Nova Scotia Department of Natural Resources
Mineral Resources Branch
Open File Map ME 2010-6

Bedrock Geology Map of the Port Hawkesbury Area, Part of NTS Sheets 11F/06, 11F/07, 11F/10, 11F/11 and 11F/15, Inverness, Richmond, Guysborough and Antigonish Counties, Nova Scotia

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Scale 1:50 000

1 0 1 2 3 4 6 km

Halifax, Nova Scotia
2010

NOVA SCOTIA
Natural Resources

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Map Notes

Universal Transverse Mercator Projection (UTM), Zone 20, Central Meridian 63°00' West

North American Datum (NAD) 1983 Canadian Spatial Reference System (CSRS) 98

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Cartography and reproduction by Nova Scotia Department of Natural Resources, Geoscience Information Services Section, 2010.

Disclaimer

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Legend

PALEOZOIC

CARBONIFEROUS

CUMBERLAND GROUP

PORT HOOD FORMATION

- **CCphc** — COLCHESTER MEMBER (CCphc): sandstone, grey shale and siltstone, with thin coals
- **CCphe** — EMERY BROOK MEMBER (CCphe): (after Bell, 1963): grey siltstone, shale, sandstone, ripple marks abundant
- **CCphm** — MARGAREE MEMBER (CCphm): grey sandstone in thick multistoried bodies, with interbedded red siltstone

major macro- and microfloral change; Mississippian/Pennsylvanian unconformity

MABOU GROUP

- **CMbq** — POMQUET FORMATION (CMbq): siltstone and shale, mainly red-brown, minor sandstone
- **CMha** — HASTINGS FORMATION (CMha): siltstone and shale, grey and dark grey, with buff bands, thin stromatolitic limestones

UNDIVIDED (CMu): polymictic conglomerate, with interbedded grey and red siltstone (lok Madame only; may be partly Upper Windsor Group equivalent)

WINDSOR GROUP

- **CMwc** — HOOD ISLAND FORMATION (CMwc): red-brown siltstone, shale, with intercalated limestone, dolostone and gypsum

UNDIVIDED MAINLY UPPER AND MIDDLE WINDSOR GROUP (CMwu): siltstone, carbonate rocks, evaporites, typically highly deformed

- **CMwy** — SYDNEY RIVER FORMATION (CMwy): conglomerate, sandstone, grey and red shale, siltstone with interbedded gypsum and anhydrite; laterally equivalent to Carrolls Corner Formation evaporites; includes ISLE MADAME LIMESTONE (CMme) in the West Arichat area, Isle Madame
- **CMwc** — CARROLLS CORNER FORMATION (CMwc): gypsum and anhydrite, minor carbonate rocks and rare grey siltstone overlain by thick halite interval in the subsurface; may include red and grey mudstones derived from halite dissolution
- **CMwl** — MACUMBER AND GAYS RIVER FORMATIONS (CMwl): limestone and/or dolostone, laminated and pelletoidal, ranging to bioherms; sometimes abundantly fossiliferous; variable in character near paleobasin margins

HORTON GROUP

- **CHgg** — GRANTMIRE FORMATION (CHgg): conglomerate, sandstone, mainly reddish, variable in grain size, but locally very coarse grained, conformable with basal Windsor Group

regional unconformity

- **CMcg** — CMcg — CMgb — GABBROIC INTRUSIVE ROCKS: St. Peters Gabbro (CMgb); Horton Lake Gabbro (CMcg); and related gabbroic bodies of Early Viséan age (CMgb)

Early Viséan hiatus

- **CHkc** — STEEP CREEK FORMATION (CHkc): conglomerate, grey polymictic; sandstone, quartz-rich to subarkosic with significant grey, grey-green and red siltstone; unconformable on both Tracadie Road and Clam Harbour River formations

unconformity

- **CHcm** — CALEDONIA MILLS FORMATION (CHcm): sandstone, red siltstone and minor conglomerate

