

LEGEND

CARBONIFEROUS

PENNSYLVANIAN

MINTO FORMATION Grey sandstone, pebbly sandstone and rounded pebble polymictic to quartz-pebble conglomerate

---- disconformity ----

MISSISSIPPIAN

MABOU GROUP

SHIN FORMATION Red-brown, polymictic pebble to cobble conglomerate

---- unconformity ----

LATE DEVONIAN - EARLY CARBONIFEROUS

HORTON GROUP

Undivided

--- angular unconformity ---

LATE CAMBRIAN

ANNIDALE GROUP

LAWSON BROOK FORMATION Pink to tan and grey rhyolite with quartz-filled amygdules, rhyolite breccia & microgranite

----- fault -----

NEOPROTEROZOIC - EARLY CAMBRIAN

BELLEISLE BAY GROUP

Pink to white quartzite, pink to red lithic-feldspathic sandstone and granule to small pebble grit

Pink to grey, pebbly sandstone and conglomerate, red, crystal-lithic tuff and basalt

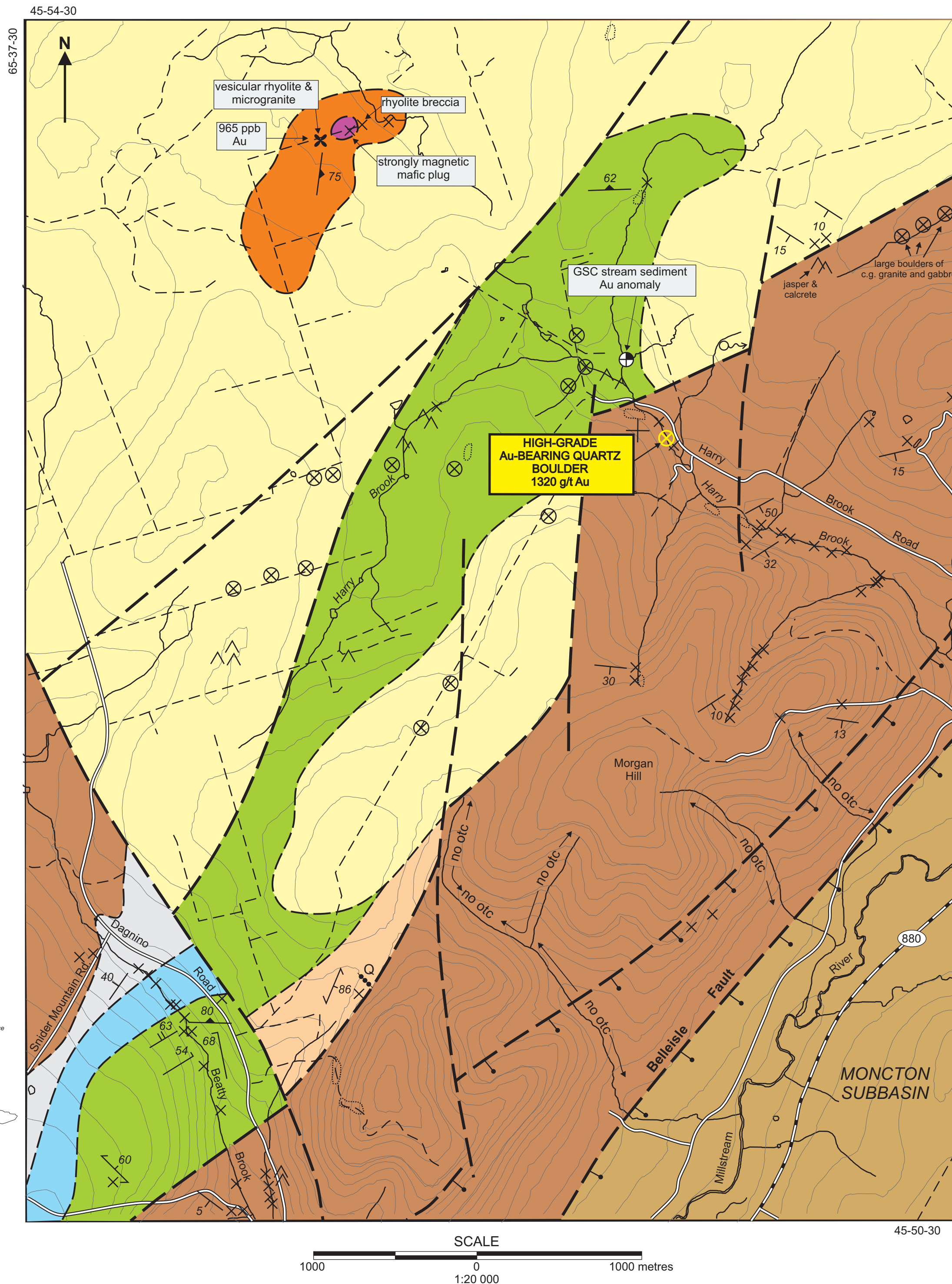
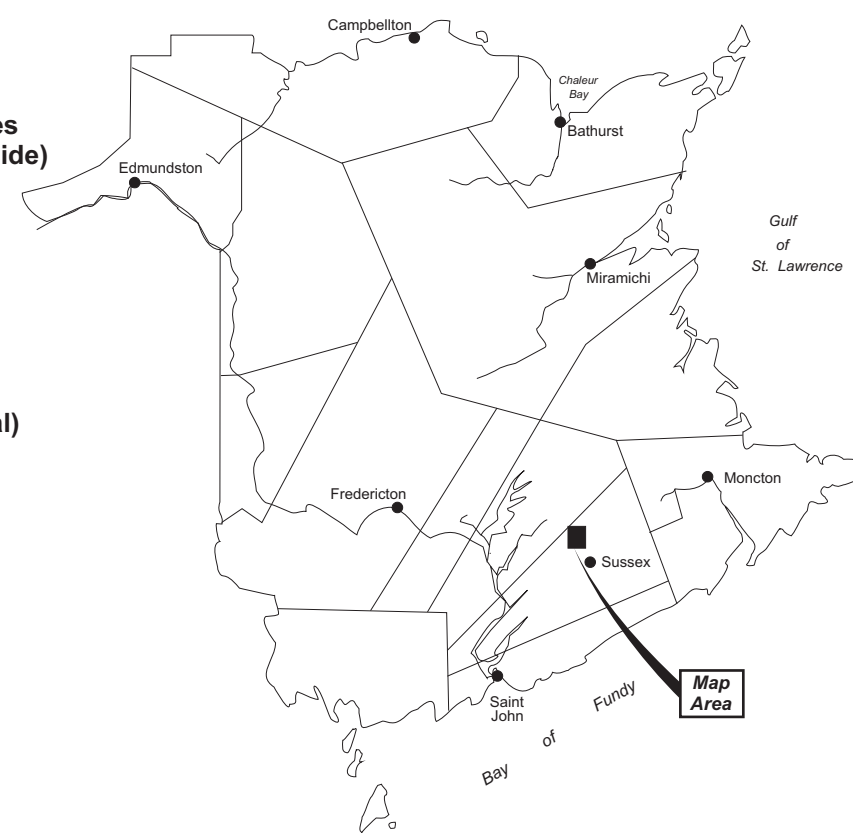
Greyish-purple, maroon and green, hematized mafic lithic lapilli tuff, felsic tuff and minor basalt

Pink and green, epidotized felsic tuff

SYMBOLS

- Geological contact
- - - Fault
- - - Normal fault (dot indicates interpreted downthrow side)
- ⊗ Outcrop, area of outcrop
- ⊕ Subcrop
- ⊗ Boulder
- ⊕ Bedding (tops known, Tops unknown, horizontal)
- Primary flow layering
- Cleavage
- Joint
- Vein; Q = quartz
- Artesian spring

LOCATION MAP



DISCOVERY OF HIGH-GRADE GOLD-BEARING FLOAT IN SOUTHERN NEW BRUNSWICK

S.C. Johnson

LOCATION

A large (35 x 20 cm) sub-angular to sub-rounded quartz boulder containing visible gold was discovered on Harry Brook during a summer mapping project in the Cody's map area (NTS 21 H/13; Latitude- 45 53.126 Longitude-65 34.403). The boulder is located approximately 500 metres downstream from one of the highest stream sediment gold anomalies in the area (16 ppb), as shown on regional stream sediment geochemical maps published by the Geological Survey of Canada in 1988 (GSC Open File Report 1638). The Harry Brook area is approximately 10 km northeast of the Marttown gold occurrence (URN 692) and 20 km northeast of several low-grade gold occurrences in the Annidale-East Scotch Settlement area (URN's 799, 800, 819 and 1382).

