

# Deep Penobscot, An Analogue to Deep Panuke – Are more Jurassic Reefs Lurking Offshore Nova Scotia?

Dr. Robert K. Merrill  
Kevin B. Hill  
August 24, 2012

 AMMONITE NOVA SCOTIA CORPORATION

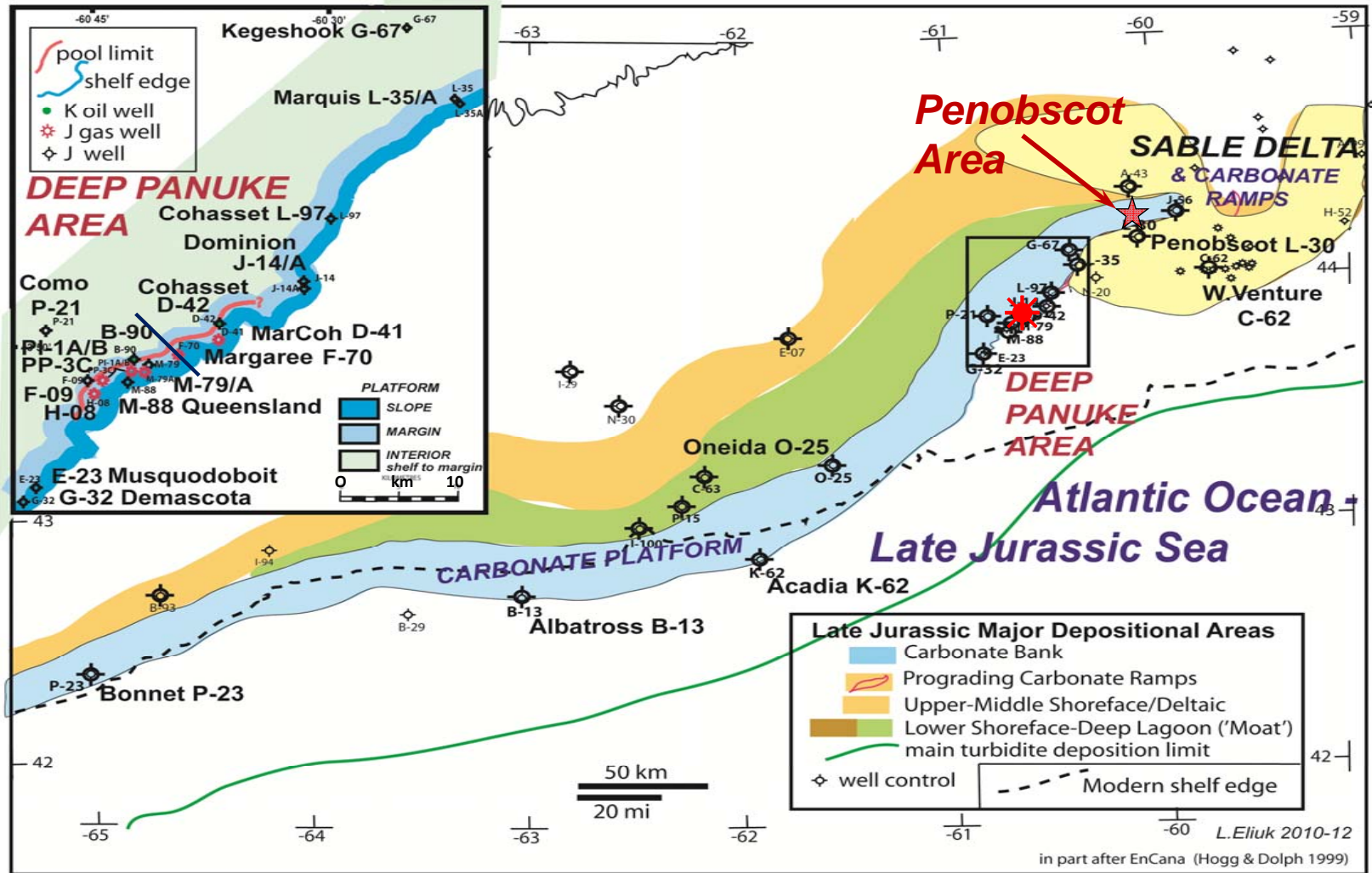
Halifax

285 km

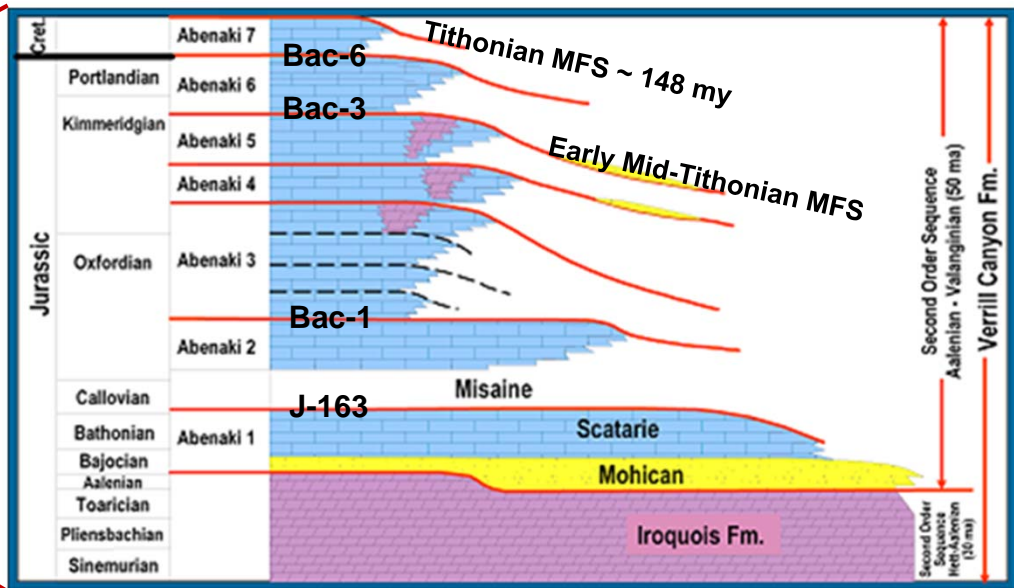
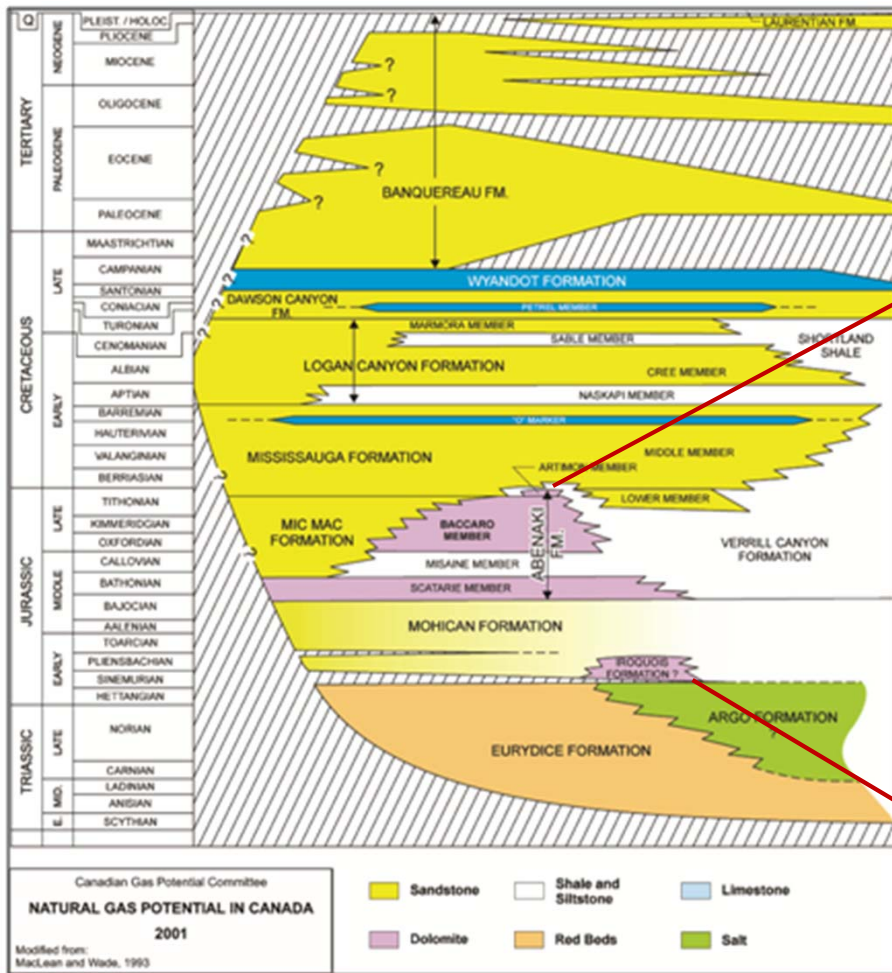
EL #2417



