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Any revisions or additional information known to the user  
would be welcomed by the Geological Survey of Canada

Digital base map assembled and modified by the Geological Survey of Canada from digital bases compiled by the Canada Centre for Geomatics

Mean magnetic declination 1995,  $21^{\circ}45'$  West, decreasing  $5.3'$  annually. Readings vary from  $21^{\circ}7'$  W in the SE corner to  $22^{\circ}21'$  W in the NW corner of the map.

to EE 21. Win the NW corner of the map

COMPILATION MAP  
GEOLOGY  
**CAPRERIA**

# **CAPE BRETON ISLAND**

## **NOVA SCOTIA**

NOVA SCOTIA

**OPEN FILE  
DOSSIER PUBLIC**  
**3159**  
GEOLOGICAL SURVEY OF CANADA  
COMMISSION GÉOLOGIQUE DU CANADA  
OTTAWA  
1995

A map showing a pink shaded area labeled OF3159a, centered in grid square 11K. The map includes grid lines for 11E, 11F, 11G, 11H, 11I, 11J, 11K, and 11L.

**CARBONIFEROUS**

- C** undifferentiated Carboniferous units
- CCPHM** Middle Port Hood Formation: sandstone, siltstone, shale, coal and impure limestone
- CCPHI** Lower Port Hood Formation: channelized sandstone deposits, siltstone, shale
- CCS** Sydney Mines Formation: mudstone, siltstone, shale, sandstone, limestone, and major coal deposits
- CCSB** South Bar Formation: sandstone, pebbly sandstone, minor conglomerate, mudstone, and rare coal
- CCI** Inverness Formation: arkose, pebbly sandstone and conglomerate, shale and coal
- CCPHU** Upper Port Hood Formation: arkose, pebbly arkose and conglomerate, shale, and siltstone

**WESTPHALIAN-STEPHANIAN CUMBERLAND GROUP**

- VISEAN**
  - CC** cross-bedded and trough cross-bedded white medium sand arkose, minor siltstone, shale, and coal
  - NAMURIAN**
    - MABOU GROUP**
      - CM** undifferentiated Mabou Group
      - CHA** Ainslie Formation: cross-bedded sandstone and conglomerate, siltstone, mostly fluviatile deposits
      - CWS** Strathline Formation: grey and red siltstone, sandstone, micritic limestone, dolomite, gypsum and halite
      - CWm** Middle member: red siltstone, sandstone, and conglomerate with gypsum and anhydrite and thin intercalated marine carbonate beds
      - CWI** Lower member: limestone, variably dolomitic and fossiliferous limestone, red siltstone, and thick bedded peloidal Macumber Formation limestone
      - CWu** Upper member including Pomquet Formation: red and green siltstone and sandstone, minor conglomerate
      - CMI** Lower member including Hastings Formation: shale and siltstone, dolomitic siltstone, and thin stromatolitic dolostone beds
      - CW** undifferentiated Windsor Group
    - HORTON GROUP**
      - DCPb** Fisset Brook Formation, basal member: vesicular porphyritic basalt and andesite, with minor interbedded siltstone and conglomerate
      - DCFT** Fisset Brook Formation, rhyolite, porphyritic rhyolite, flow-banded rhyolite
      - CHS** Fisset Brook Formation, clastic member: pebble to cobble conglomerate, breccia, red siltstone
      - CHJ** Judique Formation: red cross-bedded medium to coarse sand lithic arkose, sandstone, minor conglomerate
      - DCF** Fisset Brook Formation: vesicular basalt, rhyolite, red siltstone, sandstone, conglomerate
      - DCHC** Craignish Formation: dominantly conglomerate with red and grey sandstone, thick and thinly bedded
      - DCM** MacAdam Lake Formation: arkose, conglomerate, shale
      - DCH** undifferentiated Horton Group

**CENTRAL AND NORTHERN CAPE BRETON ISLAND**

  - ORDOVICIAN-SILURIAN**
    - OSM** Money Point Group
    - OS (M)** hyalite, felsic to intermediate tuff, lapilli tuff and felsic to intermediate breccia, minor volcanic flows and slate ( $427 \pm 4$  Ma, U-Pb zircon in rhyolite from Sarah Brook Formation, Dunning et al. 1990)
    - OS (Mc)** pelitic schist, foliated quartz-rich wacke, quartz-pebble conglomerate, siltstone, polymictic meta-OSMc - equivalent unit in Money Point Group
    - OSv** chloritic schist, meta-volcanic rocks, metabasalt and mylonitic diorite
    - OSd** diorite, schistose diorite, chloritic schist, mylonite, and amphibolite
  - MacLeans Brook Formation: quartz-rich siltstone and sandstone**
  - CMCL** MacLean Brook Formation: quartz arenite, siltstone, shale
  - OM** Adams Brook Formation: quartz-rich siltstone and sandstone
  - CMC** MacCodrum Formation: siltstone and shale
  - CCB** Canoe Brook Formation: mudstone, siltstone, and minor sandstone
  - CS** Sagden Lake Formation (part of Morrison River Formation of Hutchinson, 1949): quartz arenite and quartz pebble conglomerate
  - HCK** Kelvin Glen Group: red pebble conglomerate, arkose, sandstone, siltstone
  - HMM** heterolithic lapilli tuff, basalt flows, conglomerate, sandstone, siltstone

