Relinquishment Report PL 670

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1 Key license history

The production License 670 was awarded to Spring Energy Norway AS (30%, operator), Centrica Resources AS (25%), Faroe Petroleum AS (25%) and Concedo ASA (20%) in the APA 2012 which became effective the 8th of February 2013. The license group was awarded an extension for additional acreage in the APA 2013 which became effective 7th of February 2014, named PL 670B. The milestone deadlines were aligned with PL 670 and the naming 'PL670' will be referring to both PL670 and PL670B in this relinquishment report. The license covers part of blocks 7/11 and 7/12, see Fig. 1.1.

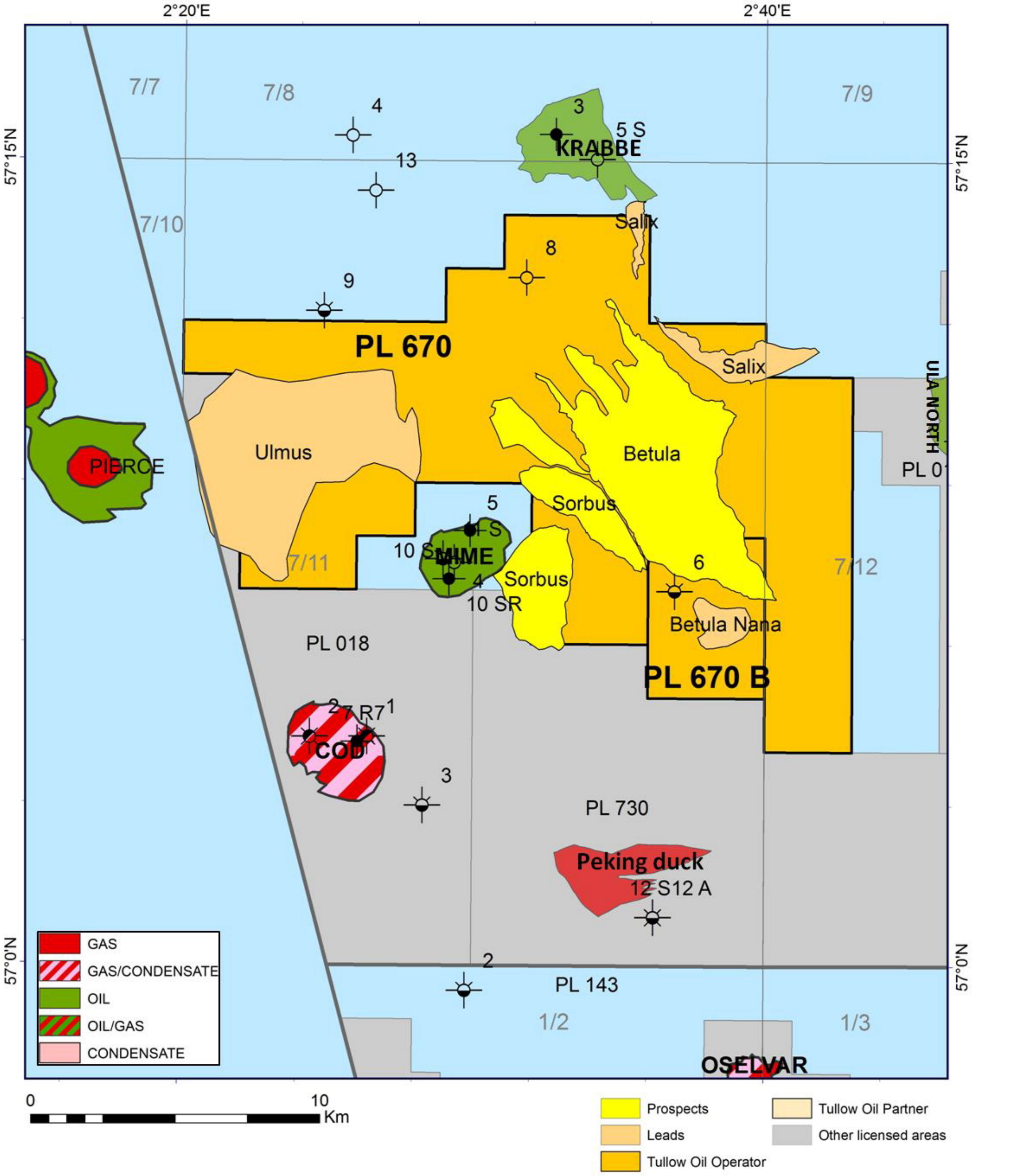

Fig. 1.1 Overview of the updated prospectivity in PL670

The 22nd of January 2013 Tullow Oil plc. announced the completion of its acquisition of Spring Energy Norway AS, and therefore the operator from this date became Tullow Oil Norge AS.

The work commitment of the license included purchase and reprocessing of 3D seismic data, and to perform relevant geological and geophysical studies, to make a DoD decision before 8th of February 2016.

The reprocessing project of 640 km2 3D seismic data was initiated October 2013 with WesternGeco; 5 datasets from CGG (MC Cornerstone) and 1 dataset from PGS (MC BPA9901) was included. A PSDM processing sequence was run which resulted in several seismic volumes, both in time and depth, covering the identified prospectivity in the license. The project finalized February 2015. This delay was the main reason for the license to apply for, and be granted, an extension of one year of the milestone deadlines. To be able to de-risk the prospectivity the license did an simultaneous elastic inversion with CGG and an internal rock physics study. Two induced polarity (IP) lines were purchased from ORG Geophysical, primarily for evaluation of this new exploration tool. As the technology and results so far is poorly understood, [redacted]

There were conducted geological studies; biostratigraphic evaluation study of selected wells and petrographic, diagenetic and reservoir quality assessment of core samples by Ichron, geochemical study by Prof. Dag Karlsen and in-house core and petrophysical studies of key wells were performed by Tullow. All studies are relevant for the understanding of the different aspects of the prospectivity.

Four formal combined EC/MC meetings have been held in the license, and one work meeting (EC members only). Minutes and/or presentations from the meetings are found on L2S.

The results of prospect evaluation and maturation based on the interpretation of the new 3D seismic data in combination with the geological studies, has concluded that the probability of proving commercial quantities of hydrocarbons is too low to justify a decision to drill an exploration well.

A unanimous decision to relinquish the licence was taken by the Management Committee, and the Ministry of petroleum and Energy was notified by letter dated 05.01.2016

2 Database

Seismic database

The work commitment for PL670 was to purchase and re-process 3D seismic data covering the licence. The license group purchased 640 km2 of field data summer 2013, consisting of the CGG Cornerstone and the BPA9901 surveys. The reprocessed seismic data is named TUN14M01 (Fig. 2.1). The TUN14M01 has formed the base for all technical work with multiple geophysical data products; angle stacks, simultaneous elastic inversion and rock physics litho-cubes. In addition, we have looked at results from two IP lines that crosses the Betula prospect and partly the Ulmus lead (Fig. 2.1).

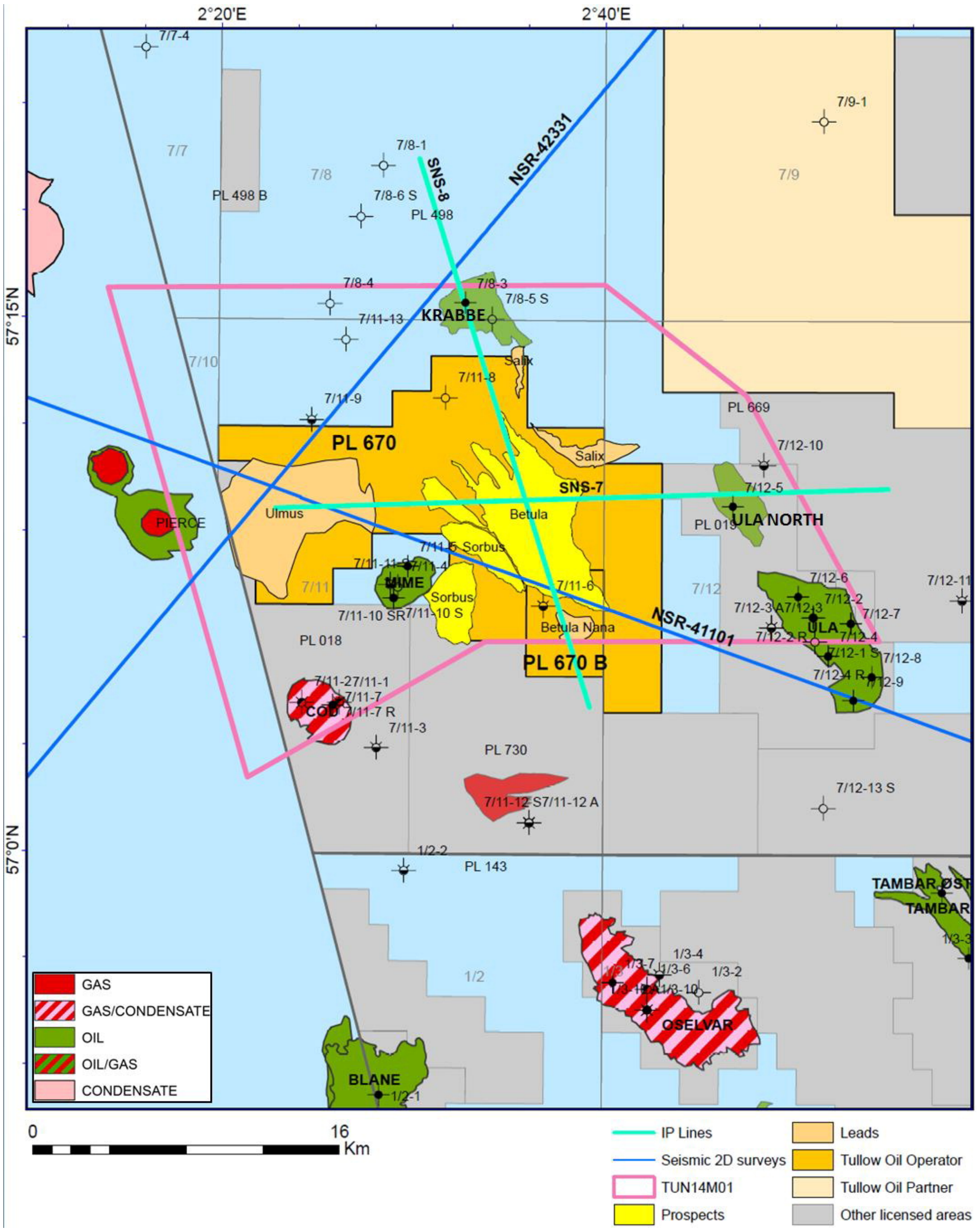

Fig. 2.1 Geophysical database

Well database

The wells used to evaluate the prospectivity of the PL670 are listed in Table 2.1

