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# Prospects Mullen & Kiernan in the South Porcupine Basin Offshore Ireland

Hugh Mackay
Europa Oil & Gas

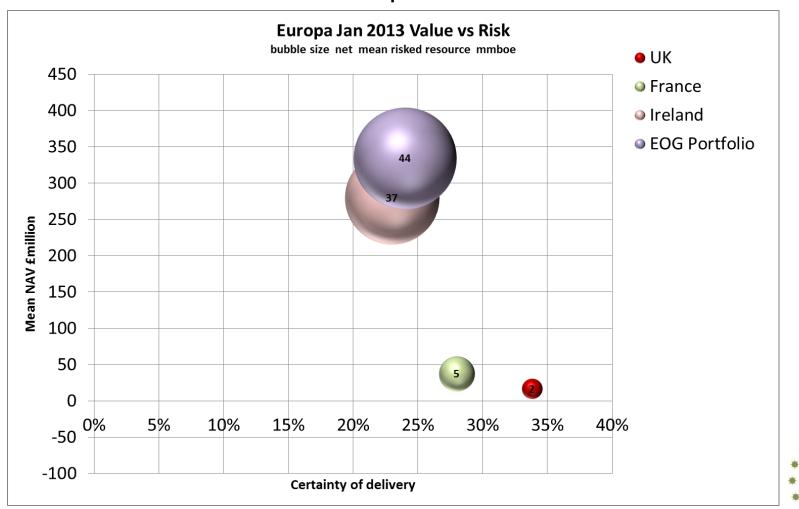
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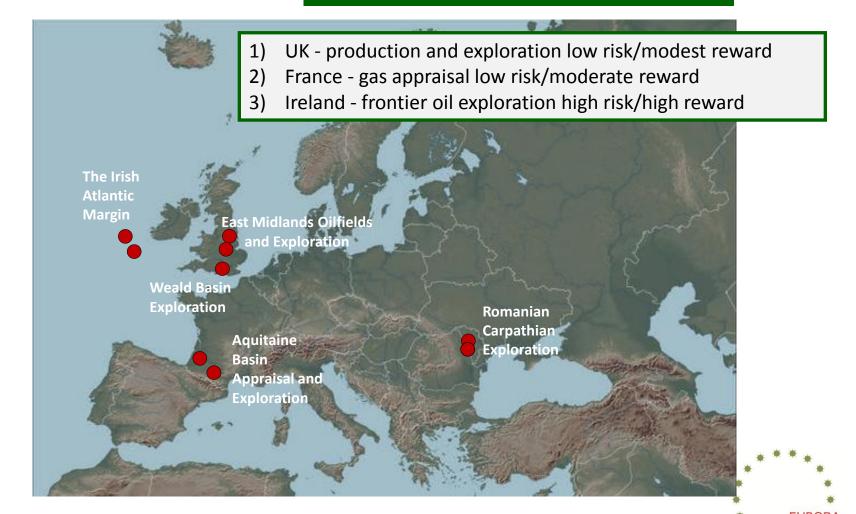
# Europa Oil & Gas (Holdings) PLC

- Registered in UK, listed on AIM, market cap £15 million/\$24 million
- Ticker EOG

#### Europa Asset Portfolio Jan 2013

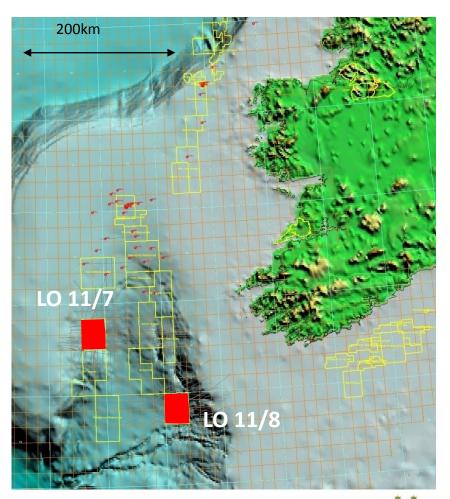


# Europa Oil & Gas (Holdings) PLC Portfolio Three core areas: UK, France and Ireland



# Location

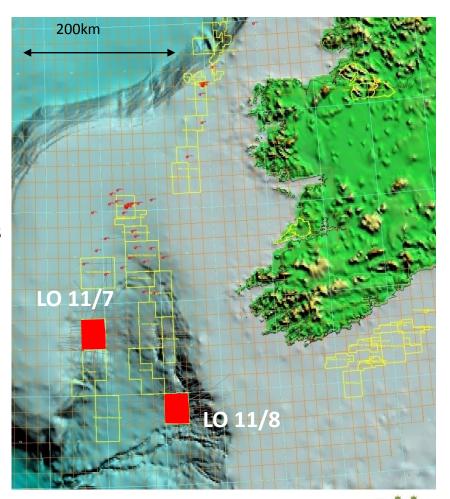
- South Porcupine Basin, underexplored
- 100% equity in two licence options LO 11/7 and LO 11/8, 1000 km<sup>2</sup> each
- Large Lower Cretaceous clastic prospects with amplitude support
  - Proven play at Burren (North Porcupine), flowed oil
  - Potentially very large volumes
- Excellent fiscal terms (25-40% PRT)
- Moderate to deep water prospects (1000-2000m)
- Similar operating environment to West of Shetlands
- Seeking JV partner to take to a frontier exploration license, derisk and drill





