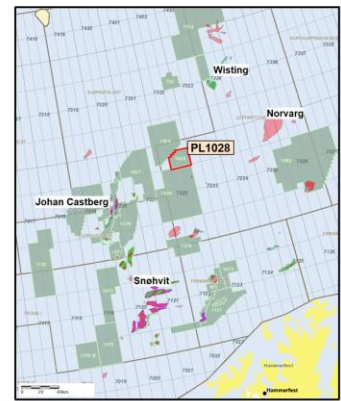
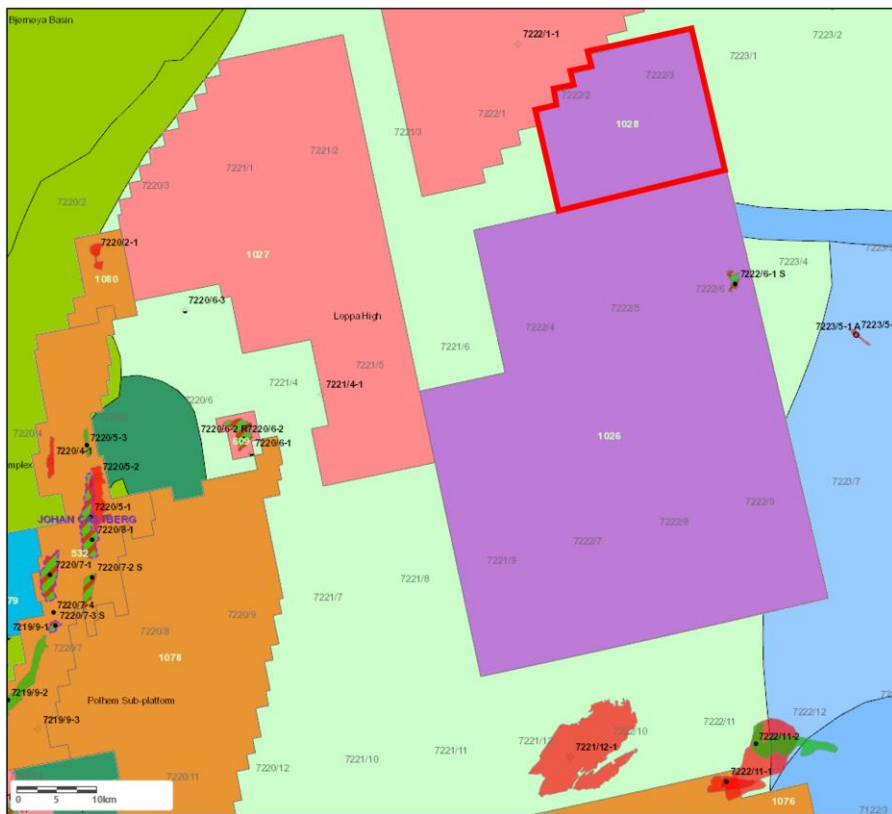


PL1028 Relinquishment Report



Relinquishment Report PL1028

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1 History of the production licence

The purpose of this report is to review the licence history and present an overview of the technical work and remaining prospectivity within the licence area (Fig. 1.1 & Fig. 1.2).