Table 2.1 Well database

Wells (Discovery)	Wellbore content	Operator	Spud year	T.D (mRKB)	Age at TD	Additional
7/8-3 (Krabbe)	Oil	Conoco Norway	1983	4320	Late Permian	Petrophysical evaluation
7/8-4	Dry	Conoco Norway	1984	4398	Triassic	Petrophysical evaluation
7/8-5S (Krabbe)	Dry	Talisman Energy Norge	2006	4168	Triassic	
7/11-5 (Mime)	Oil	Norsk Hydro Produksjon AS	1982	4478	Triassic	Petrophysical evaluation
7/11-6	Shows	Norsk Hydro Produksjon AS	1982	4500	Triassic	Petrophysical evaluation
7/11-7 (Cod)	Oil	Phillips Petroleum Norway	1982	4661	Late Permian	
7/11-8	Dry	Norsk Hydro Produksjon AS	1983	4750	Triassic	Petrophysical evaluation
7/11-9	Shows	Norsk Hydro Produksjon AS	1985	4271	Early Triassic	Petrophysical evaluation
7/11-12S & A (Peking Duck)	Gas	ConocoPhillips Skandinavia AS	2011	5466	Triassic	Petrophysical evaluation/ traded well from operator
7/12-2 (Ula)	Oil	BP Norway Limited U.A.	1976	3676	Early Jurassic	
7/12-3	Dry	BP Norway Limited U.A.	1977	3686	Late Jurassic	
7/12-4 (Ula)	Oil	BP Norway Limited U.A.	1977	3621	Early Jurassic	
7/12-5 (Ula)	Oil	BP Norway Limited U.A.	1981	4440	Late Permian	
7/12-7 (Ula)	Oil	BP Norway Limited U.A.	1988	3852	Late Jurassic	Petrophysical evaluation
7/12-9 (Ula)	Oil	BP Norway Limited U.A.	1990	3820	Triassic	
7/12-10	Oil Shows	BP Norway Limited U.A.	1991	3667	Triassic	
7/12-12S	Dry	BP Norway Limited U.A.	1995	6079	Triassic	Petrophysical evaluation

3 Review of geological framework

The PL670 is located in the Central Graben on the north-western part of the Cod Terrace (Fig. 3.1). In the north, the Cod Terrace is bordered by a major fault system towards the Jæren High.

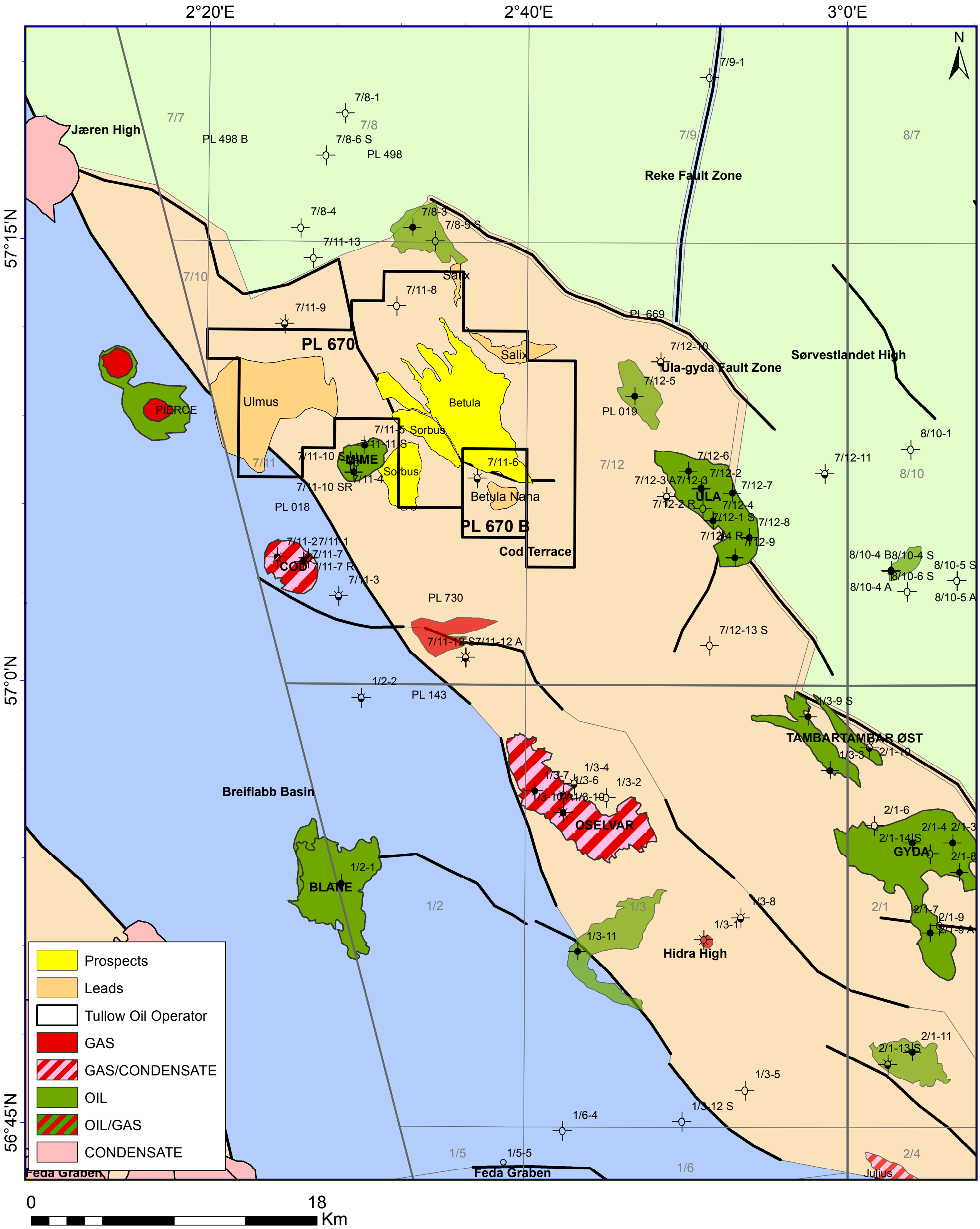

Fig. 3.1 Structural elements on the Cod Terrace in the Central Graben

The main prospectivity in the license is related to the Upper Jurassic play system, more specifically within the Ula Fm sandstones. The traditional Ula Fm system is well explored in the region. However, the license present an alternative play concept where Upper Jurassic sands are deposited and preserved in a pod setting, i.e. located on top of thick Triassic succession, most likely eroded from an exposed Triassic pod. It has become more and more apparent through the evaluation process that the drainage area for the Jurassic prospects are not dependent upon a challenging migration pathway, as sufficient local oil charge is modelled.

A Lower Cretaceous sandy basin floor fan system is presented for the Ulmus prospect, analogue to the Ran Fm. A local Triassic pod to the north is eroded and the sediments are interpreted to be deposited in a basin to the south, in between the Mime and Pierce Fields. The Ulmus prospect is deeply buried (4200-4800m) introducing a high reservoir quality risk. No Lower Cretaceous sandstones have been encountered in the nearby wells. The fan downlaps directly on to the Mandal Fm source rock, which would be in an optimal position for charging the prospect. The drainage area lie in gas-condensate maturity window.

The geophysical and geological studies performed after the PL670 was awarded have been important to properly evaluate the prospectivity.

- The seismic data TUN14M01 underwent a PSDM processing by WesternGeco. The seismic products have been important to be able to identify, interpret, evaluate and de-risk the main risk elements, which was partly conceptual in the application. The improvement in the data quality has enabled us to initiate other geophysical studies. The project finalized February 2015.
- To mature the prospects further, the license conducted an simultaneous elastic inversion study with CGG. The aim was to increase resolution for improved map-ability, thickness estimation and lithology prediction of the Ula Fm, but also shed light on the Lower Cretaceous prospectivity. The final report was received September 2015. Based on the inversion data, an internal rock physics study was initiated.
- Two rock physics projects focussed on the lithology prediction using the simultaneous elastic inversion as input for the analysis used to define a set of litho-classes. For the first pass rock physics litho-cube dataset the VpVs inversion turned out not to be reliable. Therefore a new AI classification study to separate different litho-facies (sandstone, shale, limestone) only partly dependent on VpVs was run. The AI-classification-cube is aligned with the seismic interpretation of Ula Fm in much of the license, however not consistently. Much of the explanation for this is the mentioned poor VpVs data necessary to differentiate the litho-facies properly. The rock physic studies were run September to October 2015 internally in the Tullow office in Oslo.
- A biostratigraphic evaluation (palynological) study of selected wells was performed by Ichron Limited. Final report received February 2015
- A petrographic, diagenetic and reservoir quality assessment of core samples from Triassic to Jurassic Ula Fm was conducted by Ichron Limited, final report received January 2015.
- In-house core description and petrophysical studies from key wells were performed during 2014 and 2015.
- The background for the abovementioned geological studies was the need to build a detailed stratigraphic framework for the Upper Jurassic and to evaluate the reservoir quality, which was flagged as key risk in the application due to burial depth. The work has improved the understanding of key factors that control the reservoir quality (porosity/permeability), such as; grain size, mud content (proximal-distal) and burial depth (diagenesis). This has enabled

us to decrease the risk of reservoir, and consequently lowered the reservoir quality parameters used in the volume estimations.