CHmg — TRACADIE ROAD FORMATION

- **CHlc** — LINCOLNVILLE MEMBER (CHlc): siltstone, grey and dark grey, in part highly calcareous, with interbedded quartz-rich sandstone
- **CHwh** — HALFMOON LAKE MEMBER (CHwh): grey sandstone, quartz-rich and in part arkosic with polymictic channel lags and interbeds of dark grey siltstone
- GRANGE GREYS MEMBER (CHmgg): siltstone, grey to black, with grey fossiliferous sandstone and minor polymictic channel lags; grey sandstone intercalated in the upper parts; mapped on Isle Madame and south of St. Peter's in the eastern map area

CLAM HARBOUR RIVER FORMATION

CHmg

- **CHmg** — GOOSE HARBOUR LAKE MEMBER (CHmg): siltstone, grey-green and pale reddish grey, with interbeds of fine-grained sandstone, red and grey
- **CHmg** — ENGLANDS LAKE MEMBER (CHmg): sandstone, grey to pale reddish grey, with polymictic conglomerate in beds to 10 m in thickness; interbeds of maroon and grey-green siltstone; base not exposed

- CHdg — CREIGHSH FORMATION (CHd): sandstone, grey to pale reddish grey, with polymictic conglomerate in beds to 10 m in thickness; interbeds of maroon and grey-green siltstone; base not exposed; lowest Horton Group north of the Creighsh Hills

LATE DEVONIAN

- **DTds** — DTsf — FEIGIT BROOK FORMATION: basalt, vesicular and amygdaloidal (DTds); rhyolite: locally interbedded with maroon conglomerate and red siltstone (DTsf)
- **DgtgR** — FEITOZE GRAT GRANITE (DgtgR): granite, pink, fine grained, equigranular; in small intrusive bodies and as dykes; southern Isle Madame area only

LATE SILURIAN to EARLY DEVONIAN(?)

- **SDgs** — GLENDEEN FORMATION (SDgs): maroon and grey-green sandstone and conglomerate, with minor grey and green siltstone and metavolcanic rocks

CAMBRIAN to SILURIAN(?)

- **€Sbs** — BROWN BROOK SUCCESSION (€Sbs): strongly sheared, maroon siltstone and fine-grained sandstone with fuliaceous sandstone; felsic to mafic tuff and rare rhyolite

PROTEROZOIC

LATE NEOPROTEROZOIC to DEVONIAN(?)

- **ZDhi** — UNNAMED FAULT ROCK (ISLE MADAME ONLY) (ZDhi): siliceous mylonite, metasiltstone, minor dioritic plutonic rocks, locally includes gneiss, amphibolite and ill-sorted granite

NEOPROTEROZOIC to ORDOVICIAN

CAPE PORCUPINE COMPLEX

- **ZCOPg** — ZCOmn — ZCOdmn — alkali-feldspar granite, monzogranite, quartz alkali-feldspar syenite, mafic dykes (ZCOPg); rhyolitic crystal-lithic metatuff (ZCOPr); metadiorite and quartzite (ZCODmn)

NEOPROTEROZOIC

- **ZCmgR** — ZCmL — XCumg — ZCdmg — CREIGHSH HILLS PLUTON: medium-grained granodiorite (ZCmgR); tonalite (ZCmL); monzogranite (ZCdmg)
- **ZCmgr** — ZCmT — ZCmgr — WEST BAY PLUTON (ZCmgr): coarse-grained, locally K-feldspar megacrystic monzogranite

- **ZCmgr** — ZCmT — ZCmgr — SPORTING MOUNTAIN PLUTON: fine- to medium-grained, grey to pale pink granodiorite transitional to monzogranite (ZCmgr); medium-grained tonalite (ZCmT); mixed volcanic and plutonic rocks (ZCmmg); abundant mafic to felsic dykes throughout

