
**Revised geology of the New River Belt and proposed
correlations in southern New Brunswick**

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Cambrian rocks in southern New Brunswick are exposed in four fault-bounded belts, referred to as the St. Croix, New River, Brookville, and Caledonia belts, from west to east respectively. The New River Belt is separated from the Brookville and Caledonia belts to the east by Late Ordovician to Early Silurian arc-related volcanic rocks of the Kingston Group and from the St. Croix Belt to the west by Early Silurian to Early Devonian

rocks of the Mascarene Group. Previous mapping indicated that Cambrian and older rocks in the southwestern part of the New River Belt, although comparable to those in the Brookville Belt, were distinct from coeval rocks in the Caledonia Belt (Avalon Zone *sensu stricto*). These distinctions were thought to apply to the entire New River Belt; consequently the Avalonian affinity of the belt was questioned.

Recent mapping in the northeastern part of the New River Belt has shown, however, that there are significant lithological changes across the Robin Hood Lake Fault that bisects the belt into southwestern (Pocologan River and Beaver Harbour) and northeastern (Long Reach) segments. In the Long Reach segment the presence of ca. 625 Ma compositionally-expanded granitoid rocks, ca. 555 Ma bimodal volcanic rocks and Cambrian marine sedimentary strata directly correlative to the Saint John Group indicates a correlation with the Caledonia Belt.

Middle Cambrian volcanic rocks at Beaver Harbour in the southwestern part of the New River Belt distinguish this area from the Caledonia Belt. Nonetheless, their correlation with volcanic rocks found locally throughout the Avalonian cover sequence demonstrates that at least this segment of the southwestern New River Belt is also part of the Avalon Zone. Although Early Cambrian volcanic and sedimentary rocks in the Pocologan River area appear to have no correlatives in the Avalon Zone in the Maritime region, it is noteworthy that this volcanic activity is broadly contemporaneous with a major sequence boundary in the Avalonian cover sequence. This could imply an association between the Pocologan River area and Avalon, perhaps as geographically isolated regions of the same continent that were subsequently juxtaposed by strike-slip faulting. If correct, a possible correlation between late Early to (?) Middle Cambrian quartzose sedimentary strata in the Pocologan River area and Middle Cambrian rocks in the St. Croix Belt evokes an earlier interpretation of the St. Croix Belt and Avalonian cover sequence as basin and shelf equivalents.