

Fig 2-1: Map window showing study area and 2D seismic lines across Barents Sea.

### 2.2.2 3D Seismic Data

Three 3D seismic cubes have been used to cover the gap in between the 2D seismic data sets in order to extend the stratigraphic unit across the Hammerfest Basin. These cubes are located in Hammerfest Basin of Barents Sea. The 3D seismic cubes have Geodetic datum of ED50 UTM 34N with distance between inline and cross lines are 12.5mx 12.5m. The location of 3D cubes can be shown in fig 2.2.

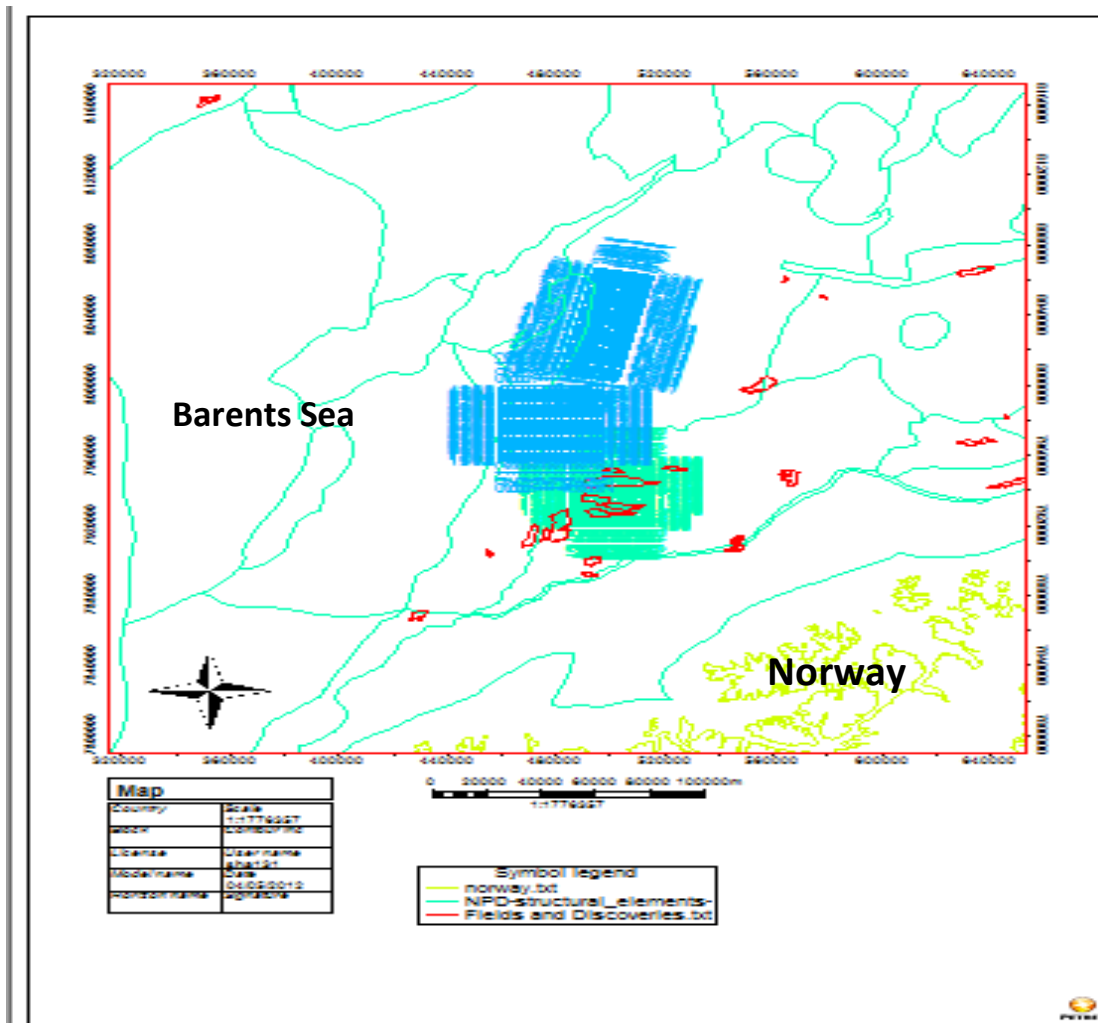


Fig 2-2: Map window showing location of 3D cube together with structural elements and discoveries in SW Barents Sea.