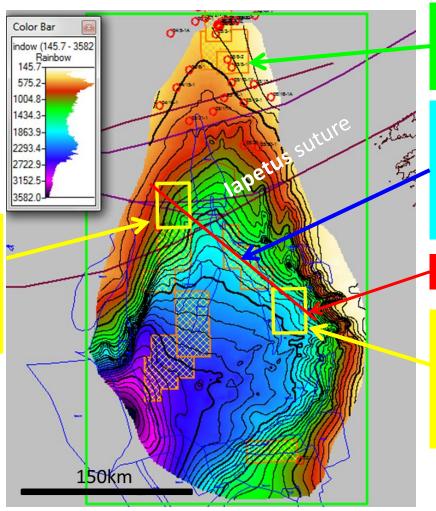
## Licence details

- License Option
  - 1Nov 11 31 Oct 13
- Apply for Frontier Exploration Licence
  - Relinquish minimum 25%
  - 15 years duration
  - 1 phase of 3 years followed by 3 phases of 4 years each.
  - seismic and well commitments





# Porcupine Basin Water Depth (m)



#### **Burren**

Lower Cretaceous oil discovery ~375 bopd

#### **Dunquin**

Middle Cretaceous Carbonate prospect 8.4 TCF + 316 MMBO drill Q1 2013

#### Line of section

#### LO 11/8 Kiernan

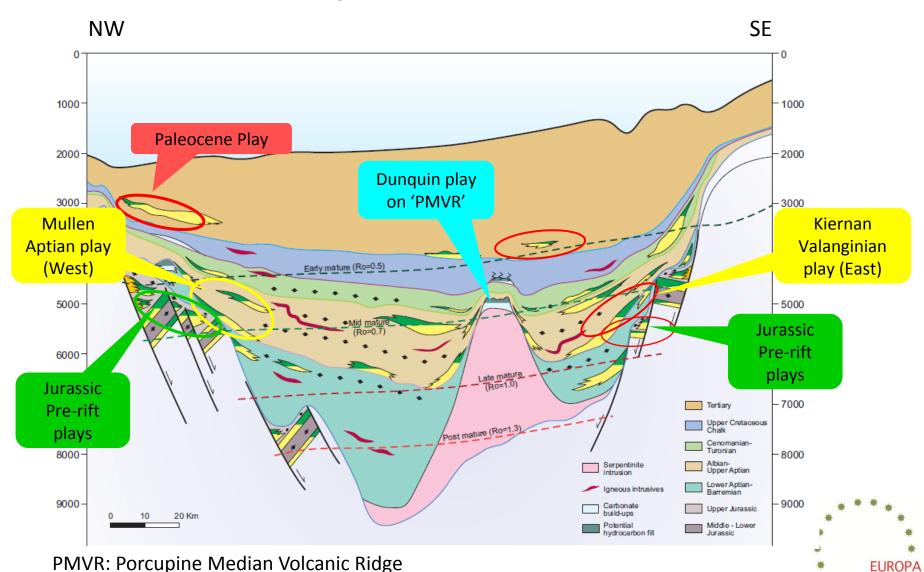
Lower Cretaceous play 1800-1925m water depth, most likely suited to FPS



