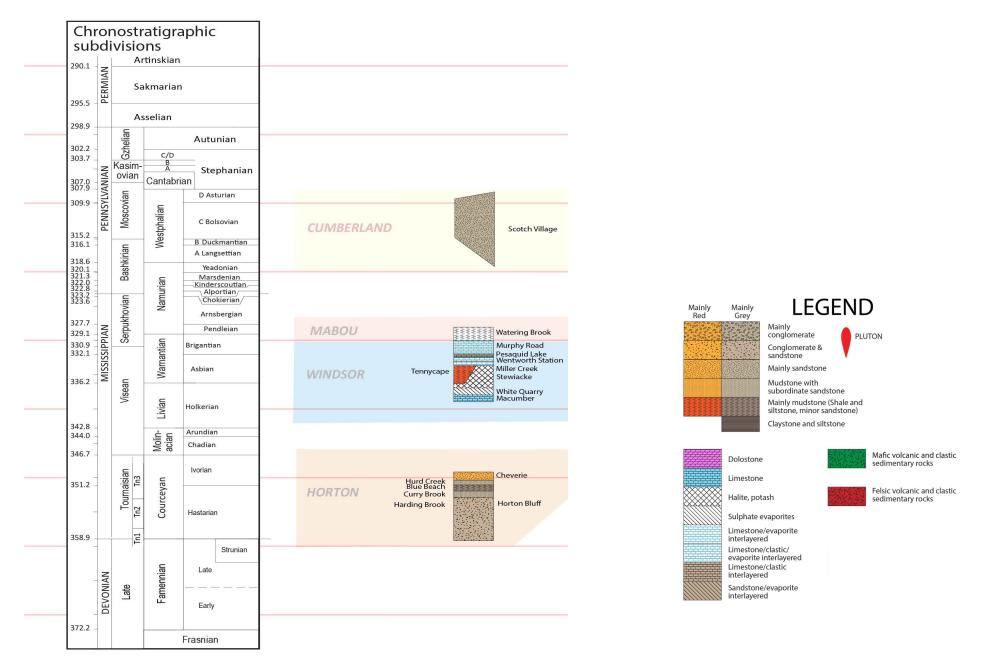
## **Seismic Interpretation in the Windsor Basin**

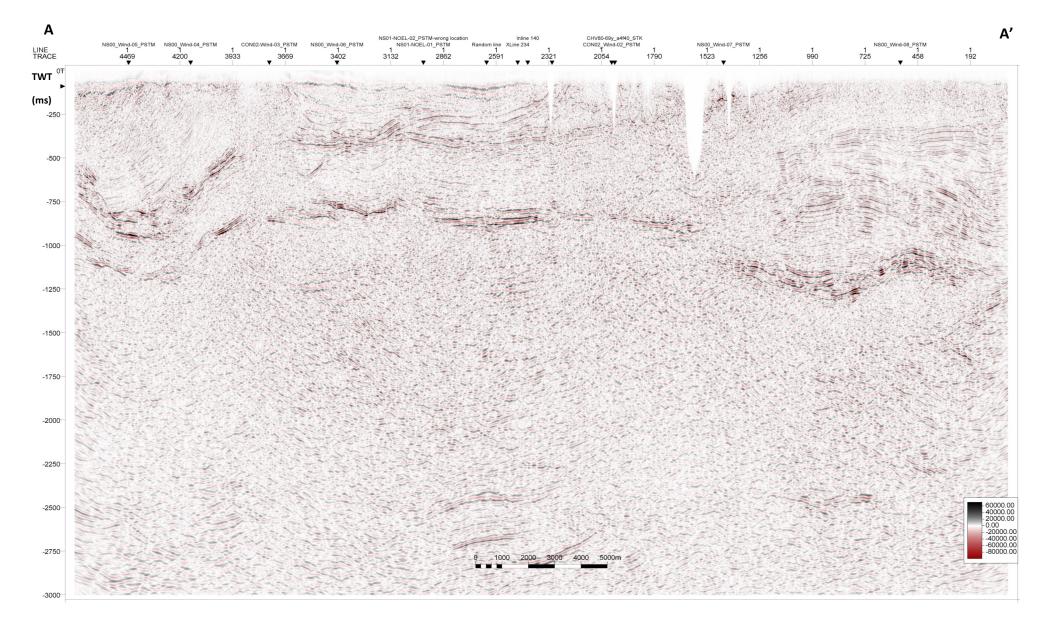
Created by: Helen Cen (Department of Energy, Nova Scotia)