ASSAYS

The boulder consists of vein quartz containing visible gold that appears to be associated with hematite-filled microfractures. A sample containing visible gold returned a value of **1320 g/mt Au** (grams/metric tonne). The gold value was determined using an ore grade fire assay, gravimetric method as it was initially above the 10,000 ppb detection limit using the standard fire assay, ICP-OES method. Both the pulp and coarse reject from the sample were re-analysed to confirm the gold value. The pulp repeat assayed **1330.89 g/mt Au**, while the coarse reject returned **5.99 g/mt Au**. The sample was also elevated in Hg (2.83 ppm) and Ag (>10 ppm - above the detection limit).

A second sample from the same boulder that showed no gold visible returned an assay of only 29 ppb Au, but was elevated in Zn (9130 ppm) and Pb (4540 ppm). Mercury and silver concentrations were also low (0.5 ppm Hg / 0.8 ppm Ag). Because the gold value was so low in this sample the coarse reject was subsequently analysed and it returned a value of **739.51 g/mt Au**. The coarse reject was analysed for gold only.

Analyses by screened metallics fire assay to determine the size fraction weights, coarse and fine fraction gold content and total gold content is currently in progress. All of the gold assays were determined by SGS Mineral Services, Toronto Ontario.

BEDROCK GEOLOGY & MINERAL OCCURRENCES

The Harry Brook area is situated on the southern flank of the New Brunswick Platform, an uplifted block of Pre-Carboniferous basement overlain by a thin cover of Carboniferous strata. This part of the platform is referred to as the "Minto-Chipman / Canaan River basement high", where twelve boreholes drilled in 1985 for the Carboniferous Drilling Project intersected Pre-Carboniferous rocks at a depth of less than 125 metres.

Upper Mississippian conglomerates of the Shin Formation (Mabou Group) comprise the bedrock directly beneath the gold-bearing boulder on Harry Brook. The Mabou Group is the oldest Carboniferous unit exposed on the platform in this area, but younger rocks of the Pennsylvanian Minto Formation locally overstep the Mabou and lie directly on basement.

Basement outcrops in the area are assigned to two different lithological units that both occur along strike to the southwest. Hematized mafic pyroclastic rocks that outcrop on Harry Brook to the north and west of the gold-bearing boulder are correlated with Neoproterozoic rocks that occur on Beatty Brook in the southwestern corner of the map. Further onto the platform about 2.5 km northwest of the gold-bearing boulder, a newly discovered basement inlier contains lithologies that are similar, although not identical to, felsic volcanic rocks associated with rhyolite domes in the Late Cambrian-Early Ordovician (?) Annidale Group. The inlier consists of vesicular to non-vesicular rhyolite, rhyolite breccia, microgranite and a strongly magnetic, fine-grained mafic plug that is likely the source of the magnetic anomaly in this area. The rhyolite contains quartz-filled vugs, chalcedony veins and a stockwork of quartz and hematite veinlets. One sample of the rhyolite was analysed and it returned a gold value of **965 ppb**.

Although the basement, or the boundary between differing basement units, is likely the original source of the gold-bearing quartz veins, a secondary, or paleoplacer origin for the boulder is also a prime target. On Harry Brook and its tributaries, and in areas underlain by Shin conglomerate to the northeast and southwest, cobbles and boulders of mafic pyroclastic rocks, rhyolite and vein quartz similar to that carrying the high-grade gold were all observed as clasts in the Shin conglomerate and as angular float, indicating that the gold-bearing quartz boulder could have been derived directly from the Shin Formation.