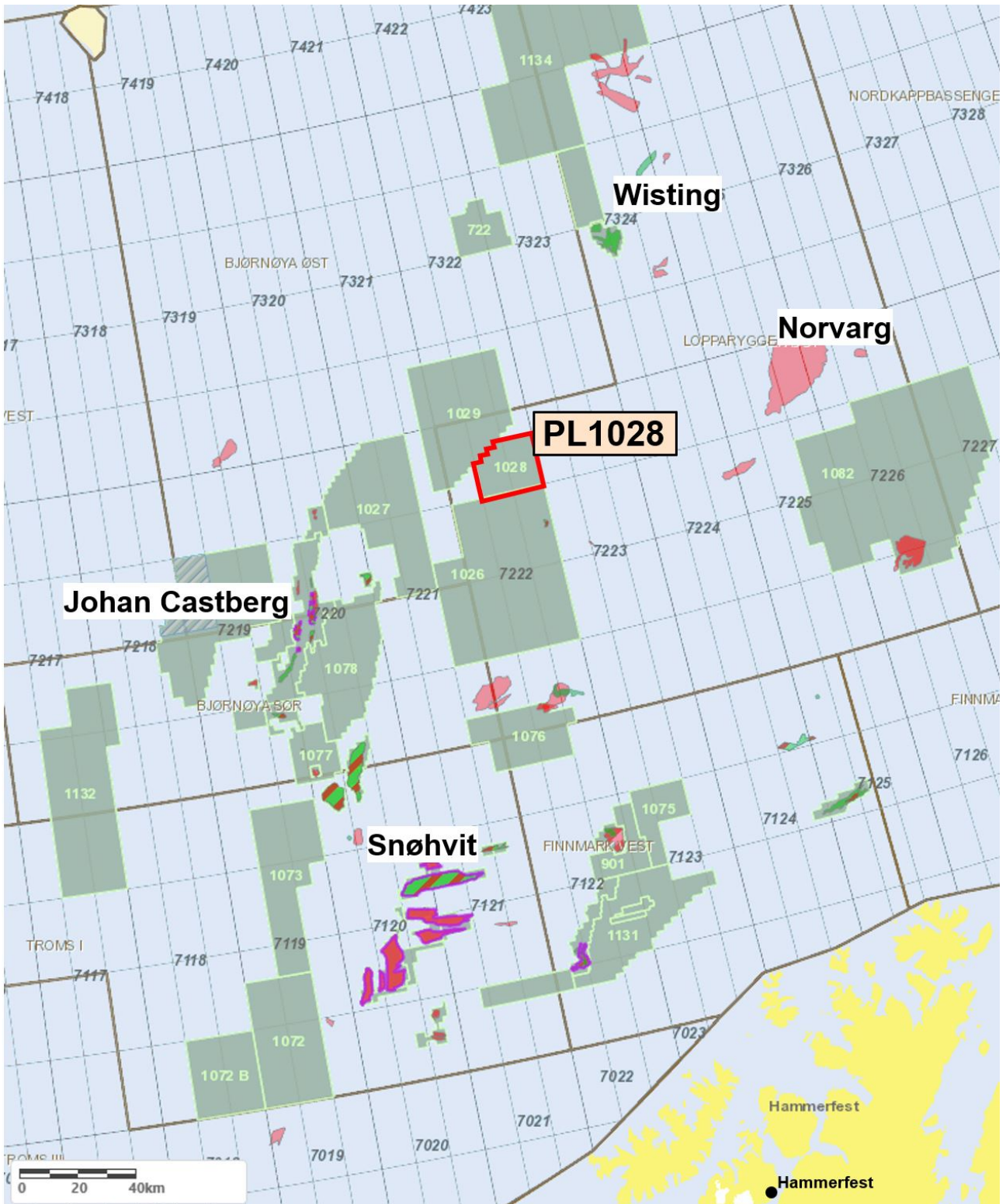


Fig. 1.1 PL1026 & PL1028 location map.

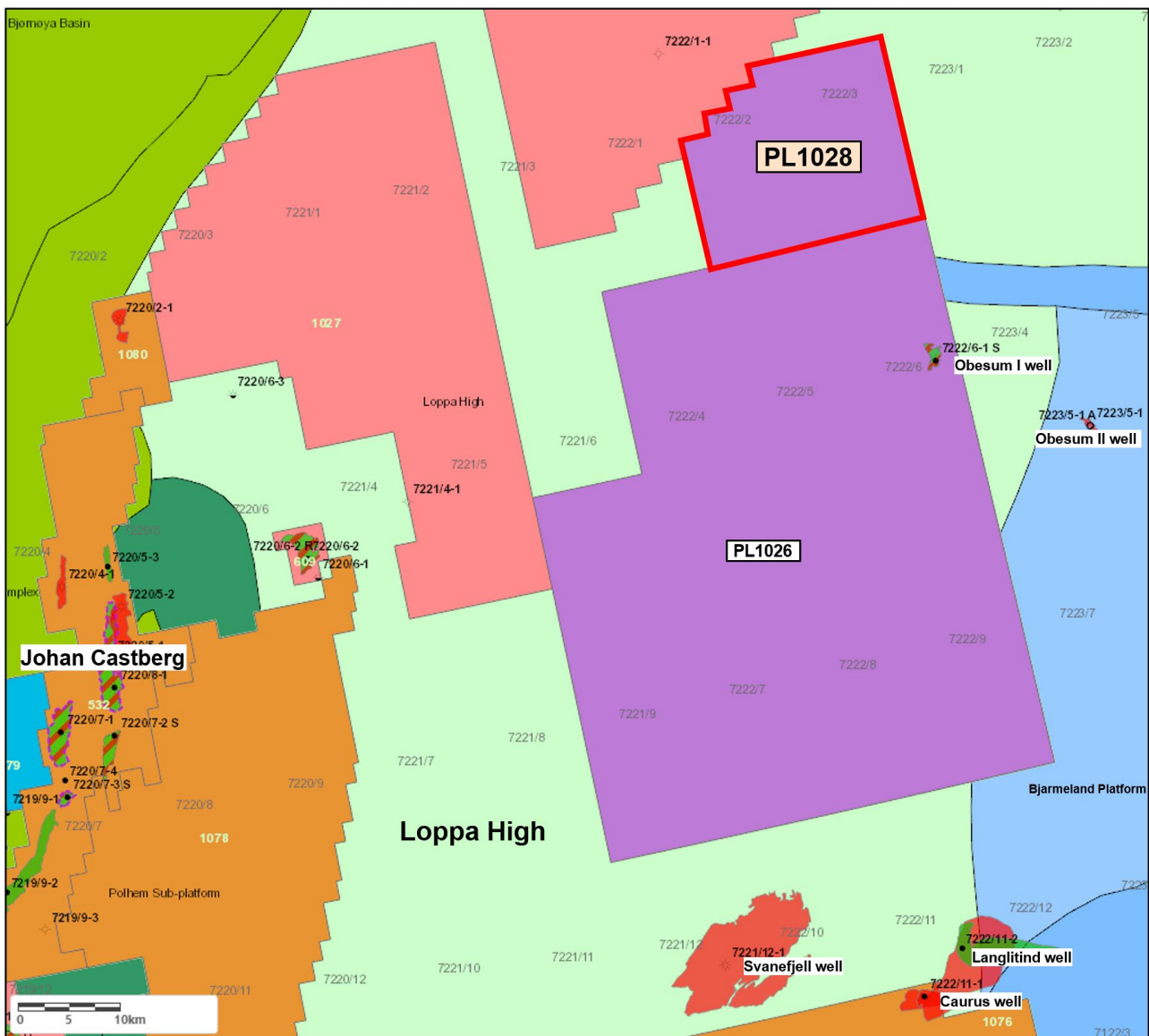


Fig. 1.2 Location and structural setting for PL1026 & PL1028.

