

1. INTRODUCTION

Regional-scale till sampling can be carried out to assess the mineral potential of areas covered with drift. Knowledge of the glacial history, specifically the ice flow history and dominant transport direction (Figs. 1, 2) is vital to interpret geochemical surveys. As part of the larger Quaternary Geoscience BC project, 712 new till samples were collected in 2008/9, from NTS 093J/05, /06, /11, /12, /13 and /14 (Figure 1).

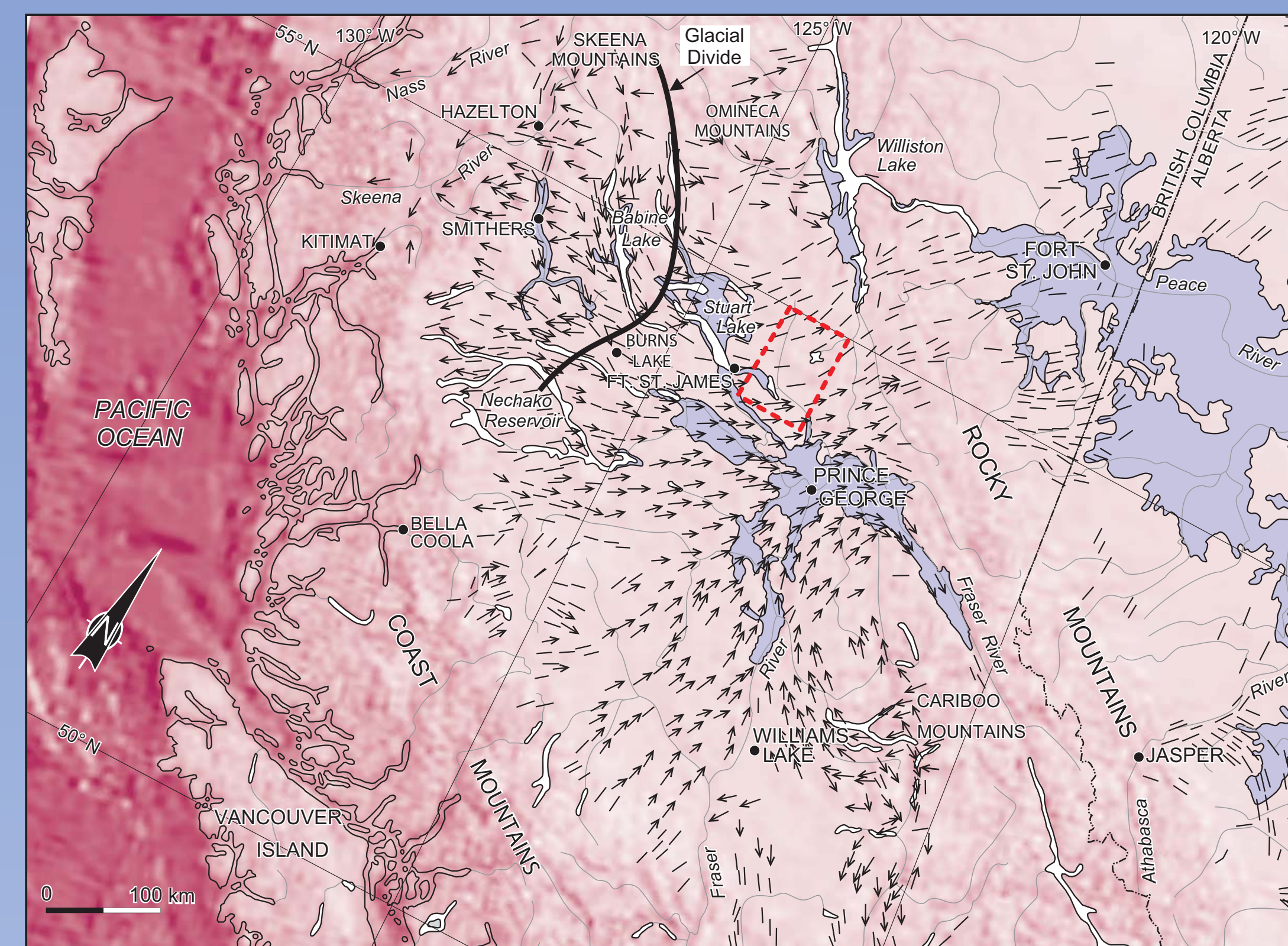


Fig 1. Till sampling project study area in relation to regional ice-flow (Stumpf et al., 2000).

