

**Stratigraphy and Physical Volcanology of the Eastern Portion of the Devonian  
Volcanic Belt of Passamaquoddy Bay, Southwestern New Brunswick**

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A 55 km<sup>2</sup> portion of the belt of Devonian volcanic and sedimentary rocks exposed within the vicinity of Passamaquoddy Bay was mapped at a scale of 1:10,000. The area was divided into 26 lithologic units, for the purpose of determining the stratigraphy, geochemistry and tectonic setting of the area. Lithologies within the area are interbedded basaltic and rhyolitic lava flows and pyroclastic rocks, with minor sedimentary rocks. Various small intrusive bodies also occur. In the lower third of the stratigraphic section basaltic and rhyolitic rocks are equally represented. Through the rest of the section rhyolitic rocks become volumetrically more important. The environment of eruption and deposition is interpreted to be subaerial to littoral,

based on presence of littoral sedimentary rocks, coarse tuff breccias and welded pyroclastic flows. It is also indicated by absence of reworked volcanic deposits, pillowed lavas and hyaloclastite. Hawaiian, Strombolian, Vulcanian and Plinian eruptive systems are represented. The mafic units form mainly lava flow and peperitic breccia deposits, although mafic pyroclastic deposits also occur. Felsic units were emplaced as lava flow deposits, welded and nonwelded pyroclastic flow and airfall deposits and rare pyroclastic surge deposits. The majority of pyroclastic felsic deposits resulted from Vulcanian-type eruptions. Preliminary geochemical results indicate that the sequence is bimodal and subalkaline.