# Late Jurassic Deposition, Scotian Shelf

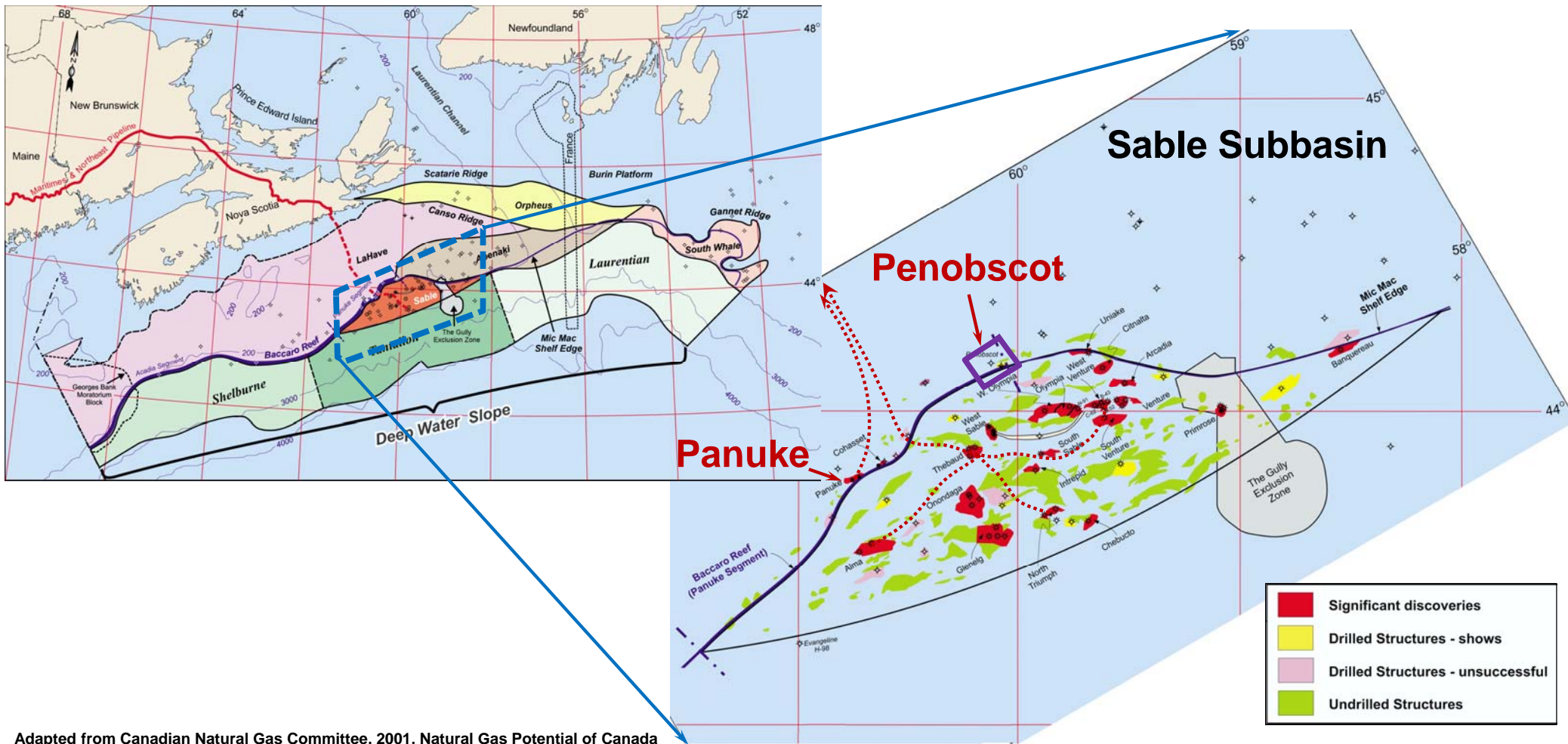


# Jurassic Baccaro Reef Stratigraphy



Modified from: Deep Panuke Development Plan – EnCana 2006

# Where are we?



# Deep Panuke Field

NW

SE

F-70

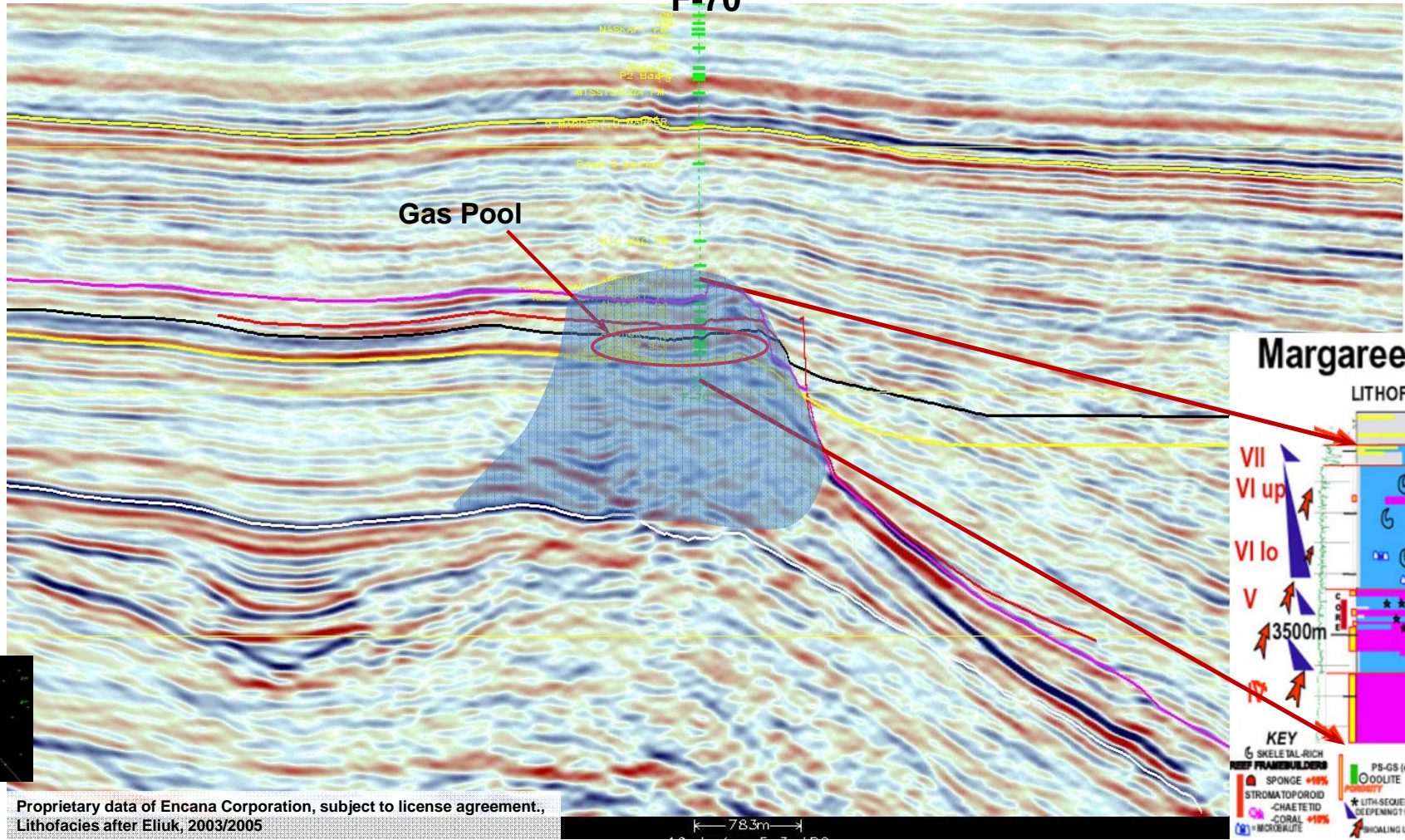
O Marker

L. Missisauga

Gas Pool

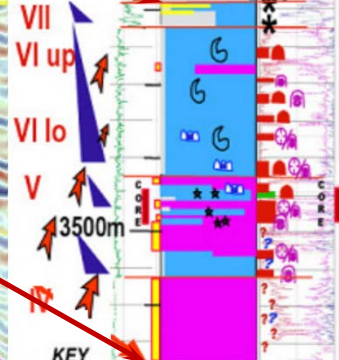
Top Carbonate  
Abenaki 5  
Abenaki 4

Scatarie



Margaree F-70

LITHOFACIES



**KEY**  
 SKELETAI-RICH REEF FRAMEBUILDERS  
 SPONGE +10%  
 STROMATOPOROID  
 CHAETETID  
 CORAL +10%  
 MICROALITE  
 PS-GS (echinoderm OOLITE)  
 LITHO-SEQUENCE BREAK (DEEPENING UPWARD)  
 SHOALING UPWARD

Proprietary data of Encana Corporation, subject to license agreement.,  
Lithofacies after Eliuk, 2003/2005