#### LO 11/7 Mullen

Lower Cretaceous play 800m-1400m water depth, limit of fixed platform

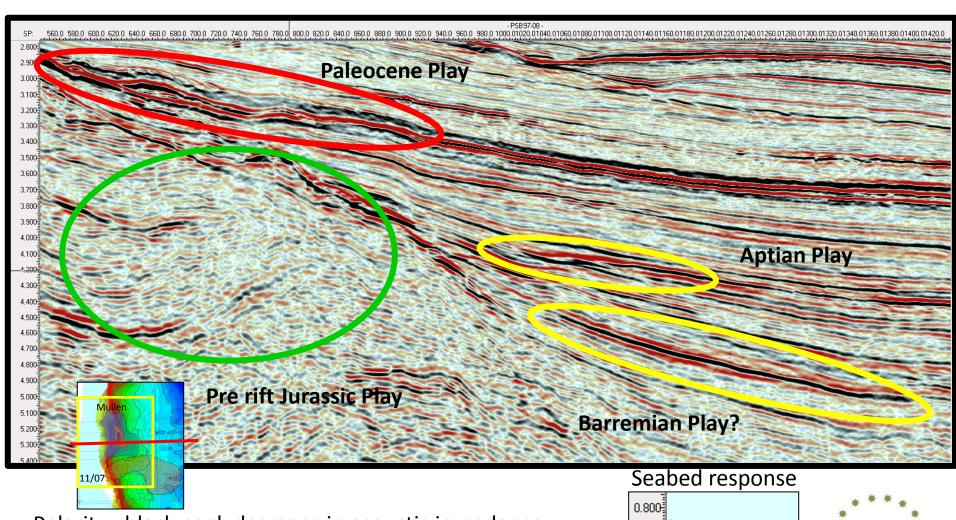
# South Porcupine Basin Cross Section



Cross-section courtesy of PhysicalGeo Limited

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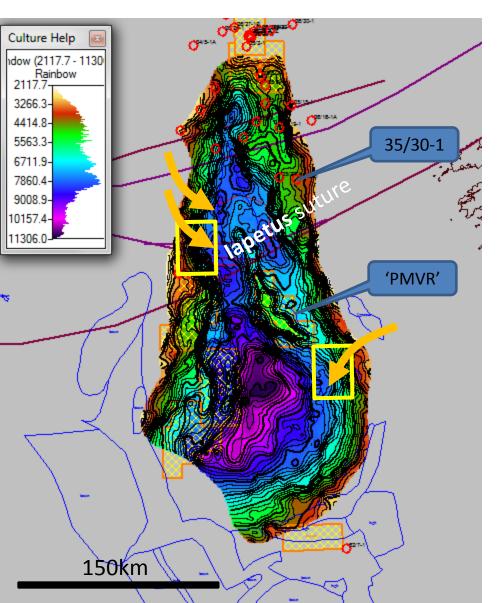
# Line PSB97-08 LO 11/7 Mullen Plays



1.000

Polarity: black peak decrease in acoustic impedance Data shown courtesy of TGS and WesternGeco

# Base Cretaceous Depth map (m)

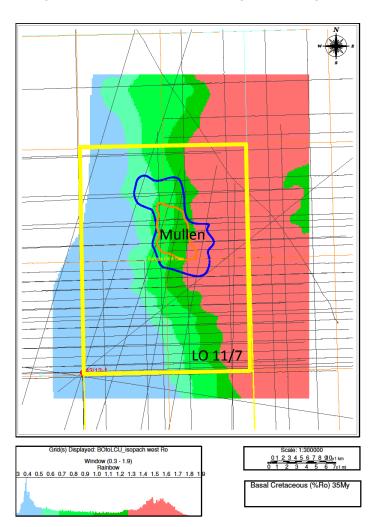


- Combined map of Late Cimmerian Unc. and PMVR structure.
- Arrows indicate possible Lower Cretaceous sand provenance directions
  - From Porcupine High in West
  - From Munster basin (ORS) in East