2. METHODS

- Only basal till samples were collected to ensure consistency.
- At each site three separate samples were taken: 1) for clay separation, aqua-regia digestion and then analysis by ICP-MS (package 1-DX) at ACME Labs; 2) for silt+clay separation and INAA analysis (Package 1D EnH) at Activation labs; and 3) for archiving at the Geological Survey of Canada.
- At 138 of these sites >10 kg till samples were taken to have heavy mineral separation and gold grain/pyrite/cinibar counts carried out at Overburden Drilling Management Services. Heavy mineral fraction was then analyzed by INAA at Bequerel Labs.
- Samples were all entered into a GIS database for interpretation and presentation.

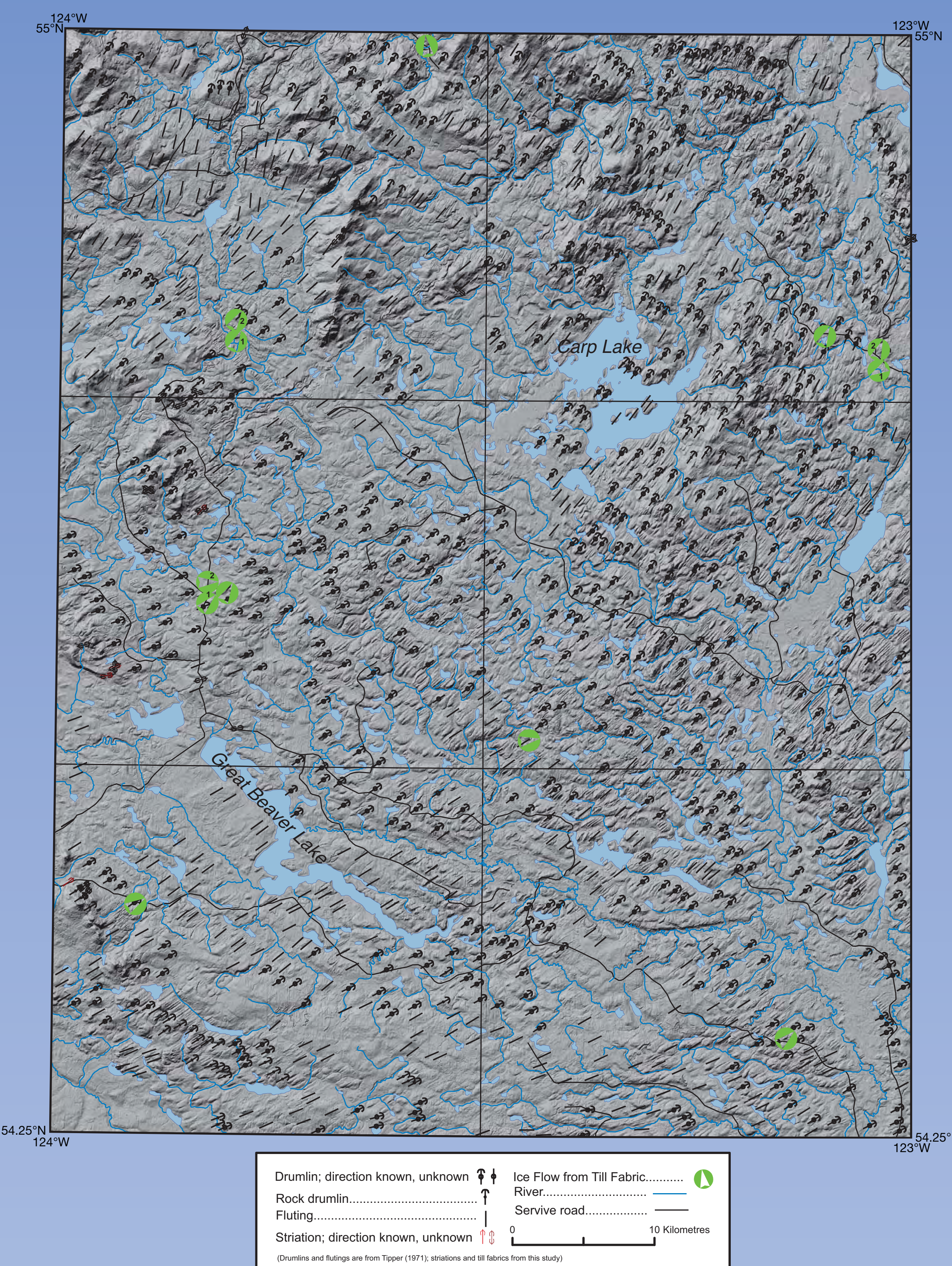
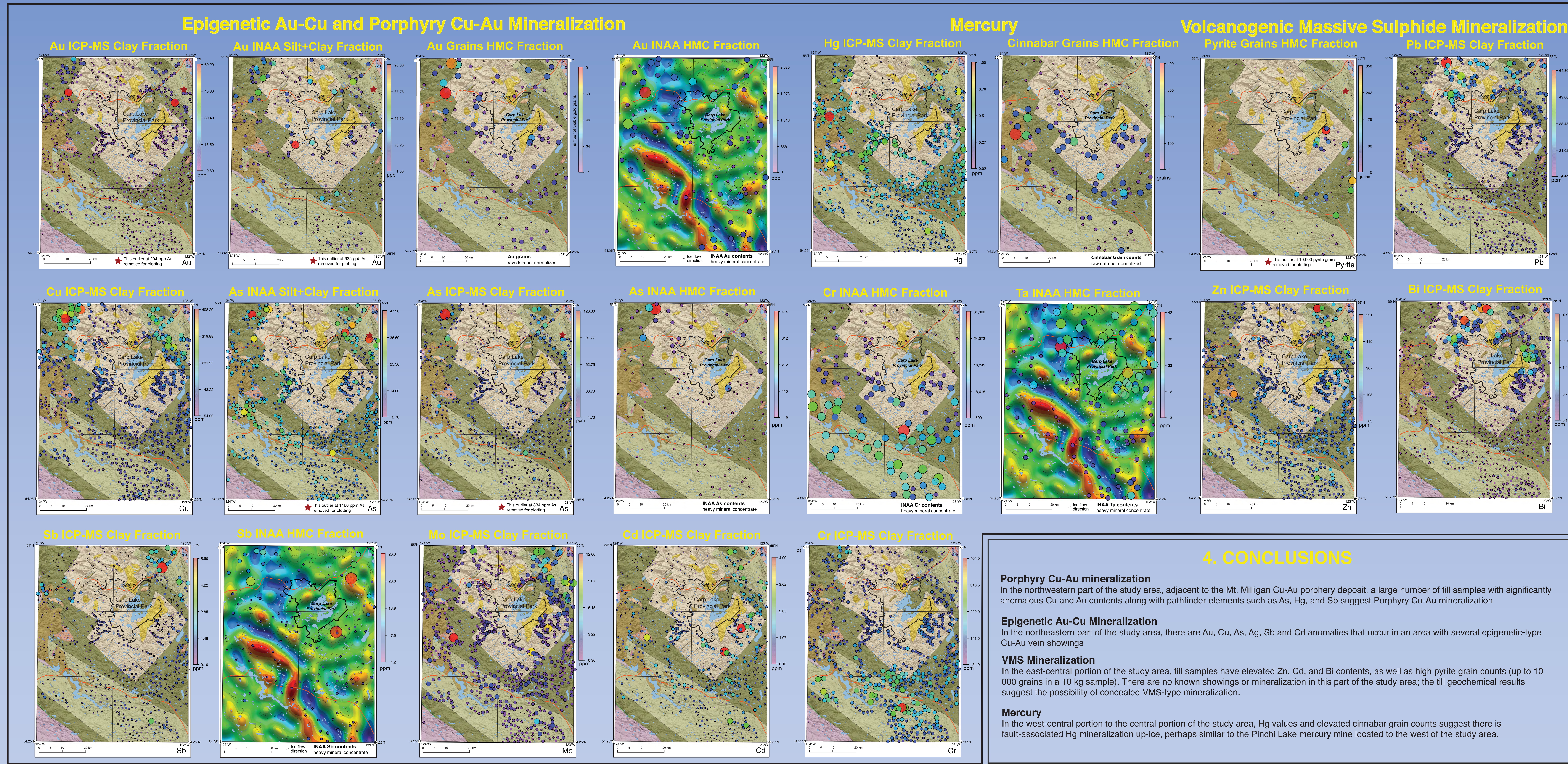


Fig 2. Dominant ice-flow for study area.



Fig 3. Major bedrock geologic units, mineral occurrences and the dominant ice-flow direction.

3. RESULTS



4. CONCLUSIONS

Porphyry Cu-Au mineralization
In the northwestern part of the study area, adjacent to the Mt. Milligan Cu-Au porphyry deposit, a large number of till samples with significantly anomalous Cu and Au contents along with pathfinder elements such as As, Hg, and Sb suggest Porphyry Cu-Au mineralization

Epigenetic Au-Cu Mineralization
In the northeastern part of the study area, there are Au, Cu, As, Ag, Sb and Cd anomalies that occur in an area with several epigenetic-type Cu-Au vein showings

VMS Mineralization
In the east-central portion of the study area, till samples have elevated Zn, Cd, and Bi contents, as well as high pyrite grain counts (up to 10 000 grains in a 10 kg sample). There are no known showings or mineralization in this part of the study area; the till geochemical results suggest the possibility of concealed VMS-type mineralization.

Mercury
In the west-central portion to the central portion of the study area, Hg values and elevated cinnabar grain counts suggest there is fault-associated Hg mineralization up-ice, perhaps similar to the Pinchi Lake mercury mine located to the west of the study area.