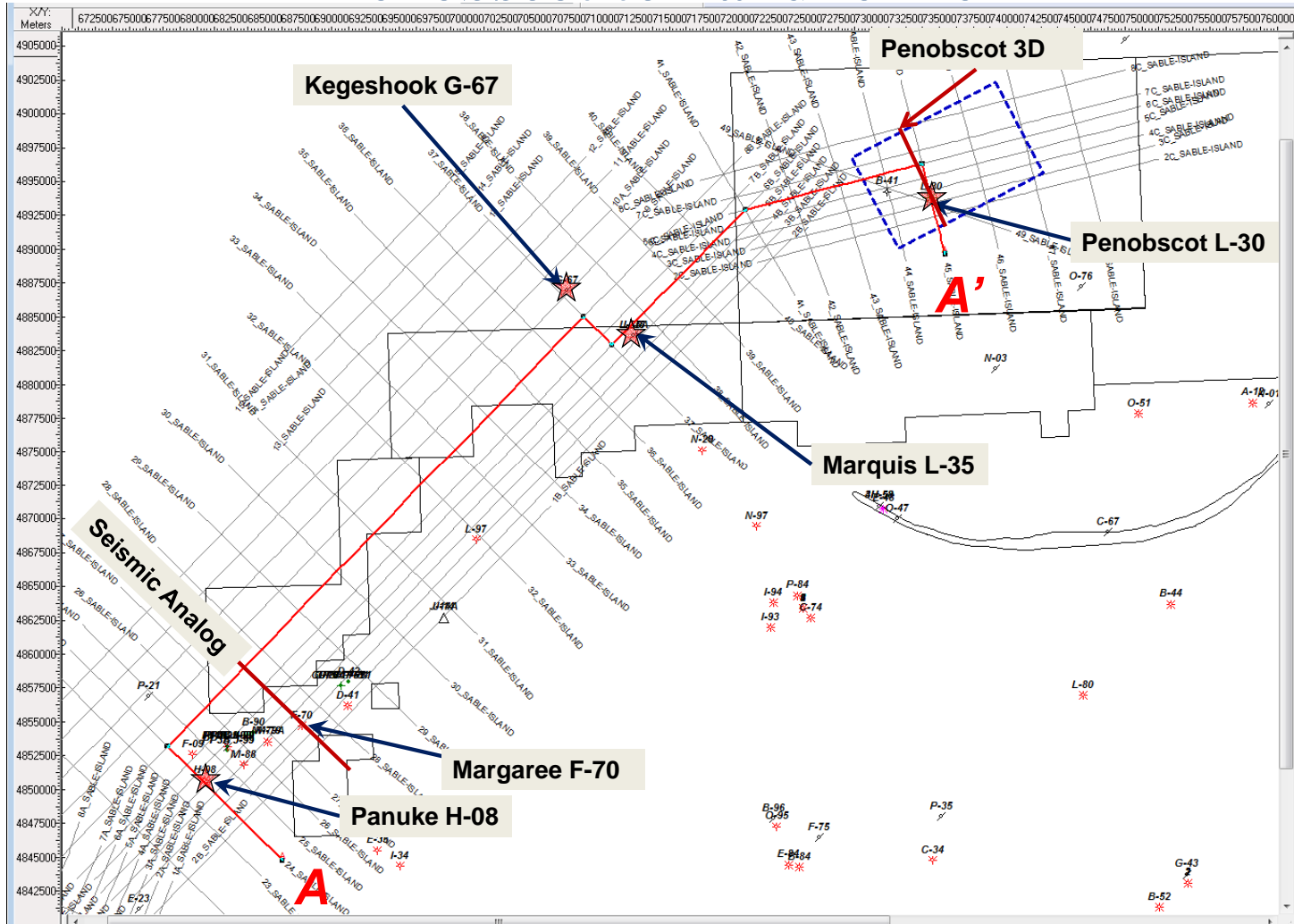
78.3m



August 2012

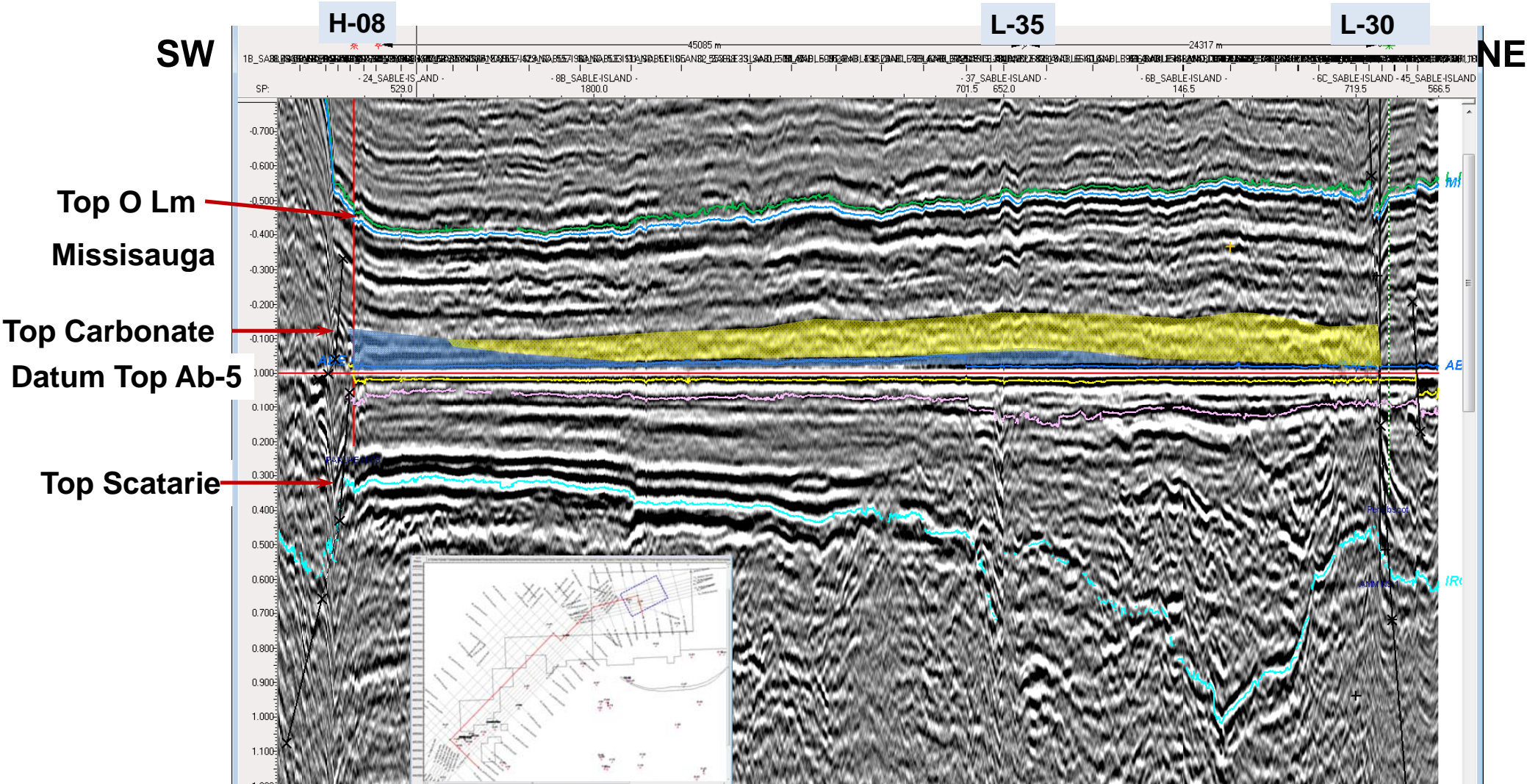
3rd Annual Conjugate Margins Conference, Dublin 2012

