

LEGEND

CARBONIFEROUS

CUMBERLAND GROUP

- PORT HOOD FORMATION (Cqph): grey and brown sandstone and conglomerate
- MABOU GROUP**
- POMQUET FORMATION (Cqpl): red and minor grey-green siltstone and sandstone
- HASTINGS FORMATION (Cqcn): grey shale and siltstone with red shale and minor limestone
- COLLEGE GRANT PLUTON (Cqwg): medium-grained quartz diorite
- WINDSOR GROUP**
- HOOD ISLAND FORMATION (Cqwh): red siltstone and sandstone with intercalated massive limestone and dolomite and minor gypsum; rhythmic alternation of these rock units is characteristic
- ADDINGTON FORMATION (Cqwa): red siltstone with gypsum and anhydrite and thin carbonaceous beds; rhythmic alternation of these rock units is typical
- WALLACE BROOK FORMATION (Cqwb): limestone, with minor dolomite, intercalated with red siltstone and sandstone, includes gypsum and anhydrite in the subsurface
- LAKEVILLE FORMATION (Cqwl): grey and reddish-brown polymictic conglomerate and sandstone with gypsum and anhydrite in the subsurface; minor carbonate rocks are intercalated in some sections
- BRIDGEVILLE FORMATION (Cqvb): anhydrite and gypsum, with limestone and dolomite; limestone in variable proportion as interbeds
- GLAS RIVER FORMATION (Cqwr): limestone, minor dolomite, thinly bedded argillaceous, in part pelletal, locally thickly bedded and highly fossiliferous in mineral-rich beds
- MACLEMER FORMATION (Cqwm): limestone in part dolomitic, laminated and/or bedded, pelletal sparsely fossiliferous, includes limestone breccias

DEVONIAN TO CARBONIFEROUS

HORTON GROUP

- UNDIVIDED (DCh): undivided clastic rocks

DEVONIAN

- BALLANTYNES COVE FORMATION (Dba): basal and mylonite with minor clastic rocks

SILURIAN TO DEVONIAN

ARNSMOUTH GROUP

- UNDIVIDED (DCh): undivided clastic and carbonate rocks, intruded by monzonite dyke in School Brook area (White and Benford, 2014)

ORDOVICIAN

- DUNN POINT and MCGILLIVRAY BROOK FORMATIONS (Oqmp): mylonite, basalt and clastic rocks; 465 ± 3.4 Ma and 454 ± 0.7 Ma U-Pb zircon, respectively (Hampton and Murphy, 2004; Murphy et al., 2012)
- MOUNT MACDONALD PLUTON and related bodies (Osm): fine- to coarse-grained syenite to alkali-feldspar granite; rare rapakivi granite dykes
- WEST BARNES RIVER PLUTONIC SUITE**
- QUICK PONDS PLUTON (Owps): medium- to coarse-grained porphyritic quartz monzonite
- LEADBETTER ROAD PLUTON (Owlr): coarse-grained alkali-feldspar granite
- LAGGAN PLUTON (Owlg): medium- to coarse-grained quartz alkali-feldspar syenite to alkali-feldspar granite; 466 ± 0.6 Ma U-Pb zircon (Archibald et al., 2013)
- WAGGARTS LAKE PLUTON (Owgl): medium- to coarse-grained quartz syenite to quartz alkali-feldspar granite; 465 ± 3.8 Ma U-Pb zircon (Hampton et al., 2010)
- BROOK LAKE PLUTON (Owbl): medium- to coarse-grained quartz alkali-feldspar granite to syenite; 469 ± 0.5 Ma U-Pb zircon (Escaraga et al., 2012)
- MOUNT ADAM PLUTON (Owma): medium- to coarse-grained quartz syenite
- GARDNER RIVER PLUTON (Owgr): medium- to coarse-grained quartz monzonite to monzonite
- POOR FARM BROOK COMPOSITE PLUTON (Owfp): medium- to coarse-grained locally porphyritic gabbro with medium- to coarse-grained syenite to alkali-feldspar granite, ca. 461 to 473 Ma U-Pb zircon (Archibald et al., 2013)

