



Bedrock geology of Bigstone Lake, Manitoba (parts of NTS 53E12, 13)

- Legend**
- Intrusive rocks**
- 14 Granitoid intrusions; porphyritic granite, locally syenogranite; equigranular to weakly porphyritic granodiorite plutons and dikes; minor gneiss and tonalite outside of 2016 mapping limit
 - 13 Diorite to quartz gabbro; variably plagioclase-, hornblende-, and quartz-phyric dikes and sills
 - 12 Tonalite; equigranular to sparsely plagioclase-phyric dikes
- Upper stratigraphic sequence (Island Lake group?)**
- 11 Upper mafic volcanic flows; vesicular and variolitic pillow basalt; commonly bleached/alterated to assemblages containing calcite, quartz, epidote, and/or fuchsite
 - 10 Felsic volcanoclastic rocks; lapilli tuff to tuff; minor monomictic volcanic breccia and crystal tuff
 - 9 Ultramafic lapilli tuff
 - 8 Sedimentary rocks; planar-bedded greywacke-mudstone turbidites; minor polymictic conglomerate, sulphide facies iron formation, oxide facies iron formation, chert, and mafic dikes; rare laminae to thin beds of mafic mudstone and felsic lapillstone
- Lower stratigraphic sequence (Hayes River group)**
- 7 Komatiitic basalt; aphanitic, aphyric, locally pillowed and xenolith-bearing
 - 6 Peridotite; fine- to medium-grained cumulates
 - 5 Pyroxenite; fine- to medium-grained, equigranular
 - 4 Gabbro to melagabbro; fine- to medium-grained, equigranular, rarely pegmatic
 - 3 Lower sedimentary rocks; feldspathic greywacke and pelitic mudstone
 - 2 Felsic volcanic and volcanoclastic rocks; massive, locally flow-banded rhyolite; coarse monomictic volcanic conglomerate to mudstone
 - 1 Lower mafic volcanic flows; variolitic, aphyric, locally shelled and amygdaloidal pillow basalt; massive, plagioclase-phyric basalt; minor finely bedded interflow hyaloclastite, coarse interflow hyaloclastite breccia, rhyolite dikes; rare plagioclase crystal mafic tuff and interflow oxide facies iron formation

Geology drawn inland is informed mostly by historical drilling (1938-1986), regional aeromagnetic data, and traverses by Mcintosh (1941), Ermakovics (1975), Neale et al. (1986), and Felix (1986; Assessment File 64359, Manitoba Growth, Enterprise and Trade, Winnipeg).

The generations of structures indicated on the map reflect overprinting relationships observed in individual outcrops, and do not necessarily correspond to the deformation events observed regionally. In most cases, the first generation of foliation measured in outcrops corresponds to regional D3 deformation, and the youngest generation of fabric corresponds to D6. A discussion of the regional structural trends is provided in Rinne et al. (2016).

- Bedding; tops known, overturned, unknown
- Pillows; tops known, overturned, unknown
- Igneous layering; tops known, overturned, unknown
- Foliation; generation 1, 2, 3, unknown
- Crenulation cleavage; generation 2, s-symmetry, symmetric
- Spaced cleavage; generation 1, 2, 3, unknown
- Shear zone; dextral, generation 1, 2, 3, unknown
- Shear zone; sinistral, generation 1, 2, 3, 4, unknown
- Shear zone; sense unknown
- Fault; sinistral
- Fold hinge; s-symmetry, generation 1, 2
- Fold hinge; symmetry unknown, generation 1, unknown
- Fold hinge; z-symmetry, generation 2, unknown
- Fold axial plane; generation 1, 2, 3, unknown
- Intersection lineation; generation 1
- Stretching lineation; generation 1, unknown
- Dike, vein
- Outcrop location
- Geological contact
- Contact extrapolated under water
- Early arcine axial plane
- Early syncline axial plane
- Late dextral shear
- Late fold axial plane
- Late sinistral shear
- Calcite/epidote
- Quartz-epidote-chlorite
- Chlorite-actinolite-epidote
- Fuchsite-scalolite

References:

Ermakovics, J.F. 1975. Preliminary map of Bigstone and Knight lakes, Island Lake area, Manitoba. Geological Survey of Canada, Open File Report 382, map at 1:63 360 scale.

Mcintosh, R.L. 1941. Bigstone Lake area: Manitoba Mines and Natural Resources, Mines Branch, Publication 38-1, 12 p., plus 1 map at 1:63 360 scale.

Neale, K.L., Barclay, J.G. and Lorrain, R.M.J. 1986. Bigstone Lake: Manitoba Energy and Mines, Minerals Division, Preliminary Map 1986B-1, scale 1:20 000.

Rinne, M.L., Anderson, S.D. and Reid, K.D. 2016. Preliminary results of bedrock mapping at Bigstone Lake, northwestern Superior province, Manitoba (parts of NTS 53E12, 13) in Report of Activities 2016, Manitoba Growth, Enterprise and Trade, Manitoba Geological Survey, p. 51-60.

Geology by M.L. Rinne, S.D. Anderson and K.D. Reid (2016)
Cartography by L. Chackowsky, M. Rinne and P. Lenton

Recommended reference:
Rinne, M.L., Anderson, S.D. and Reid, K.D. 2016. Bedrock geology of Bigstone Lake, Manitoba (parts of NTS 53E12, 13). Manitoba Growth, Enterprise and Trade, Manitoba Geological Survey, Preliminary Map PMAP2016-4, scale 1:20 000.

This map is a provisional summary of work carried out during the summer field season and is produced directly from the geologist's manuscript. It is not to be regarded as a final interpretation of the geology of the area.

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