# Penobscot to Panuke Tie



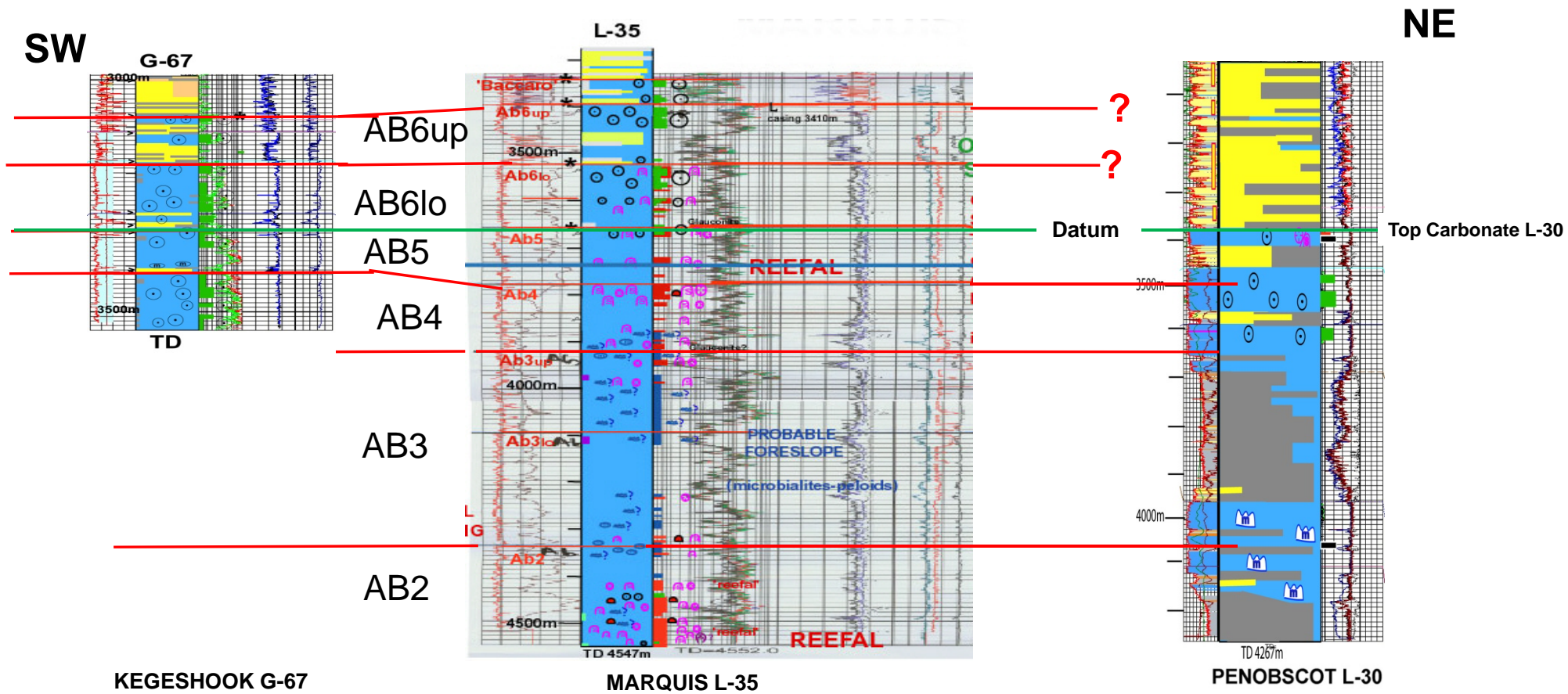


# Deep Panuke to Penobscot Flattened on Ab-5





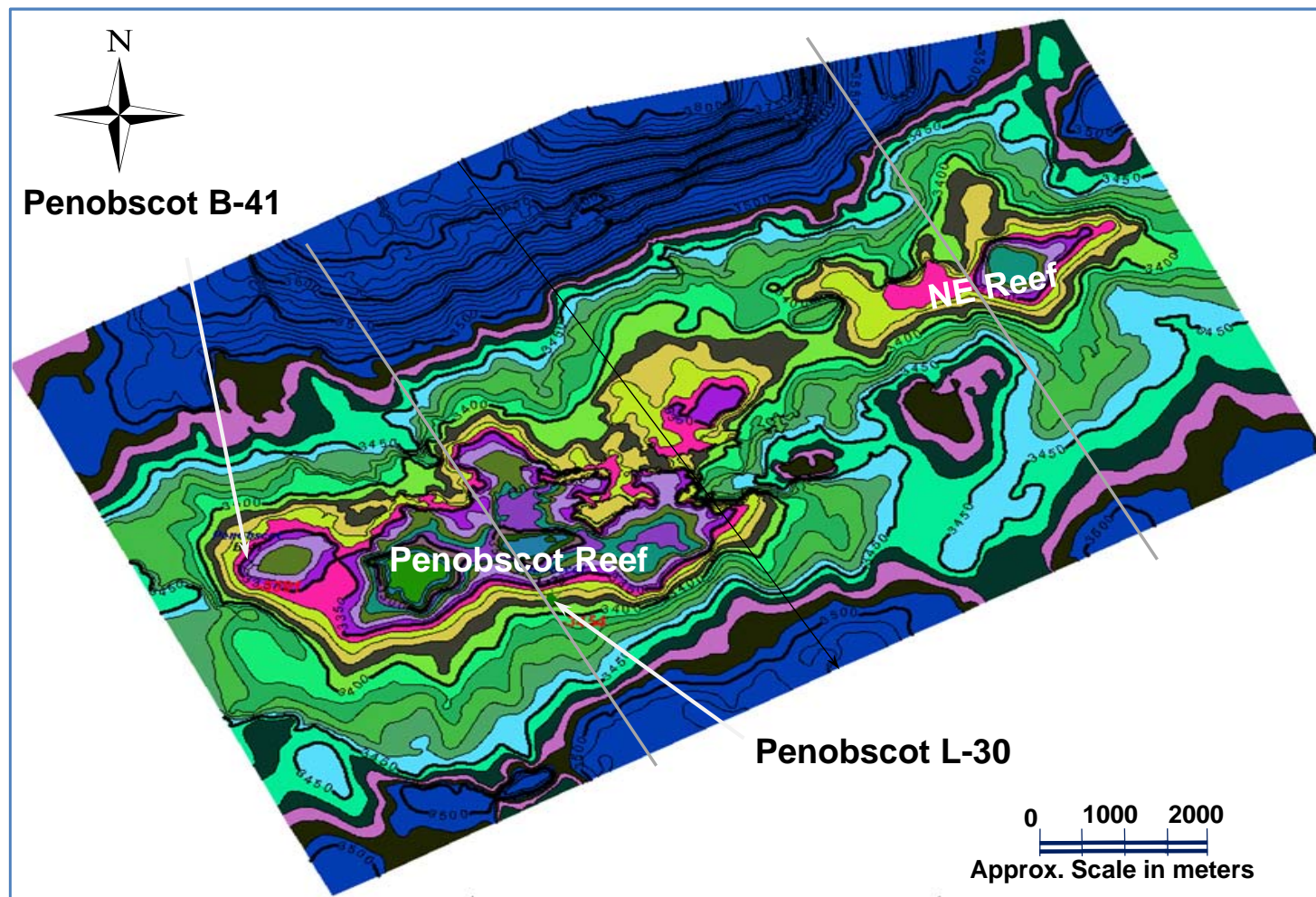
# Kegeshook G-67 - Marquis L-35 - Penobscot L-30 Stratigraphy