1.1 Licence History and Owners

The acreage is located on the north eastern flank of the Loppa High, around 80 km north-east of Johan Castberg and around 145 km north-northeast of Snøhvit Field (Fig. 1.1 & Fig. 1.2).

In response to the invitation from the Ministry of Petroleum and Energy to apply for acreage in APA2018 application round, Aker BP ASA applied for acreage covering parts of blocks 7222/1,2,3 and 7322/10,11. Two prospects of Late Triassic age (Snadd Formation) and one Lead of Late Carboniferous age (Ørn Formation) were identified within the application area. Only the blocks (7222/2 & 3) covering the two prospects of late Triassic age were awarded to Aker BP as PL1028. The lead of late Carboniferous age was awarded as part of PL1029 in which Aker BP was not awarded partnership (Fig. 1.1).

The awarded acreage consisted of the late Ladinian to early Carnian age Løva Prospect and the Early Carnian age Navaren Prospect, both situated on structural highs potentially acting as focus area for vertical and lateral migration of hydrocarbons. The reservoirs comprises Ladinian to early

Carnian fluvial sandstones seen as soft bright amplitude responses on seismic data. The main uncertainties related to Løva and Navaren prospects were low net reservoir within the defined trap/structural closures and high risk on trap (fault dependent traps).

Additional prospectivity related to the Kobbe Formation Play was adequately tested by the previous 7222/11-1 Caurus, 7222/11-2 Langlitinden and 7221/4-1 Polmak wells and considered non attractive due to lack of effective reservoir.

Although weak softening is observed on 3D seismic data within small structural closures, most likely indicating presence of gas, there is no geophysical support for presence of an oil phase, at least volume of an economical size. Hence, no drilling candidates have been identified.

In conclusion, both Navaren and Løva prospects are considered de-risked and the licence group have therefore decided to drop PL1028.

The stakeholders in PL1028 consists of:

- Aker BP ASA 50% (Operator)
- Equinor ASA 30%
- Petoro AS 20%

1.2 Award and Work Program

Award

The acreage was awarded 01.03.2019 as PL1028 with Aker BP ASA as operator and Equinor ASA and Petoro AS as partners. The acreage covering PL1028 was awarded as part of the APA2018 round (01.03.2019) and covers an area of **378.098** km² within blocks 7222/2 & 3.

Work obligations

The work obligations were to perform geological and geophysical evaluation of the prospectivity and to acquire geophysical data (2D, 3D or EM) or drop within the **first year**. A drill or drop decision should be decided within **three years**. Given a decision to drill, the drilling commitment should be fulfilled within **5 years** from the award.

The work obligations at the first decision gate were fulfilled by acquiring 2,5D HalfSeis data and performing inhouse seismic gather conditioning of the GDF1201M13 3D data. However, due to non-attractive prospectivity and low volume potential the licence group decided to drop the licence at the second decision gate.

During the licence period, four ECMC and four EC-work meetings have been held in addition to several internal Peer Assist/Peer Review meetings (Table 1.1).

Table 1.1 Licence and internal meetings in PL1028.

Date	Activity	Description
2019		
13.02.2019	Internal meeting	
01.03.2019	Licence awarded	As part of the Awards in Predefined Areas 2018
20.03.2019	ECMC meeting #1	Formal and administrative issues, Storgalten (Post APA work), common database proposal, work program and budget
11.04.2019	Internal meeting	Geophysical workshop
30.04.2019	EC Work meeting #1	Data Acquisition Type Strategy (3D seismic reprocessing, P-Cable, HalfSeis, Site Survey or Geochemical seabed sampling)
05.09.2019	EC Work meeting #2	Update on 3D reprocessing and data acquisition for PL1026 and PL1028
28.11.2019	ECMC meeting #2	Licence status
2020		
13.11.2020	ECMC meeting #3	Licence status
2021		
20.09.2021	EC Work meeting #4	Remaining prospectivity and licence status
11.11.2021	Internal meeting	Technical review and AKER BP recommendation
26.11.2021	ECMC meeting #4	Way forward and operators recommendation to partners

1.3 Identified Prospectivity

The focus within the licence acreage has been on the Upper Triassic Snadd Play (brl,rm 2).

Two prospects (structural closures) with one or three segments (multi-targets) have been identified within the licence area (Fig. 1.3):

- 1) Løva Prospect (Triassic Snadd Play, Late Ladinian to Early Carnian).
- 2) Navaren Prospect (Triassic Snadd Play, Ladinian, Early Carnian).

The prospectivity for both Løva and Navaren prospects relies on the presence of Ladinian to Carnian aged fluvial sandstones within fault bounded dip closures. Ladinian to Carnian fluvial channels are clearly observable on 3D seismic data (Fig. 1.4), but a limited number of channels seems to cross the structural closures. Due to lack of presence of reservoir within the structural closures, hence low lateral and vertical Net-to-Gross (N/G), the volume potentials are limited for both prospects.

Triassic Snadd Fm Play (Late Ladinian and Early Carnian age) - bru-2

- Play: Triassic Snadd Fm
- Reservoir: Snadd Fm, fluvial SST of Late Ladinian and Early Carnian age
- Trap: Structural trap
- Seal: Top seal is marine transgressive shales
- Source: Marine shales of Triassic age (Steinkobbe Fm)
- Main risk: Trap and seal. Reservoir quality (Ladinian reservoirs).