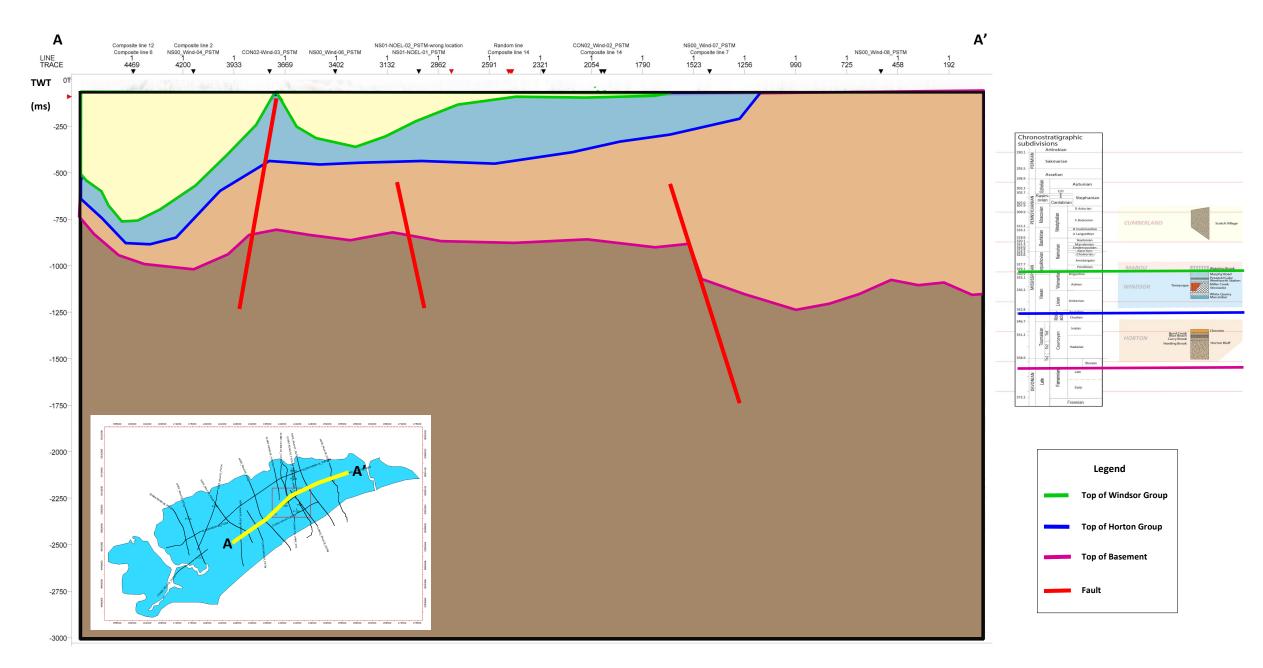


Location Map of the Study Area, Windsor Basin

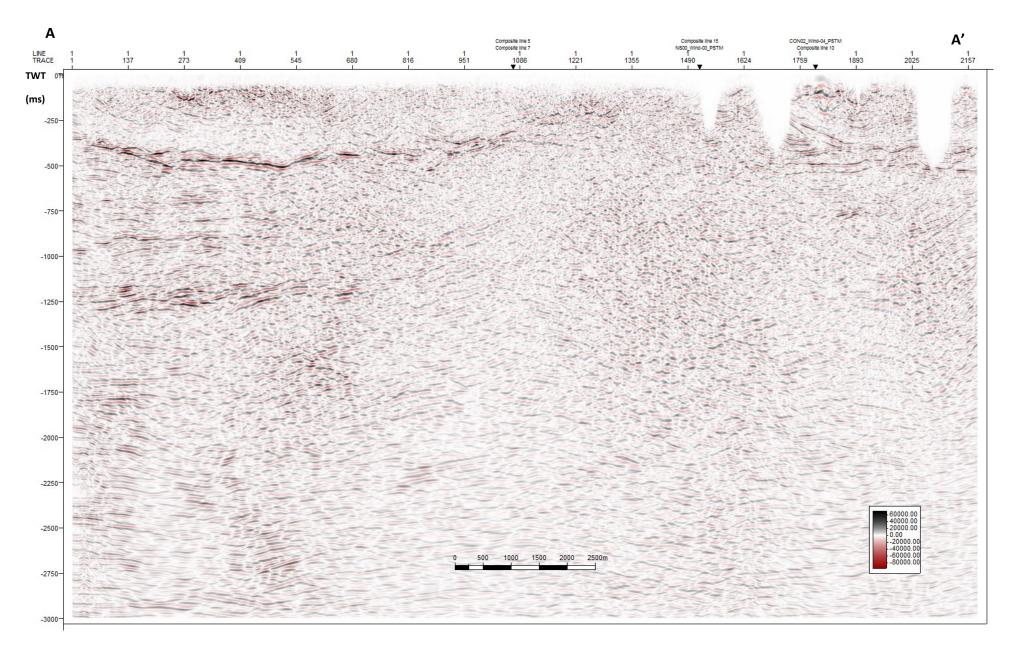


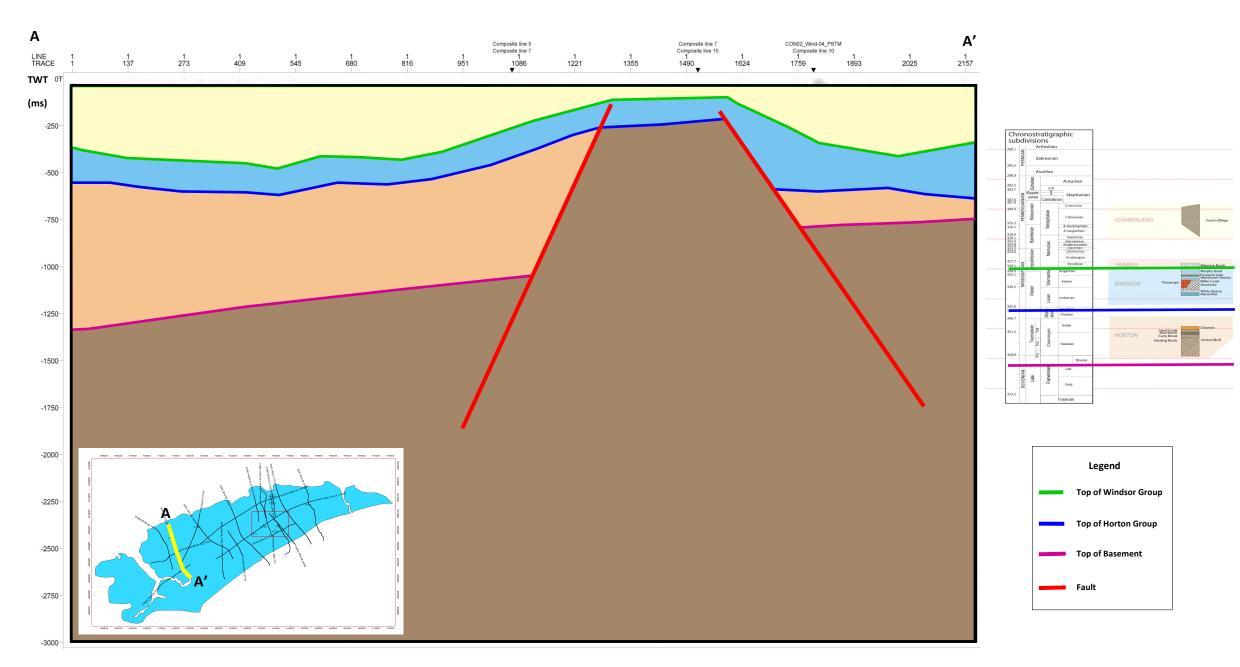
Stratigraphic Column of Windsor Basin (Waldron, 2017)



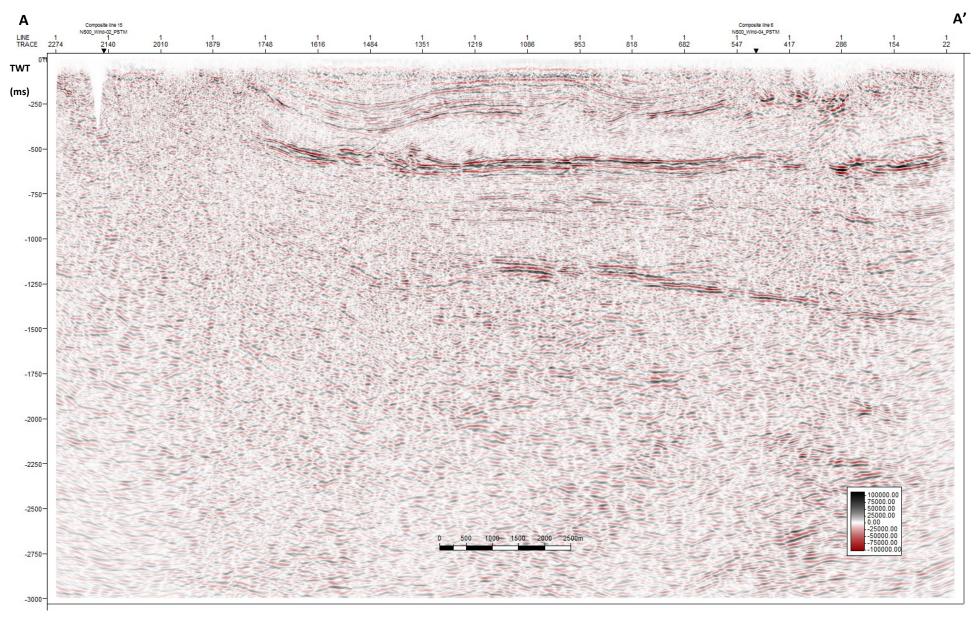


Interpreted Seismic Line NS00-WIND-01 showing the thickness variation of the Horton and Windsor Groups from southwest to northeast (A-A') in the center area of the Windsor Basin. The top of basement was gradually deepening to the northeast. The thickness of Horton Group increased to northeast where Windsor Group sediments was missing due to non-deposition or subsequent erosion (NSDOE, 2016).

