Mafic plutonic rocks

Gabbro and ultramafite are 320 to 200 million years old and are concentrated along a wide northwest-trending zone that extends from Pinchi Lake to Mount Sidney Williams. The rocks are dark colored and consist of interlocking crystals of calcium feldspar, hornblende, pyroxene, and/or olivine. They may contain deposits of chrome, nickel, antimony, and platinum. The rocks are mostly massive and structureless, but some are foliated and have a banding arrangement of crystals.

Felsic plutonic rocks

Light-colored, coarse-grained igneous rocks including granite, monzonite, and granodiorite. They consist of interlocking masses of quartz, potassium and sodium feldspars, biotite, and hornblende. Felsic plutonic rocks range in age from 220 to 60 million years. The rocks are mostly massive and structureless, but some have a planar or linear orientation of crystals. Streams draining felsic plutonic rocks have high concentrations of phosphate and potassium, enhancing the productivity of aquatic life. Felsic volcanic rock is quarried for road-bed fill east and west of the Fraser River.

Mafic volcanic rocks

Andesite and basalt form layered sequences up to 700 m thick. These rocks are dark colored, heavy, and massive or full of bubbles (vesicles) and formed from volcanic flows similar to those occurring today at Hawaii. The rocks date to four periods: 280–247, 230–190, 70–47, and 27–11 million years ago. Some have conspicuous cooling joints (columnar joints) or contain fragments of sandstone or red basalt. Volcanic rocks are chemically reactive, and streams draining them have elevated concentrations of important nutrients such as phosphate. Some of the younger mafic volcanic rocks contain opal and agate. Quarries at Fraser Lake west of Fort Fraser.

Felsic volcanic rocks

Rhyolite, rhyodacite, and dacite ranging in age from 75 to 50 million years occur as layered sequences or dykes, mainly in the southern and western parts of the map area. The rocks are light colored, light-weight, and massive or full of bubbles (vesicles). The rocks commonly contain crystals of quartz, feldspar, biotite, and hornblende. Streams draining felsic volcanic rocks have high concentrations of phosphates and potassium, enhancing the productivity of aquatic life. Felsic volcanic rock is quarried for road-bed fill east and west of the Fraser River.

Limestone

Limestone and dolostone form long narrow ridges between Stuart and Pinchi lakes. Small areas of limestone also occur southwest of Stuart Lake and east of Toncha Lake. Limestone caves are found near Fort St. James. Some of the rocks contain beds rich in shells or corals. Streams draining limestone are more alkaline (higher pH) and more carbonate rich than streams draining other rock types. They may support larger fish populations. Limestone is quarried for road-bed fill east and west of the Fraser River.

Sedimentary rocks

Sandstone, siltstone, shale, and conglomerate deposited in the sea 240–80 million years ago. Streams draining sedimentary rocks have high concentrations of phosphate and potassium, enhancing the productivity of aquatic life. Sedimentary rocks are quarried for road-bed fill east and west of the Fraser River.