# Penobscot Abenaki Reef Structures

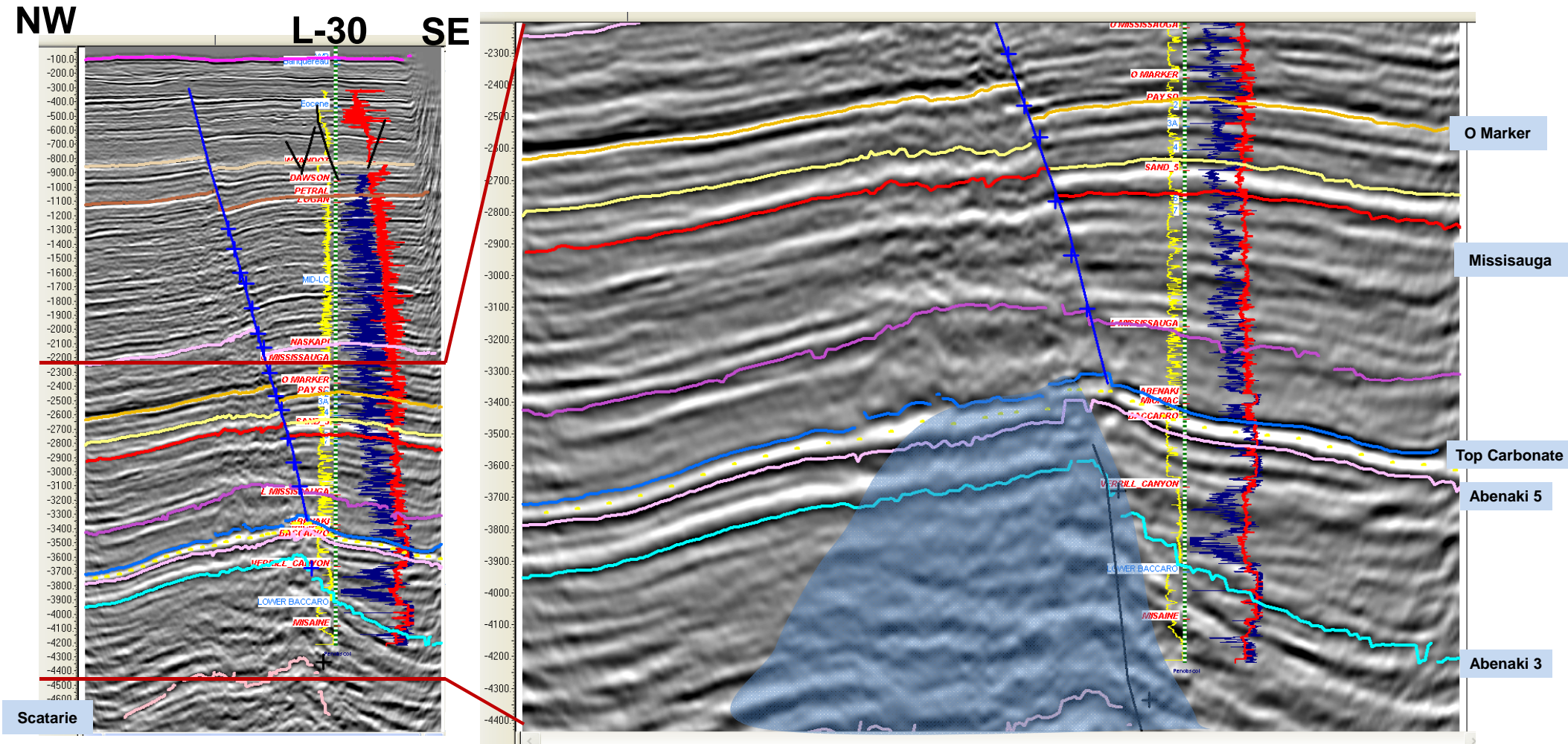
Mean Recoverable Resource

1.1 TCF

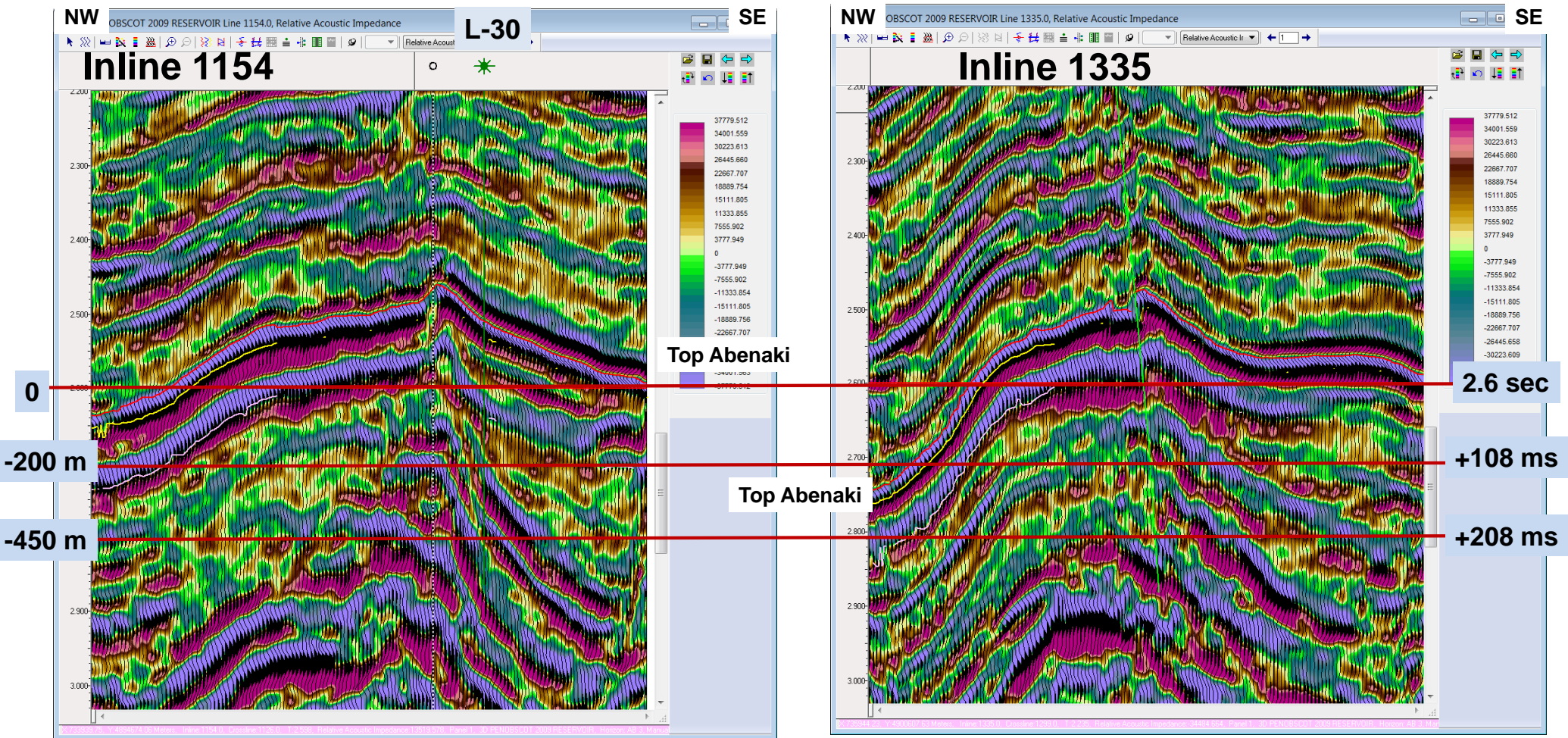


# Penobscot PSDM

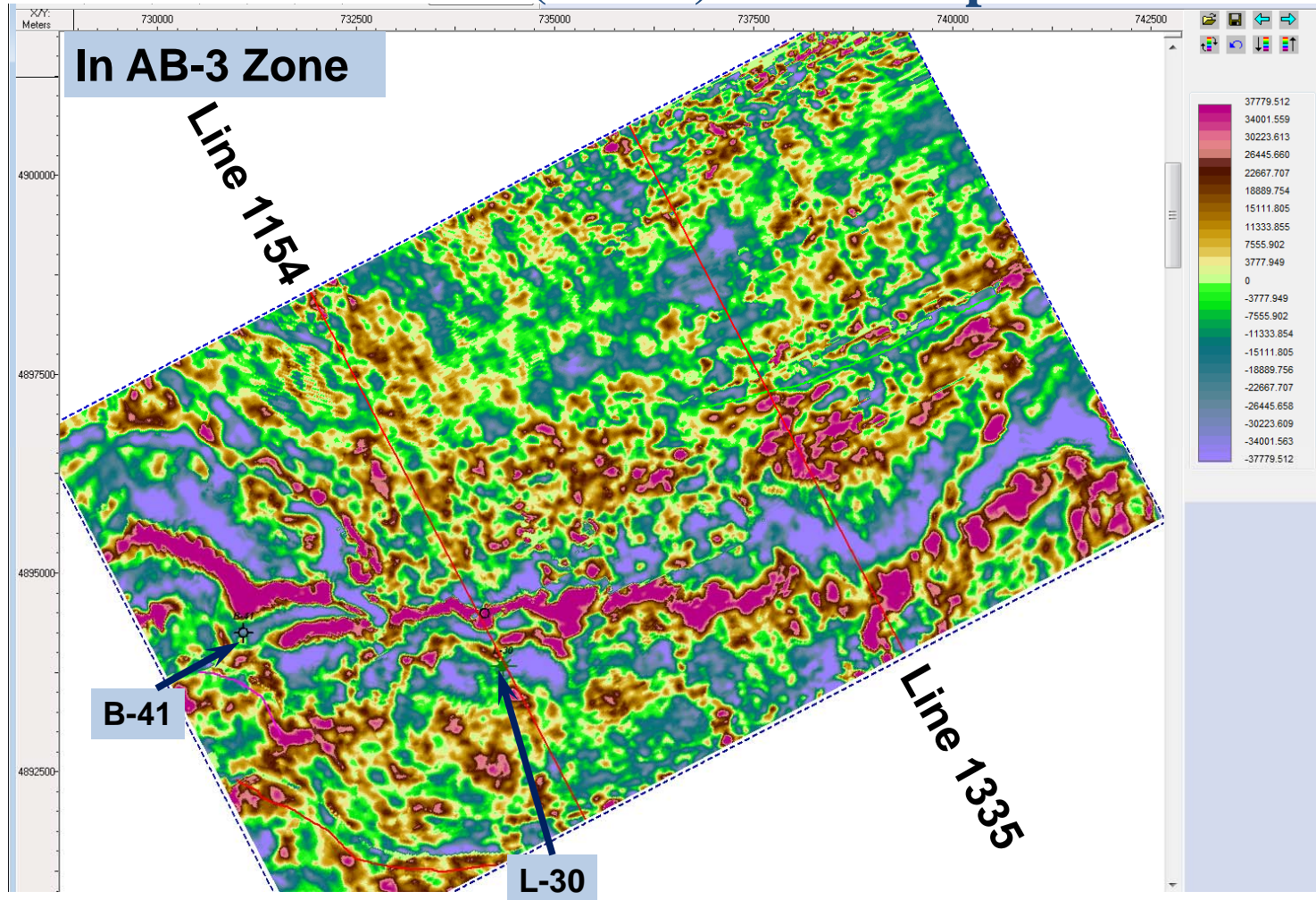