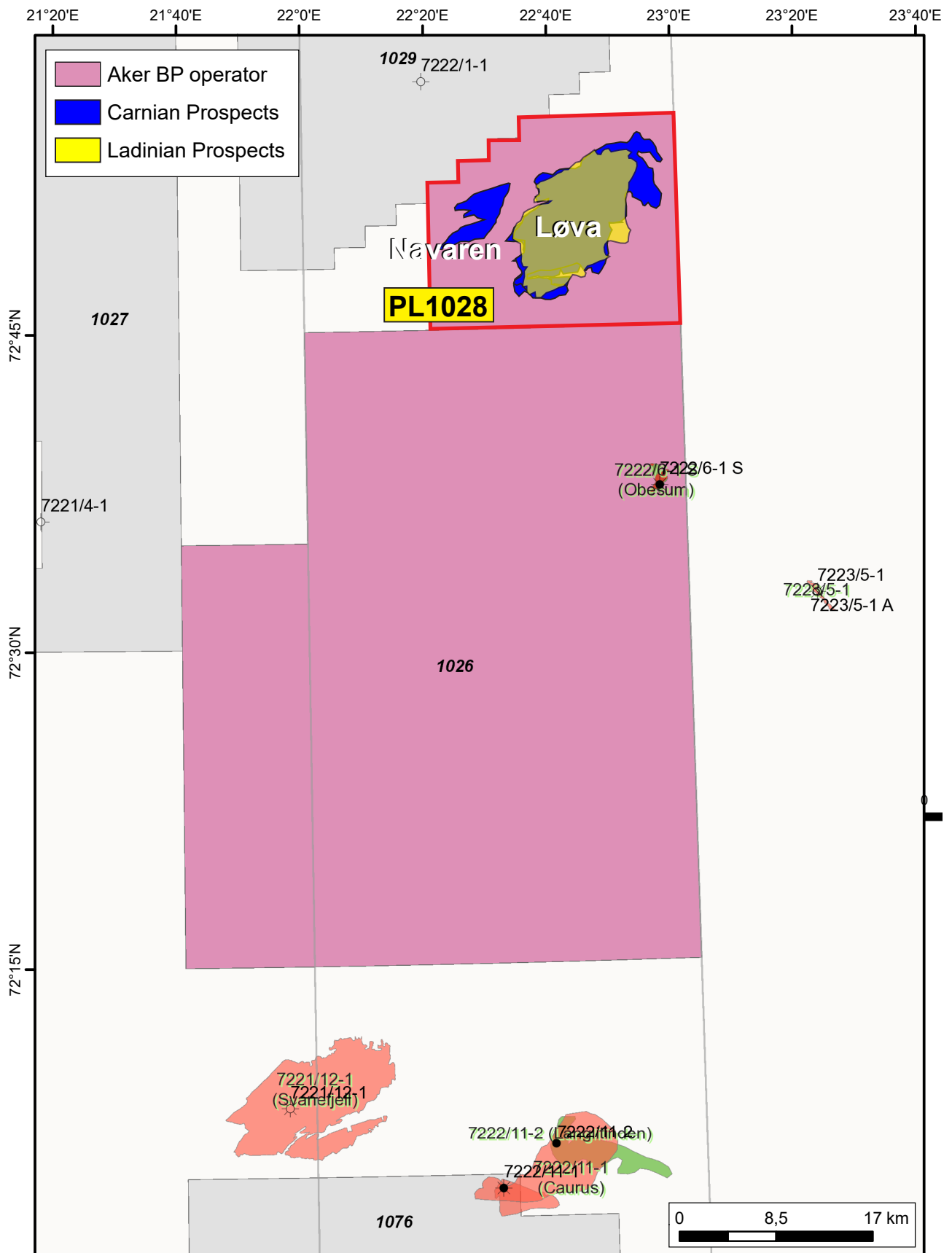


Fig. 1.3 Identified prospectivity in PL1028.