## 2.3 Well data

Different well logs were used to calibrate borehole depth to the two-way travel time of the seismic data and to understand lithostratigraphy, physical properties and depositional environmental of the subsurface. Well penetrated in SW Barents Sea are spaced large with up to 60-70 km in between the well. Since 1979, 87 exploration wells have been drilled in the south western Barents Sea and nearly half of those are inside the Hammerfest Basin. Thermal gradients are calculated from bottom hole temperature and maximum true vertical depth of the different wells. The average geothermal gradient of the Barents Sea is around 30

The Torsk Formation is getting thinner on eastern side of the study area including areas of Veslemøy High, , Hammerfest Basin, Stappen High and southern Bjørnøya area. (fig 3.6)

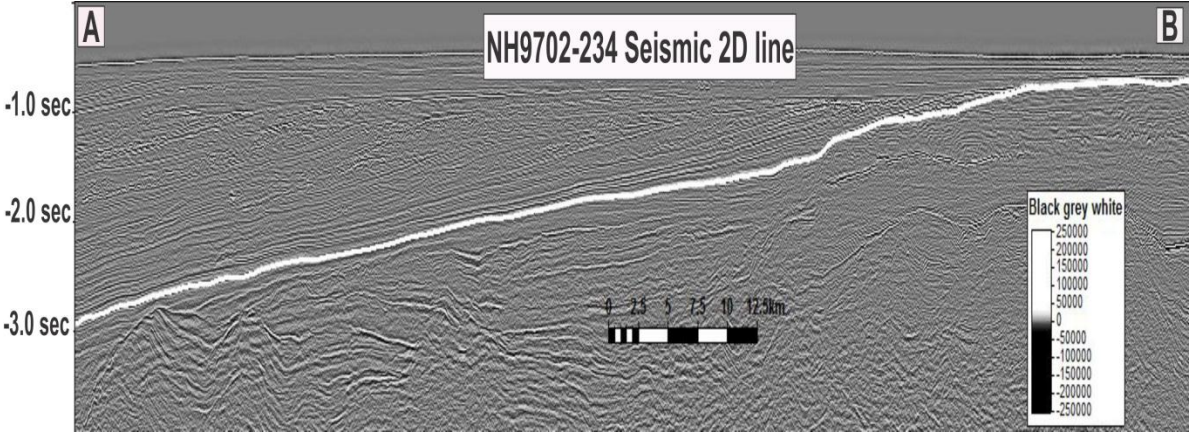
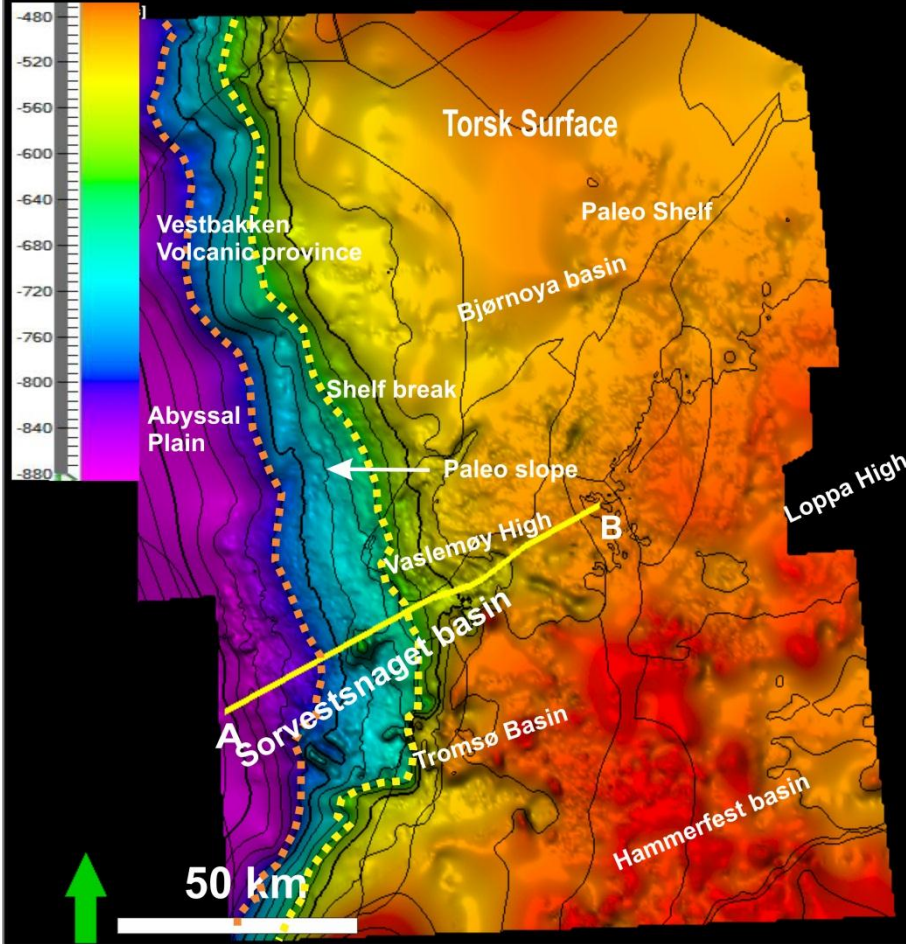


Fig 3-5: showing progradational depositional pattern of Torsk formation around the western part of Loppa High and Sørvestsnaget Basin.

