

LEGEND

EARLY JURASSIC

- FUNDY GROUP**
 - MCCOY BROOK FORMATION (EJfmb): Orange-red fine to pebbly sandstone and subordinate orange-red mudrock
- LATE TRIASSIC TO EARLY JURASSIC**
 - NORTH MOUNTAIN BASALT (LTEfmb): Dark green-black basalt flows, vesicular, columnar to blocky
- LATE TRIASSIC**
 - BLONDISON FORMATION (LTrfb): Orange-red mudrocks with cyclic thin green-gray beds, and subordinate orange-red weakly cemented sandstone

..... LINCONFORMITY

LATE CARBONIFEROUS/PENNSYLVANIAN (BASHKIRIAN)

- CUMBERLAND GROUP**
 - PARFESSORO FORMATION (LCPcp): Red and grey mudrock, minor dark grey to black biotite-bearing shale, carbonaceous to coaly shale and thin impure coal, with matrix-grey to red-grey sandstone beds
 - MC LAUGHLIN BLUFF MEMBER (LCPcp-m): Red extratillal polyimic pebbles to cobble conglomerate, and red cross-stratified sandstone, minor red mudrock

..... LINCONFORMITY

EARLY CARBONIFEROUS/MISSISSIPPIAN (LATE VISEAN-SERPUKHIVIAN)

- MABOU GROUP**
 - WEST BAY FORMATION (ECMwb): Red and yellow-grey mudrocks and thin grey sandstone beds, commonly ripple-laminated and mud-cracked, decimeter-thick quartz sandstone beds and sequences of black, Carbonicola brachiopod-bearing shale
- WINDSOR GROUP**
 - UNDIVIDED (ECMw): Gypsum, grey to black fossiliferous limestone, and red mudrock
 - WINDSOR C (UPPER) (ECMwc): Grey to black limestone, bearing Gigantoproductus brachiopods, crinoids and bryozoans

7 LATE MISSISSIPPIAN

- CLARKE HEAD MELANGE (LMch): Rounded and mylonitized megacrysts of various lithology within finer pale grey matrix chiefly comprising Windsor Group limestone

1 DEVONO-CARBONIFEROUS

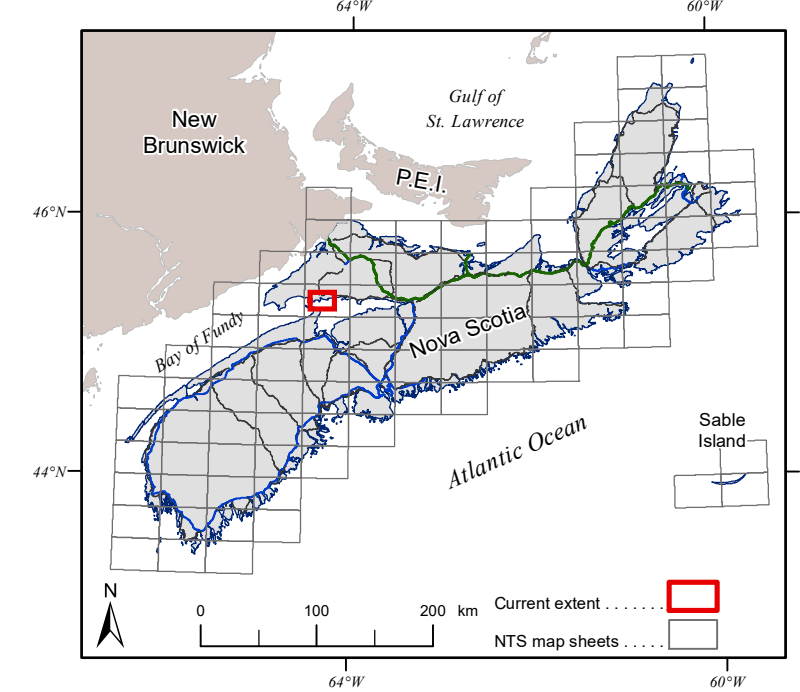
- UNASSIGNED GABBRO (DCggb): Dark green to black blocky mafic intrusions
- UNASSIGNED GRANULITE (DCggl): Pale grey, banded, garnet-bearing mylonitic granulite