PRINGLE MOUNTAIN GROUP

- **ZYNu** — UNDIVIDED (ZYNu): varied basaltic to rhyolitic flows, crystal-lithic tuff and crystal tuff, minor grey-green, fuliaceous metasedimentary rocks; abundant mafic and felsic dykes

BRAS D'OR GNEISS

- **ZBOG** — LAKE HILL GNEISSIC COMPLEX (ZBOG): biotite, biotite-cordierite, and sillimanite-bearing paragneiss, migmatitic paragneiss, marble, quartzite, amphibolite and minor ionalitic orthogneiss

GEORGE RIVER METAMORPHIC SUITE

- **ZGrbs** — *BLUES BROOK FORMATION* (ZGrbs): marble, quartzite and slate

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Symbols

- Outcrop
- Drillhole
- Mineral occurrence (Ag - silver, Au - gold, Ba - barium, Cu - copper, Fe - iron, Pb - lead, Sr - strontium, Zn - zinc)
- Age date locations; Ma [reference]* ($^{40}Ar/^{39}Ar$) wr - whole rock ($U-Pb$) z - zircon
- Shaft
- Spore sample
- Petroleum well
- Quarry (active, abandoned)
- Bedding: tops known (inclined, vertical, overturned)
- Bedding: tops unknown (inclined, vertical)
- Cleavage: first generation (inclined, vertical)
- Fold axis; first generation (first style unknown, s fold)
- Shear; ductile (inclined)
- Geological contact (approximate, assumed)
- Fault (approximate)
- Low angle fault; teeth in direction of dip (approximate)
- Anticline, Synclline (approximate)
- Rock in water
- Trans-Canada Highway
- Arterial highway
- Trunk highway
- Collector highway
- Hard surface road
- Loose surface/resource access road
- Trail, footpath, cart track
- Railway (active, inactive)
- Coastline
- River, stream
- County boundary
- Shoreline/upper limit (mud, single line)
- Swamp
- Lake/Ocean

*** References for Selected Radiometric Age Dates**

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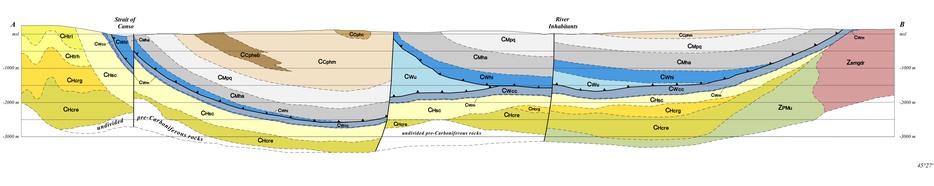
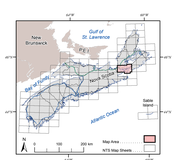
[2] Reynolds, P.H., Barr, S.M., White, C.E. and Tenière, P.J. 2004: 40Ar/39Ar dating in the Lochaber-Musgrave area, northern mainland Nova Scotia: implications for timing of regional metamorphism and sediment provenance in the Late Devonian-Early Carboniferous Horton Group; Canadian Journal of Earth Sciences, v. 41, p. 987-996

[3] White, C.E., Barr, S.M. and Ketchum, J.W.F. 2000: New age controls on rock units in pre-Carboniferous basement blocks in southwestern Cape Breton Island and adjacent mainland Nova Scotia; in Mineral Resources Branch, Report of Activities 2000, ed. D.R. MacDonald; Nova Scotia Department of Natural Resources, Report ME 2000:1, p. 163-178

[4] White, C.E., Barr, S.M., Ketchum, J.W.F. and Ehler, M. 2001: Geology of the Cape Porcupine Complex (NTS 11F/11), Guysborough County, Nova Scotia, in Minerals and Energy Branch, Report of Activities 2000, ed. D.R. MacDonald; Nova Scotia Department of Natural Resources, Report ME 2001:1, p. 53-63





Apr 27, 2010