

# Preliminary results of till geochemistry sampling from the Bulkley River area, central British Columbia, Canada

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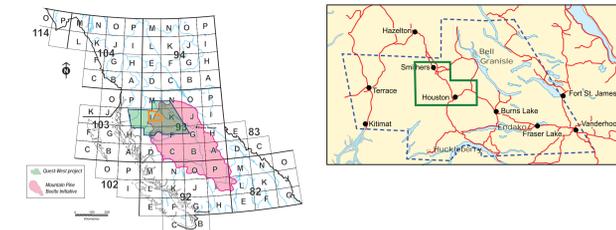
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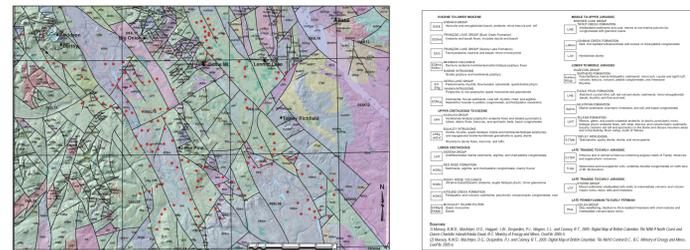
## Introduction

This project is undertaken in central British Columbia in the north-central part of 093L 1:250 000-scale National Topographic System (NTS) map sheet. The study area is centred along the Bulkley River valley from its headwaters located west of town of Houston in NTS map sheet 93L/08, northwest to the town of Smithers in NTS map sheet 093L/11. The Bulkley River valley lies within portions of the Nechako Plateau, and the Hazelton and Skeena Mountains of the Coast Mountain. The project is being undertaken in an area that is within the Geoscience BC Mountain Pine Beetle Initiative and QUEST-West project boundaries.



## Bedrock geology

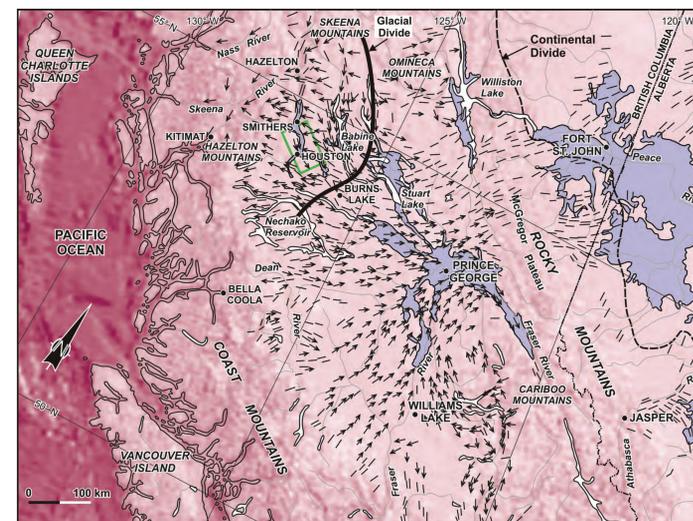
The study area is underlain by rocks of the Stikine Terrane that include subaerial to submarine calcalkaline volcanic, volcanoclastic, and sedimentary rocks ranging in age from Upper Triassic to Eocene-Lower Miocene. Three major magmatic events during the Early Jurassic, Late Cretaceous, and Eocene associated with subduction of oceanic crust along the leading edge of the North American plate produced a distinctive suite of plutonic rocks. Many of the mineral deposits in the region are associated with emplacement of these intrusions. The most economically important exploration targets are mesothermal and epithermal precious metal veins and polymetallic Ag-Pb-Zn, porphyry copper and molybdenum deposits, and stratabound polymetallic massive sulphide deposits.



## Glacial geology

The project area is characterized by broad U-shaped drift-filled valleys, bordered by glacially rounded high mountains. Thick deposits of glacial sediments (in some areas >50 m thick) drape valley bottoms. A discontinuous veneer or blanket of till overlies most mountain tops.