Symbols

- Outcrop: X
- Fossil location: F
- Dribble (after O'Neill et al., 2016): D
- Mineral occurrence (modified after O'Neill et al., 2016): M (Ag = Agopogone, SH = Shale, CLV = Clay, C = coal, Cu = copper, Fe = iron, Gt = garnet, Mn = manganese, Ps = lead, SH = shale)
- Bedding, tops known (inclined, vertical, overturned): [Symbol]
- Bedding, tops unknown (inclined, vertical): [Symbol]
- Fault plane (inclined, vertical, assumed): [Symbol]
- Intersection lineation, first generation: [Symbol]
- Axial surface, first generation (assumed): [Symbol]
- Slitken strike: [Symbol]
- Geoheritage site (after Calder et al., 2017):
 - Moose Site: M1 = Cobequid-Chesterford Fault, Wharton; M2 = West Bay; M3 = Clarke Head
 - M4 = Wasson Bluff; M5 = Wasson Bluff-Chesterford
 - M6 = Scooby Bay; M7 = Parrsboro Island
 - Cultural Site: C1 = Parrsboro Island; C2 = Fundy Geological Museum
- Geological contact (inclined, approximate, assumed): [Symbol]
- Fault (inclined, approximate, assumed): [Symbol]
- Anticline/Syncline: [Symbol]
- Facies boundary: [Symbol]
- Unconformity: [Symbol]

- Rock in water: [Symbol]
- Arterial highway: [Symbol]
- Collector highway: [Symbol]
- Local road: [Symbol]
- Seasonal, restricted or private road: [Symbol]
- Trail, track: [Symbol]
- River, stream: [Symbol]
- County boundary: [Symbol]
- Transmission line: [Symbol]
- Low-water coastline*: [Symbol]
- Coastline: [Symbol]
- Wetlands: [Symbol]
- Dam: [Symbol]
- Lake, ocean: [Symbol]

Note*: The low water coastline was interpreted using aerial photography for the purpose of identifying bedrock exposed only at low tide.



Descriptive Text

This map features several classic geological localities and geoheritage sites, long the subject of paleontological research, field trips, and mineral collecting, including East Bay, Parrsboro Island, Clarke Head, and Wasson Bluff. For more than half a century, renowned citizen scientist Elson George identified and collected important fossil occurrences in the map area, and collaborated with the authors on their location and identification. This map is dedicated to him.

For a complete list of Nova Scotia geoheritage sites, see Calder and Bromley, 2017 (https://novascotia.ca/natural-heritage/downloads/geoheritage_2017_CSD2.asp).

Acknowledgments

This map draws in part on earlier, unpublished work by R.D. Naylor, J.H. Calder, T.A. Costain, P.S. Giles, C.M. Kennedy, R.K. Stevens, and J.W.F. Waldron. The localities on this map are either visited and studied by below geoscientists, and the authors cannot help but to be influenced by their research and discussions. Field mapping assistance by Ian Borg, Carla Dickson, Jeff Minchew, and Alison Thomas is gratefully acknowledged. Gordon Fader and Brian Todd are thanked for sharing geophysical insights of sea level geology. Helpful information on mineral occurrences was provided by Rod Tyson and Doug Wilson.

Map Notes

GIS databases, cartography and reproduction by Courtney MacMillan and Angie Barras of the Nova Scotia Department of Energy and Mines, Information Services Section, 2017-2019. The GIS databases and map were developed using ArcGIS® 10.5.1.

Universal Transverse Mercator Projection (UTM), Zone 20, Central Meridian 63°00' West, North American Datum (NAD) 1983 Canadian Spatial Reference System (CSRS) 98.

Base and digital data derived from the Nova Scotia Topographic Database (NSTDB). Copyright Her Majesty the Queen in Right of the Province of Nova Scotia. The NSTDB is available from the Department of Internal Services, Nova Scotia Geomatics Centre (NSGC), Amherst, Nova Scotia.

Shaded relief image derived from 5 m Lidar bare-earth digital elevation data acquired and processed by the Applied Geomatics Research Group, NSCC. The survey was done in April, 2007, Azimuth of 90°, sun angle of 30° and a vertical exaggeration of 5.

Disclaimer

The information on this map may have come from a variety of government and non-government sources. The Nova Scotia Department of Energy and Mines does not assume any liability for errors that may occur. The main map is intended for use at the published scale of 1:25 000, while the inset maps are intended for use at the published scale of 1:5 000.

Nova Scotia Department of Energy and Mines
Geoscience and Mines Branch
Open File Map ME 2019-001

Geology of the Parrsboro Shore, Black Rock to Moose River, Cumberland County, Nova Scotia

Calder, J.H., Waldron, J.W.F., Naylor, R.D., Adams, K.D., Fedak, T.J., George, E.T., and MacHattie, T.G.

Scale 1:25 000
Halifax, Nova Scotia
2019

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Selected References

Adams, K.D. 1978. Taxonomy and paleoecology of the Gigantoproductids of Nova Scotia. M.Sc. thesis, Acadia University, Wolfville, N.S., 247 p.

Bromley, M.H. 1987. Geology of the melange at Clarke Head, Cumberland County, Nova Scotia. B.Sc. thesis, Acadia University, Wolfville, N.S., 114 p.

Calder, J.H. and Poole, J.C. 2017. Geoheritage Sites of Nova Scotia. Nova Scotia Department of Natural Resources, Open File Map ME 2017-032, scale 1:500 000.