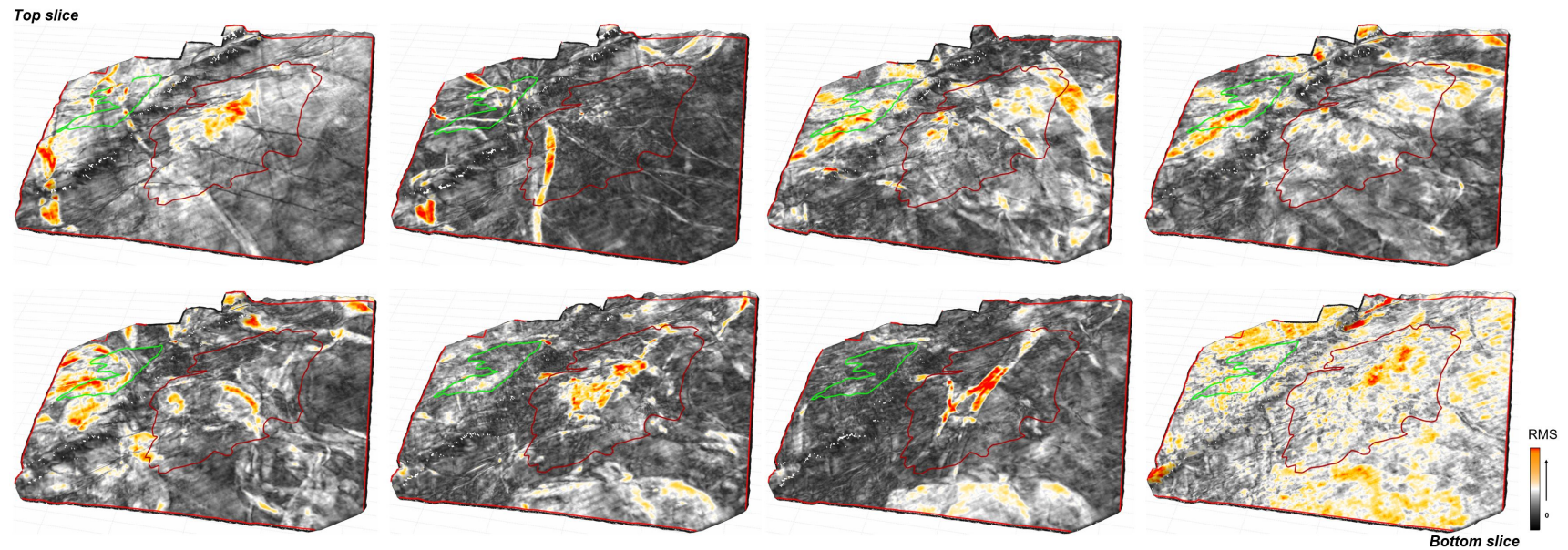


Fig. 1.4 Ladinian and Carnian channel complexes. *Intra Snadd reservoir development.*

Paleoscan generated attribute maps. RMS amplitude extraction from top Early Carnian Snadd Fm to intra Late Ladinian Snadd Fm. Few channels crossing the Løva (dark red polygon) and Navaren (green polygon) closures. Low volume potential.

2 Database overviews

2.1 Seismic Database

The seismic database comprises a selection of both public and proprietary 2D and 3D seismic data available for seismic to well ties, semi-regional mapping and detailed prospect mapping and evaluation. The 2D and 3D seismic database is listed in Table 2.1 and shown in Fig. 2.1.

The GDF1201M13 provides the basis for interpretation and evaluation of the Løva and Navaren prospects. The 2,5D Halfseis data (ABP19001) was acquired as part of the work programme.

Table 2.1 Common database. 2D and 3D seismic.

SURVEY	2D/3D	Year	Offset data	Tie-wells	Comments
GDF1201M13	3D	2013	YES		Main seismic volume
WG14001	3D	2014	YES	7121/1-1R, 7221/12-1	Regional mapping
WG14001R20	3D	2020	YES		Regional mapping
ABP19001	2,5D	2019	YES	7221/12-1	Regional mapping and well-tie to Svanefjell well (HalfSeis data)
NBR08	2D 139718	2008			Regional mapping
	2D 241714	2008			Regional mapping
	2D 242750	2008			Regional mapping
NBR09	2D 242200	2009	Yes		Regional mapping

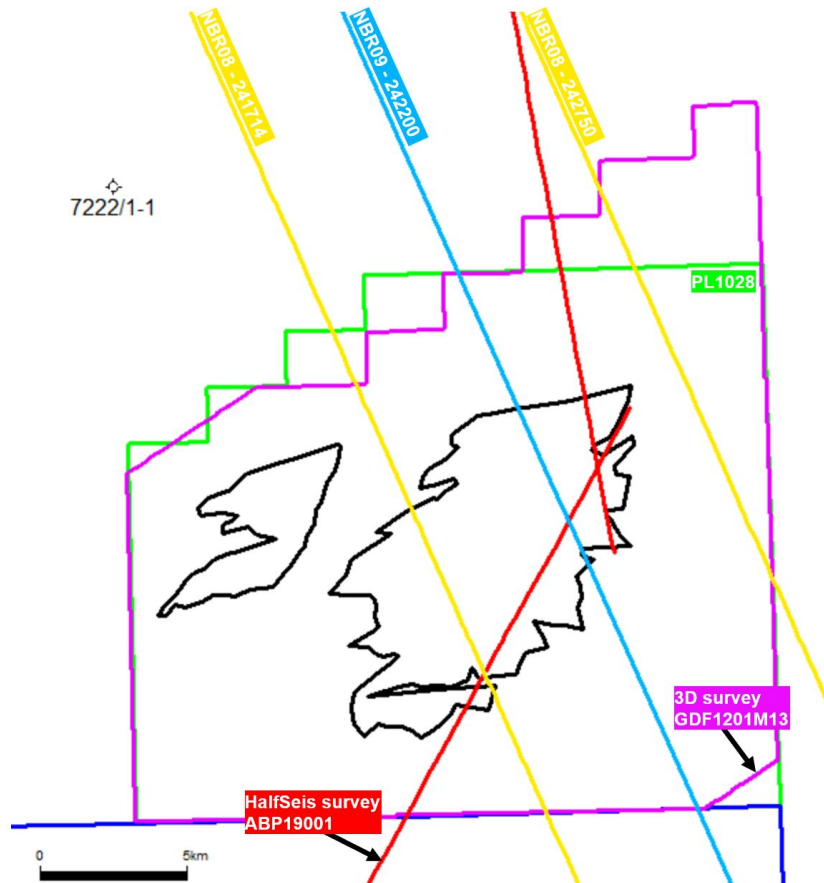


Fig. 2.1 Seismic database for PL1028

2.1.1 Seismic data conditioning

In-house seismic gather conditioning was performed in the main 3D seismic survey. The aim of the seismic conditioning was to increase the S/N, improve the stacking velocities, balance the frequency spectre over the offset range and increase the vertical resolution. Improved data quality and increased stratigraphic and structural confidence follow from careful well-driven modelling and QC.