**SOUTHEASTERN CAPE BRETON ISLAND**

  - ORDOVICIAN**
    - HD** amphibolite, variably foliated, locally schistose to gneissic
    - HMG** grey andesite to dacite lithic lapilli tuff
    - HFM** basaltic to andesitic flows and tuffs, dacite crystal tuff, minor sandstone
    - HMI** varied lapilli tuff, mainly dacitic to rhyolitic
    - HMS** siltstone, lithic arkose, minor basalt
    - HMr** rhyolite lapilli tuff and flows, minor siltstone ( $563 \pm 2$  Ma, U-Pb zircon, Bevier et al. 1993)
    - HMc** tuffaceous conglomerate, siltstone, basalt
    - HMC** maroon to greenish lapilli tuff, laminated siltstone, lapilli tuff, basalt
    - HMB** basaltic and andesitic lapilli tuff, amygdaloidal basalt, conglomerate, siltstone
    - HMBa** basaltic and andesitic lapilli tuff, amygdaloidal basalt, conglomerate, siltstone
    - HMBb** basaltic flows and lapilli tuff, siltstone
    - HMI** Little Lorraine unit: lithic lapilli tuff and conglomerate, siltstone, dacite slates
    - HFB** basaltic lapilli tuff, breccia, flows, and minor sandstone
    - HFC** dacite crystal tuff, lapilli tuff, minor rhyolite and conglomerate
  - MIDDLE CAMBRIAN**
    - CT** Trout Brook Formation: shale, siltstone, and minor sandstone
  - LOWER CAMBRIAN**
    - CCB** Canoe Brook Formation: mudstone, siltstone, and minor sandstone
    - CMC** MacCodrum Formation: siltstone and shale
    - CS** Sagden Lake Formation (part of Morrison River Formation of Hutchinson, 1949): quartz arenite and quartz pebble conglomerate
    - HCK** Kelvin Glen Group: red pebble conglomerate, arkose, sandstone, siltstone
    - HMM** heterolithic lapilli tuff, basalt flows, conglomerate, sandstone, siltstone
  - LATE HADRYNIAN**
    - MAIN-A-DIEU GROUP**
      - HMM** heterolithic lapilli tuff, basalt flows, conglomerate, sandstone, siltstone
  - HADRYNIAN - DEVONIAN**
    - ODcp** pelitic gneiss, quartzofeldspathic gneiss, mica schist, minor calc-silicate rock, meta-conglomerate ( $462 \pm 2$  Ma, U-Pb detrital zircon, Chen et al. 1995)
    - P-Sgn** biotite gneiss, amphibolite, pegmatite and minor marble
    - PSMR** Middle River metamorphic suite: amphibolite, gneiss, kyanite-muscovite schist, and minor marble
    - PSCN** Cape North Group: gneiss, high-grade pelitic to semi-pelitic schist, calc-silicate rock, marble, and amphibolite
    - HOgn** diorite, mylonitic and schistose to gneissic granite, biotite-garnet schist, minor sheared
    - ROTEROZOIC**
      - HCKgn** Kellys Mountain gneiss: cordierite-bearing paragneiss
      - HPv** Price Point Formation: sub-volcanic dacite and andesite, some lapilli tuff and volcanic flows
      - PLhgn** Lime Hill orogenesis complex: marble, calc-silicate rock, cordierite-andalusite/sillimanite gneiss, multi-phase granitic injection complex
      - M PG** PM: marble, calc-silicate rock, gneiss, minor quartzite; Pb: limestone, marble, dolostone, calc-silicate rock, quartzite, feldspathic arenite, wacke, minor mafic metavolcanic rocks
      - Pq** quartzite, psammitic schist, quartzofeldspathic gneiss, minor calc-silicate rock and amphibolite
      - Pw** biotite and chlorite schist, metapschists, marble, dolostone, calc-silicate rock, gneiss, schist, mafic metavolcanic rocks, amphibolite
  - STRATIFIED ROCKS**
    - VISEAN**
      - WINDSOR GROUP**
        - CM** undifferentiated Mabou Group
        - CHA** Ainslie Formation: cross-bedded sandstone and conglomerate, siltstone, mostly fluviatile deposits
        - CWS** Strathline Formation: grey and red siltstone, sandstone, micritic limestone, dolomite, gypsum and halite
        - CWm** Middle member: red siltstone, sandstone, and conglomerate with gypsum and anhydrite and thin intercalated marine carbonate beds
        - CWI** Lower member: limestone, variably dolomitic and fossiliferous limestone, red siltstone, and thick bedded peloidal Macumber Formation limestone