CAMBRIAN-ORDOVICIAN

IRON BROOK GROUP

- FERRON FORMATION (IOef): grey, thinly bedded sandstone and conglomerate; minor ironstone
- LITTLE HOLLOW FORMATION (IOeh): red to light grey siltstone with pink limestone beds and nodules
- BLACK JOHN FORMATION (IOeb): red conglomerate to siltstone, black slate, quartz arenite

LATE NEOPROTEROZOIC

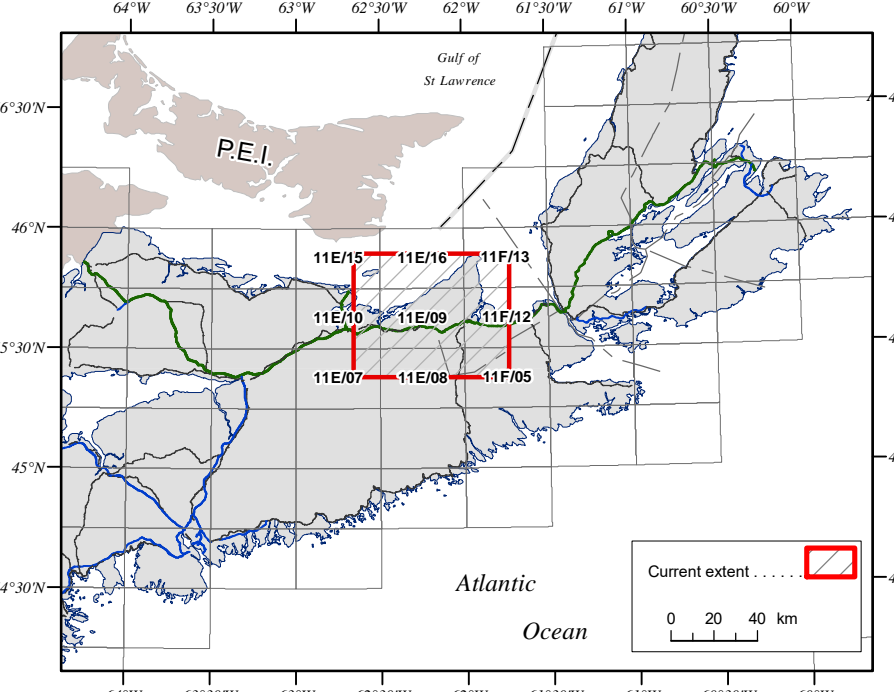
- BEARS BROOK FORMATION (Lefb): red arkosic sandstone to conglomerate, minor basaltic to mafic tuff; rare laminated cherty siltstone; youngest dated zircon 582 ± 10 Ma and 585 ± 3 Ma (Murphy et al., 2004a, b)
- ARNSVILLE BROOK FORMATION (Lefv): basaltic to dioritic tuff; basal flows
- JAMES RIVER PLUTON (Lefj): medium-grained granite to granodiorite
- ANTIGONISH HARBOUR PLUTON (Lefh): medium-grained to porphyritic granite to granodiorite; fine-grained granite (603 ± 3.9 Ma U-Pb zircon; White et al., 2010)
- BROWNS BROOK PLUTON (Lefb): subvolcanic, fine-grained to porphyritic gabbro
- GREENDALE COMPLEX (Lefg): fine-grained to pegmatitic hornblende gabbro, minor leucogabbro
- BURROUGHS LAKE PLUTON (Lefl): medium-grained alkali-feldspar granite to syenite; 470 ± 2.3 Ma U-Pb zircon (White et al., 2010)
- SUTHERLANDS LAKE PLUTON (Lefsl): medium-grained tonalite to quartz diorite
- INDIAN LAKE PLUTON (Lefi): medium-grained granodiorite to syenite
- CHOD PLUTON (Lefc): medium-grained granodiorite (806 ± 1 Ma U-Pb zircon; M. Hampton, written com., 2010)
- SANDY GLINGS LAKE PLUTON (Lefgl): medium- to coarse-grained syenite to alkali-feldspar granite (618 ± 10 Ma U-Pb zircon (Escaraga, 2012); Lefgl: medium-grained quartz diorite; 603 ± 3.9 Ma U-Pb zircon (Koppen et al., 1990)
- EDEN LAKE PLUTONIC SUITE (Lefes): medium- to coarse-grained syenite to granodiorite; 582 ± 30 Ma K-Ar hornblende (Wheeler et al., 1987); Lefes: medium-grained quartz diorite