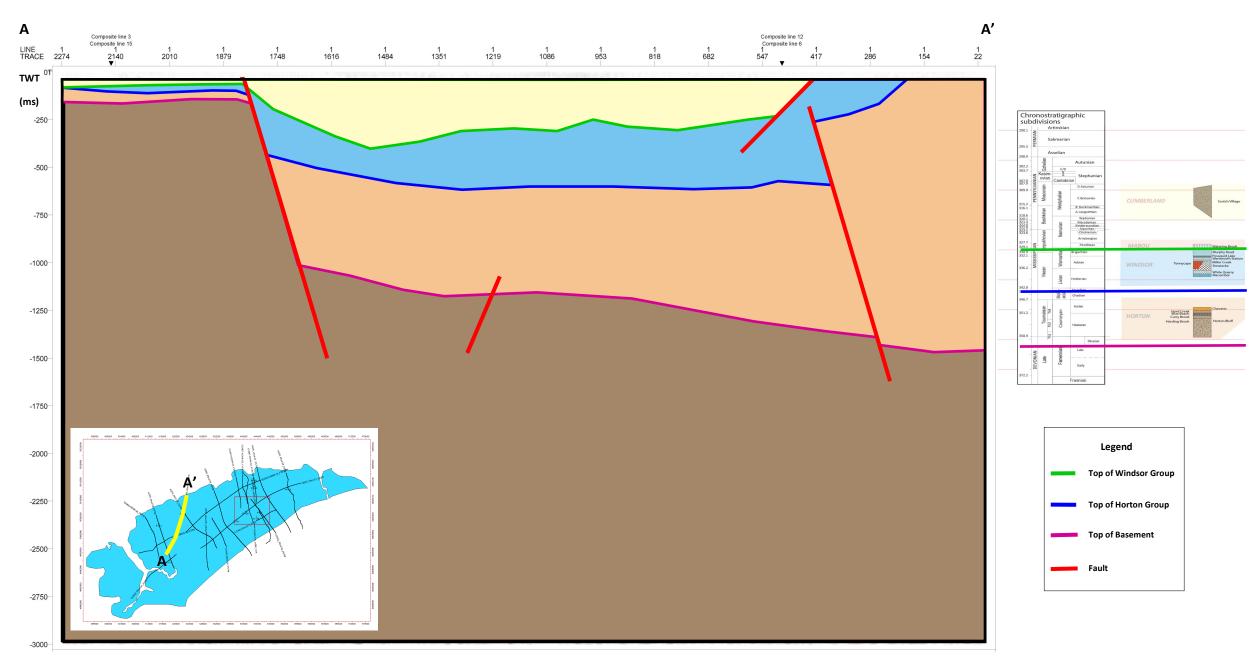




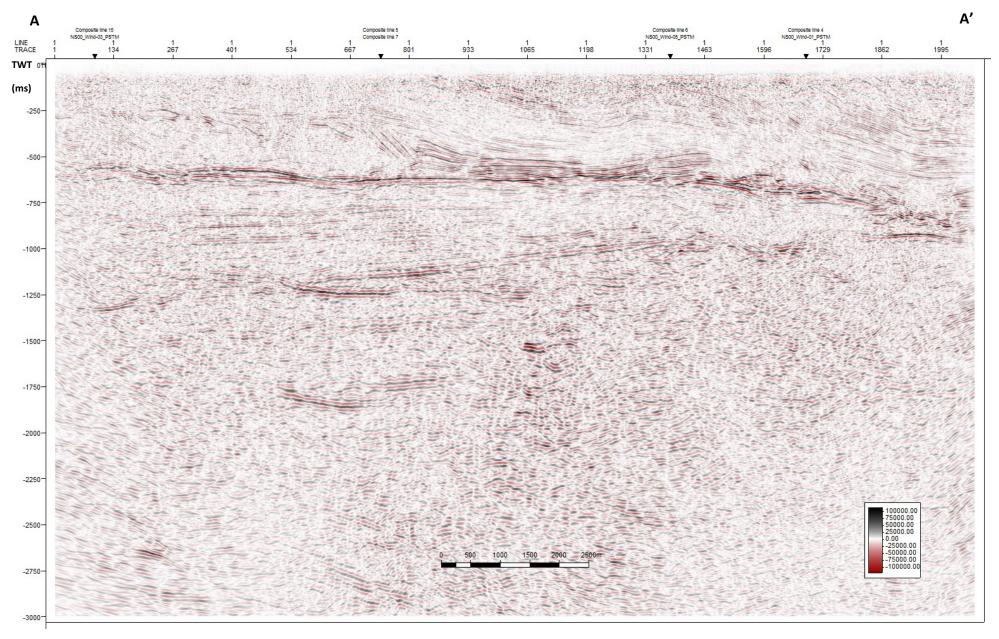
Interpreted Seismic Line NS00-WIND-02 showing a basement high located at the southwest corner of the Windsor Basin, the seismic reflections showed the chaotic and incoherent at the basement high area (NSDOE, 2016).