        - CWu** Upper member including Pomquet Formation: red and green siltstone and sandstone, minor conglomerate
        - CMI** Lower member including Hastings Formation: shale and siltstone, dolomitic siltstone, and thin stromatolitic dolostone beds
        - CW** undifferentiated Windsor Group
      - HORTON GROUP**
        - DCPb** Fisset Brook Formation, basal member: vesicular porphyritic basalt and andesite, with minor interbedded siltstone and conglomerate
        - DCFT** Fisset Brook Formation, rhyolite, porphyritic rhyolite, flow-banded rhyolite
        - CHS** Fisset Brook Formation, clastic member: pebble to cobble conglomerate, breccia, red siltstone
        - CHJ** Judique Formation: red cross-bedded medium to coarse sand lithic arkose, sandstone, minor conglomerate
        - DCF** Fisset Brook Formation: vesicular basalt, rhyolite, red siltstone, sandstone, conglomerate
        - DCHC** Craignish Formation: dominantly conglomerate with red and grey sandstone, thick and thinly bedded
        - DCM** MacAdam Lake Formation: arkose, conglomerate, shale
        - DCH** undifferentiated Horton Group
  - LATE DEVONIAN TO CARBONIFEROUS FAMENNIAN-TOURNAISIAN**
    - WINDSOR GROUP**
      - CHA** Ainslie Formation: cross-bedded sandstone and conglomerate, siltstone, mostly fluviatile deposits
      - CHS** Strathline Formation: grey and red siltstone, sandstone, micritic limestone, dolomite, gypsum and halite
      - CHJ** Judique Formation: red cross-bedded medium to coarse sand lithic arkose, sandstone, minor conglomerate
      - DCF** Fisset Brook Formation: vesicular basalt, rhyolite, red siltstone, sandstone, conglomerate
      - DCHC** Craignish Formation: dominantly conglomerate with red and grey sandstone, thick and thinly bedded
      - DCM** MacAdam Lake Formation: arkose, conglomerate, shale
  - CARBONIFEROUS**
    - DEVONIAN**
      - Cpb** St. Peters Canal gabbro: gabbro, diabase ( $339 \pm 2$  Ma, U-Pb zircon, Barr et al. 1985)
      - DMg** Margaree pluton, coarse porphyritic rapakivi granite
      - Dg** granite to syenogranite (includes Salmon Pool, dated at  $365 \pm 10/5$  Ma, U-Pb zircon, Jamieson et al. 1985)
      - Dlg** Lower St. Esprit Pluton: hornblende-biotite monzonite ( $378 \pm 5/1$  Ma, U-Pb zircon, Bevier et al. 1993)
      - Dgb** Cameron Brook granodiorite: coarse-grained porphyritic granodiorite ( $402 \pm 3$  Ma, U-Pb zircon, Dunning et al. 1990)
      - Dgk** Black Brook Granitic Suite: medium- to coarse-grained granodiorite, granite, and muscovite-biotite granite ( $373 \pm 2$  Ma, U-Pb monazite, Dunning et al. 1990)
      - Dng** West Branch North River Pluton: composite pluton of medium- to coarse-grained, light grey, porphyric biotite-hornblende granodiorite, and medium- to coarse-grained pink granite
      - Dnh** Neils Harbour orthogneiss ( $403 \pm 3$  Ma, U-Pb zircon, Dunning et al. 1990) with abundant enclaves of mica schist and cross-cutting dykes of DBg
  - PLUTONIC ROCKS**
    - LATE HADRYNIAN**
      - Hsd** diorite
    - DEVONIAN**
      - Hsd** tonalite, granodiorite
    - CARBONIFEROUS**
      - Hsd** diorite, granite, locally displaying mylonitic bands
    - ORDOVICIAN**
      - Hccg** Cheticamp pluton: biotite granite, biotite-muscovite granite, locally displaying mylonitic bands
      - Hd** granodiorite, locally granite (includes Baddack River granodiorite,  $556 \pm 4$  Ma, U-Pb zircon, Dunning et al. 1990)
      - Hdk** Kathy Road diorite: medium-grained amphibole-rich diorite, variably foliated to gneissic diorite, amphibolite ( $560 \pm 2$  Ma U-Pb zircon, Dunning et al. 1990)
      - Hdq** Gibbons Flowage quartz diorite ( $564 \pm 2$  Ma, U-Pb zircon, Dunning et al. 1990)
      - Hdg** Indian Brook granodiorite: medium-grained granodiorite, biotite to granular orthogneiss, locally foliated and weakly chloritized