Doroshov, H.V., Jr., and Wallace, P.I. 1982. Geological Map of the Cobequid Highlands, Colchester, Cumberland and Pictou Counties, Nova Scotia. Nova Scotia Department of Mines and Energy, Map 62-7, scale 1:50 000.

Fedak, T. 2006. Aich bone bed of sauropodomorph dinosaurs in the Early Jurassic (Hettangian) McCoy Brook Formation of Nova Scotia, Canada. Journal of Vertebrate Paleontology, v. 26, p. 60A.

Fletcher, H. 1905. Province of Nova Scotia, Cumberland and Kings Counties (Parrsboro, sheet no. 63). Geological Survey of Canada, scale 1:63 360.

Gibbons, W., Dohg, R., Gordon, T., Murphy, B., Reynolds, P., and White, J. 1996. Mylonite to megacrystic: tracking fault events within a transcurrent tectonic boundary in Nova Scotia, Canada. Geology, v. 24, p. 411-414.

Murphy, J.B., Waldron, J.W.F., and Kontak, D.J. 2011. Minas Fault Zone: Late Paleozoic history of an intra-continental orogenic transform fault in the Canadian Appalachians. Journal of Structural Geology, v. 3, p. 312-328.

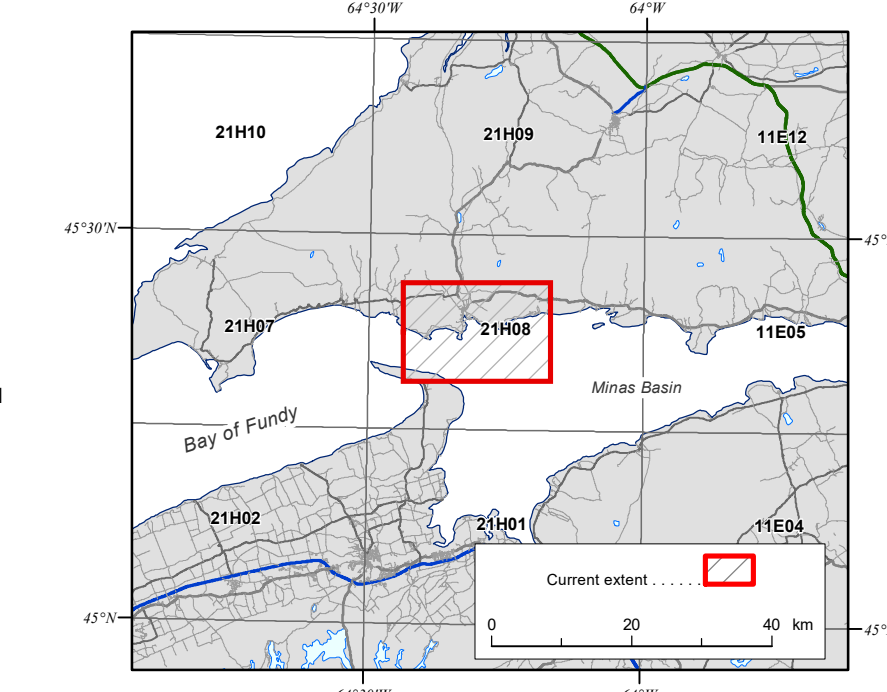
O'Neill, M. and Poole, J.C. 2016. DP ME 003, version 5, 2016. Nova Scotia drillhole database. Nova Scotia Department of Natural Resources, Digital Product ME 003, (version 5).

O'Reilly, G.A., DeMont, G.J., Fisher, B.E., and Poole, J.C. 2016. DP ME 002, version 11, 2016. Nova Scotia mineral occurrence database. Nova Scotia Department of Natural Resources, Digital Product ME 002, (version 11).

Olsen, P., Whiteside, J., and Fedak, T. 2005. The Triassic-Jurassic faunal and floral transition in the Fundy Basin, Nova Scotia, field trip A7. Geological Association of Canada Annual Meeting, Halifax, Atlantic Geoscience Society, Special Publication No. 26, 63 p.

Sues, H.D. and Olsen, P.E. 2015. Stratigraphic and temporal context and faunal diversity of Permian-Jurassic continental tetrapod assemblages from the Fundy rift basin, eastern Canada. Atlantic Geology, v. 51, p. 139-205.

Waldron, J.W.F., White, J.C., MacInnes, E., and Roselli, C.G. 2005. Transposition and transposition along a continental transform fault: Minas Fault Zone, Nova Scotia, field trip B7. Geological Association of Canada Annual Meeting, Halifax, Atlantic Geoscience Society, Special Publication No. 33, 65 p.



Recommended Citation

Calder, J.H. et al. 2019. Geology of the Parrsboro Shore, Black Rock to Moose River, Cumberland County, Nova Scotia. Nova Scotia Department of Energy and Mines, Geoscience and Mines Branch, Open File Map ME 2019-001, scale 1:25 000.

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Mar 5, 2019