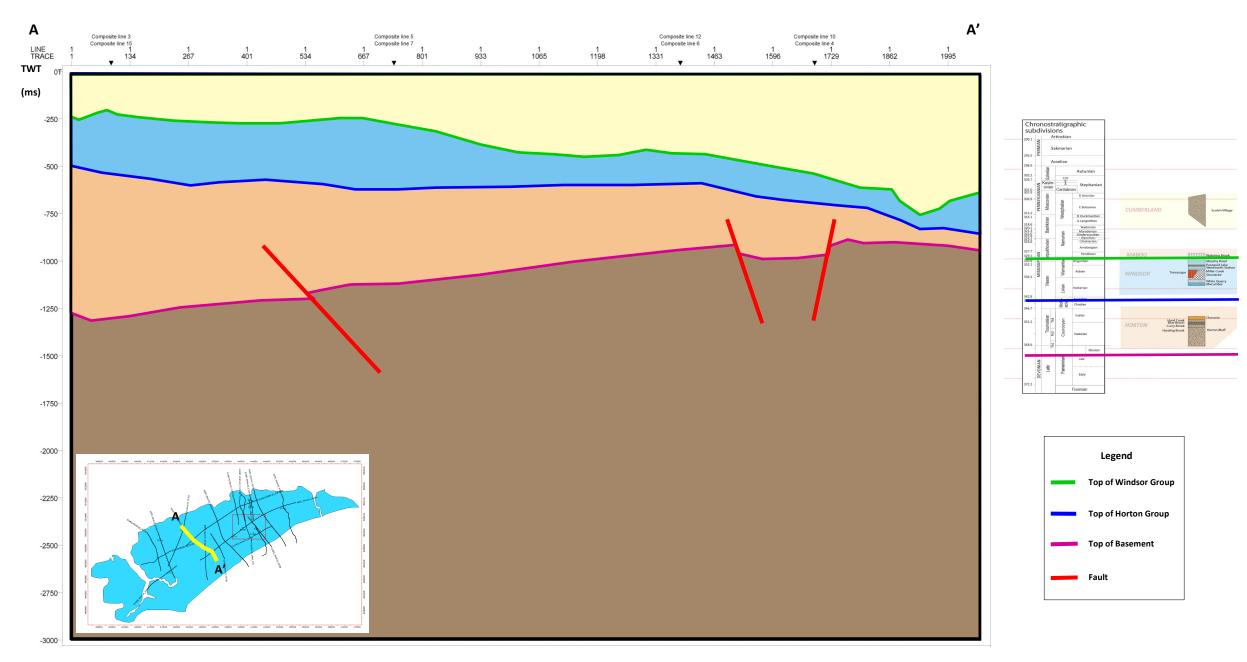
Uninterpreted seismic line NS00-WIND-03



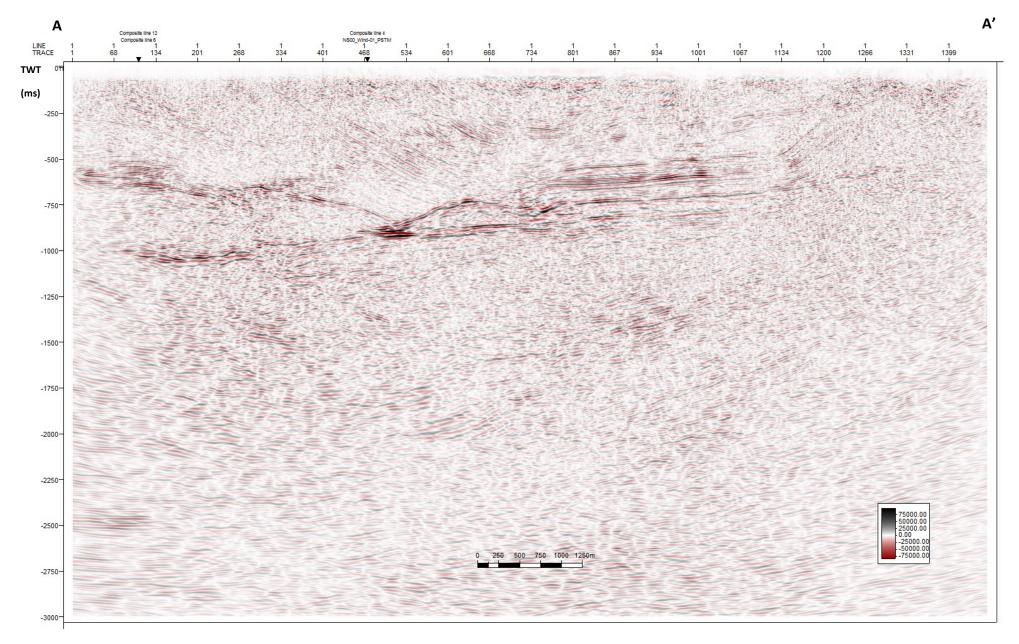
Interpreted Seismic Line NS00-WIND-03 showing there was a basement high located at the southwest corner of the Windsor Basin. The Horton Group became thickening from south to north (A-A') (NSDOE, 2016).

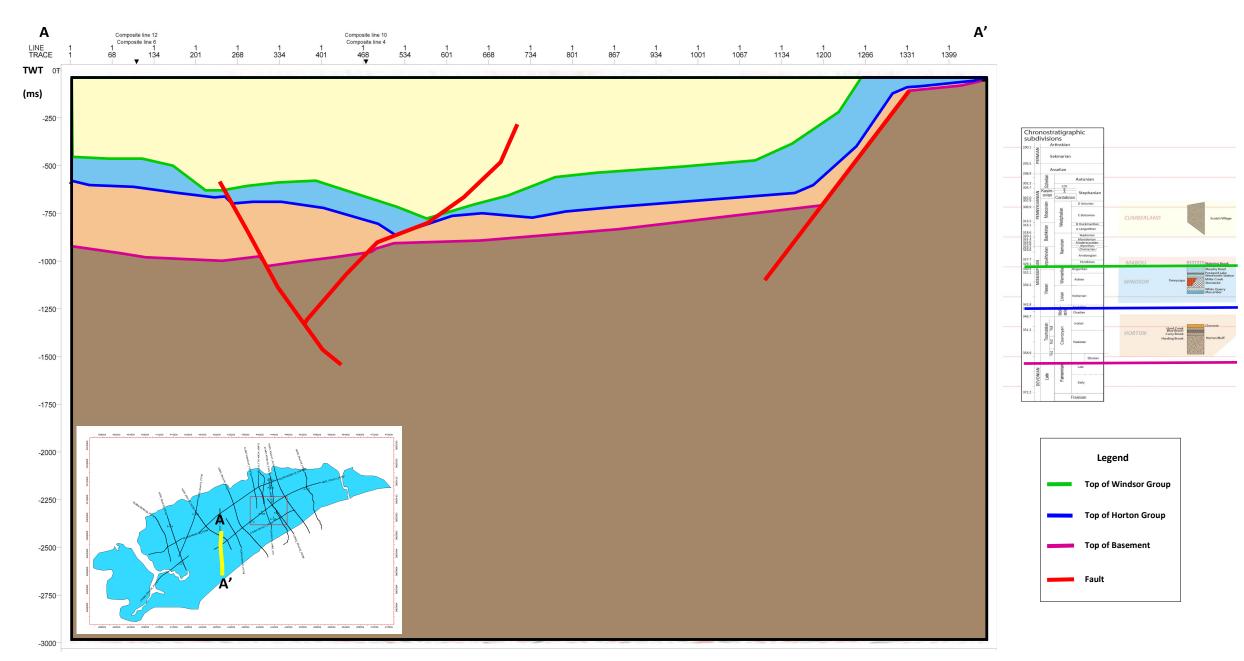


Uninterpreted seismic line NS00-WIND-04

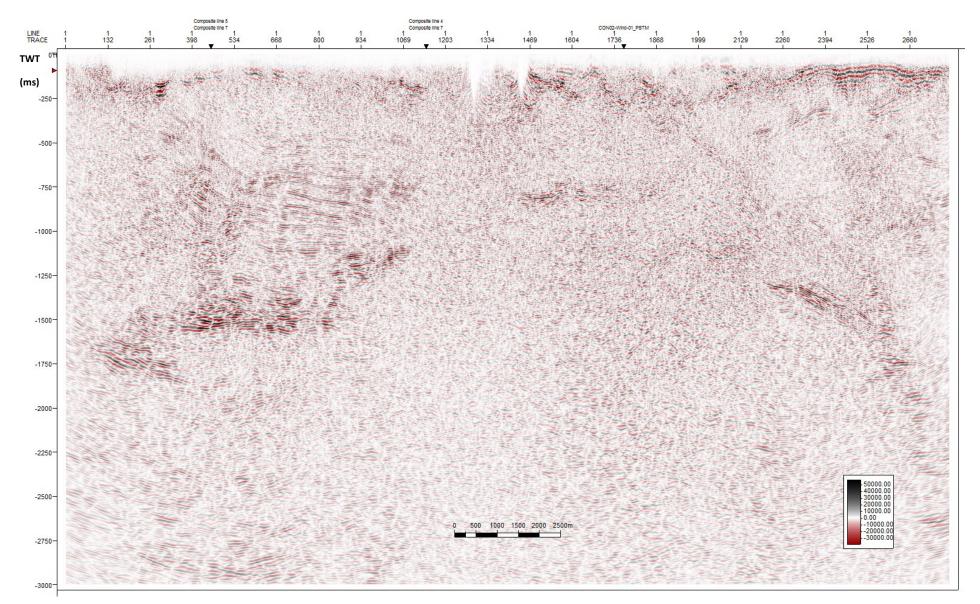


Interpreted Seismic Line NS00-WIND-04 clearly showing the Horton Group was pitched out at the south end of the seismic line. Chaotic and discordant seismic reflections within the Windsor Group indicated that evaporate of the lower Windsor was highly deformed (NSDOE, 2016).

