

PROJECTS RELATED TO BASE METALS

GREG SPARKES

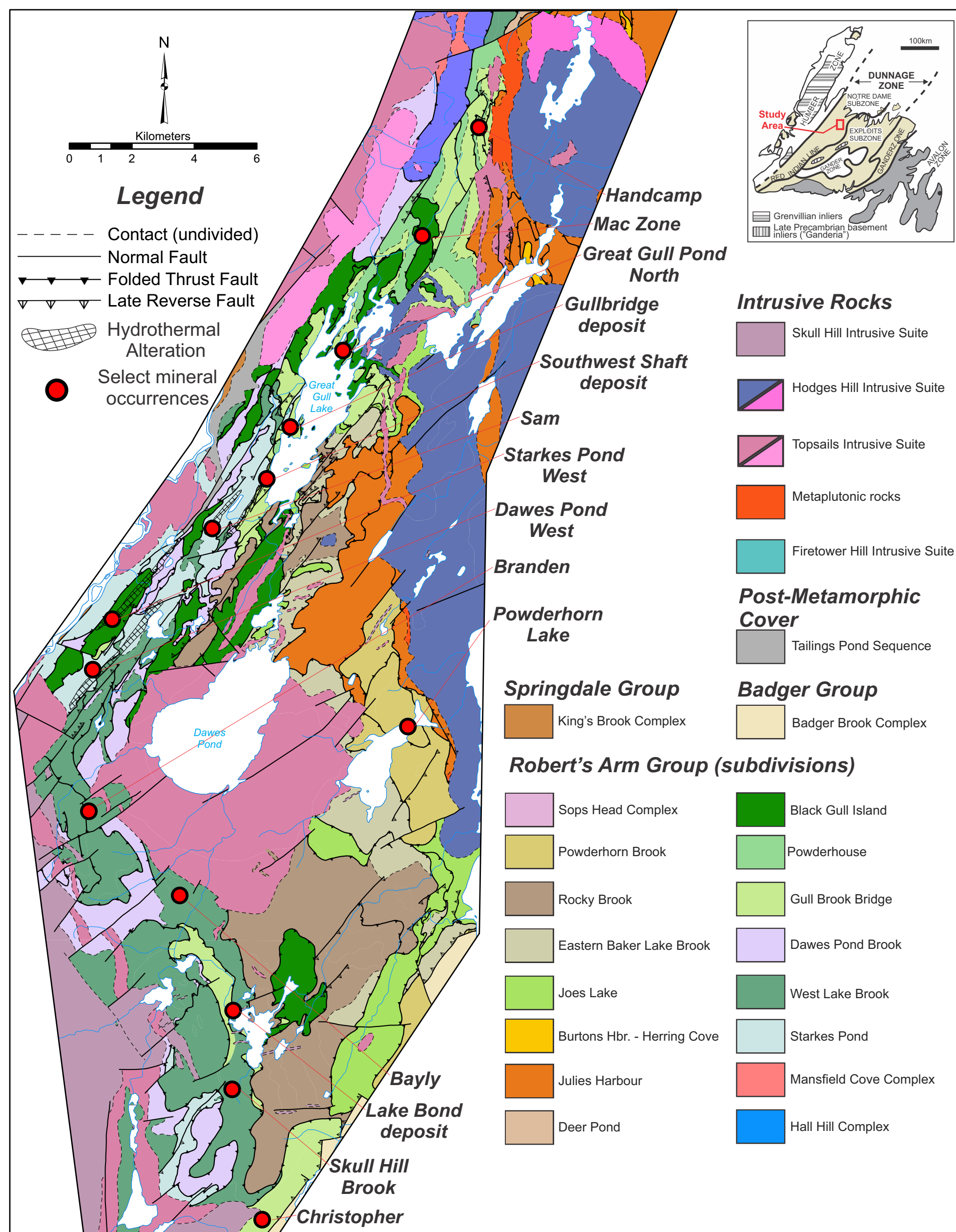


Figure 1: Simplified geological map of the study area (adapted from O'Brien 2009, 2016).

Work in 2018 continued with studies of the volcanogenic massive sulphide (VMS) mineralization and the related alteration developed within the central portion of the Buchans-Roberts Arm Belt in central Newfoundland. This region is host to several deposits of VMS-style mineralization (e.g. Gullbridge, Southwest Shaft and Lake Bond deposits) and numerous other smaller occurrences (Figure 1). Mineralization developed within the area of the Gullbridge deposit is largely copper dominated, and is enveloped by a cordierite-anthophyllite-bearing alteration assemblage. Similar styles of alteration associated with stringer-sulphide mineralization have been observed up to 14km to the southwest of Gullbridge (e.g. Branden prospect; Figure 1). To the north of the Gullbridge deposit, similar host rocks contain precious-metal (Au-Ag) enrichment in association with base-metal mineralization (e.g. Handcamp prospect; Figure 1). Previous work in this area has largely attributed the precious-metal enrichment to a later, structurally controlled mineralizing event, unrelated to the formation of the VMS mineralization.