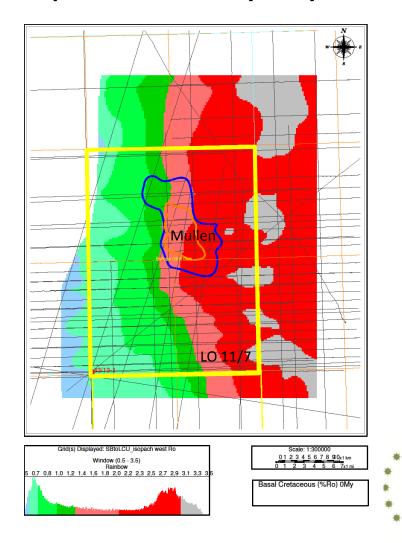


# Mullen – Jurassic source maturity

#### **Top Jurassic maturity 35 My**

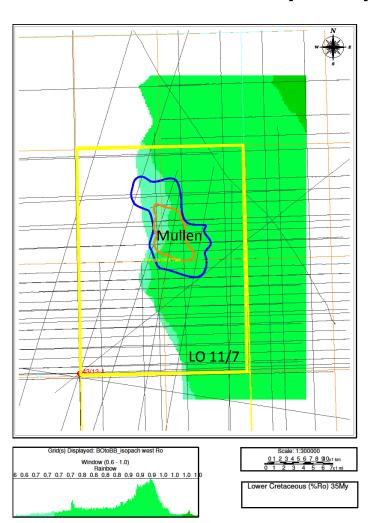


#### **Top Jurassic maturity 0 My**

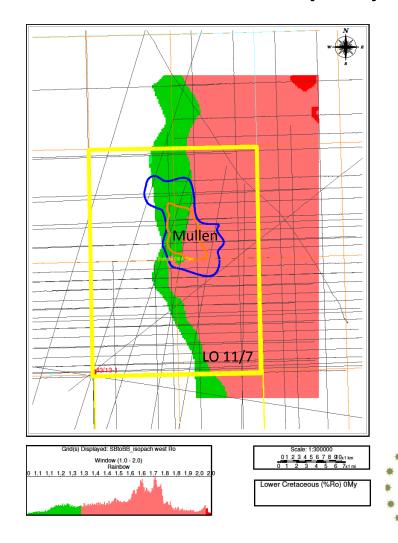


# Mullen – Cretaceous source maturity

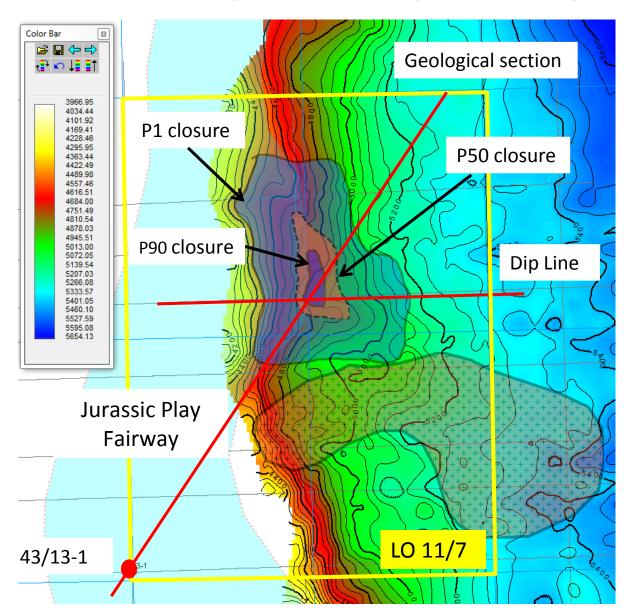
#### Lower Cretaceous maturity 35 My



#### **Lower Cretaceous maturity 0 My**

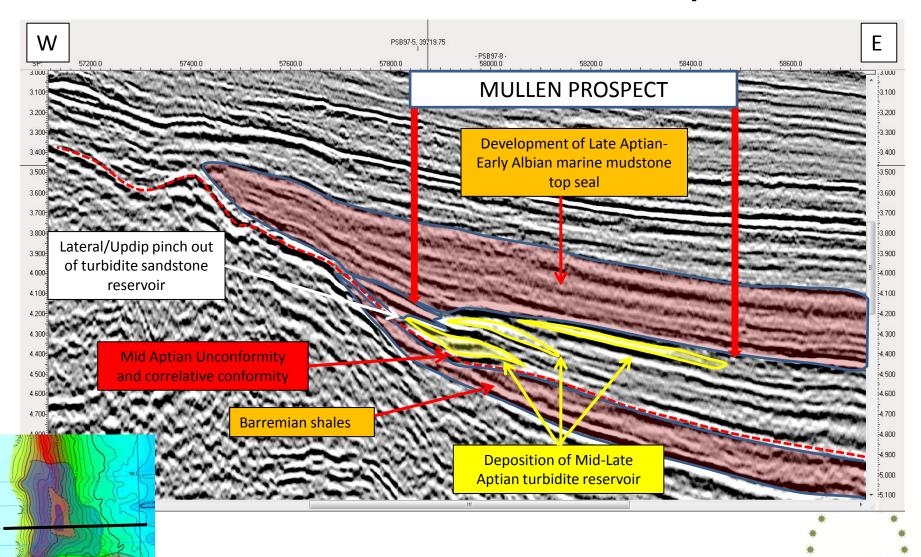