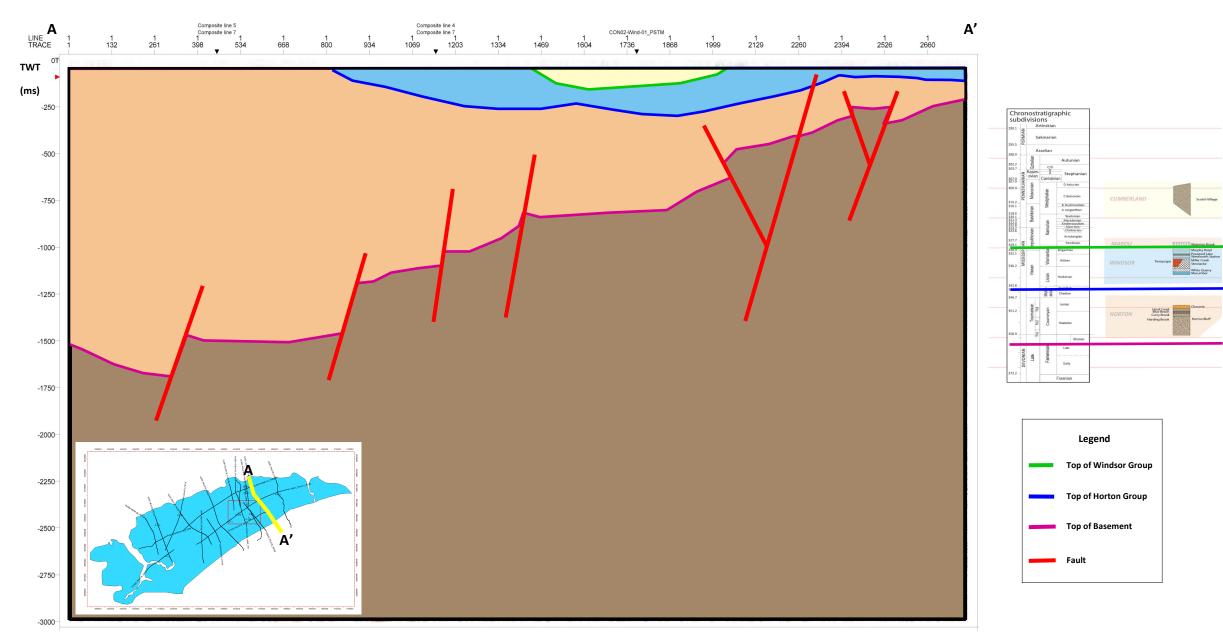




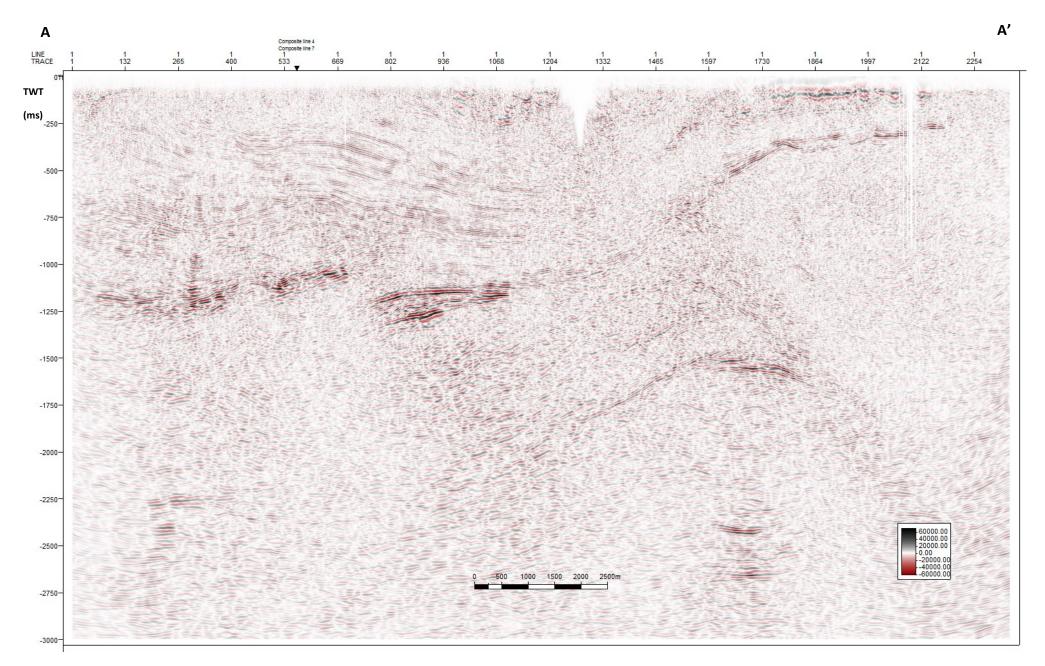
Interpreted Seismic Line NS00-WIND-05 showing the seismic reflections within the Windsor Group was incoherent and discontinuous due to evaporate mobility and collapse. The basement high at the south end of the seismic line indicated the line might locate at the basin margin (NSDOE, 2016).