Three main phases of ice flow (advance, maximum, and late-glacial) during the last (Fraser) glaciation have been recognized in the area. During the advance and late-glacial phases, ice flow was controlled by topography and glaciers flowed along major valleys towards the east and southeast onto the Nechako Plateau from accumulation centres in the Hazelton and Skeena mountains. Following a period of ice buildup, the Cordilleran Ice Sheet attained its maximum extent and overtopping major topographic obstructions in the Skeena and Hazelton mountain ranges. At this time (maximum phase), ice flow shifted and glaciers began to flow from centres of accumulation located further inland (to the east). In the project area, glaciers flowed westward upslope across the Bulkley River valley to the Pacific Ocean. In much of the area west of the Bulkley River valley, this westerly-directed ice flow continued until late into the glaciation. In areas to the east of the Bulkley river valley, drawdown of the ice sheet was more rapid and glacier flow again became controlled by topography causing reversals in flow (towards the east and southeast) prior to ice stagnation.

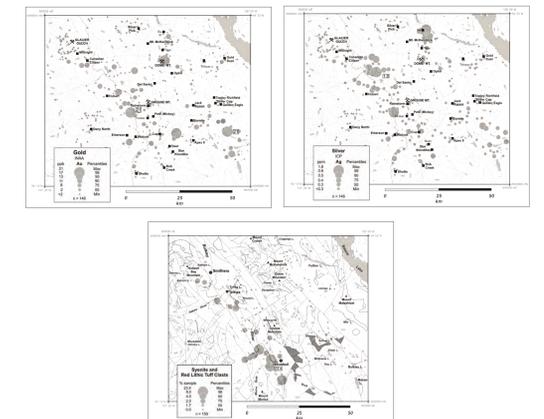


## Preliminary results

Gold concentrations measured in till show a median value of 2 ppb with a maximum gold concentration (21 ppb) was measured at sites southwest of the Rainstorm property.

Higher silver concentration, up to 1.8 ppm, occurring east-northeast of Telkwa, down-ice of the Su property, and west-southwest of the Grouse Mountain and Rainstorm properties.

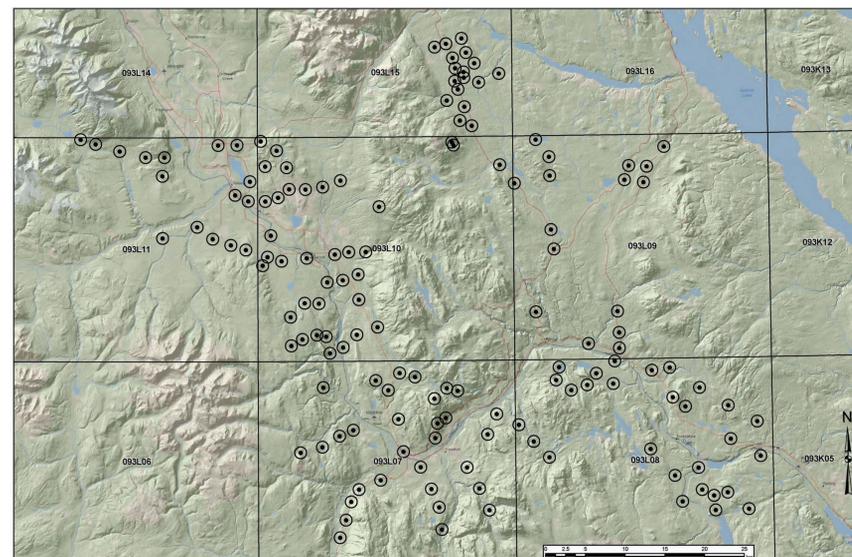
Numerous microsyenite clasts in till were found in the vicinity of Houston, >20 km west-southwest (down-ice) of bedrock source units.



## Till sampling program

A total of 135 till samples were collected in 1996 as part of till geochemistry and Quaternary geology studies in the Babine porphyry copper district. Sites were selected to set the greatest density of samples along transects perpendicular to the dominant ice-flow direction. Samples of basal till (the preferred sampling medium for till geochemistry programs) were collected from natural and man-made exposures. The <62.5 μm fraction from each sample was analyzed by INAA at Activation Laboratories Limited and by ICP-ES and flameless atomic absorption at Acme Analytical Laboratories Limited.

The lithology of 50 to 100 clasts from each sample was identified to determine the direction and distance of glacial transport from source bedrock units.



## Deliverables

The publication of this geoscience data will assist with the identification of new exploration targets and re-evaluation of known mineral occurrences that will promote further investment in resource exploration and development in this part of British Columbia. The project will provide information about the background geochemistry and Quaternary geology that is not currently available for the Bulkley River valley and expands the geoscience database for central British Columbia.

## Acknowledgments

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