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## Submarine glacial landscapes of the Western Estonian Shelf and implications for ice-flow reconstruction

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Geomorphological studies of the bottom of the Baltic Sea are still scarce and little is directly known about glacial bedforms and the palaeo-ice flow dynamics in the area. However, recently collected high resolution multibeam bathymetric data from the Western Estonian territorial waters and EEZ reveal direct geomorphological evidence of glacial bedforms, such as iceberg scours (ploughmarks) and drumlins, enabling the reconstruction of ice-flow patterns on the Western Estonian shelf.

High-resolution multibeam data reveal widespread linear and curved depressions, interpreted as iceberg scours produced by ploughing and grounding icebergs during and soon after the final ice retreat from the area, approximately around 13.2 to 12.3 kyr BP. We recognize two populations of scours (A and B), formed either on top of the coarse-grained glacial deposits or on top of the superimposed glaciolacustrine and post-glacial sediments exposed on the seafloor. The scours of both populations are on average 780 m long, 54 m wide and 1.6 m deep. The Populations have different average orientations, NE-SW for Population A, and ENE-WSW for Population B.

We also report a well-preserved geomorphological record of streamlined bedforms (mostly drumlins). We identify two diverging flow sets, partially continuing onshore, revealing ice sheet behaviour in the area before the time of Palivere stadial (13.2 kyr BP). The observed ice-flow directions permit refining earlier reconstructions and conclude that there were no significant ice-margin standstills in the area.