- The license group have included two induced polarization lines (IP) acquired by ORG Geophysical in 2013. [redacted]
- Tullow arranged a license field trip to the Sant Llorence del Munt fan-delta system in Catalonia NE Spain. The aim for the trip was to look at the different depositional systems working within the alternating marine, marginally marine and non-marine deposits along a highly progradational and retrogradational succession. The excursion leader was Dr. Erling I. Heintz Siggerud.

4 Prospect update

Fig. 1.1 shows the updated outlines of prospects and leads in PL670 after the final evaluation process.

A short technical summary for all the prospects and leads in the PL670 will be presented. An overview of the resources is presented in Table 4.1. The main prospect Betula has been worked up in detail and the license concluded negative to a drill decision. The Sorbus prospect is below a technical-economical threshold, same as for the Salix lead. The Ulmus prospect is a low confidence lead. The Picea lead is now included in the Betula prospect. The Betula Nana Ula/Bryne leads have small volumes below commercial interest.

Table 4.1 Review resource potential for PL670. All the prospects and leads have been revised since the APA application, except for the rows marked grey (Ulmus prospect)

Discovery/prospect/lead name	D/P/L	Unrisked recoverable resorces			Probability of discovery (APA 2012/13)	Probability of discovery (2016)	Resources in acreage applied for %	Reservoir		Distance to infra-structure (km)
		Oil 10^6 Sm^3						Litho-/Chrono-stratigraphic level	Reservoir depth (m MSL)	
		Low	Base	High						
Betula	P	2.2	8.9	19.7	25	15	100	Ula Fm	3830	13
Sorbus	P	0.6	3.3	4.9	23	29	75	Ula Fm	4090	19
Ulmus	L	6	13.6	23.4	17	5	77	Ran Fm	4180	29
Betula Nana Ula	L	0.3	1	2.1	(25)	21	100	Ula Fm	3917	12
Betula Nana Bryne	L	0	0.5	1.6	14	9	100	Bryne Fm	3970	12
Salix	L	0.3	1	2.1	22	11	75	Ula Fm	3837	14

The Betula Prospect

The main prospect Betula represent a northern pinch-out and southern fault dependent closure with Ula Fm reservoir deposited on a Triassic pod (Fig. 4.1 and Fig. 4.2). Few wells have tested this play. The trap has been mapped on the reprocessed seismic data TUN14M01. The mapped lateral extent has been reduced from 51 km^2 to 35 km^2. In the APA application the Base Cretaceous Unconformity (BCU) was interpreted, then shifted down 40m to represent the conceptual top reservoir. The re-interpreted BCU depth map is shown in Fig. 4.3.

The Ula Fm pinch-out and defining faults seem to be robust, however, there is a major concern about the Triassic base seal. The up-dip well 7/11-8 have a relatively high net-to-gross sand content suggesting risk of connectivity. The Triassic base seal lithology is expected to be similar as in the well. Due to multiple leakage pathways through the crest of the structure this is considered the main risk element.

The presence of reservoir has been strengthened through the geophysical work. A Top and Base Ula Fm reservoir have been interpreted (Fig. 4.4). The Top Ula Fm is interpreted on a zero crossing above an increase in acoustic impedance (AI) based on the generated synthetic seismograms from key wells (see example from well 7/11-6 in Fig. 4.5). The Base Ula Fm is more complex as it represents the top of the Triassic unconformity with variable seismic response due to variable lithology, typically picked on an increase in the AI. It is observed an increased AI response in the Betula area, not depth consistent (Fig. 4.6). This may represent improved sand quality (a facies indicator) or it could be an effect of cementation within the best permeable Ula Fm sandstone layers. The geological studies conducted on key wells in the region suggest we are in a distal part of the Ula system due to; fairly high mud content, fairly small grain size and fairly low porosity and permeability. The estimated values for porosity and permeability have therfore been slightly reduced through the evaluation process, however, there are layers with excellent reservoir quality even at

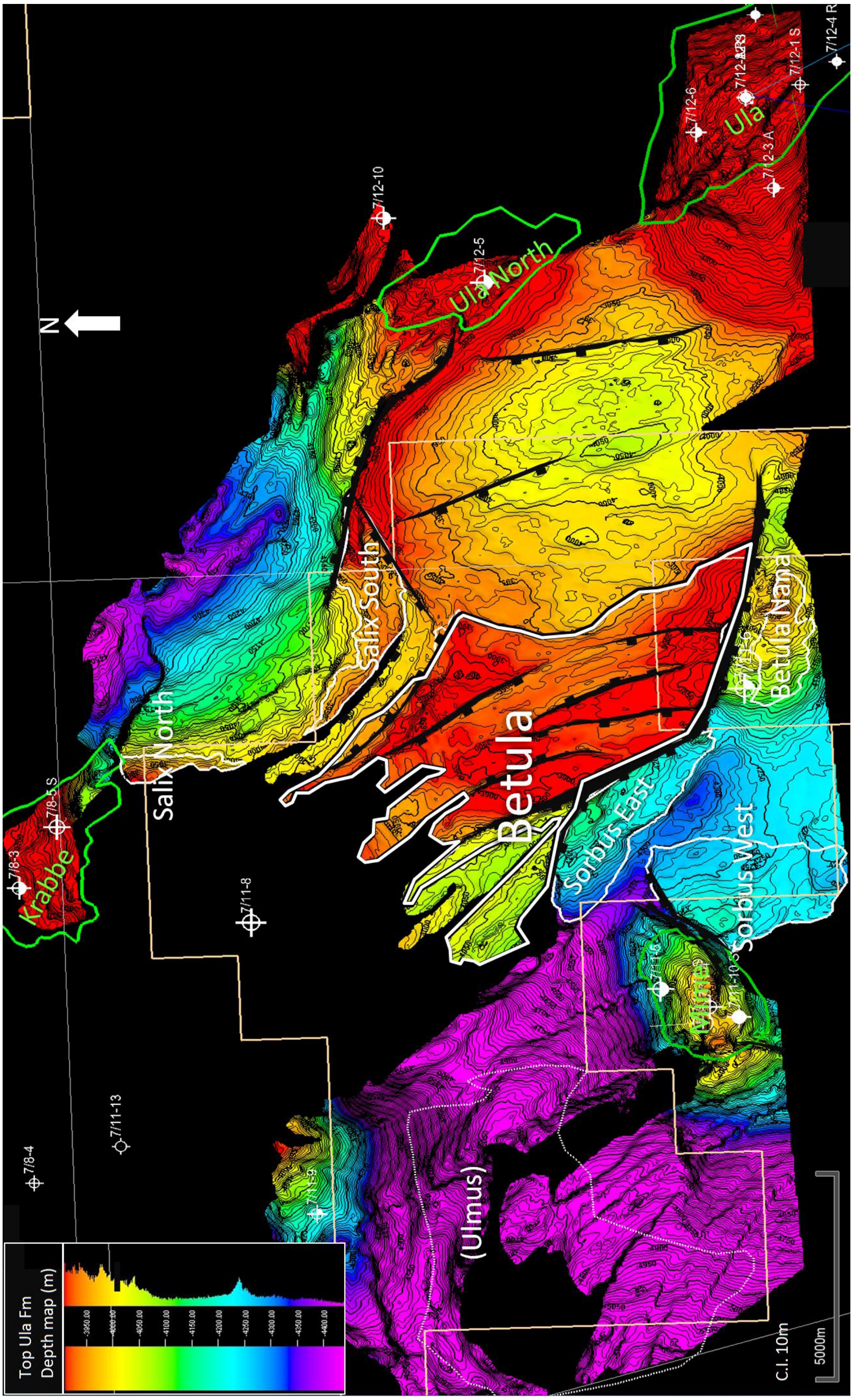

Fig. 4.1 Top Ula Fm depth map. *The depth map show where the Ula Fm is interpreted to be deposited and preserved. The black areas in the map are interpreted to have no Ula Fm present, except for the southern extent in the map which is where the 3D coverage ends. The updated outlines of prospects and leads in PL670 are shown in white lines. The contour interval is 10m*