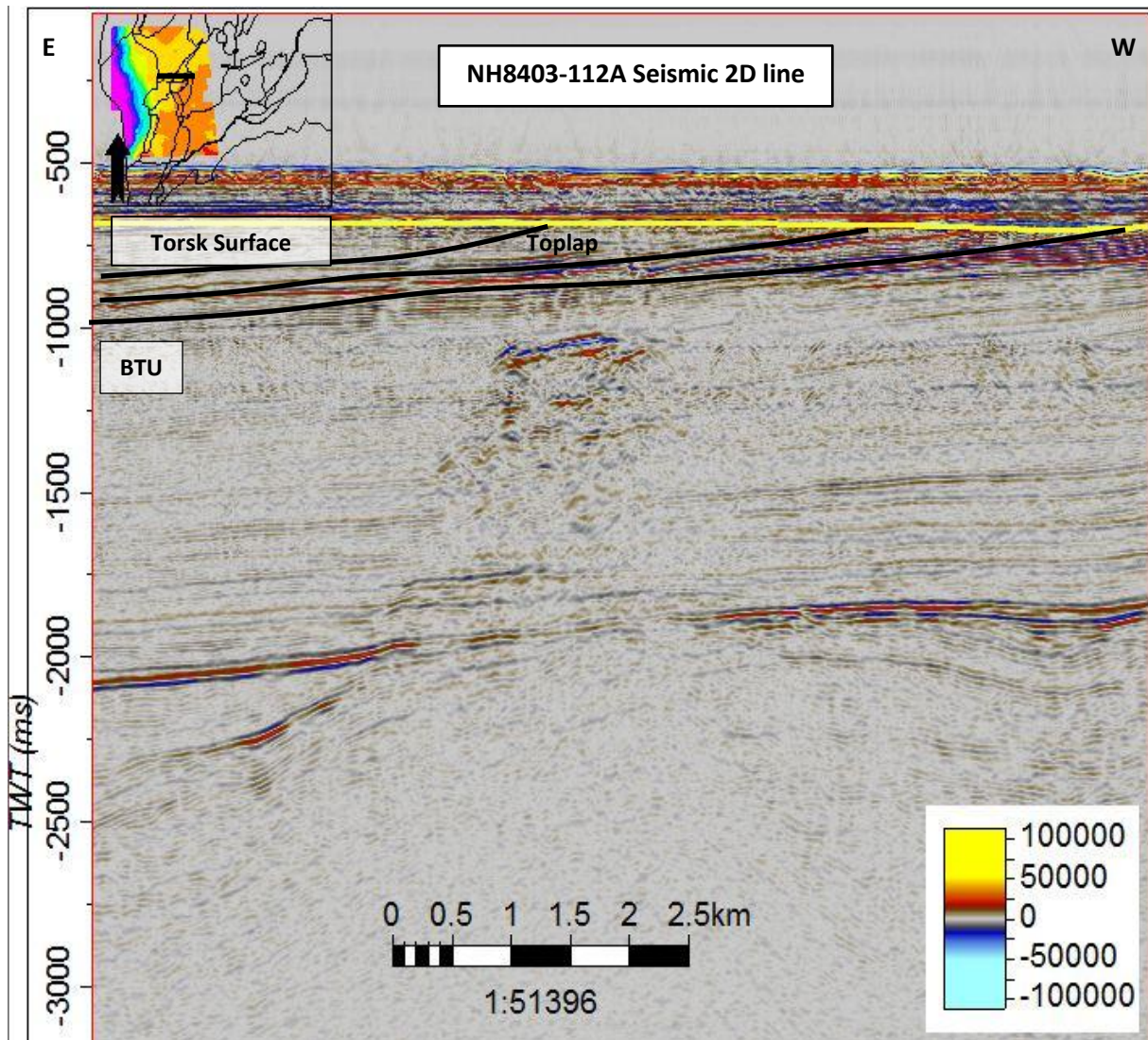


Fig3-7: showing the underlying dipping layer of Bottom Tertiary unit (BTU) cross cutting the Torsk formation in western flank of Loppa High.

### 3.1.3 Kolmule Formation

The Kolmule formation is a lower Cretaceous unit in SW Barents Sea and is well exposed in my study area except in Loppa High where it is interpreted to be eroded result from uplift of the Loppa High (fig 3.8). The Kolmule formation reveals a medium to good continuity and exhibit a medium to high amplitude reflection pattern. It represents a part of paleo shelf sediments with prograding dipping reflections in the Veslemøy High area and in Sørvestsnaget Basin . Internal configuration of Kolmule formation is marked by random