# Well L-30



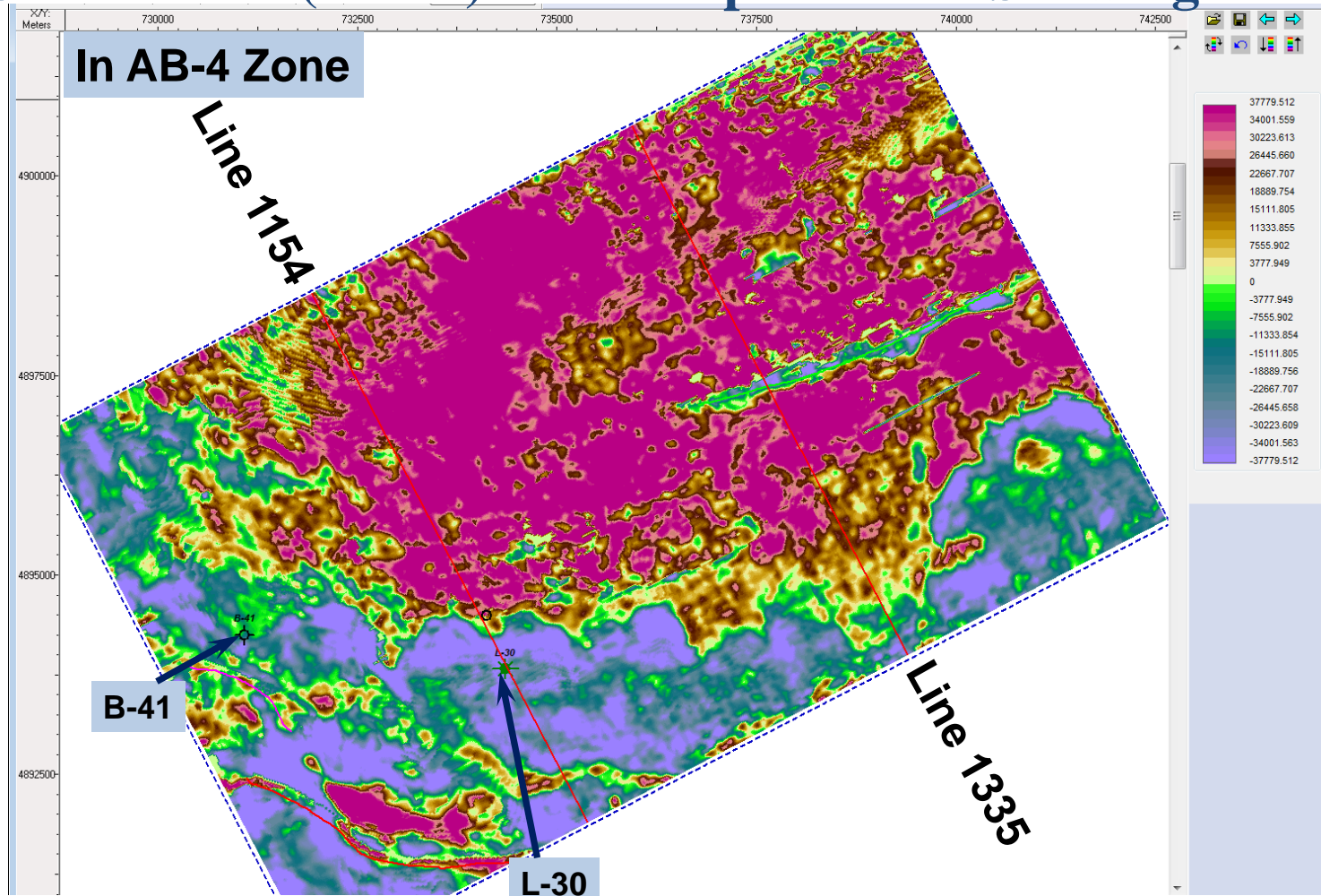
# Relative Acoustic Impedance Seismic through Reefs



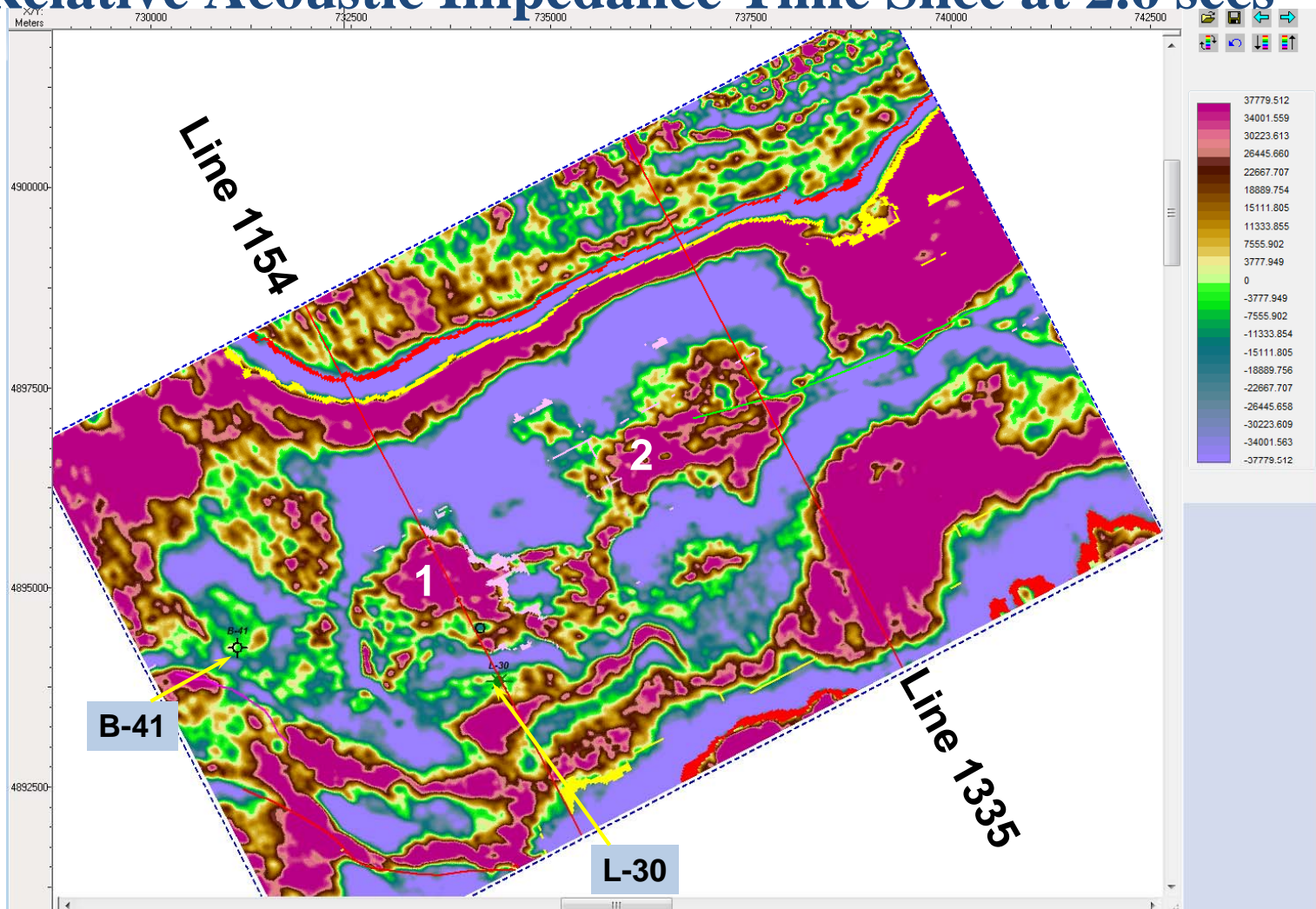
# Relative Acoustic Impedance Flattened on Top Abenaki Time Slice 208 ms (450 m) below Top Abenaki