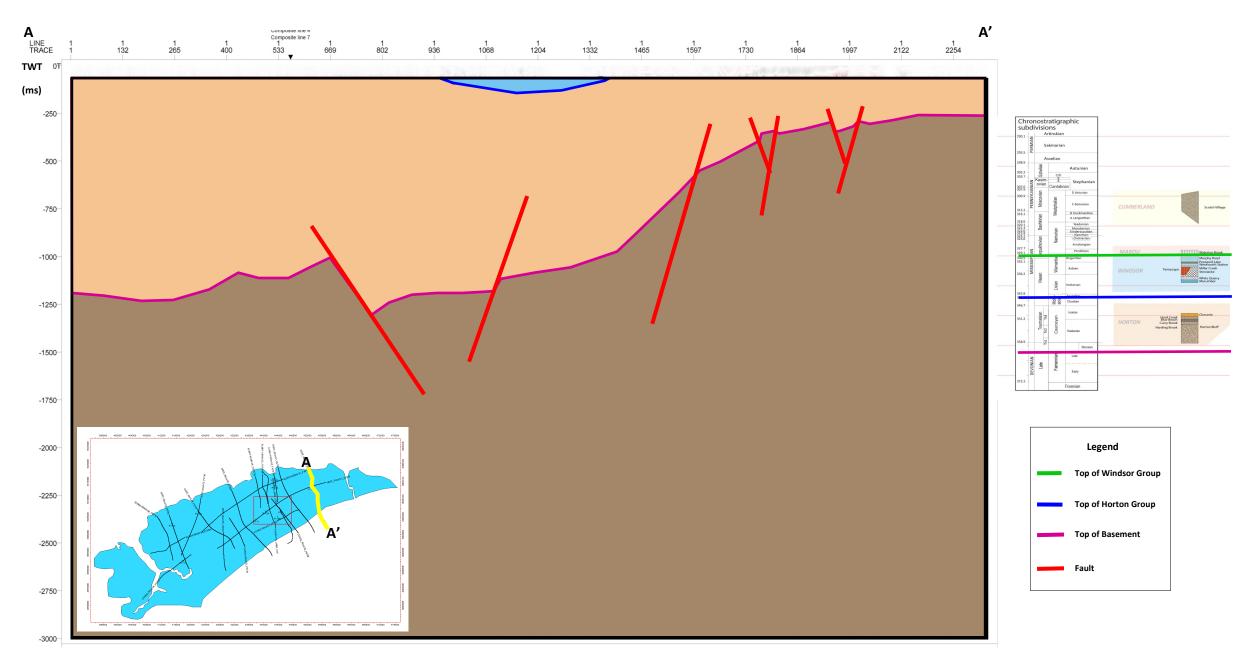


Uninterpreted seismic line NS00-WIND-07

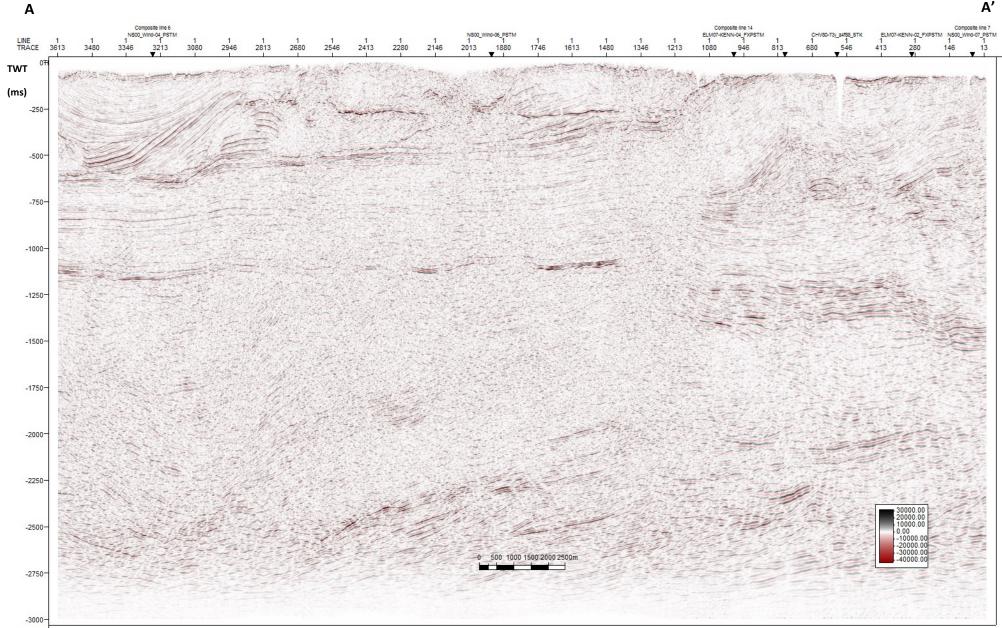


Interpreted Seismic Line NS00-WIND-07 clearly showing the basin was stepping down northward (from A' to A) which was a typical geometry of the half graben. The whole basin was controlled by the high angle basement related normal faults(NSDOE, 2016).

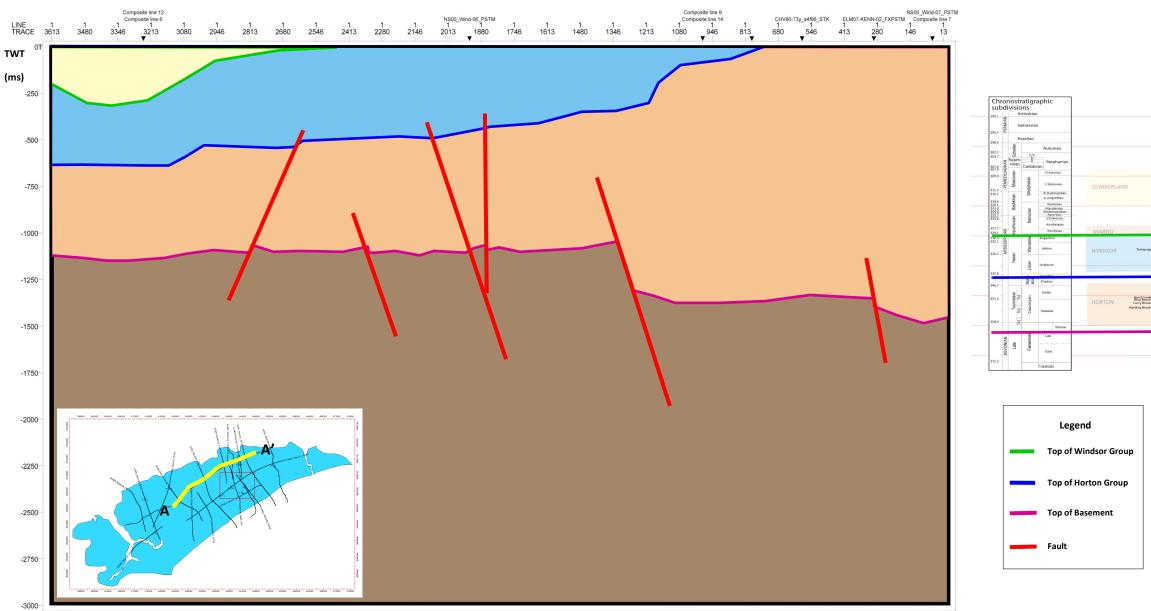




Interpreted Seismic Line NS00-WIND-08 showing the whole basin was stepping down from south to north (A'-A). The succession of the Horton Group became thicker northward. The succession of the Windsor Group were missing due to non deposition or subsequent erosion (NSDOE, 2016).



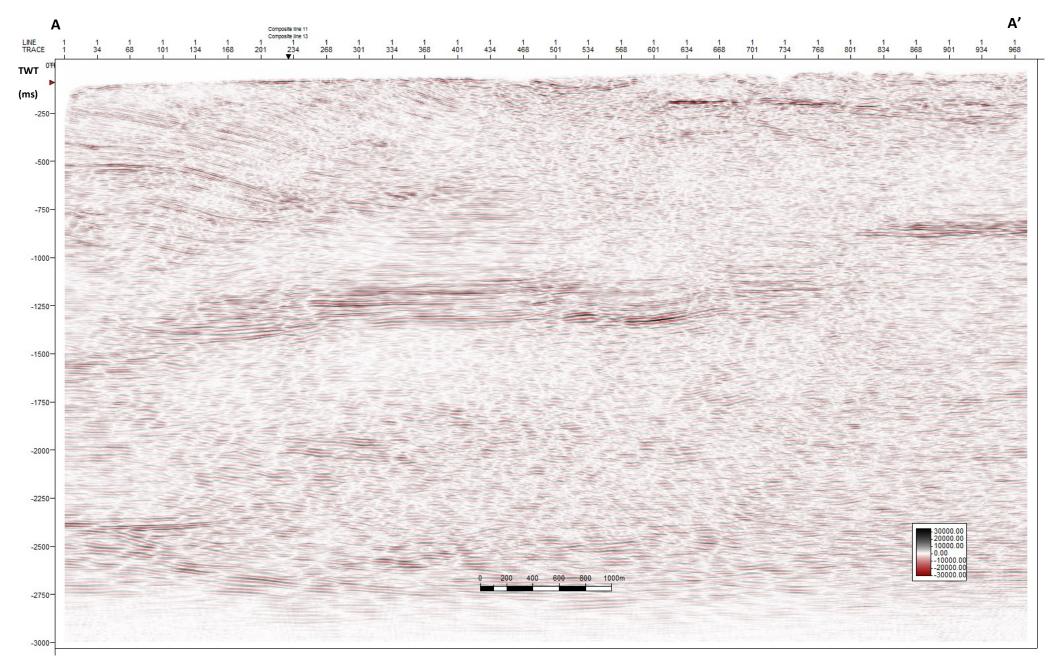
Uninterpreted seismic line ELM07-KENN-01



