

## Zn ( $\pm$ Pb) mineralization on the Great Northern Peninsula, Newfoundland, Canada

Robert King<sup>1</sup>, James Conliffe<sup>2</sup>, and Derek Wilton<sup>1</sup>

1. *Department of Earth Sciences, Memorial University of Newfoundland, 300 Prince Philip Drive, St. John's, Newfoundland and Labrador A1B 3X5, Canada*

2. *Geological Survey, Newfoundland and Labrador Department of Natural Resources, PO Box 8700, St. John's, Newfoundland and Labrador A1B 4J6, Canada*

The Hare Bay and Pistolet Bay areas of the Great Northern Peninsula are host to numerous carbonate-hosted Zn deposits and occurrences, including the Round Pond Deposit, Salmon River Prospect, and Twin Ponds Prospect. These mineral occurrences are hosted in the Ordovician St. George Group and the Cambrian Port au Port Group, and two types of Zn-mineralization have been recorded from the studied occurrences. Crackle breccia, a type of collapse breccia, has been recorded in trenches and outcrops at the Round Pond Deposit (grab samples up to 24.46 wt.% Zn) and Twin Pond Prospect (grab samples up to 11.96 wt.% Zn). Mineralization consists of sphalerite (and saddle dolomite) cementing angular fragments of host rock lithologies, with minor galena and pyrite also locally recorded. Pseudobreccias, formed by the selective replacement of fabrics in the host rocks, have been recorded at the Salmon River Prospect, as well as stratigraphically below the crackle breccias at the Round Pond Deposit and the Twin Ponds prospects. This mineralization style is characterized by disseminated sphalerite occurring in secondary dolomite and quartz-orthoclase-dolomite cements. Assay data from pseudobreccia grab samples from the Salmon River prospect have returned up to 20.04 wt.% Zn. Non-mineralized pseudobreccias are also common throughout the study area, occurring in a linear belt stretching for more than 60 km from Cape St. Norman in the north to the Salmon River area in the south.

Several analytical techniques including: Electron Probe Micro Analysis, Secondary Ion Mass Spectrometry, Scanning Electron Microscopy - Mineral Liberation Analysis, transmitted and reflected light microscopy and bulk rock geochemistry were used to determine the chemistry of the mineralizing fluid, origin of the fluid and metals and timing of mineralization of these smaller deposits and occurrences. This data is being compared to other data from the region, including the former Newfoundland Zinc Mine in Daniels Harbour, in an attempt to define whether these occurrences represent manifestations of the same mineralizing event, which could impact regional mineral exploration.