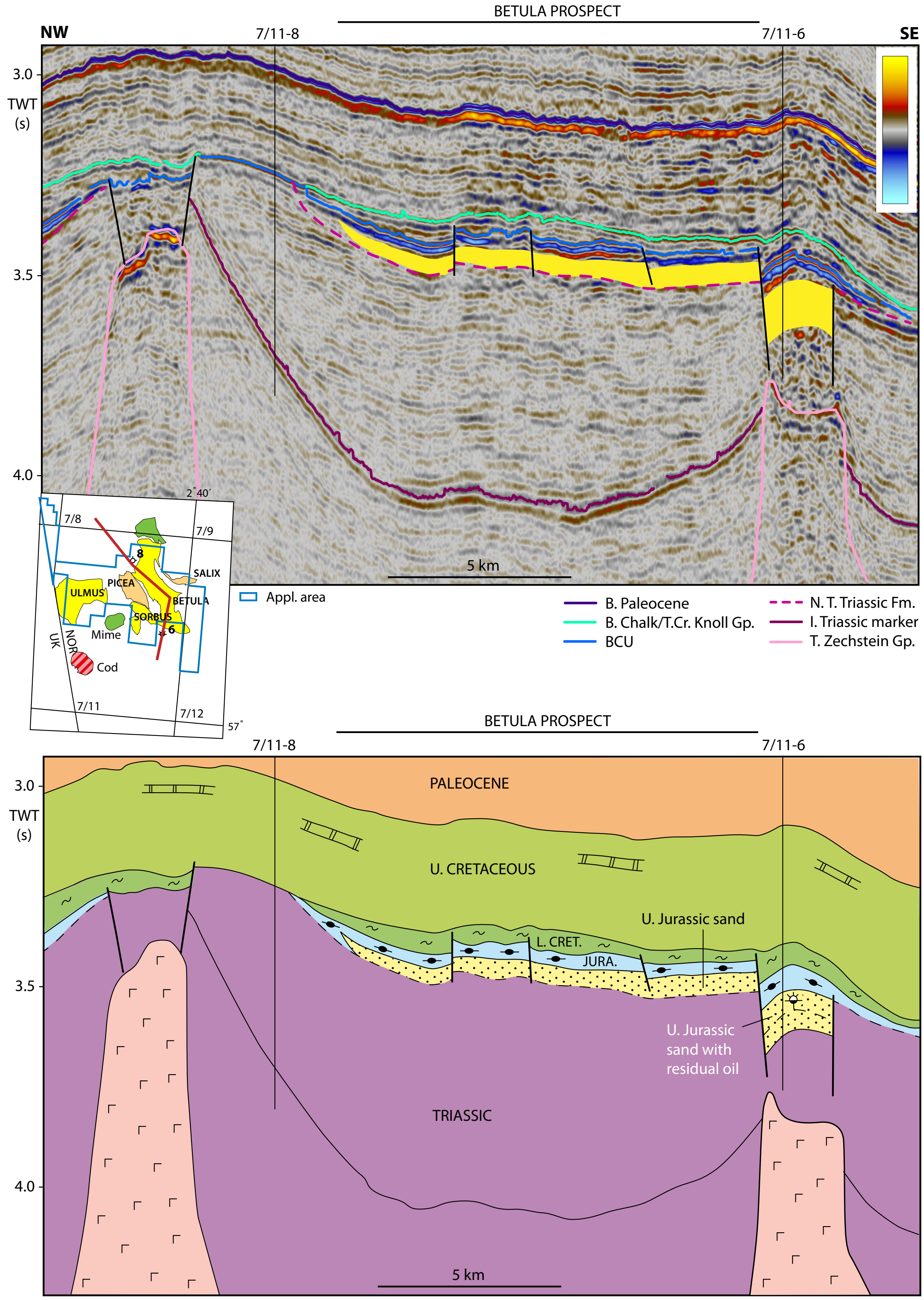

Fig. 4.2 Conceptual seismic section and geosection across the Betula prospect N-S. *The Ula Fm is pinching out towards the 7/11-8 well NW. The Triassic lithology in well 7/11-8 is expected to represent the base seal in the Betula prospect making up the main risk element (figure from the APA2012 application)*

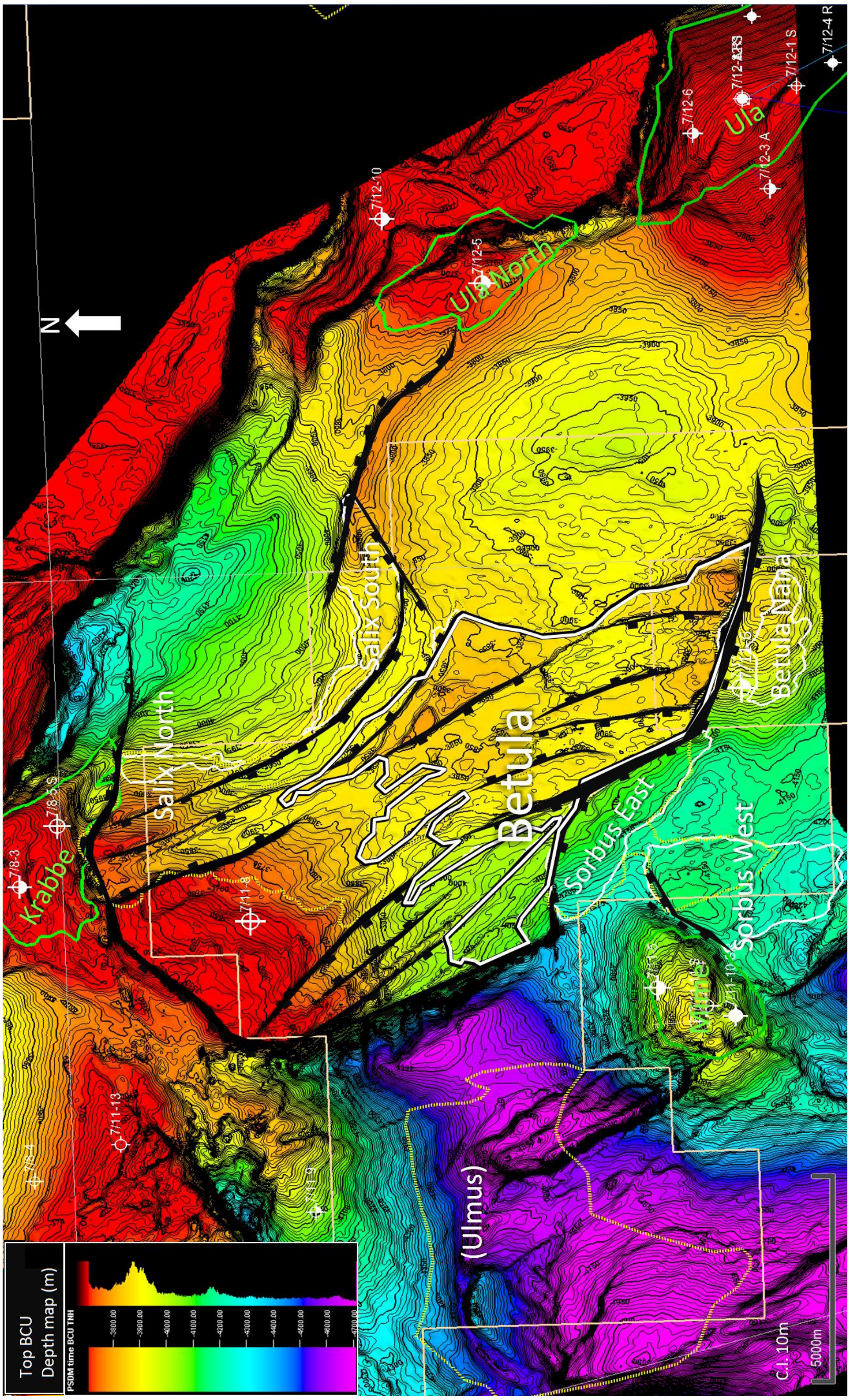

Fig. 4.3 Base Cretaceous Unconformity (BCU) depth map. *The updated outlines of prospects and leads in PL670 are shown in white lines. The outlines used in the APA application are shown in yellow dotted lines. The Ulmus prospect outline is unchanged since the APA application and is shown in yellow dotted line. The black area is outside the 3D coverage of TUN14M01. The contour interval is 10m*

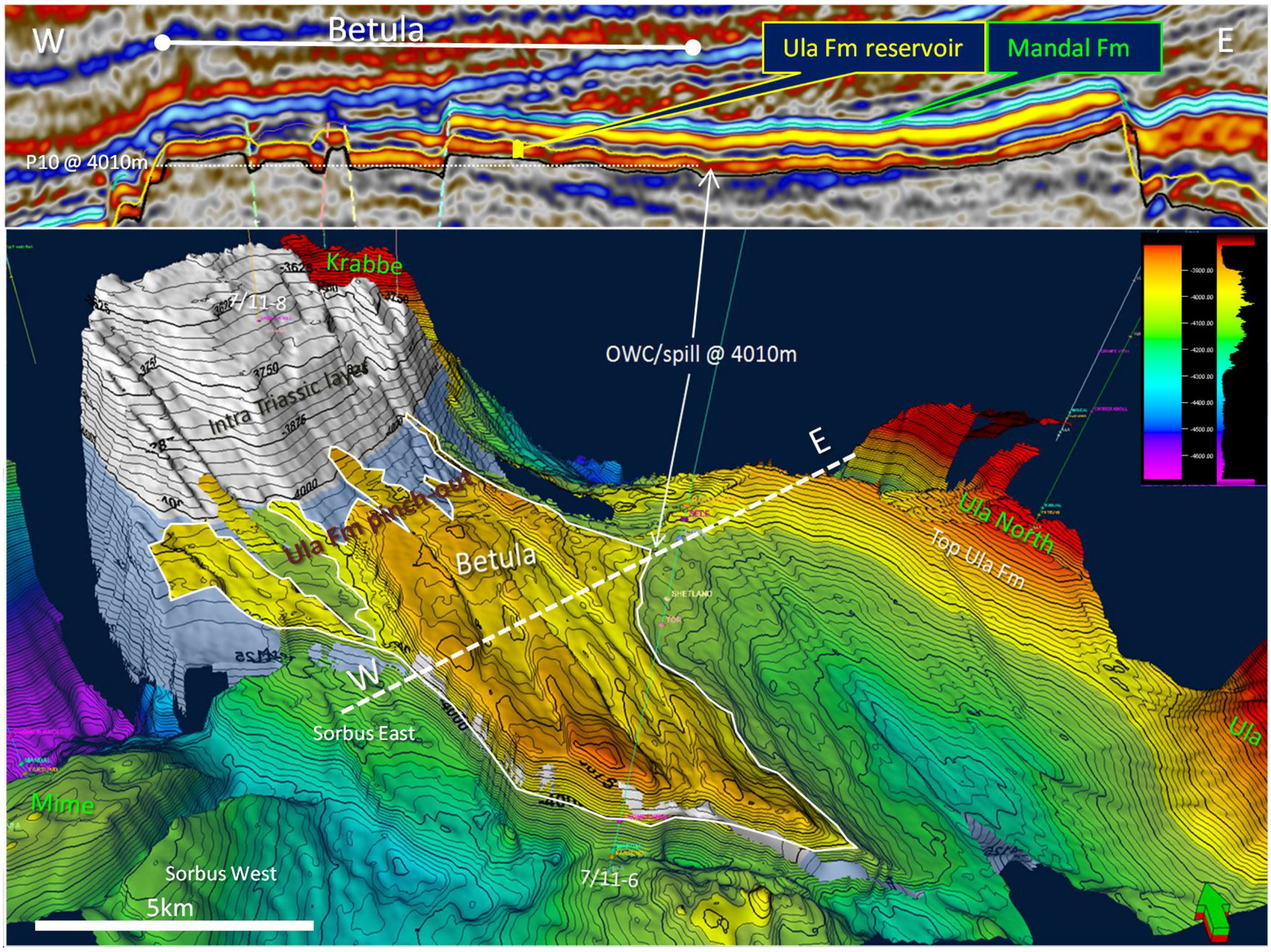

Fig. 4.4 Top Ula Fm depth map of the Betula prospect in 3D view and seismic section. *The Top Ula Fm depth map is shown in 3D with annotated spill point, and for illustration a interpreted Top Triassic layer. The colored map defines where we expect to find the Ula Fm preserved, while the other areas (black) no Ula Fm is expected. The seismic section in E-W direction show how Top and Base Ula and Top Mandal Fms have been interpreted on the TUN14M01 seismic data. The annotated spill-point (P10) at 4010m is where we expect the oil to spill out of the Betula prospect, migrate along the ridge eastwards, into the Ula North Discovery and possibly spill further over to The Ula Field*

