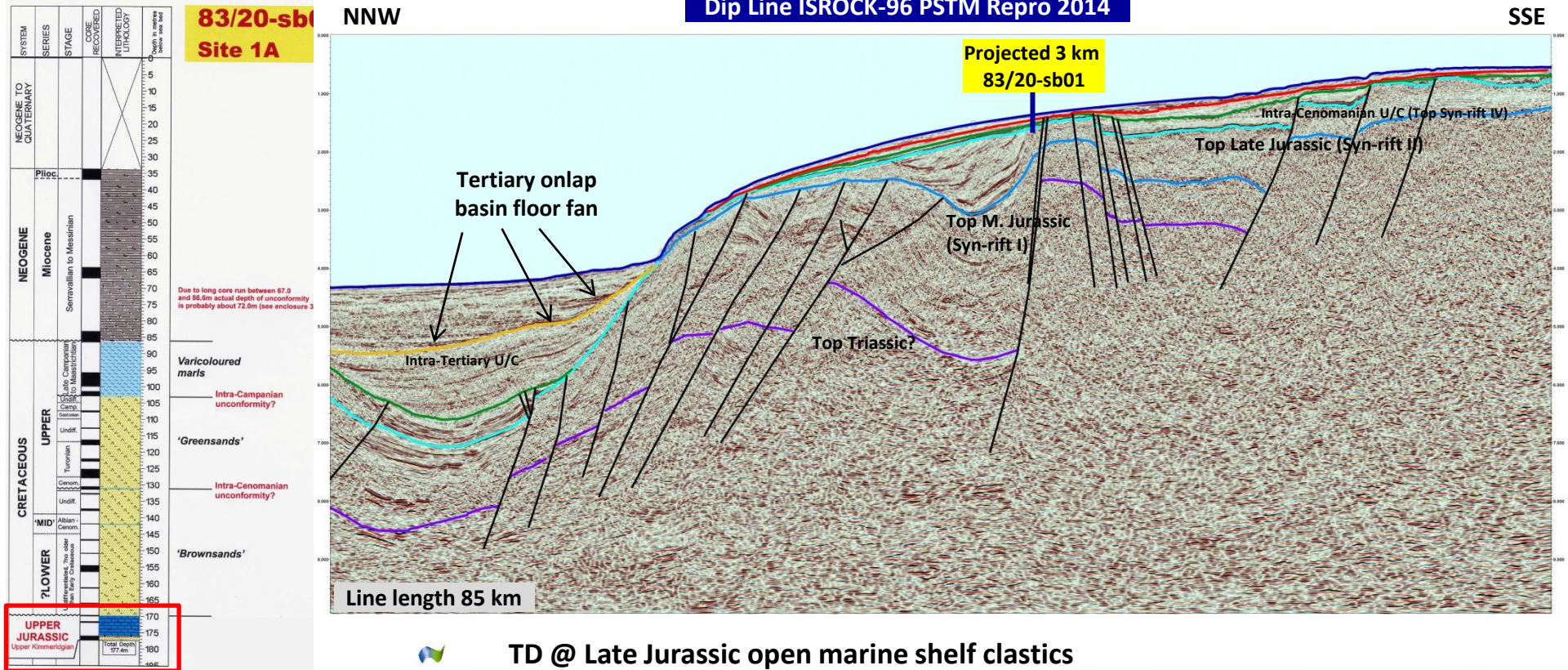


Dip Line ISROCK-96 PSTM Repro 2014

83/20-sb01
Site 1A

NNW

SSE



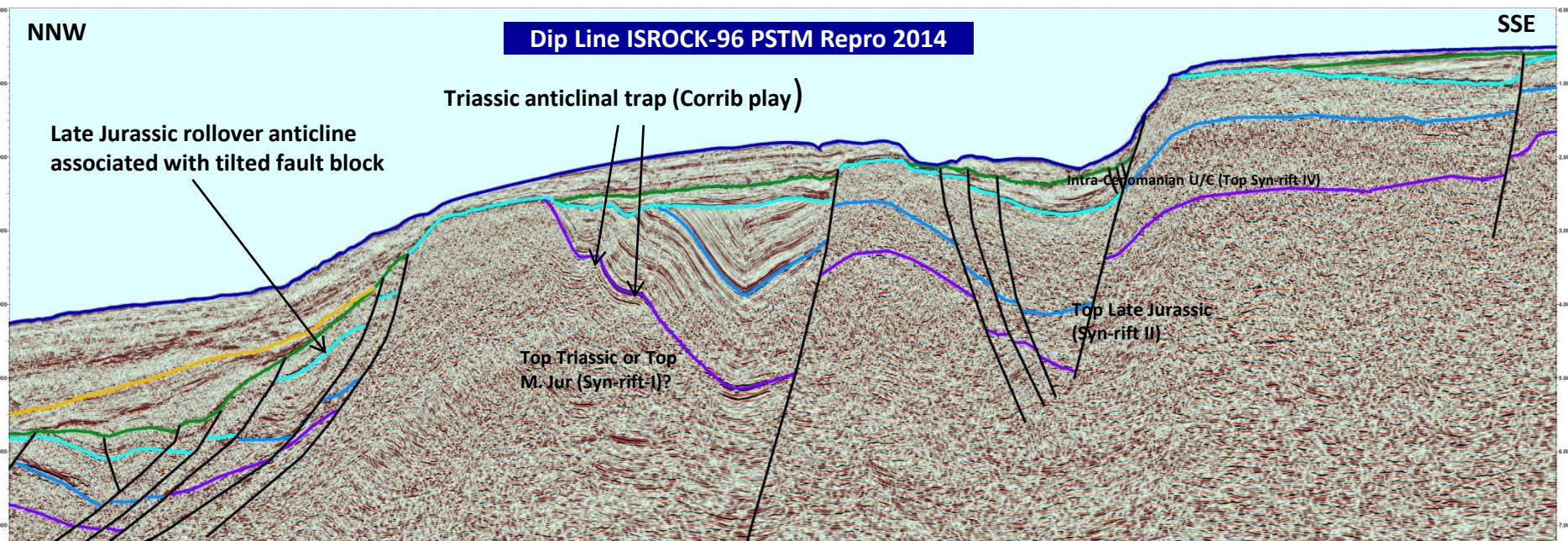
Mesozoic Half-grabens on Dip Line Spectrum 2D NEW REPRO



NNW





Dip Line ISROCK-96 PSTM Repro 2014

SSE



Play Concepts:

Line length 83 km

-  Tertiary stratigraphic trap in outboard deep basin: Onlap drape and channel & basin floor fan
-  Late Jurassic rollover anticline associated with tilted fault block
-  Mid Jurassic rollover anticline associated with tiled fault block (Dooish play) & crestal fault trap
