

Surficial Mapping of the Wapus Bay Area, Reindeer Lake, Saskatchewan: Preliminary Study

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Throughout the summer of 2017, Quaternary geological investigations were conducted in the Wapus Bay area of southern Reindeer Lake, Saskatchewan (NTS map sheet 64D09). The purpose of this study is to provide detailed surficial geological mapping and an understanding of the Laurentide Ice Sheet as it advanced and retreated over the study area during the Wisconsin glacial period. This study will produce a 1:100 000-scale surficial geologic map which will be used to determine changes in ice-flow directions in the area. The glacial sediments of the Wapus Bay area consist of subglacial traction till, subglacial fluvial sands and gravels, and winnowed till and boulder fields. These deposits are often thin and the underlying bedrock was visible in places. Glacial geomorphology of the area consists of a single esker, which formed through a subglacial meltwater drainage system, and trends in the direction of ice-flow. The esker was sampled for kimberlite indicator minerals, and till samples were collected for geochemical analyses. Twenty-nine ice-flow measurements were recorded throughout the Wapus Bay area. These include: microstriations and striations, crescentic gouges, and a roche moutonnée. The ice-flow directions have a range of 164 - 225°. Several sets of ice-flow indicators were superimposed on each other, which suggests that the Laurentide Ice Sheet became more southwest during the final stages, as it flowed over the study area. During the final retreat of the Laurentide Ice Sheet, the Wapus Bay area was occupied by proglacial Reindeer Lake, and eventually glacial Lake Agassiz, and became ice free 8000 years before present.