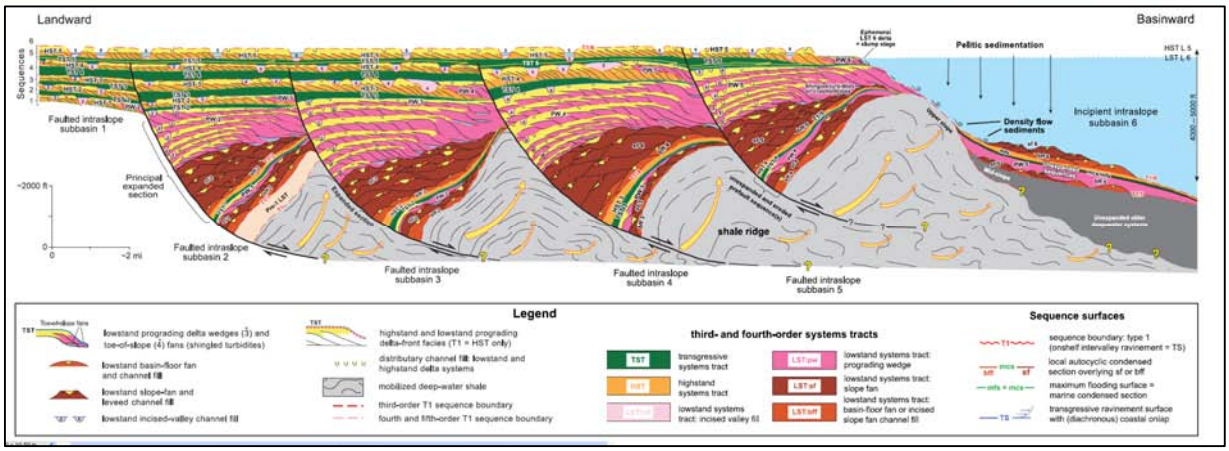
Basinal settings for reservoir assessment

Tracing hydrocarbon sources (source or host rocks) within a basinal setting requires high resolution chronostratigraphy, as basin histories are hardly ever single stage developments. Majority of cases reveal a multi stage, long-term history, controlled by complex tectonics. As a result a suite of sub-basins may have to be dealt with, all of which are of different age but of similar lithological character, as sediments have been deposited under similar basinal and tectonic configurations. High resolution chronostratigraphy may be obtained by a thoroughly conducted sequence stratigraphical analysis of for example extant seismic data and tested by sensitive biostratigraphic marker horizons or Sr-stratigraphy in Cenozoic sediments.

High potential petroleum reservoirs related to basin forms include deposits laid down as gravity flows e.g. turbidites deposited in periods of low sea level (known as lowstand wedges of Lowstand System Tracts). Respective interpretations from seismic images of deeply buried strata can be tested by geological investigation of similar formation sequences in better accessible, e.g. younger/older sub-basins, which had developed in a similar architectural basinal setting. By analysing these similar sediment packages, assessments can be made and may confirm or rule out the interpretation drawn from the seismic data ("forward modelling").



This cross-section shows sets of five parasequence units of third and fourth order systems tracts deposited subsequently under similar basinal conditions. The lowstand wedges deposited within these faulted intraslope settings are important target locations for possible hydrocarbon plays due to the suitability of gravity flow deposits as hydrocarbon reservoirs and the trapping by syndepositional faulting and superjacent seal rocks of the prograding delta facies.

Corex offer the following services for this purpose:

- Field mapping
- Core logging
- Thin section analysis
- Interpreting geochemical data (e.g. XRD, stable isotopes)
- Bio-Sr-stratigraphy