-  Triassic anticlinal trap (Corrib play)

Rockall Basin Exploration Potential



Rifted basin structure with structural traps



Jurassic image enhanced on reprocessed 2D seismic

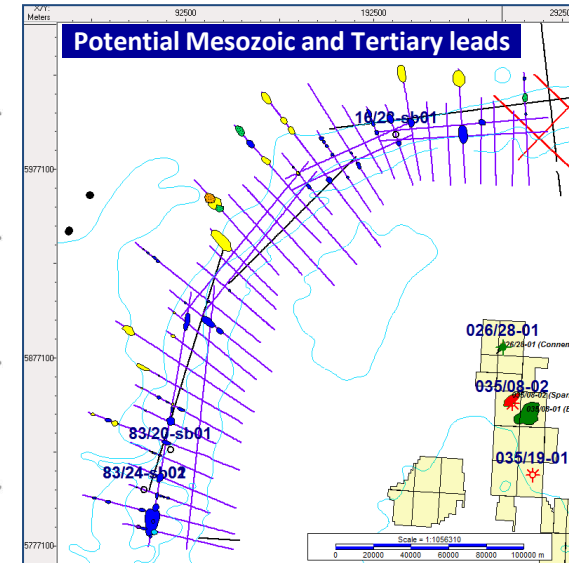
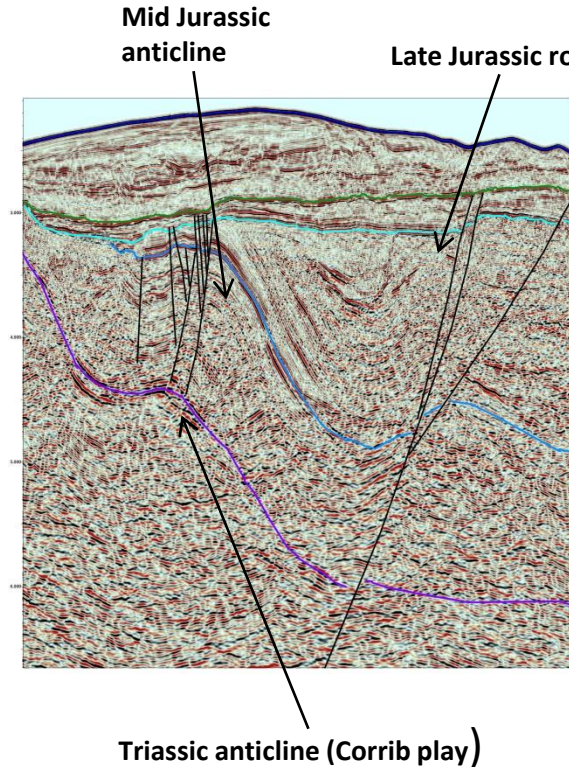


Multiple large undrilled features



Challenges

- Trap definition (seismic imaging)
- Timing of significant events
- Reservoir & source rock distribution



Light blue = Triassic anticline
Blue = Jurassic tilted anticline & fault block
Green = Late Cretaceous strat traps
Yellow = Tertiary strat traps