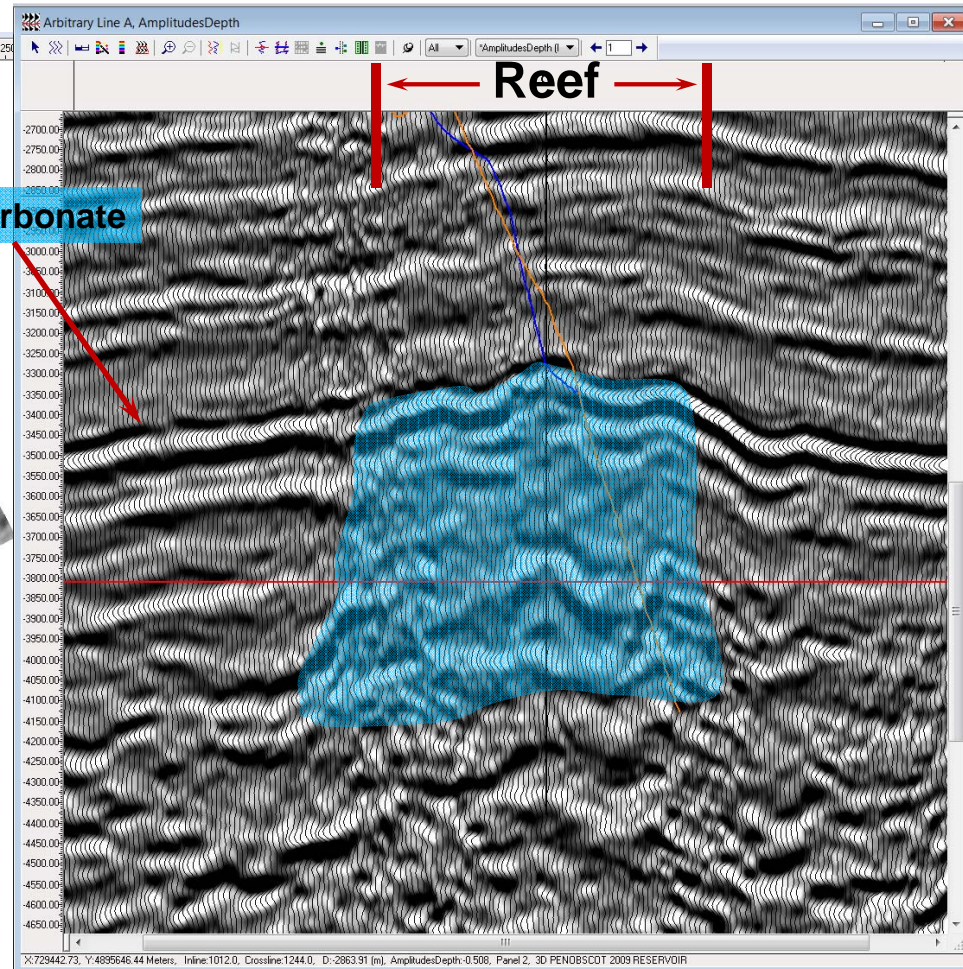
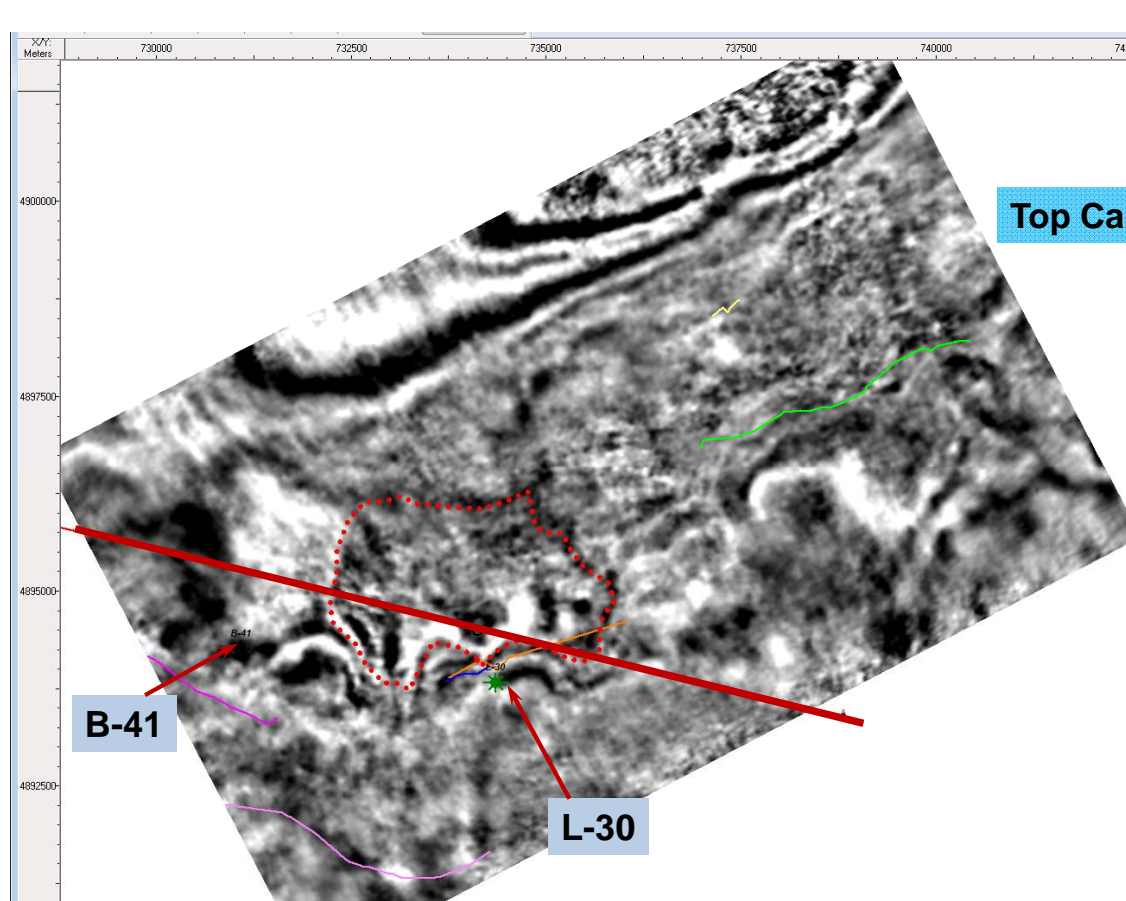
# Relative Acoustic Impedance Flattened on Top Abenaki Time Slice 108 ms (200 m) below Top Abenaki Showing Reef Front