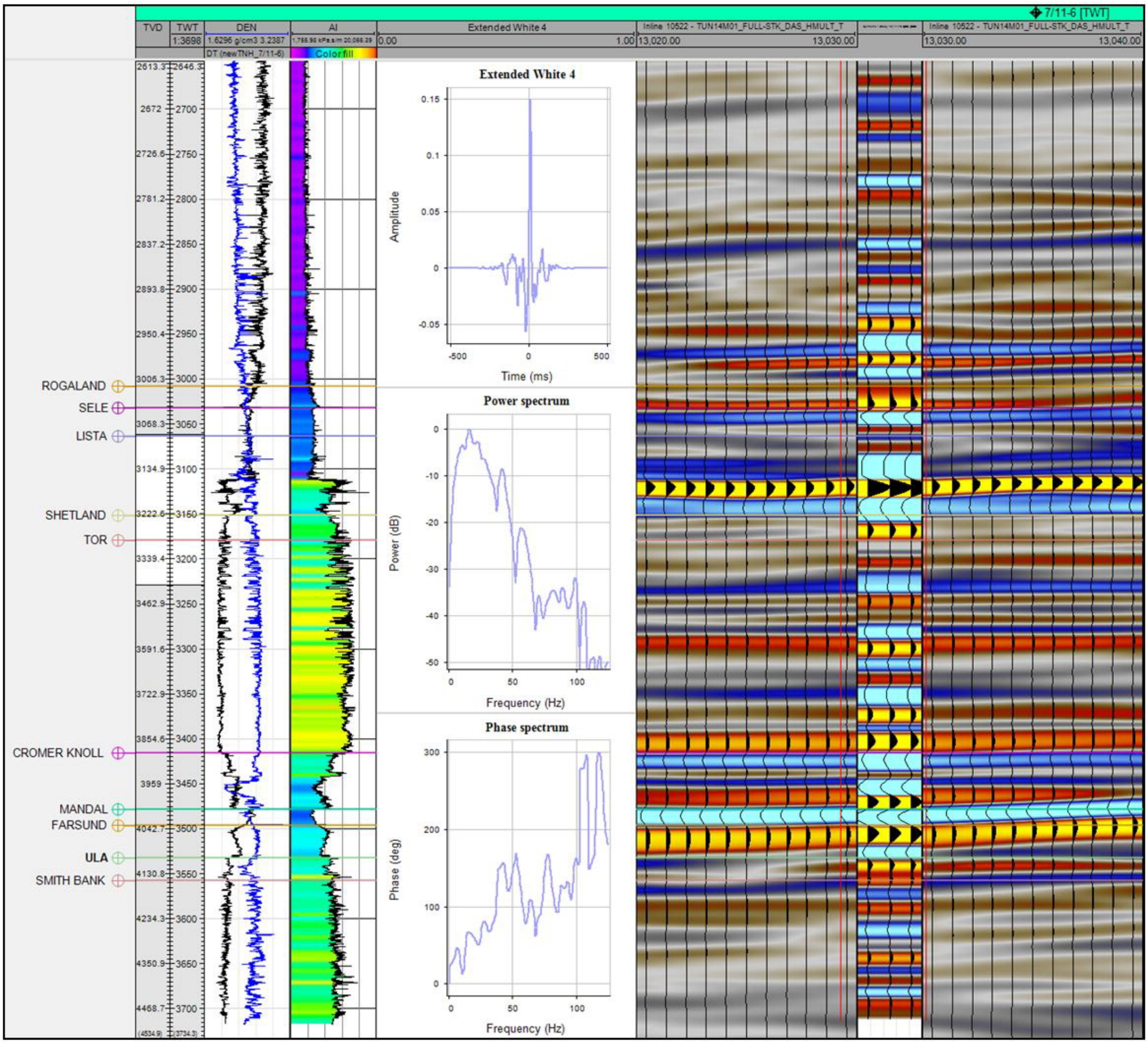

Fig. 4.5 Seismic well tie 7/11-6. *The synthetic seismogram has been generated using the Extended Roy White wavelet extraction method from the seismic data TUN14M01 (full offset stack).*

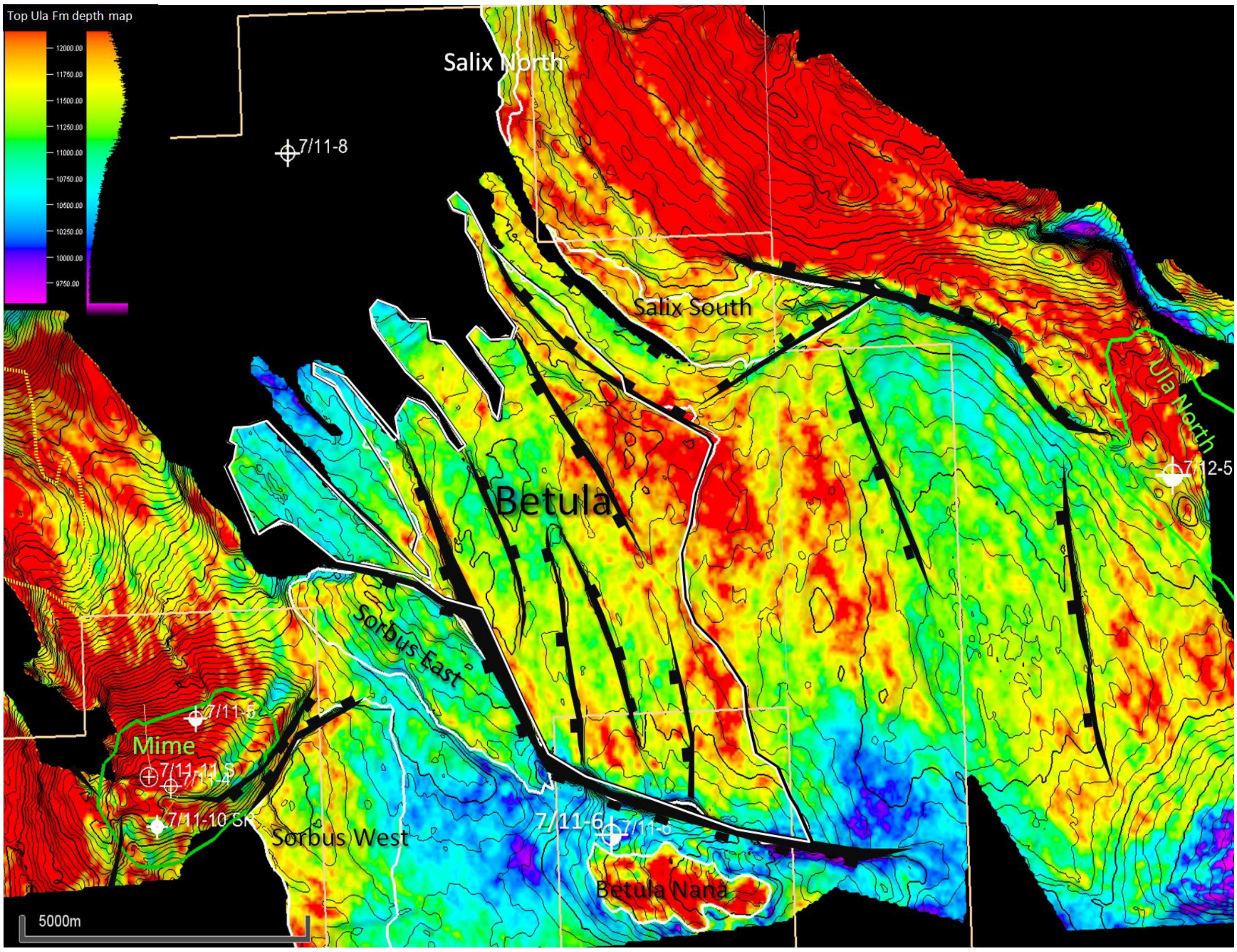

Fig. 4.6 Maximum amplitude map extracted from the AI inversion in the Ula Fm. *The map show the extracted maximum amplitude from the absolute AI inversion from the interpreted Ula Fm. There is observed an increase in maximum amplitude over the Betula prospect which may have geological significance. The Betula Nana Ula lead has an observed anomaly. The AI inversion is depth sensitive and will therefore not be reliable in the deeper basins, e.g. basin between the Krabbe and the Ula North discoveries. The Mime Field have an increased AI amplitude, however, the depth effect is also present. The black areas in the map are interpreted to have no Ula Fm present, except for in the southern extent of the map which is where the 3D coverage ends. The contour interval is 20m on the Ula Fm depth map.*

great depths around 4000m, i.e. well 7/11-6 in Fig. 4.7. The reservoir is most likely derived from the northern local high, tested by well 7/11-8, which was an exposed and eroded part of the tilted Triassic pod (Fig. 4.2 and Fig. 4.4).