GEORVILLE GROUP

- CHESS-HOLM BROOK FORMATION (Lefsh): basaltic tuff, siltstone, conglomerate, rare marble and ironstone
- MORAR BROOK FORMATION (Lefmb): siltstone and conglomerate, minor marble and basaltic tuff; ca. 612 Ma U-Pb zircon (Hampton, 2010)
- BACK SETTLEMENT FORMATION (Lefsb): basaltic tuff to crystal tuff, minor siltstone and conglomerate
- FRASER LAKE FORMATION (Leffl): basaltic flows and tuff; rare mylonite tuff and flows and laminated cherty siltstone
- JAMES RIVER FORMATION (Lefjr): laminated cherty siltstone to sandstone, minor mylonite to basaltic tuff
- KEPPOOH FORMATION (Lefkp): mylonite to dioritic tuff and flows, minor basaltic to andesitic tuff and flows, and laminated cherty siltstone; 618 ± 2 Ma U-Pb zircon and monazite (Murphy et al., 1997)

Symbols

- Outcrop, flat
- Ditch/line
- Mineral occurrence (see also Murphy et al., 2010)
- Bedding (top convex; see also Murphy et al., 2010)
- Fold axis - in 60° (see also Murphy et al., 2010)
- Intersection lineation
- Mineral lineation
- Geological contact
- Fault (see also Murphy et al., 2010)
- Thrust fault
- Rock in water
- Trans Canada Highway
- Arterial Highway
- Collector Highway
- Local road
- Seasonal, restricted or private road
- Railway (active)
- River, stream
- Boundary (see also Murphy et al., 2010)
- Transmission line
- Wetlands
- Dam
- Lake, ocean



Descriptive Text

In 2016, the Nova Scotia Department of Natural Resources initiated a geological mapping program in the Antigonish Highlands of northern mainland Nova Scotia. The principal goal of this program is to produce a geological bedrock map of the area, to describe and interpret the sedimentary, igneous, metamorphic and structural history of the area, and to evaluate the resource potential. This map represents the first summer of field work and follow-up geospatial, geochronological, petrological, paleontological, and isotopic studies (White and Benford, 2014; White et al., 2011, 2012; White, 2013; White and Drummond, 2014; White and Benford, 2014). It also incorporates changes in the distribution of units in the southern highlands, which resulted from student thesis projects by Archibald (2012) and MacFarlane (2012) and ages submitted by Escaraga et al. (2012) and Archibald et al. (2013). Carboniferous units in the Antigonish Basin are modified after Boettner and Galt (1955).

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Disclaimer

The information on this map may have come from a variety of government and nongovernment sources. The Nova Scotia Department of Natural Resources does not assume any liability for errors that may occur. This map is intended for use at the published scale of 1:75 000.

Map Notes

GSI databases, cartography and reproduction by Ange Barras and Jeff McKinnon of the Nova Scotia Department of Natural Resources, Geospatial Information Services Section, 2016-2017. The GSI databases and map were developed using ArcGIS 10.5.

Universal Transverse Mercator Projection (UTM), Zone 20, Central Meridian 63°00' West, North American Datum (NAD) 1983 Canadian Spatial Reference System (CSRS) (86).

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), Antigonish, Nova Scotia.

Shaded relief image derived from a 25-m Digital Elevation Model of the Province of Nova Scotia, DP ME 59, version 2, 2006. Azimuth of 0°, sun angle of 40° and a vertical exaggeration of 5.

Recommended Citation

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Nova Scotia Department of Natural Resources
Geospatial Information Services Section
Open File Map ME 2016-001

Bedrock Geology Map of the Antigonish Highlands Area, Antigonish and Pictou Counties, Nova Scotia

C. E. White

Scale 1:75 000

Halifax, Nova Scotia 2016

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