# Mullen Aptian Depth Map (m)



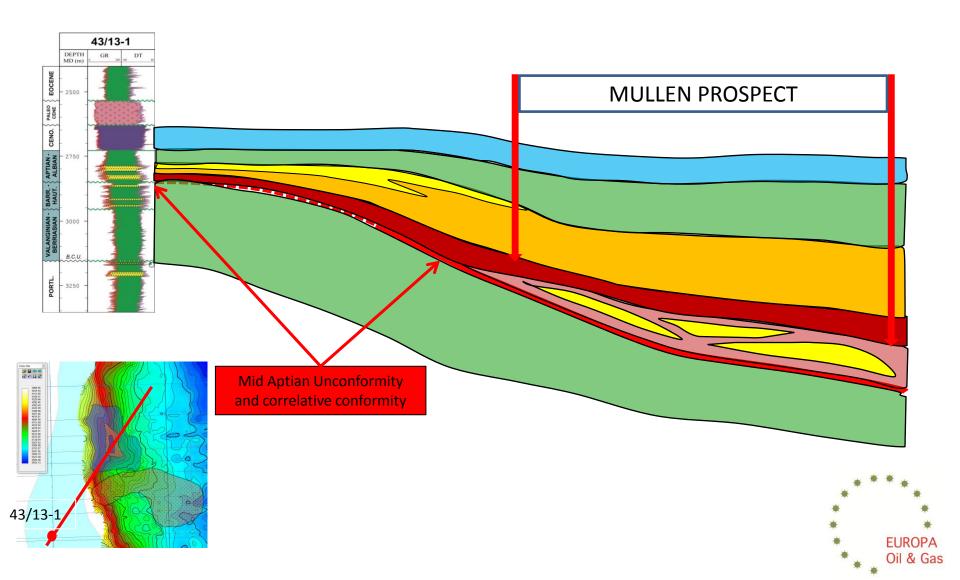


# Geoseismic Section: Mullen Dip Line

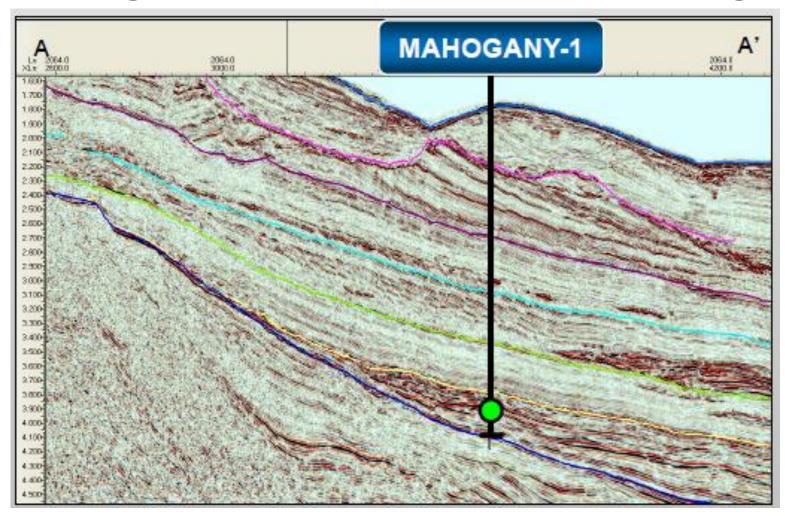


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# **Geoseismic Section**



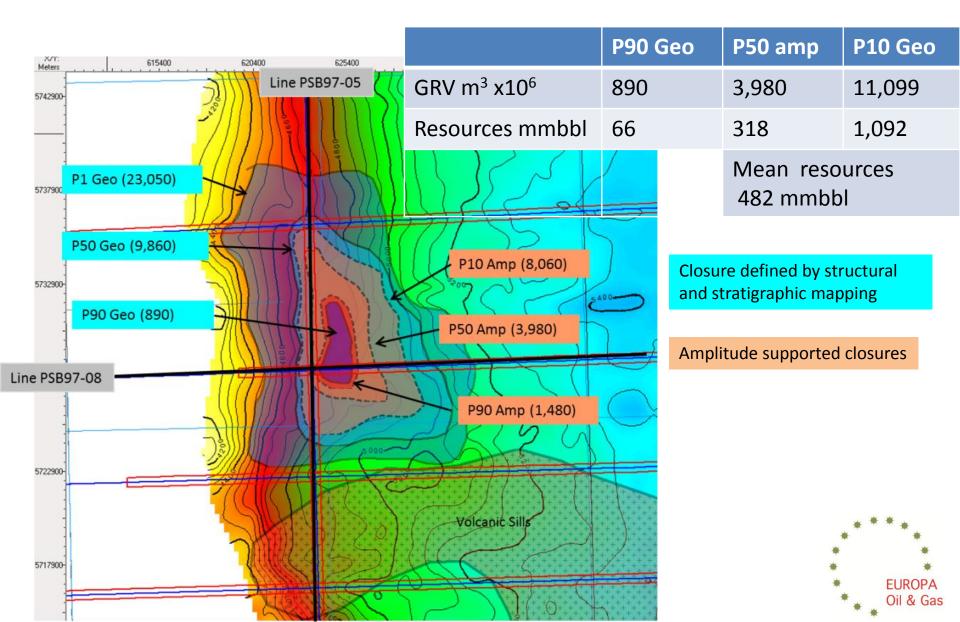
# Analogues- African transform margin



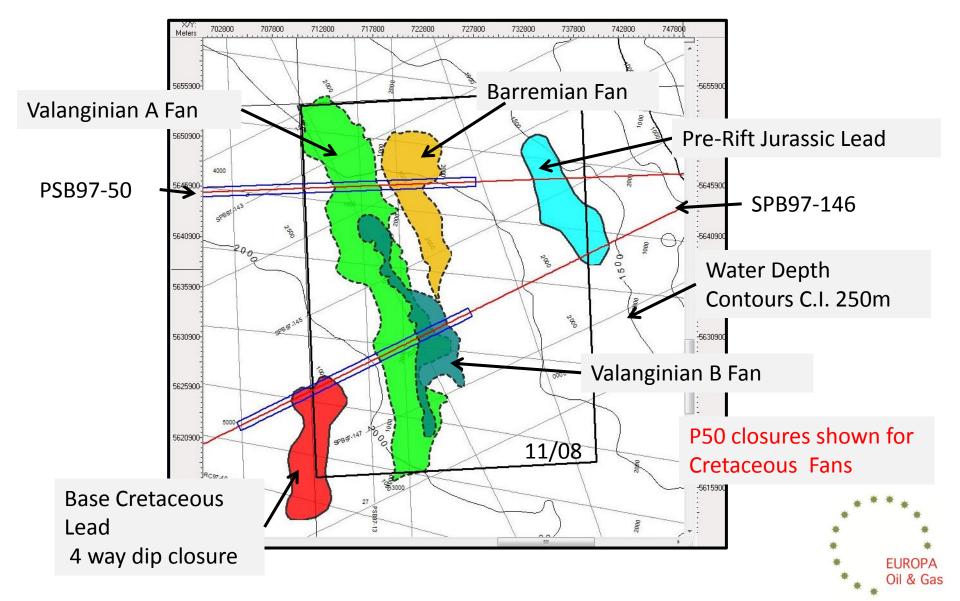
Cretaceous turbidite sandstones in stratigraphic traps