Input data: GDF1201M13-DECIMATED-MIGRATED-GATHERS (Inline i2, xline i2)

The following post-migration sequence was applied:

- Angle muted offset gathers (0-45 deg.)
- RMO (updating RMS and ETA)
- Random noise attenuation
- Residual gather alignment
- Spectral balancing
- Random noise attenuation (2nd pas)
- Creation of angle stacks (00-15, 15-25, 25-35, 35-45)
- Creation of full stack (06-40)

2.2 Well Data

The exploration wells included in the geological and geophysical evaluation are displayed in Fig. 2.2 and listed in Table 2.2.

The well database has been used for generating the stratigraphic framework for the Snadd Formation with focus on reservoir distribution and quality as well as hydrocarbon saturation and seal potential. Well data has also been used to build a semi-regional understanding of the petroleum system. In total 23 wells have been used for the geological evaluation. Nearby wells such as 7221/12-1 "Svanefjell", 7222/11-1T2 "Caurus", 7222/11-2 "Langlitind", 7222/1-1 "Aurelia", 7222/6-1 S "Obesum I" and 7223/5-1 "Obesum II" have been especially important for well to seismic tie and prospect evaluation.

Table 2.2 Well database. Key wells are outline with bold types.

WELL	Informal name (prosp./disc)	Operator	Year	Content	TD (MD)	Formation
7120/1-1R2	Reinrose	A/S Norske Shell	1986	shows	4003	Basement
7120/1-3	Gohta I	Lundin Norway AS	2013	oil/gas	2542	Røye Fm
7120/1-4S	Gohta II	Lundin Norway AS	2014	gas	2520	Røye Fm
7120/1-5	Gohta III	Lundin Norway AS	2017	dry	2527	Røye Fm
7120/2-1	Senilix	Norsk Hydro Produksjon AS	1985	shows	3502	Basement
7121/1-1 R	Fenris	Esso Expl. and Prod. Norway A/S	1986	shows	5000	Ørn Fm
7220/6-1	Obelix	Norsk Hydro Produksjon AS	2005	shows	1540	Basement
7220/11-1	Alta	Lundin Norway AS	2014	oil/gas	2251	Ugle Fm
7220/11-2	Alta	Lundin Norway AS	2015	gas	2050	Basement
7220/11-3T2	Alta	Lundin Norway AS	2015	oil/gas	1922	Ørn Fm
7220/11-3AR	Alta	Lundin Norway AS	2016	oil/gas	2135	Ørn Fm
7220/11-3AT2	Alta	Lundin Norway AS	2016	oil/gas	2600	Ørn Fm
7220/11-4	Alta	Lundin Norway AS	2017	oil/gas	2282	Ørn Fm
7221/12-1	Svanefjell	AkerBP	2018	gas	724	Snadd Fm
7222/1-1	Aurelia	Eni Norge AS	2016	dry	2400	Røye Fm
7222/6-1 S	Obesum I	StatoilHydro AS	2008	oil/gas	2895	Havert Fm
7222/11-1T2	Caurus	StatoilHydro AS	2008	oil/gas	2658	Kobbe Fm
7222/11-2	Langlitind	Det norske oljeselskap ASA	2014	oil/gas	2918	Klappmyss Fm
7223/5-1	Obesum II	StatoilHydro AS	2008	gas	2549	Klappmyss Fm
7224/2-1	Kvalross	Wintershall Norge AS	2016	dry	2944	Havert Fm
7321/8-1	Fingerdjupet	Norsk Hydro Produksjon AS	1987	shows	3482	Røye Fm
7324/10-1	Alfa	Den norske stats oljeselskap a.s	1989	shows	2919	Havert Fm
7325/4-1	Gemini Nord	Statoil Petroleum AS	2017	oil/gas	1178	Snadd Fm