      - Hd** diorite, variably foliated to schistose
      - Hgr** foliated to non-foliated, locally mylonitic, medium grained pink granite
      - Hcggd** coarse-grained biotite granite, granodiorite (includes Cape Cove pluton,  $574 \pm 3$  Ma, U-Pb zircon, Bevier et al. 1993)
      - Hdgs** medium- to fine-grained schistose granodiorite, granodiorite gradational to diorite and amphibole-rich amphibolite, strongly foliated and sheared feldspar-quartz gneiss
      - Ham** medium-grained to porphyritic biotite-amphibole quartz monzonite
      - SDPbgx** Pleasant Bay-Belle Cote Road greisic complex: tonalitic foliated granitic orthogneiss, amphibolite, and gneissic orthogneiss, amphibolite, strongly foliated and sheared feldspar-quartz gneiss
      - SDPbgx** Pleasant Bay-Belle Cote Road greisic complex: tonalitic foliated granitic orthogneiss, amphibolite, and gneissic orthogneiss, amphibolite, strongly foliated and sheared feldspar-quartz gneiss
      - SDPbgx** North Branch Baddeck River leucotonalite: medium-grained schistose granodiorite, granodiorite gradational to diorite and amphibole-rich amphibolite, strongly foliated and sheared feldspar-quartz gneiss
      - SDPbgx** Taylors Barren Pluton: medium- to coarse-grained, pink, granodiorite (includes Chisholm Brook Suite,  $620 \pm 3/2$  Ma, U-Pb zircon, Barr et al. 1990)
      - SDPbgx** granodiorite, biotite schist, granite to granodiorite orthogneiss, amphibolite, and gneissic orthogneiss, amphibolite, strongly foliated and sheared feldspar-quartz gneiss
      - Og** granite, leucogranite
      - Omg** monzogranite
      - Hgb** gabbro
      - HELKIAN**
        - Hls** Lowland Brook syenite ( $1080 \pm 5/3$  Ma, U-Pb zircon, Miller et al. 1993)
        - Hmd** monzonite, diorite, gabbro
        - Ha** anorthosite
        - HBC** Blair River Complex: predominantly quartzofeldspathic orthogneiss, with dispersed high-grade calc-silicate rock, marble, amphibolite, metagabbro
    - REFERENCE LIST OF MAPS AND REPORTS USED IN COMPILATION**
      - Barr, S.M., Raeside, R.P., and Jamieson, R.A. 1987. Geological map of the gneissic and metamorphic rocks of northern Cape Breton Island, Nova Scotia. Geological Survey of Canada, Open File 1594, six sheets, scale 1:50,000.
      - Barr, S.M., and Macdonald, A.S. 1989. Geology of the Mabou Highlands, western Cape Breton Island, Nova Scotia. Nova Scotia Department of Mines and Energy, Paper 89-2.
      - Barr, S.M., Dunning, G.R., Raeside, R.P., and Jamieson, R.A. 1990. Contrasting U-Pb ages from plutons in the Bras d'Or and Miri Terranes of Cape Breton Island, Nova Scotia. Canadian Journal of Earth Sciences, v. 27, p. 1209-1220.
      - Barr, S.M., Jamieson, R.A., and Raeside, R.P. 1992. Geological map of Cape Breton Island, Nova Scotia. Geological Survey of Canada, Open File 1752, scale 1:100,000.
      - Barr, S.M., White, C.E., and Macdonald, A.S. 1993. Geology of the northeastern Cape Breton Island, Nova Scotia. Geological Survey of Canada, Map 1858A, scale 1:100,000 (in press).
      - Barr, S.M., Cormier, C.F.M., and White, C.E. 1995. Devonian-Carboniferous volcanic and gabbro rocks in Guysborough County and Cape Breton Island, Nova Scotia. Atlantic Geoscience Society, 1995 Program and Abstracts, p. 7.
      - Barr, S.M., Bevier, M.L., and Giles, P.S. 1995. Bedrock geology of the Margaree (11K06), Cape Breton Island, Nova Scotia. Geological Survey of Canada, scale 1:50,000 (in press).
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      - Boehner, R.C., Giles, P.S., and Barr, S.M. 1989. The stratigraphy and trilobite faunas of the Cambrian sedimentary rocks of Cape Breton Island, Nova Scotia. Geological Survey of Canada, Memoir 154, scale 1:50,000.
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