

Mesozoic Geology of Grand Manan Island, Bay of Fundy Basin, New Brunswick
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Grand Manan Island, near the southwestern corner of the Fundy Basin, exposes about 130 km² of Early Jurassic North Mountain basalt and a few km² of underlying Late Triassic-Early Jurassic Blomidon siltstone. Metamorphic basement rocks in the eastern third of the island are separated from the western Mesozoic section by a steep fault, which is also the eastern margin of the Grand Manan sub-basin to the west.

Up to 12 m of reddish fissile Blomidon siltstone are found in intermittent exposures beneath basalt cliffs along the western shore of the island. The upper two meters of siltstone are hydrothermally altered and the Tr-J boundary has not been located in the section. The North Mountain basalt group has at least 11 flows in three major units totaling over 200 m thick, similar to the basalt section to the east near Digby, Nova Scotia. High-angle faults and various volcanic structures are present in spectacular shoreline exposures.

A large post-metamorphic mafic dike at Swallowtail Head appears to be unrelated to the basalts, but reasonable source dikes with close petrological similarities are exposed along coastal regions of Maine and New Brunswick to the west of Grand Manan and the Fundy Basin.