Migration is expected from the above lying Upper Jurassic Mandal Fm mature source rock to the permeable Ula Fm reservoir, either downwards through the layers or laterally through juxtaposed source and reservoir rock, then subsequently a lateral migration into the Betula prospect. Local fields (e.g. Ula Field with reservoir in the Ula Fm) and nearby wells (e.g. 7/11-6 with residual oil within the Ula Fm) support a working petroleum system. Basin modelling analysis suggests that the Mandal Fm generate and expel sufficient volumes of oil to fill Betula and all prospects in the PL670 area.

[redacted]

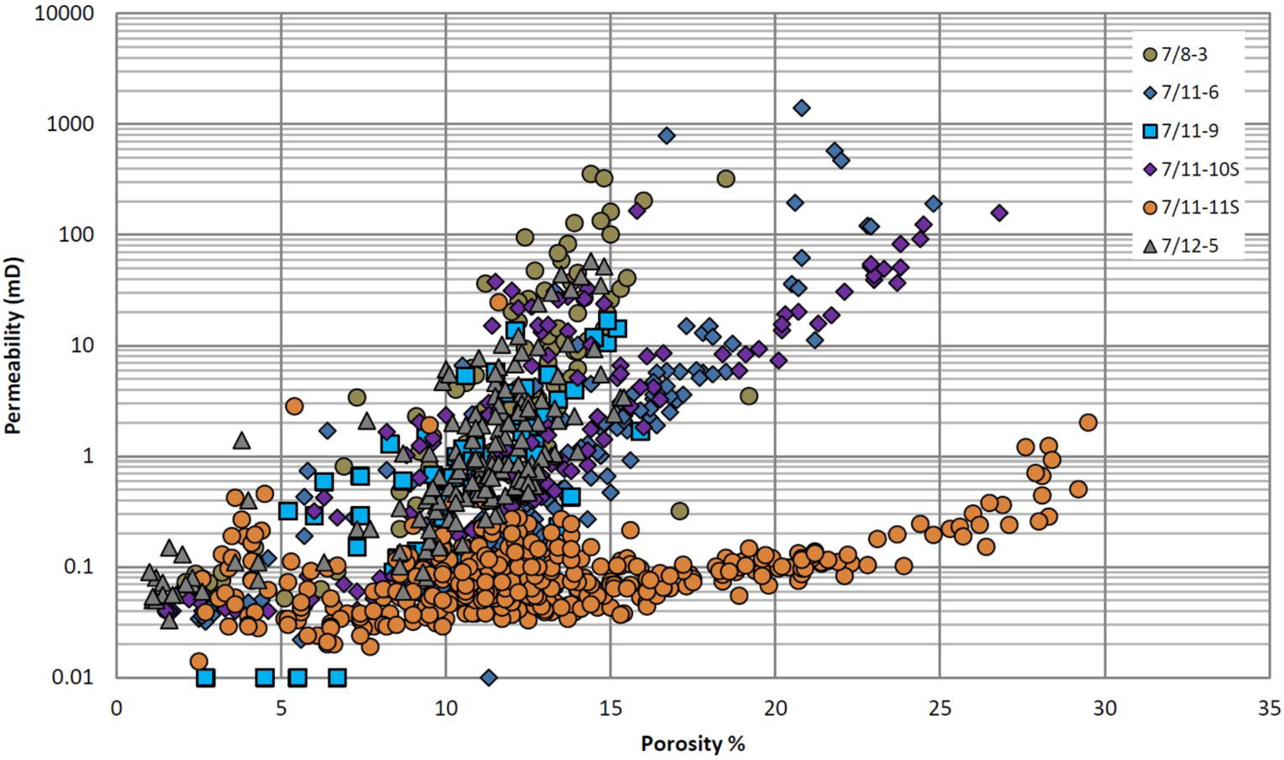

Fig. 4.7 Reservoir quality analysis on key wells. *Porosity and permeability coded by wells in in the PL670 area (Ichron). There is a general trend of fairly low permeability and porosity*

However, a technical-economic evaluation resulted slightly negative for the NPV, a low IRR and a negative EMV for a development case looking at the Betula prospect (5 Technical evaluations).

The Sorbus Prospect

The Sorbus prospect represent a typical Ula Fm trap located in a inter-pod setting similar as the nearby Mime Field. The estimated volumes has been reduced to be below the stand-alone commercial threshold, however, the probability of discovery has increased from 23% to 29%.

The Sorbus trap is mapped on the Top Ula Fm and consist of two sub-structures, named the Sorbus East and the Sorbus West prospects (Fig. 4.8). The Sorbus East prospect is a 2-way fault dependent dip closure located on the downthrown side of the Betula prospect located to the NE (Fig. 4.1). The fault displacement is considered sufficient to seal. There is a RMS and an AI anomaly partly consistent with the outline. The spill point for Sorbus East has changed to the south-eastern tip, where it now will spill towards the Betula Nana lead (Fig. 4.1). The Sorbus West is a 3- to 2-way fault dependent dip closure located down-flank of the Mime Field. The main risk element is the fault seal towards the Mime structure. However, the observed fault throw suggest no sand-sand juxtaposition, supporting lateral seal. There is a clear RMS and AI anomaly in the northern part, with a partly conformance in the south. This can also be observed over the Mime Field. The amplitudes are interpreted to represent the sandstone reservoir.

The seismic to well tie is good. The Mandal Fm is mature in the drainage area and will locally charge the prospect. There may be an asphaltene precipitation challenge similar as caused the shut-down of the Mime Field, which has been investigated.

The current estimated base case volumes is not sufficient to do a detailed technical-economical evaluation, and thus do not warrant an exploration well.

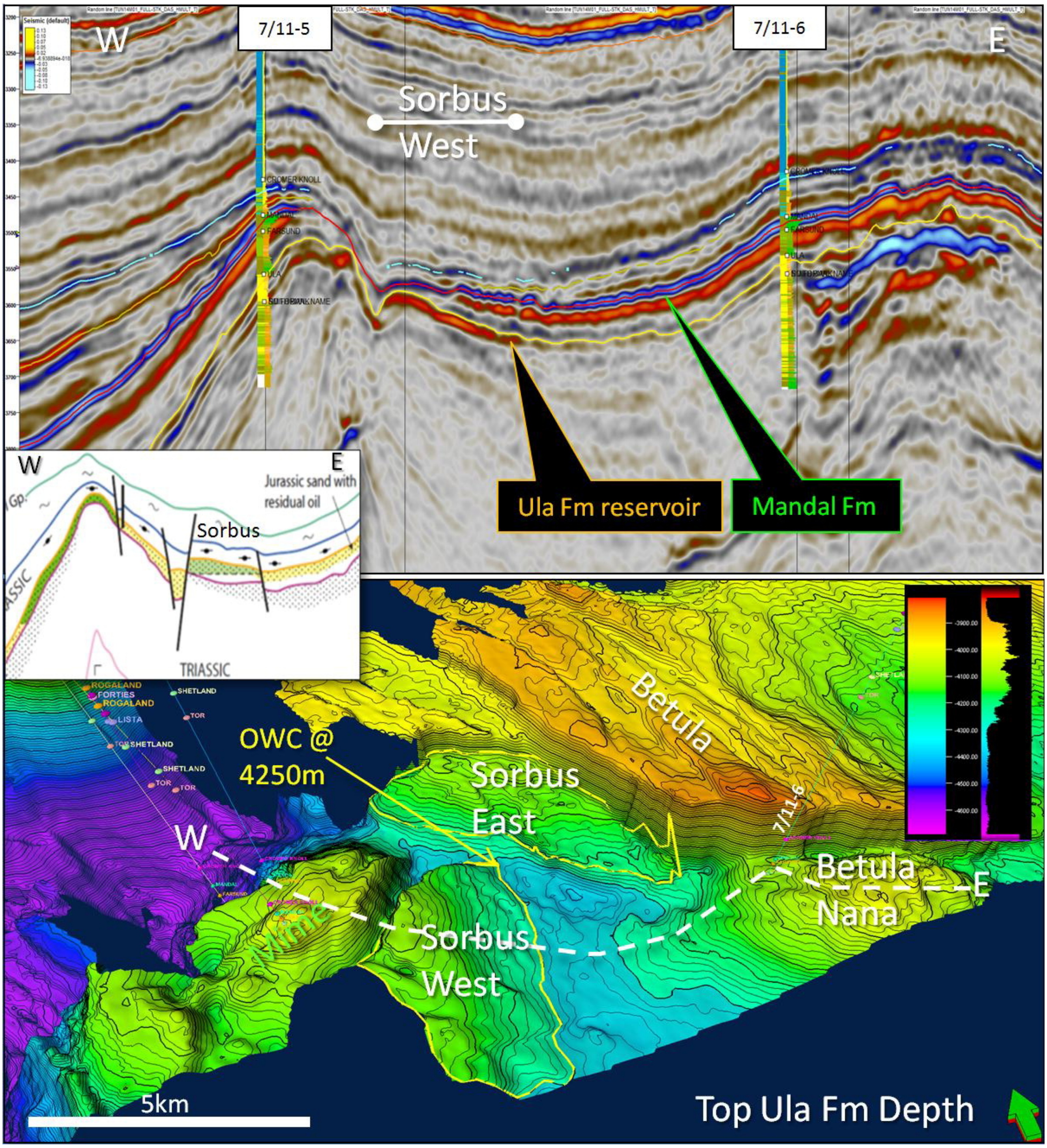

Fig. 4.8 Top Ula Fm depth map of the Sorbus prospect in 3D view and seismic section. *The mapped Top Ula Fm show the Sorbus West and East with annotated spill-point (P10) at 4250m and show-line for seismic section above. The seismic section tie the wells 7/11-6 and 7/11-5 both with Ula Fm. Note the increased seismic amplitude associated with the Sorbus West prospect (also present for Sorbus East) which can be observed in the Mime Field. The black areas in the map are interpreted to have no Ula Fm present, except for in the southern extent of the map which is where the 3D coverage ends. The contour interval is 10m*