# Relative Acoustic Impedance Time Slice at 2.6 secs

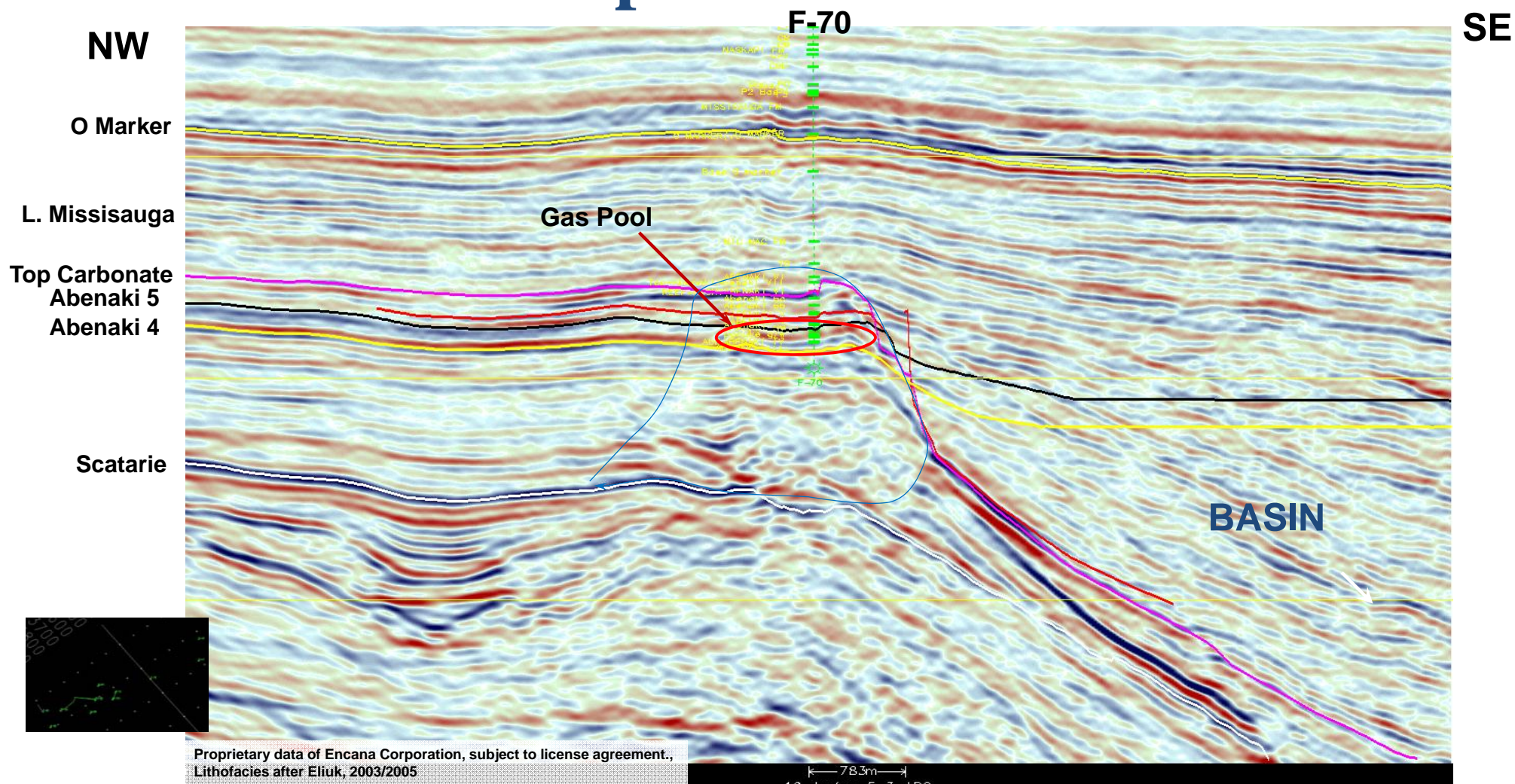


# Penobscot Reef Development: Depth Slice at 3810 m

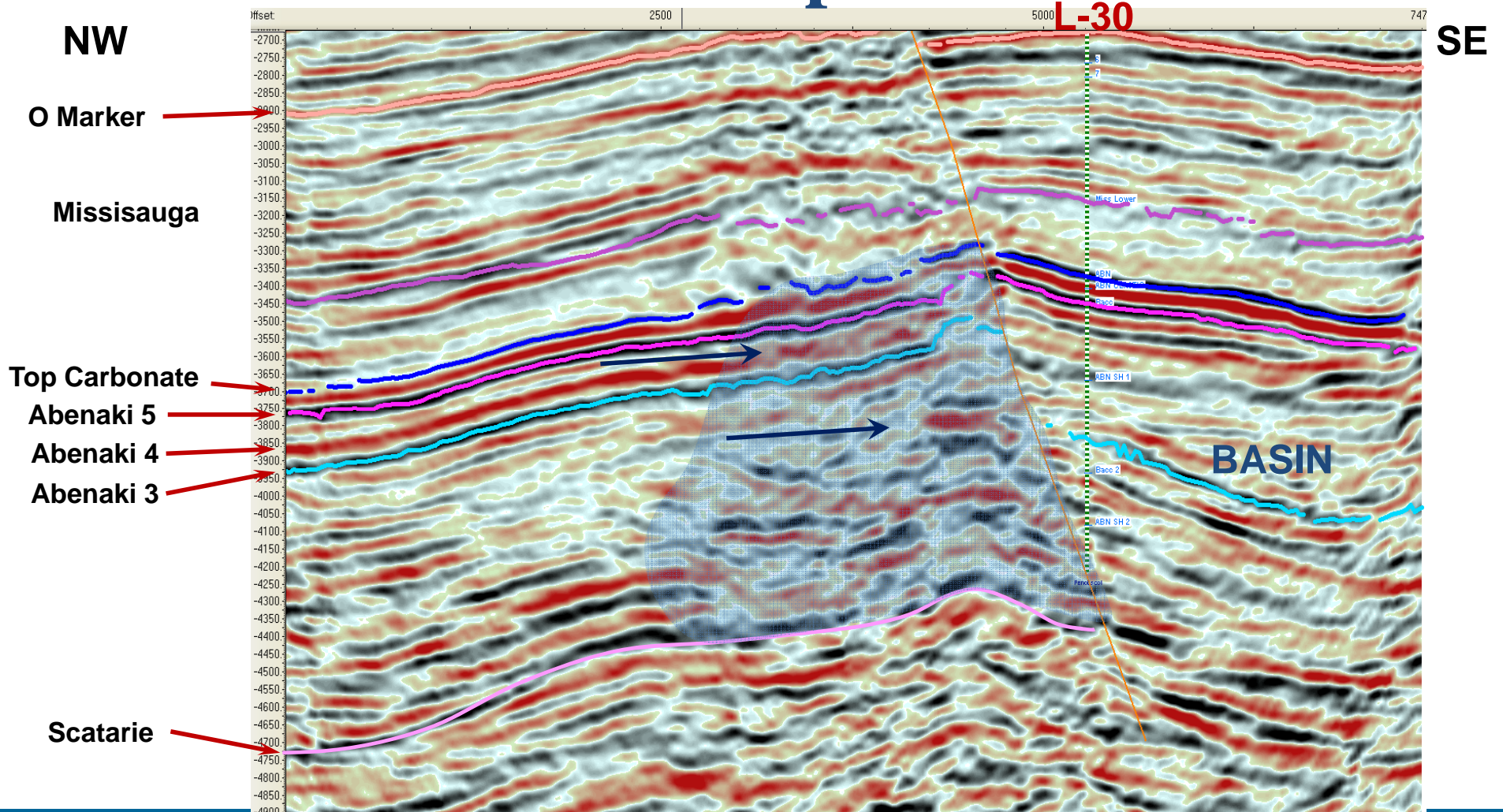




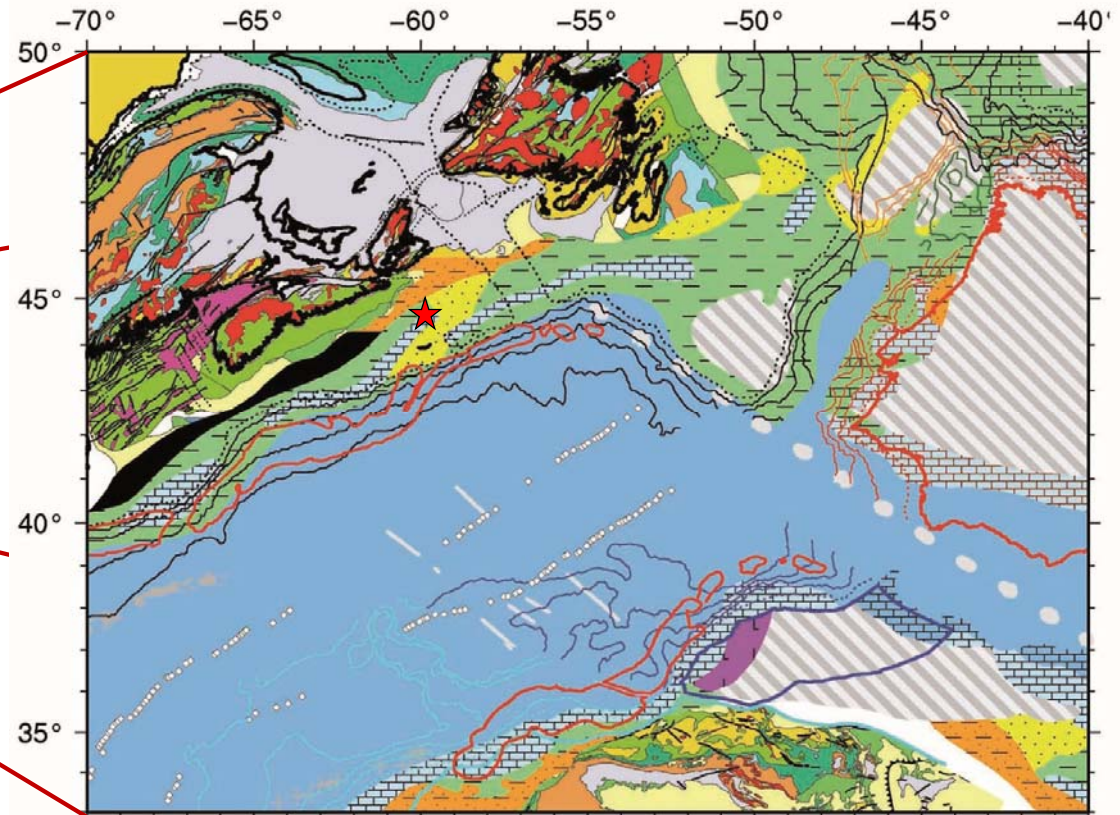
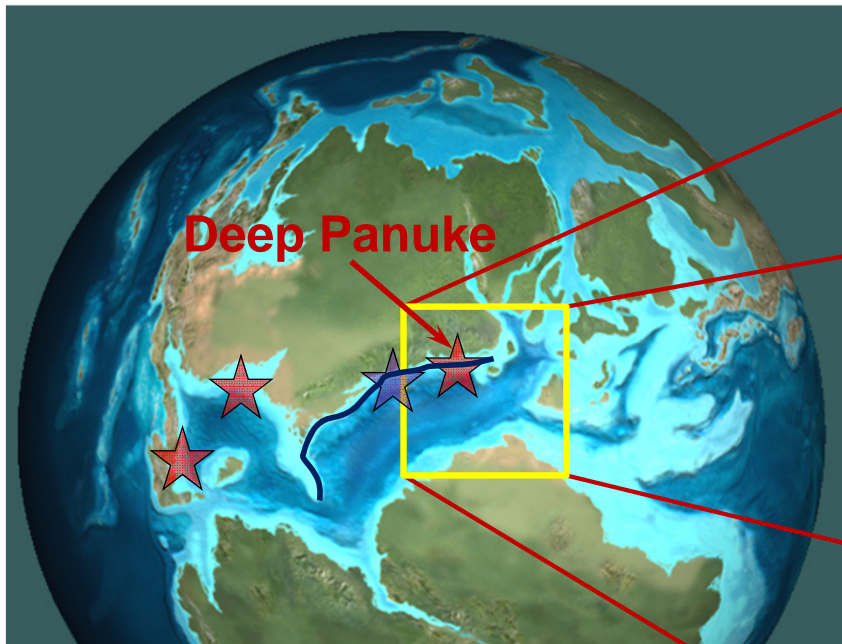
# Deep Panuke Reef






# Penobscot Reef Amplitude Anomalies



# Jurassic Atlantic about 150 ma



From: Sibuet, Jean-Claude, Rouzo, S., and Srivastava, S., 2011, Paleogeographic maps of the central and North Atlantic oceans: Search and Discovery Article #30196,

-  Commercial Hydrocarbons
-  Late Jurassic Carbonate
-  Late Jurassic Carbonate Bank

Adapted from: Blakely, R., <http://jan.ucc.nau.edu/~rcb7/globaltext2.html>

## Summary

- **Seismic suggests Penobscot Reef has porosity, likely associated with dolomitization**
- **Porosity is independent of the age of the carbonates and associated with faults**
- **Likely source rock for the hydrocarbons is Jurassic**
- **Migration pathways and seal are critical elements to consider**
- **More productive Jurassic reefs are likely “lurking” on the Atlantic Margin**

# Deep Panuke is not Alone!

Thanks to:

Skip Hobbs  
Les Eliuk & Grant Wach  
John Hogg  
CNSOPB  
Nova Scotia DOE  
Encana  
OETR

Halifax

285 km

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