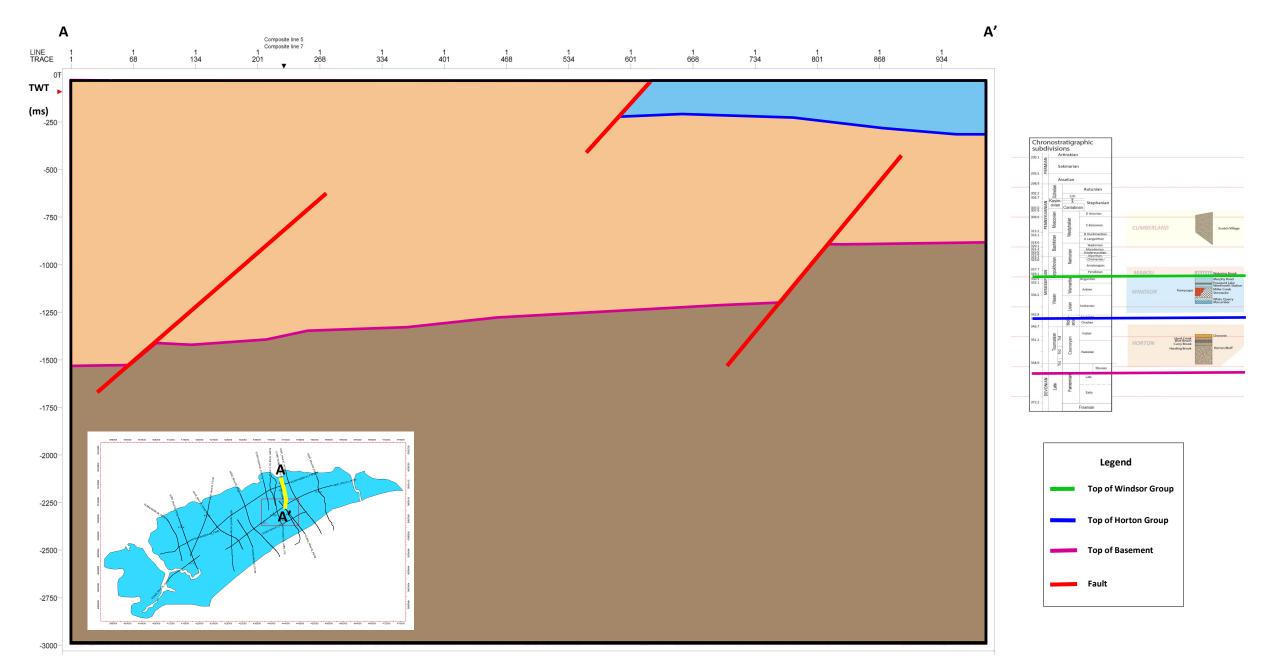
A'

Interpreted Seismic Line ELM07-KENN-01 showing the thickness variation of the Horton and Windsor Groups from southwest to northeast (A-A') along the shoreline. The basin was deepening to the northeast. Parallel, planar seismic reflections within the Horton Group indicated the stratigraphic package of the Horton Group was preserved well. Incoherent and chaotic seismic reflections within the Windsor Group might indicate the succession of Windsor Group were locally highly deformed (NSDOE, 2016).