The Ulmus Prospect

The Ulmus prospect represent an underexplored Lower Cretaceous play concept (Fig. 4.9). This basin floor fan is expected to be eroded from the nearby rotated Triassic pod to the north, and being deposited in a deeply buried (4200-4800m) sediment basin towards the south. No Lower Cretaceous sandstones have been encountered in the nearby wells, and the reservoir presence and quality is the

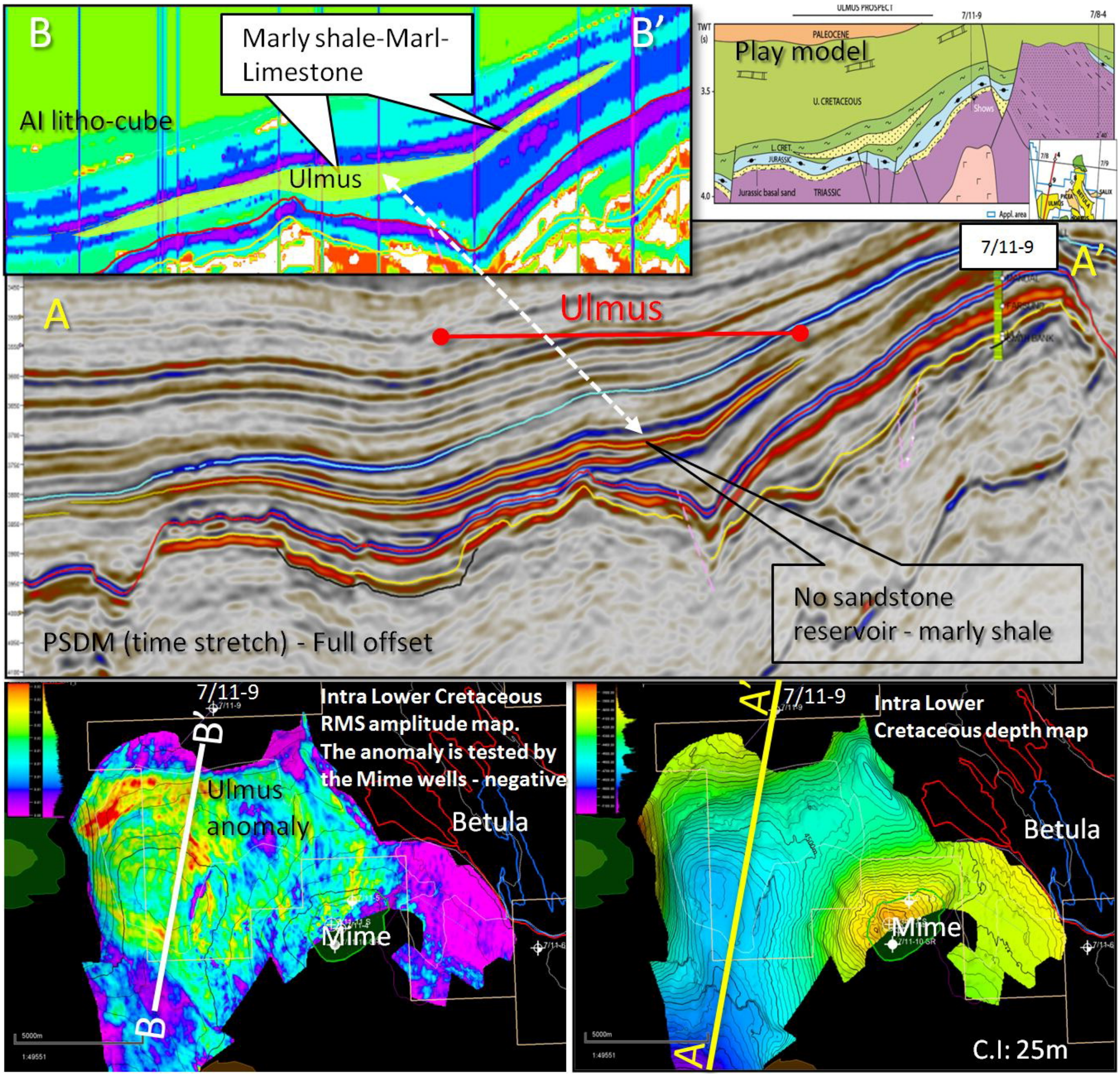

Fig. 4.9 Summary of the Ulmus lead. *Map of the interpreted Lower Cretaceous and the observed RMS anomaly defining the Ulmus lead. The anomaly is tested by the Mime wells, supporting the AI litho-cube results to be marly shale/marl/limestone. The seismic section tie the 7/11-9, note the seismic reflector with an increased amplitude (hard event) representing the Ulmus concept.*

main risk. The prospect represents a stratigraphic pinch-out trap defined by an RMS amplitude. The fan downlap directly on to the Mandal Fm source rock, which would be an optimal location for charging the prospect. The Ulmus prospect is in gas-condensate maturity window present day.

Observations in the simultaneous elastic inversion and the rock physics data suggest that the anomaly, which define the Ulmus prospect, most likely is a hard seismic event, interpreted to be a marly shale (Fig. 4.9). The Ulmus anomaly stretches to the Mime Field and have actually been tested by the wells (e.g. 7/11-5) verifying the rock physic data results. Thus, the probability to discover a reservoir in the Ulmus prospect has severely been reduced. No new volumes have been calculated. The probability of a discovery has been reduced from 17% to 5%.

There are not observed any IP anomalies across the Ulmus prospect.

The Salix Lead

The Salix lead is conceptually similar to the Betula prospect, located on the north-eastern flank of the Betula-Triassic pod between the Krabbe and Ula North Discoveries (Fig. 4.10). The Salix lead is currently interpreted as two sub-structures, Salix North and Salix South, both fault dependent 2-way closures. The Salix North trap is better defined compared to Salix South, but the volume estimates are small. The Salix South has a high chance of lateral up-dip leakage through the crest, as no fault can be observed (Fig. 4.10). The estimated volumes for Salix South lead are small. The Salix North and South volumes have been combined in the resource overview in Table 4.1. The lateral seal is considered the main risk and the probability of a discovery have been reduced from 22% to 11%. The high risk and low volume resources do not warrant a technical-economic evaluation.

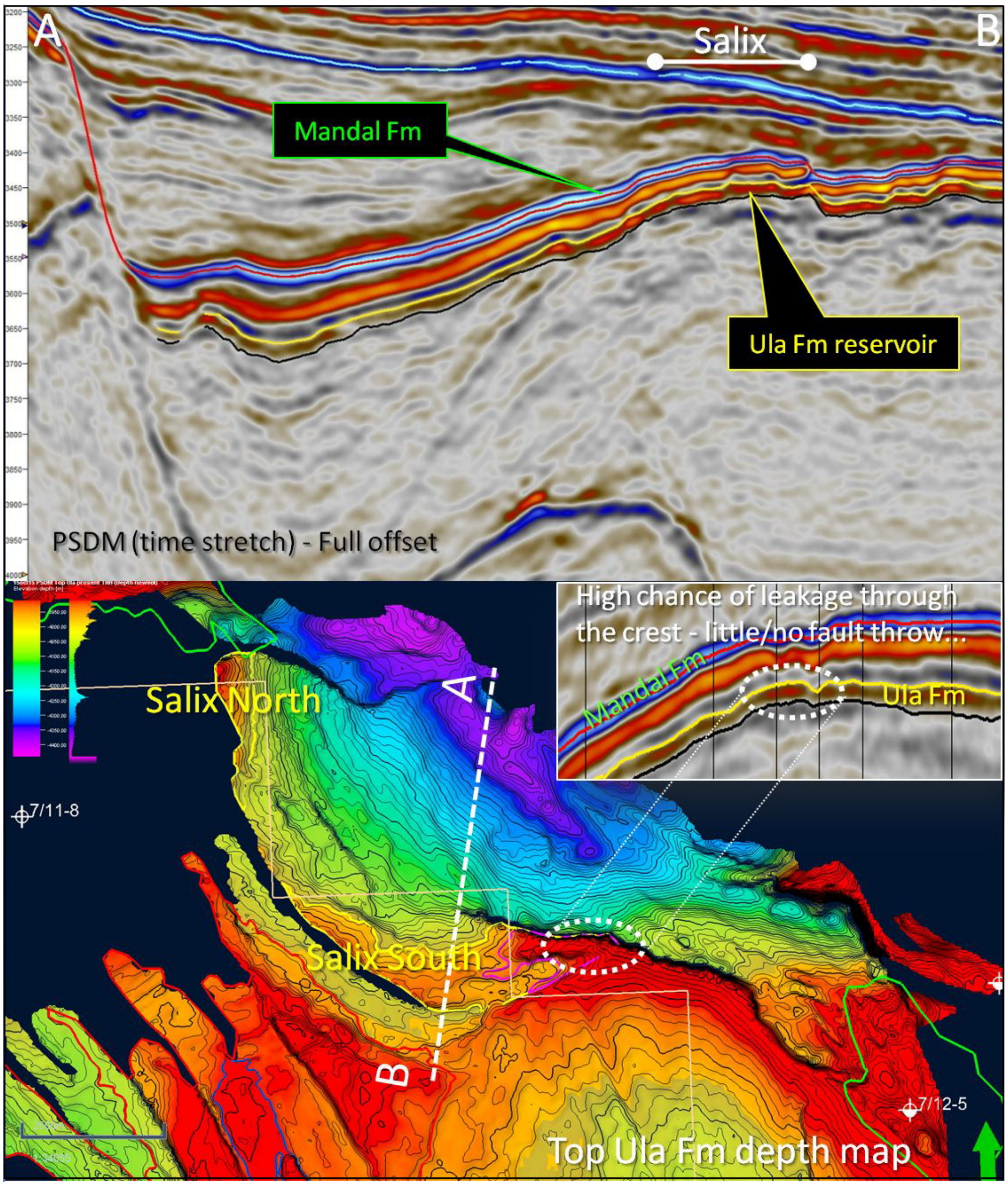

Fig. 4.10 Summary of the Salix lead. *The Ula Fm depth map show the Salix North and South. The black areas in the map are interpreted to have no Ula Fm present. The contour interval is 10m. Note that no fault can be observed at the crest which indicate a high risk of leakage. The seismic section show the interpreted Top and Base Ula and Top Mandal Fms*

The Betula Nana Lead

The Betula Nana lead have two reservoirs, named the Betula Nana Ula lead and the Betula Nana Bryne lead (Fig. 4.11).