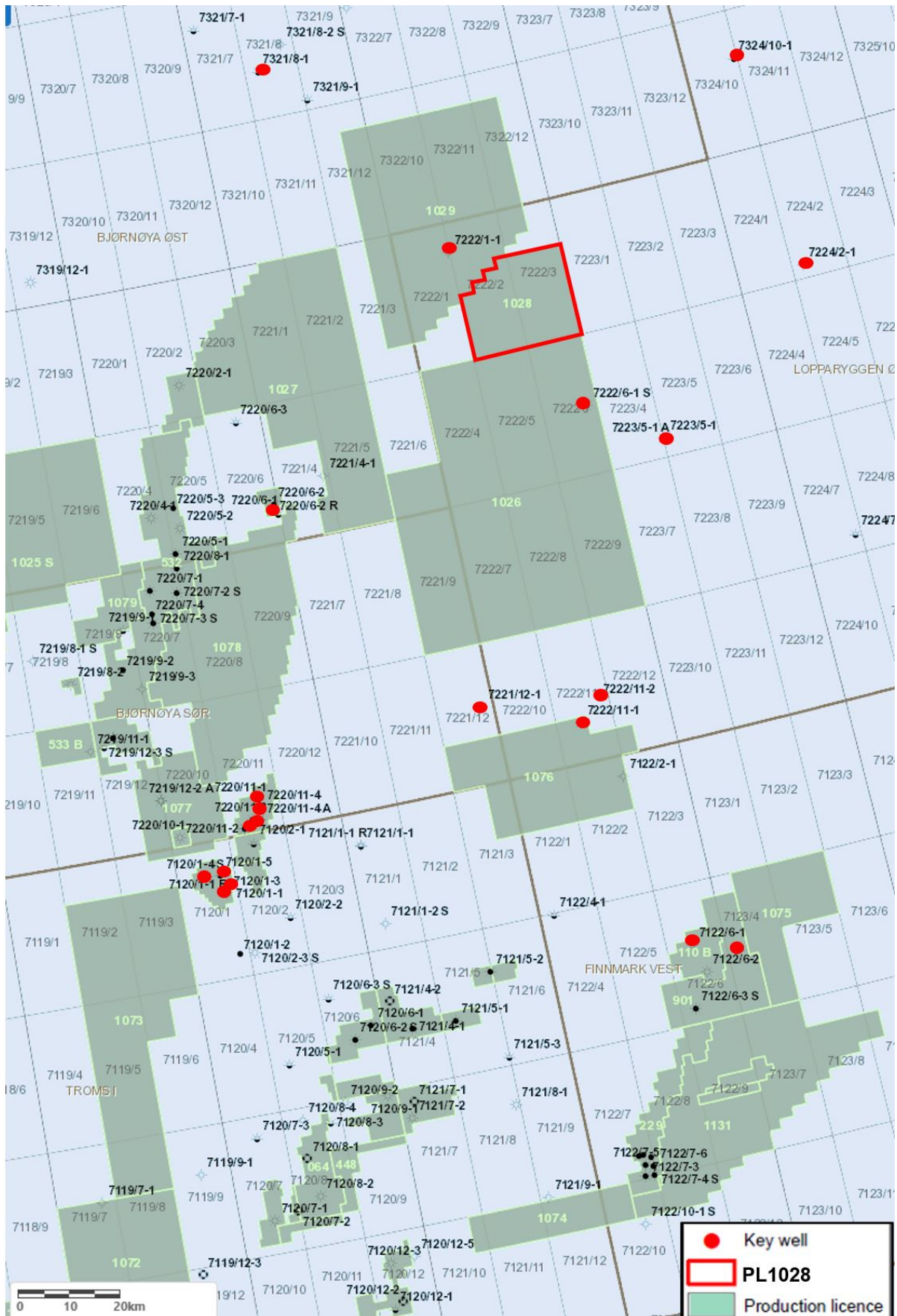


Fig. 2.2 Well database.

3 Results of Geological and Geophysical Studies

The prospectivity of the Snadd Formation on the eastern flank of the Loppa High have been tested by several wells, all with disappointing results. Oil/residual oil has been proven at all stratigraphic levels from the Ladinian (7222/6-1S) to late Carnian/Norian (7221/12-1). The main challenges for Snadd Formation prospectivity are:

- Few to non viable traps (both struc & strat).
- Challenging to delimit robust traps with an economical volume potential.
- Geophysical support for oil accumulations (difficult to discriminate between brine and oil).

No drilling candidates have been found within the Snadd Formation Play. However, a working hydrocarbhone system and reservoir development, mostly fluvial reservoirs, are proven in nearby wells. Key risks for Snadd prospects are trap integrity (retention). Stratigraphic pinch-out in combination with structural closures seem to the be best chance for success in the Barents Sea (e.g., Caurus 7222/11-1 and Intrepid Eagle 7324/3-1).

The Kobbe Play is adequately tested and invalidated by the Caurus (7222/11-1), Langlitinden (7222/11-2) and Polmak (7221/4-1) wells and considered non-attractive within PL1028.

4 Prospect Update Report

4.1 Løva Prospect

The Løva Prospect (Fig. 4.1) is an east dipping closure fault-bounded by narrow grabens to the west and northwest. The reservoir is Ladinian to early Carnian age fluvial sandstones sealed by marine shales of Carnian age.

APA2018 application volume estimates:

- Volumes (*recov., SMm3 total res.*)
 - APA2018 (P90/mean/P10): 1 – 11 – 26 (Early Carnian A)
 - APA2018 (P90/mean/P10): 4 – 19 – 35 (Early Carnian B)
 - APA2018 (P90/mean/P10): 8 – 18 – 29 (Late Ladinian)

Post APA2018 evaluation conclusions:

- Volume potential is low due to low lateral and vertical net-to-gross as few channels crosses the Løva closure (Fig. 1.4).
- Low saturation gas is considered the most likely phase with the closure as encountered in the nearby 7222/6-1S well (Obesum) at same stratigraphic level.
- High fault risk (intra Snadd sand-sand juxtaposition and vertical leakage).
- No geophysical support for presence of an oil phase within the closure. Softing observed on seismic data within small structural closures are most likely related to gas (low saturation gas) as proven in the nearby 7222/6-1S well (Obesum I).

Hence, the Løva Prospect is considered adequately tested by the Obesum wells (7222/6-1 & 7223/5-1) and the acreage is considered non-attractive due to limited resource potential and low commercial value.