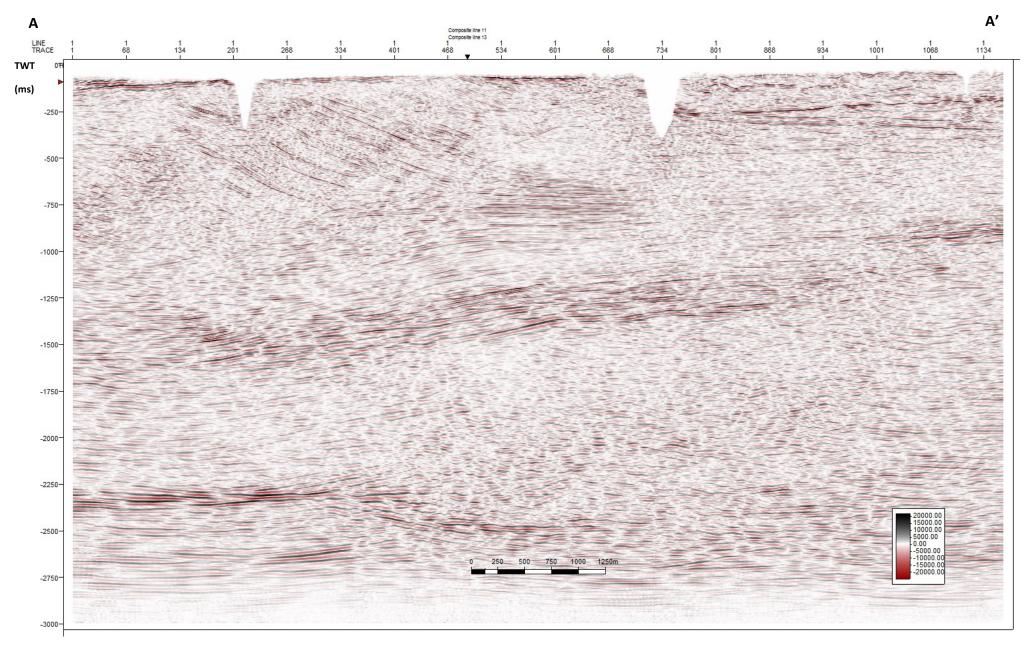
Α



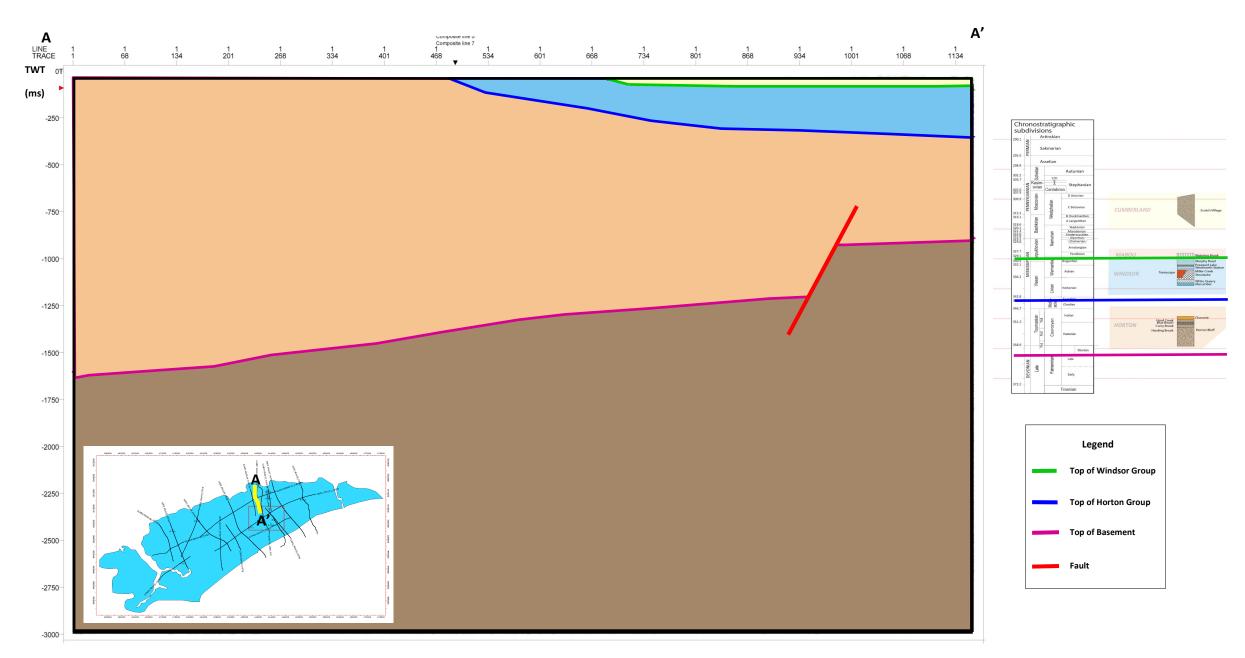
Uninterpreted seismic line ELM07-KENN-02



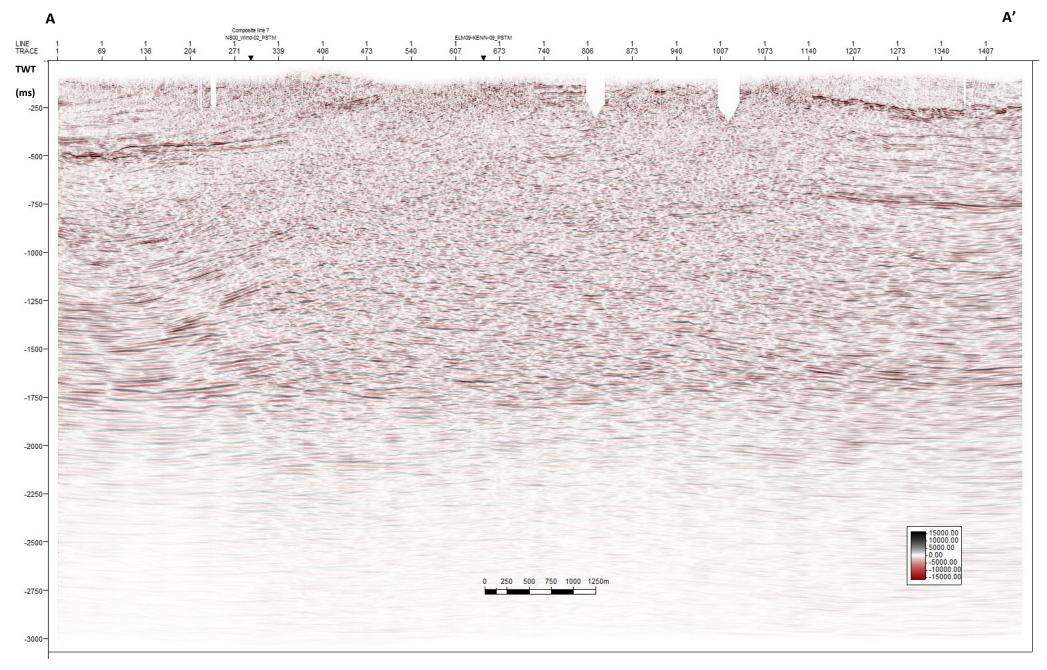
Interpreted Seismic Line ELM07-KENN-02 showing the typical stratigraphic structure of the Windsor Basin. The structure was dominated by graben/half graben with major basement-related normal faults. The whole basin was stepping down northward (from A' to A). The thickness of the Horton Group dramatically increased from south to north (NSDOE, 2016).



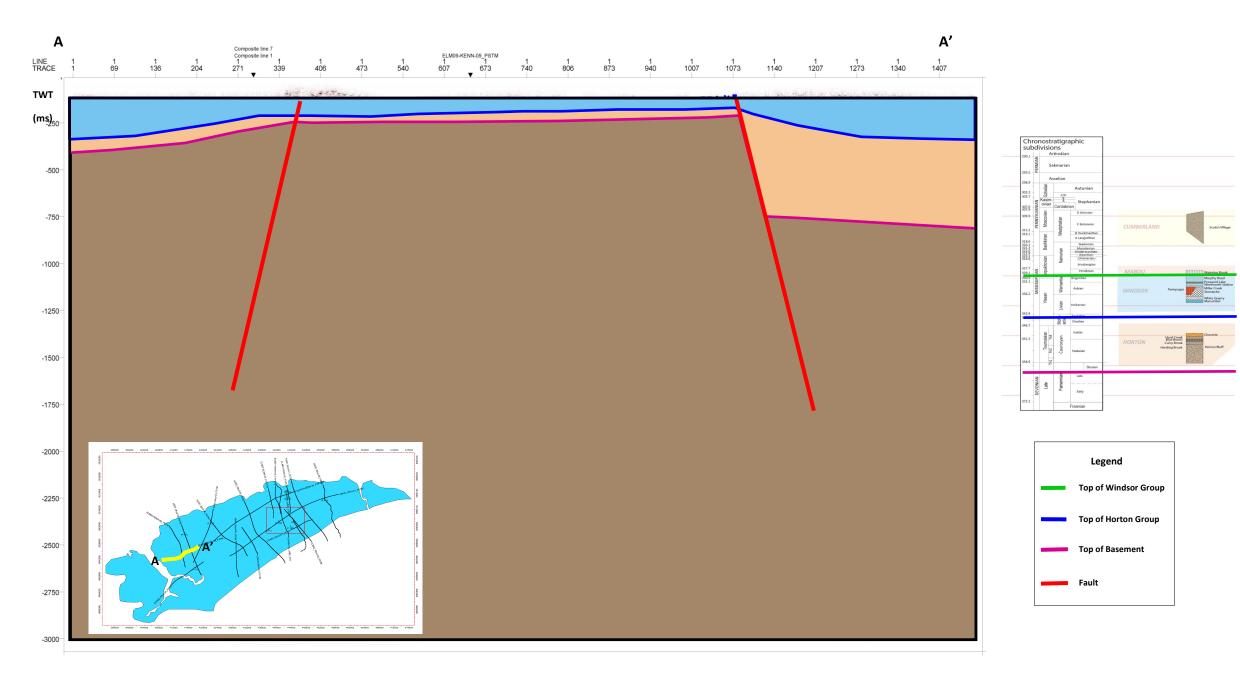
Uninterpreted seismic line ELM07-KENN-03



Interpreted Seismic Line ELM07-KENN-03 showing the thickness of the Horton Group dramatically increased from south to north (A'-A). It indicated that the depositional center of Windsor Basin might locate at north or extending to the Bay of Fundy (NSDOE, 2016).



Uninterpreted seismic line ELM07-KENN-08



Interpreted Seismic Line ELM09-KENN-08 showing a basement high located at the southwest corner of the Windsor Basin. The seismic reflections show chaotic and discontinuous at the basement high area (NSDOE, 2016).