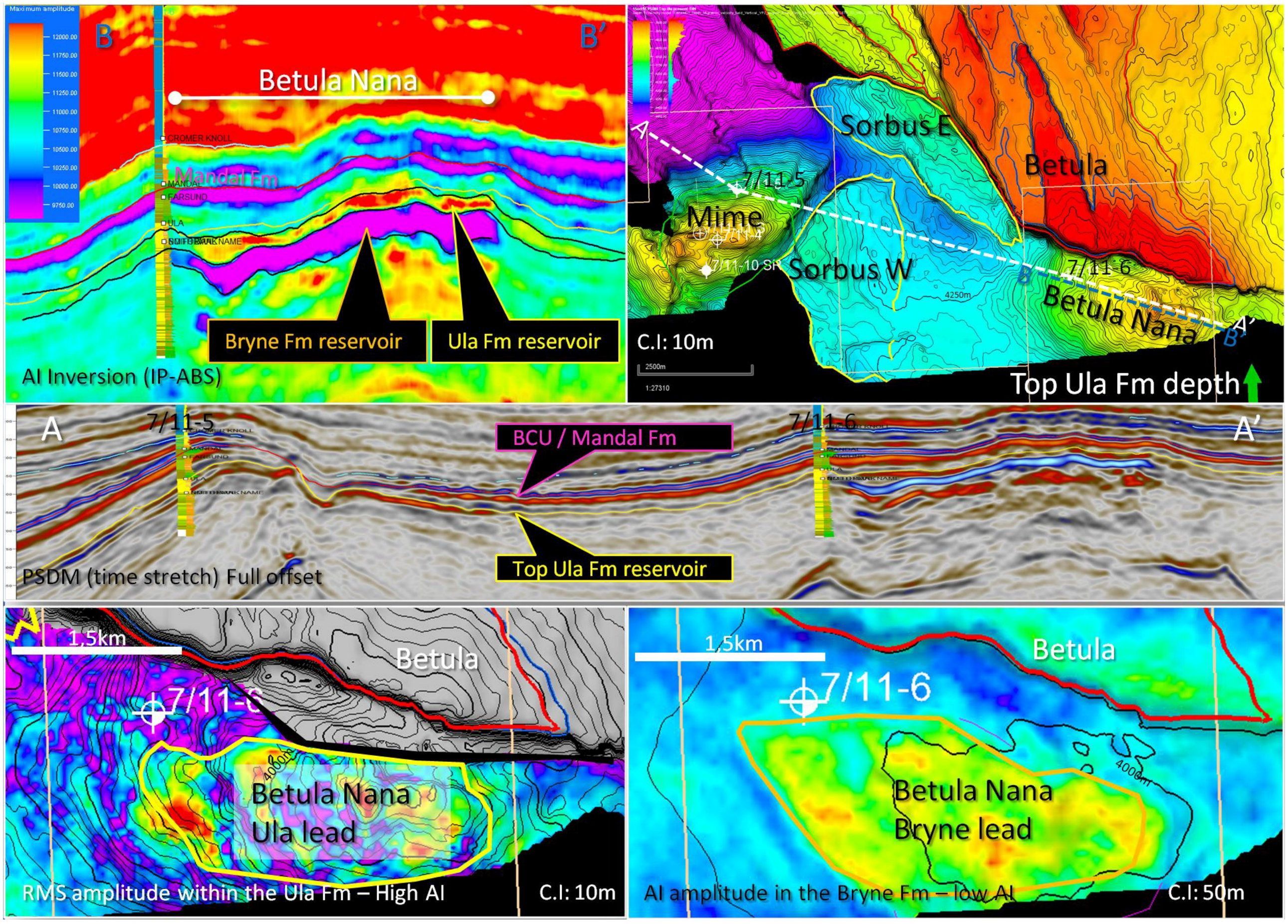

Fig. 4.11 Summary of the Betula Nana leads. *Lower left) The Betula Nana Ula lead is defined by a RMS and a high AI anomaly within the Ula Fm. The Anomaly is not tested by well 7/11-6. Lower right) The Betula Nana Bryne lead is defined by a low AI anomaly interpreted to be coal within the Bryne Fm. The Anomaly is not tested by well 7/11-6. Middle) The seismic section show a tie line from 7/11-5 and 7/11-6 to the Betula Nana leads. Note the amplitudes that are blooming across the Betula Nana structure (Miming). Top left) An absolute AI Inversion section across the Betula Nana leads and tie to well 7/11-6. The section show a low and a high AI response from respectively the Bryne and Ula Fms reservoir. Top right) Top Ula Fm depth map showing the Betula Nana leads. The middle seismic section and the top left AI inversion section are annotated*

The Betula Nana Ula lead was previously in the APA 2013 application interpreted to be part of the Betula prospect. The Betula Nana Ula lead is within the Ula Fm, defined as the remaining up-dip potential in the Miming structure, tested by well 7/11-6. The trap is a fault dependent 3-way dip closure structured by the underlying salt dome. The seismic to well tie is good to well 7/11-6, which has 48m gross Ula Fm with residual oil. There are observed RMS and high acoustic impedance anomalies which may be associated with either fluid or lithological effects. The 7/11-6 well did not drill through the anomaly.

The Betula Nana Bryne lead was presented in the APA 2013 application, suggested to be a Skagerrak Fm, currently interpreted to be Bryne Fm. The trap is as a 3-way dip closure structured by the underlying salt dome. The lead is defined by both RMS and low AI anomalies, not drilled by well 7/11-6. The low AI anomaly seems to be fairly depth confined. The low AI response is interpreted to be coal within the Bryne Fm, which is expected to have fluvial sandstone reservoir. The reservoir is observed on the AI litho-cube which is based on rock physics analysis put into different litho-classes. There is a high chance of vertical leakage from the Bryne Fm to the above-lying Ula Fm as we except the Ula Fm to rest conform upon the Bryne Fm with limited seal between. The vertical seal risk for the Betula Nana Bryne is high.

Wells 7/11-6 and the up-dip 7/11-8 are interpreted to be in pressure communication, indicating that the Betula Nana leads leak towards the Betula prospect through the northern fault. It is assumed a juxtaposition and communication of porous strata which represents the main risk element for the trap. The low estimated base case volumes, even if you sum the mean resource volumes of both leads, are of no commercial interest.

There are not observed any IP anomalies across the Betula Nana lead.

5 Technical evaluations

A technical-economical evaluation regarding possible development was performed for the APA2012 and APA2013 application. Some of this work is still valid and has been utilized for the updated evaluation.

The development solution for the Betula prospect will be a subsea tie back to Ula Field (13 km). The drainage strategy is pressure maintenance through water injection with injection water supplied from Ula Field. Four horizontal producers and three vertical water injectors are assumed to be required for the mean case. Development cost is estimated to be:

Wells - 3 900 MNOK
Subsea and flowlines - 3 900 MNOK
Host modification - 600 MNOK
Total - 8 400 MNOK

The resulting economic performance is shown in Table 5.1. The relatively high break even oil price is caused by a low resource density, i.e. limited volume over a large area, resulting in a high cost of wells and subsea infrastructure. Taking into account the relatively high geological risk which may lead to even more wells, it is concluded that the prospect has too limited resource potential with significantly more risk than upside to justify an exploration well. The assumed host modification cost is also viewed to carry higher risk than upside.

Table 5.1 Economic performance for the Betula prospect

Norway - : Betula		
Oil Price	70	90
Net IRR %	9.9%	**14.8%**
Net 10.0% NPV ($MM)	-$1.9	**$93.2**
Net 10% NPV/BOE ($/boe)	-$0.03	**$1.64**
Net EMV ($MM)	-$9.4	**$4.9**
Breakeven Oil Price($/bbl)	70.41	

6 Conclusions

The estimated in-place volumes of oil in all the prospects within PL670 have through the license work program been reduced. The main reason for this is that the reprocessing of high quality 3D seismic data have resulted in improved confidence in seismic interpretation, updated assessment of the risk elements and new high resolution velocity control and depth surfaces. This, in combination with none of the prospects passing the technical-economical process, resulted in a decision not to drill an exploration well.

The Betula prospect play concept has been confirmed by the work program. The evaluated resources are close to the commercial threshold. When all the key technical uncertainties for the Betula prospect are added together, there was a unanimous conclusion to relinquish the license and not drill an exploration well. The geological and geophysical work resulted in a reduction to 15% probability of a discovery. The base seal is the key risk element with only a small chance of success (evaluated to be 30%). In addition, is a compartmentalization concern in the small horst and graben fault system along the strike direction of the prospect (NW-SE, see Fig. 4.1) which may seal off some of the segments. The observed high AI inversion response in the Ula Fm could potentially represent a cementation effect within the best sandstone layers which may limit the lateral extent of the effective reservoir and the connectivity (Fig. 4.6). Potentially this require more production and injection wells, hence, increasing the overall development cost and therefore further reducing the chance of commercial success.

The Sorbus prospect have moderate resource potential and a fair chance of success, but is still well below any economical threshold, and therefore not a drill candidate.

The Ulmus prospect is downgraded to a high risk lead with a low confidence on effective reservoir, evaluated to be only 10%. The Ulmus prospect is currently not a drill candidate.

The other leads, Salix and Betula Nana (Ula and Bryne), have small volumes, and is not of economic interest nor a drill candidate.

The partnership in the PL670 has in good cooperation evaluated and concluded on the exploration and commercial potential, and a unanimous decision to drop the license was taken January 2016.