Field work completed this year involved re-logging archived drillcore in combination with collecting spectral data and representative geochemical samples from select prospects. Data collected from the Handcamp prospect indicates the precious-metal mineralization is associated with a structurally bound, exhalative horizon hosting anomalous Zn-Pb-Cu mineralization (Figure 2). Spectral data from the exhalative horizon highlights the presence of chlorite-muscovite-phengite-phlogopite alteration in association with the mineralization. Similar styles of alteration are also noted in association with exhalative-style sulphide mineralization further to the southwest in the area of the MAC Zone prospect (Figure 1). Rocks within the Roberts Arm Group have been metamorphosed to greenschist facies, and the localized development of cordierite and phlogopite are inferred to represent thermal metamorphism of magnesium-rich alteration zones associated with VMS systems by nearby intrusions. Ongoing deposit-level studies, combining the spectral and geochemical databases with observations from drillcore, are aimed at identifying potential alteration zones within prospective units along the belt.

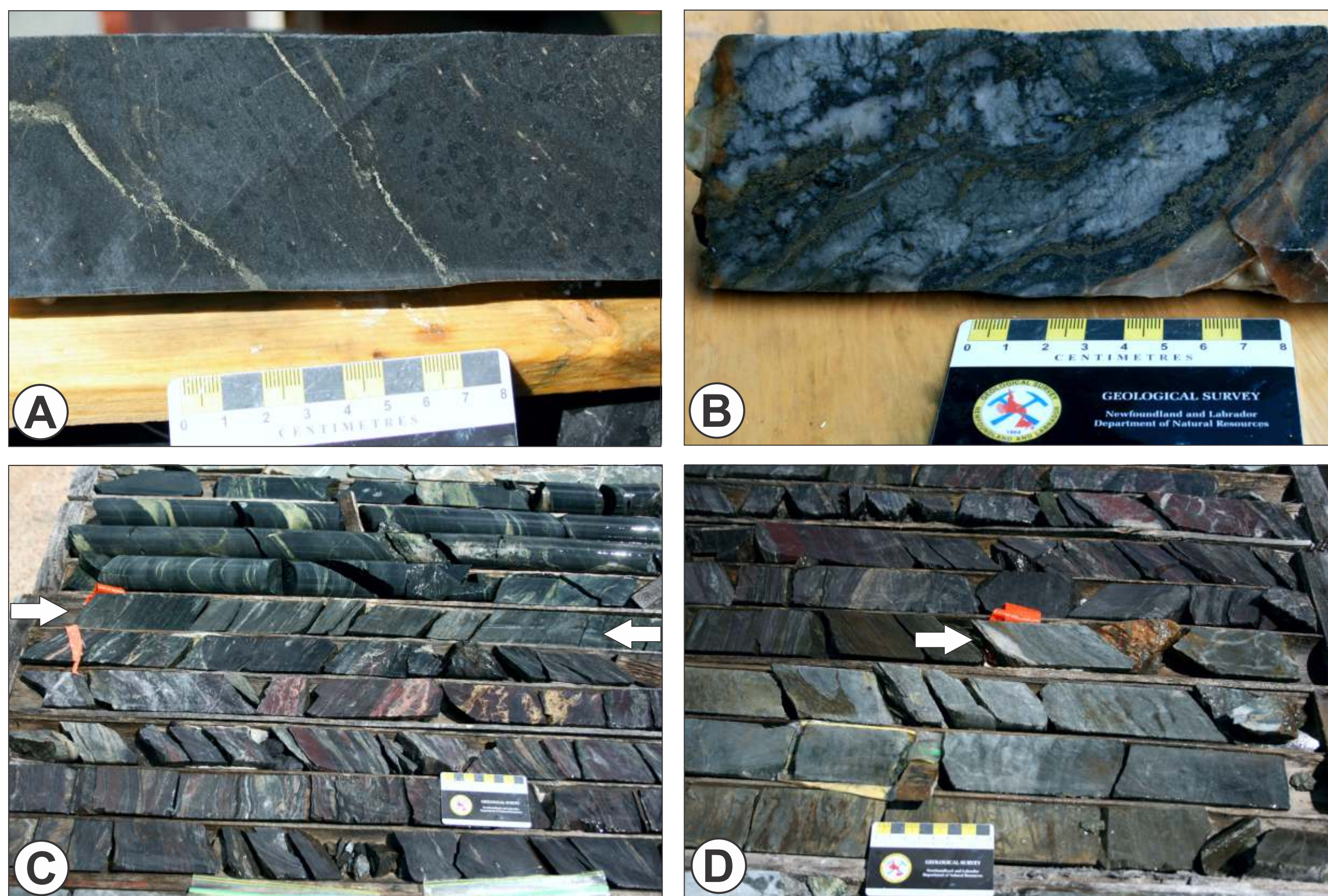


Plate A) Stringer sulphide veins associated with cordierite-bearing alteration within mafic volcanic rocks, Branden prospect; B) Mineralized core hosting sulphides within a cherty horizon, Handcamp prospect; C) Exhalative-style sulphide mineralization associated with anomalous zinc (0.4% over 1m, between white arrows; DDH-004) overlying red chert horizon, Handcamp prospect; D) Mineralized zone below the chert horizon hosting Zn-Pb-Cu-Ag-Au mineralization in association with phengitic white mica alteration (0.6% Zn, 0.56% Pb, 0.07% Cu, 222 g/t Ag and 11 g/t Au over 0.9m starting at white arrow; DDH-004).

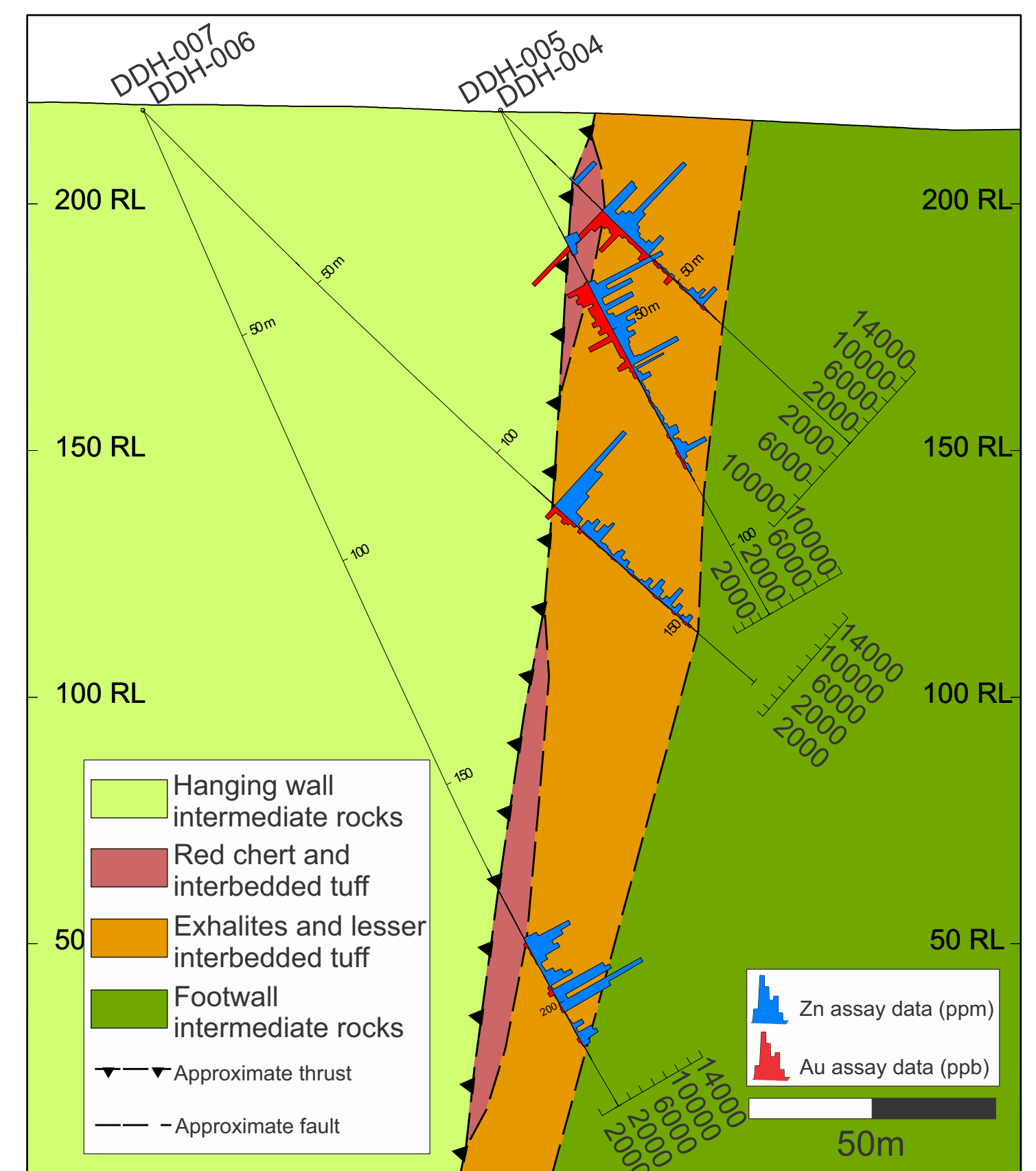


Figure 2: Representative cross-section, outlining the distribution of zinc and gold values in association with the exhalative horizon, Handcamp prospect.