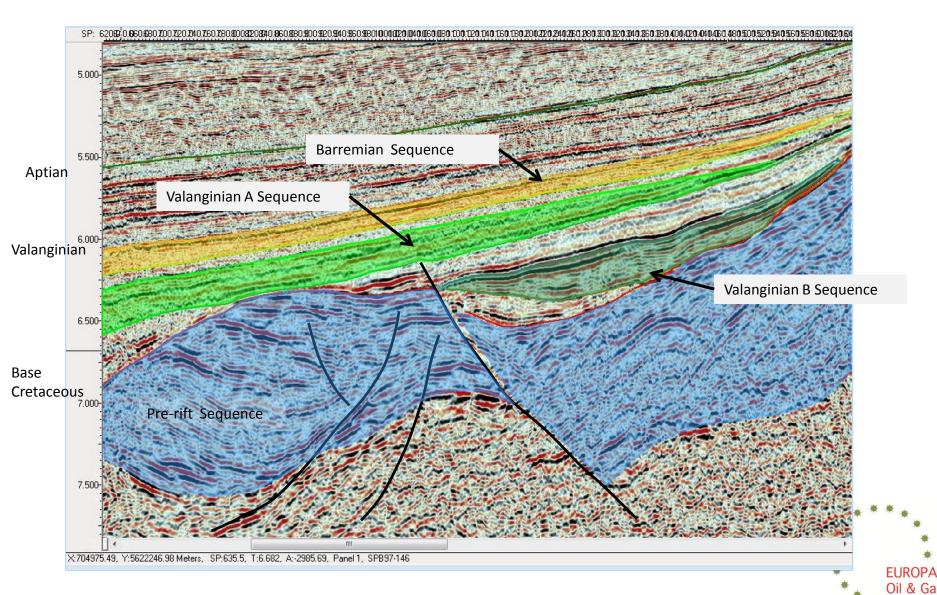
### Mullen Volumetrics and Resources



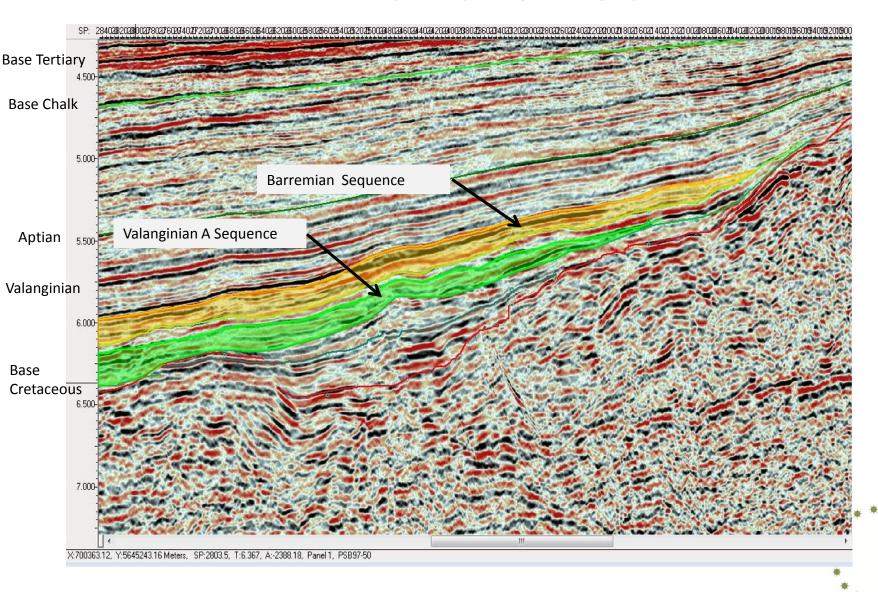
# 11/08 Kiernan prospect and Leads



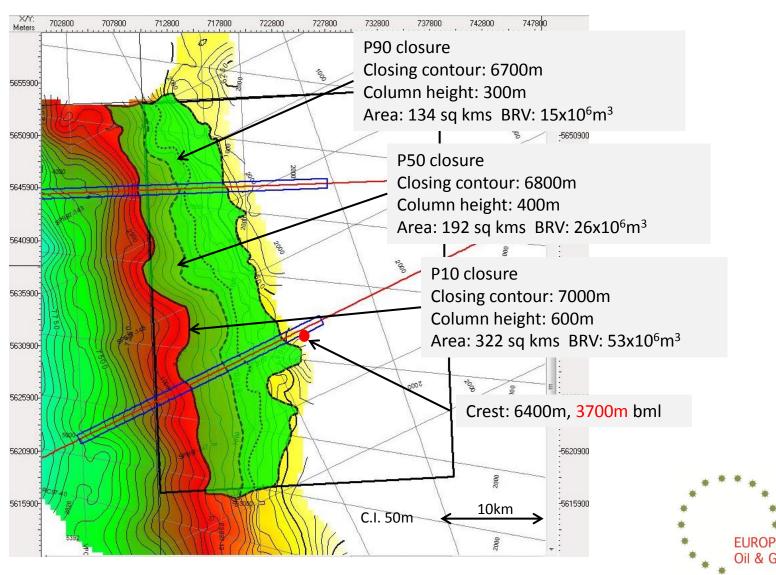