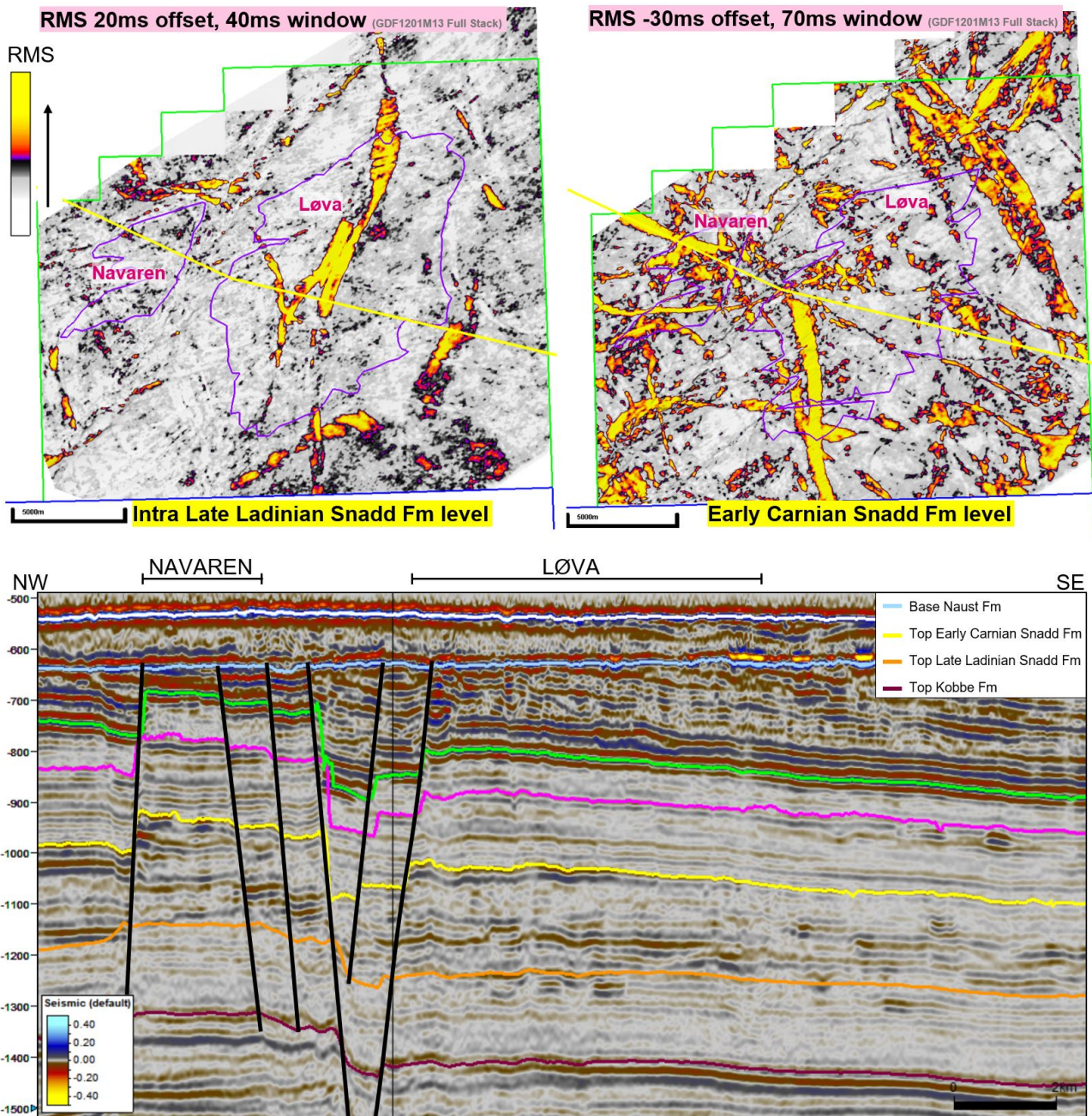


Fig. 4.1 Løva and Navaren multi-target prospects.

4.2 Navaren Prospect

The Navaren prospect (Fig. 4.1) is a small closure fault-bounded by narrow grabens to the east. The reservoir is early Carnian age fluvial sandstones sealed by marine shales of Carnian age.

APA2018 application volume estimates:

- Volumes (*recov., SMm3 total res.*)
 - APA2018 (P90/mean/P10): 2 – 3 – 5 (Early Carnian A)

Post APA2018 evaluation conclusions:

- Volume potential is low due to low lateral and vertical net-to-gross as few channels crosses the Navaren closure (Fig. 1.4).
- Low saturation gas is considered the most likely phase as encountered in the nearby 7222/6-1S well (Obesum) at same stratigraphic level.
- High fault risk (intra Snadd sand-sand juxtaposition and vertical leakage).
- No geophysical support for presence of an oil phase within the closure.

Hence, the Navaren Prospect is considered adequately tested by the Obesum wells (7222/6-1 & 7223/5-1) and the acreage is considered non-attractive due to limited resource potential and low commercial value.

5 Technical Assessment

Due to high exploration risk and low volume potential (no stand-alone cases) no business case has been made.

6 Conclusion

Snadd Fm Play

- **Løva and Navaren prospects**
 - Amplitude anomalies related to lithology (*easily mappable fluvial channels*)
 - Lack of reservoir presence within structural closures (*Low vertical and lateral N/G*)
 - High risk on trap (*fault dependent traps, hence retention challenges*)
 - Non to low amplitude support for presence of and oil phase
 - Non attractive acreage with low volume potential

Kobbe Fm Play

- *Non attractive play*
 - *adequately tested and invalidated* by the Caurus, Langlitinden and Polmak wells (lack of effective reservoir).

No additional prospectivity in remaining plays.

No drilling candidate has been identified due to low volume potential and high explorational risk and the licence group have unanimously decided to drop PL1028.

7 References

APA 2018. Production license application for blocks 7222/1, 2, 3 & 7322/10, 11, Aker BP.



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