

Late Glacial Environments within the Vale of Pickering, North Yorkshire, UK

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During the Late Devensian, the Vale of Pickering in North Yorkshire, UK is thought to have been the site of a large proglacial lake dammed by the North Sea Ice Lobe of the British and Irish Ice sheet (BIIS) to the east and the Vale of York Lobe to the west. Lake levels are reported to have reached between 70 and 30 m O.D. (Kendall, 1902; Edwards, 1978; Foster, 1985; Evans et al., 2017) based on field evidence. But, controversy remained as to what lake levels were attained and when, and how lake levels were affected by the surrounding North Sea and Vale of York Ice.

Here, we present flood fills from high-resolution Digital Terrain Models (DTMs) adjusted for isostatic depression; glacial geomorphological mapping, sedimentary analysis and 21 new optically stimulated luminescence (OSL) dates. We show that there are multiple iterations of Lake Pickering, with the higher lake level (70 m O.D.) reported by Kendall (1902) existing prior to (>30 ka) the LGM. Fluctuations in lake levels were controlled by the dynamics of both the North Sea Lobe and the Vale of York Lobe as well as the presence of high-stage Glacial Lake Humber (Bateman et al., 2017). Understanding the evolution of proglacial Lake Pickering is important for reconstructing ice lobe interactions and timings with the North Sea and the Vale of York ice and the history of deglaciation in North East Yorkshire.

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