# Line SPB97-146



# Line PSB97-50

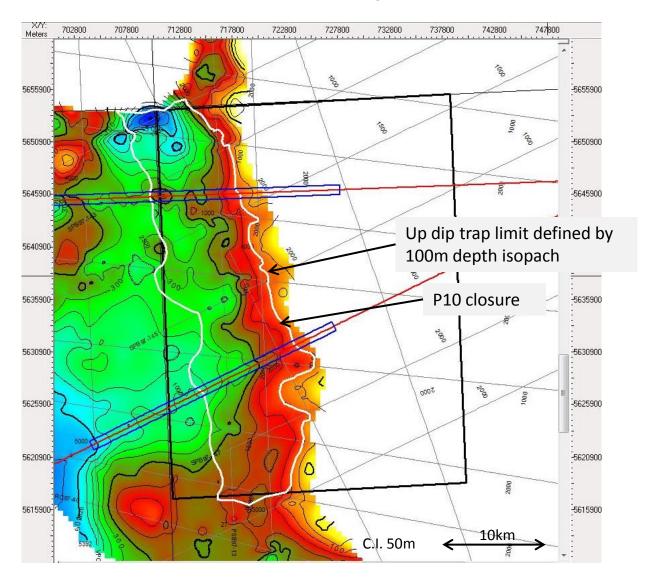


# Top Valanginian A Fan Depth map (m) with P10-P50-P90 closures



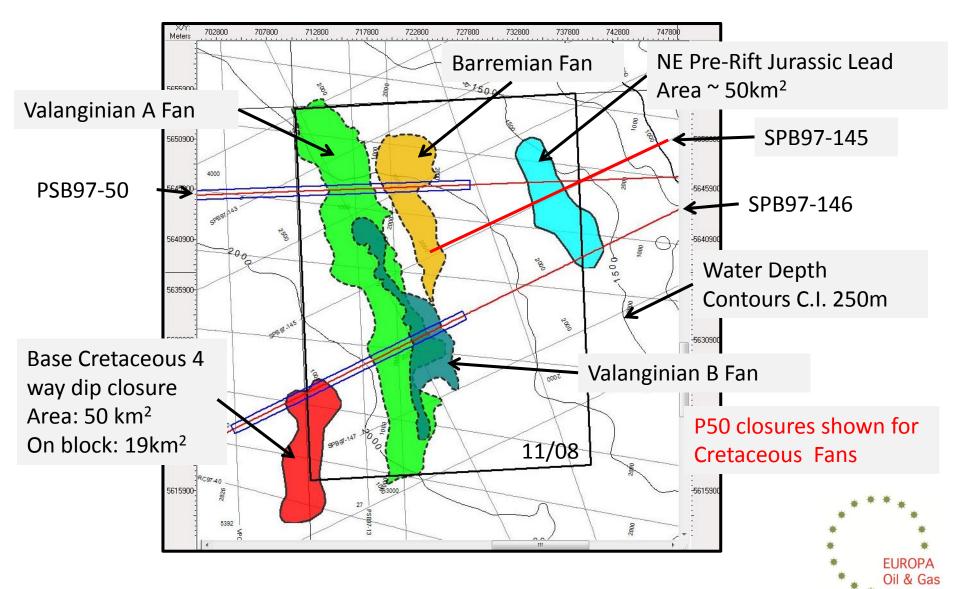
#### Top Valanginian A Depth map (m) with P10-P50-P90

### closures + Fan isopach map

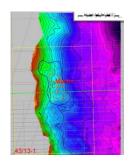




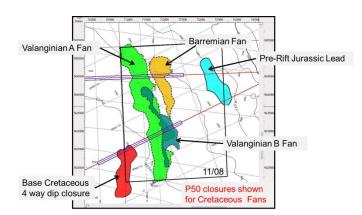
# 11/08 Prospects and Leads



# Prospectivity



Western Tranche "Mullen" with 0.5 billion bbl mean unrisked reserve



Eastern Tranche
"Kiernan" with 1.6
billion boe\* mean
unrisked reserve

Oil Case

Licence	Lead	Reservoir	Water	Reservoir	Resources				
			Depth	Depth	P90	P50	P10	Mean	
			m	mbml	mmbbl	mmbbl	mmbbl	mmbbl	
Western	Mullen	Aptian	1000	2850	66	318	1092	482	
Eastern	Kiernan	Valanginian A	2000	4400	189	712	2063	977	
Eastern	Kiernan	Valanginian B	2000	4700	29	130	710	280	
Eastern	Kiernan	Barremian	1800	3700	78	269	746	355	
TOTAL								2094	

\*Note that for Mullen and Kiernan Barremian prospects the most likely hydrocarbon is oil.

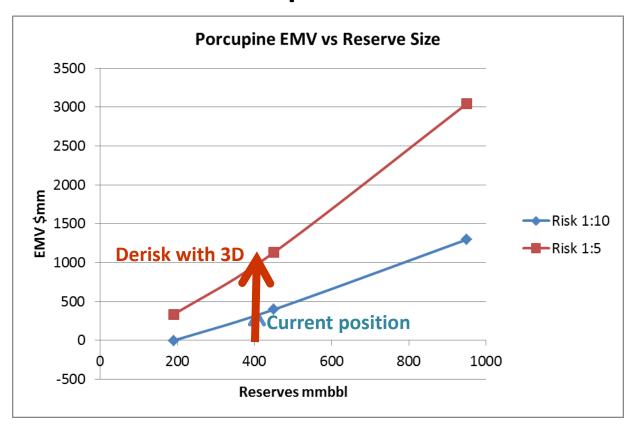
Gas Case

Licence	Lead	Reservoir	Water	Reservoir	Resources				
			Depth	Depth	P90	P50	P10	Mean	
			m	mbml	Bcf	Bcf	Bcf	Bcf	
Western	Mullen	Aptian	1000	2850	275	1280	4151	1970	
Eastern	Kiernan	Valanginian A	2000	4400	1500	4700	11500	5800	
Eastern	Kiernan	Valanginian B	2000	4700	200	900	4700	1900	
Eastern	Kiernan	Barremian	1800	3700	600	1800	4600	2300	
TOTAL								11970	

For the Kiernan Valanginian Fan A&B the most likely hydrocarbon is gas



# Prospect Reserve Size Cut-off for Porcupine Basin



Basin immaturity (and risks) suggests minimum drillable prospect size is around 200 mmbbl despite lenient fiscal regime

# De-risking

- Objective mature prospect to drillable status
- Further work:
  - Undertake more reprocessing of existing 2D to support geophysical studies
  - Ongoing rock physics and AVO studies on 2D data
  - Acquire state of the art 3D seismic dataset
  - Aim to de-risk prospect through conformance, flat events and AVO.
- Other sources
  - Technical success at Dunquin may help de-risk source rock elements
  - Drilling of Cretaceous stratigraphic traps elsewhere in the Atlantic region may contribute new insights



# Summary

- South Porcupine Basin, offshore West Ireland underexplored frontier basin
- Europa has 100% equity in two licences: L0 11/7 and LO 11/8
- Two prospects with potential to host large volumes of hydrocarbons in Cretaceous stratigraphic traps
  - 11/7 Prospect Mullen 482 mmbo mean unrisked indicative resources
  - 11/8 Prospect Kiernan 1.6 billion bbls aggregate mean unrisked indicative resources
- Seeking a joint venture partner or partners to share seismic acquisition and (if justified) drilling
- Data room opened on 28 January 2013
- Possibility of joining a 3D seismic programme in 2013 and getting a rig slot in 2015
- Priority will be given to joint venture partners who have the ambition to accelerate exploration



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