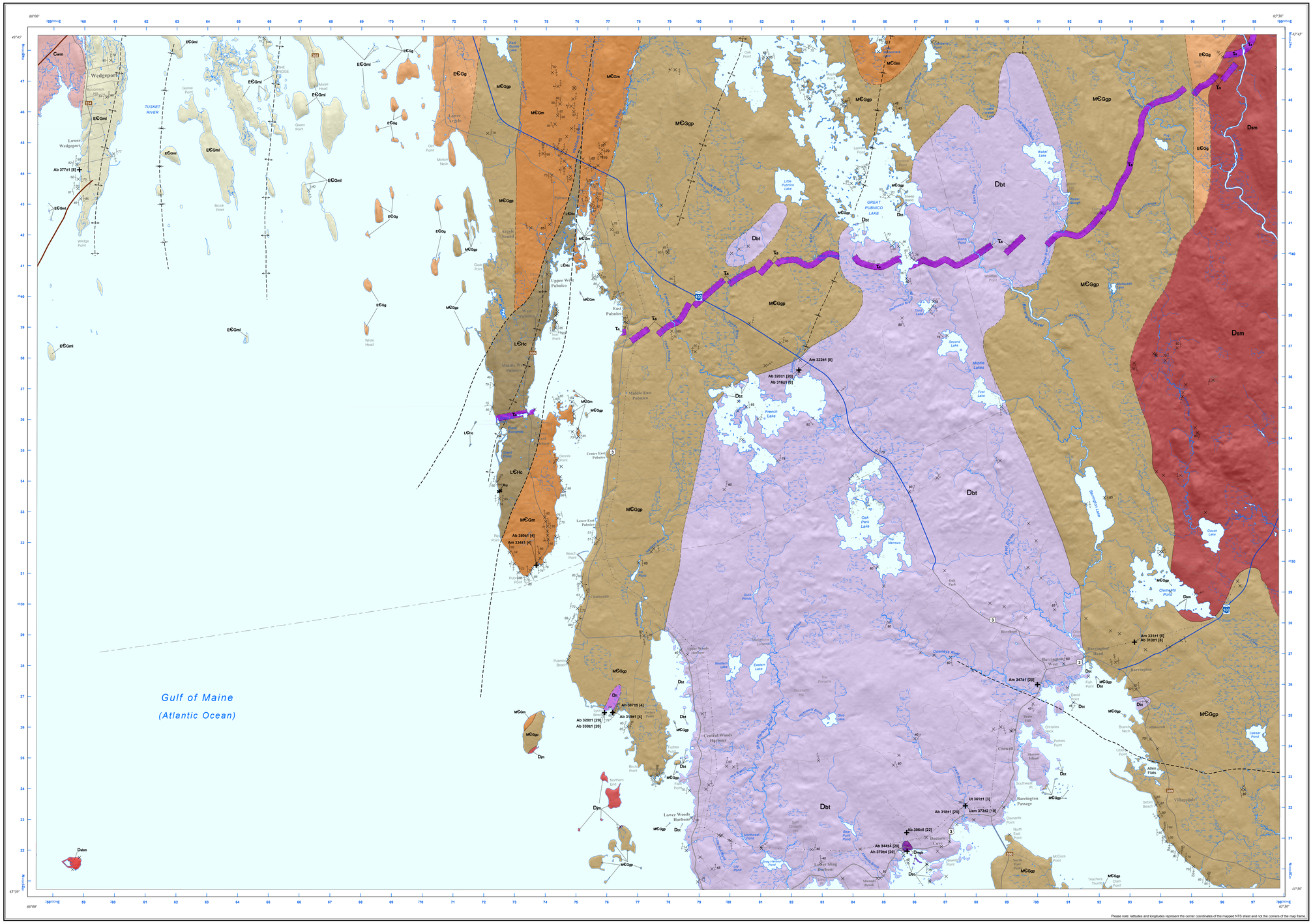

Please note: latitudes and longitudes represent the corner coordinates of the mapped NTS sheet and not the corners of the map frame.

LEGEND

MESOZOIC

MIDDLE TO LATE TRIASSIC

WEDGEPORT DYKES (T̄w): black to brown, fine- to medium-grained lamprophyre and alkaline olivine gabbro

LATE TRIASSIC

SHELBURNE DYKE (T̄s): black to brown, fine- to coarse-grained gabbro

PALEOZOIC

CARBONIFEROUS

TOURNAISIAN

Cwm — WEDGEPORT PLUTON (Cwm): pale grey, medium- to coarse-grained, equigranular to porphyritic biotite monzogranite to syenogranite; garnet locally present; fine- to medium-grained, biotite-rich, round granodioritic enclaves common; cut by lamprophyre and alkaline olivine gabbro dykes

LATE DEVONIAN

Ddsm — SEAL ISLAND PLUTON (Ddsm): grey, coarse-grained, inequigranular to porphyritic biotite monzogranite with megacrysts of K-feldspar

Dm — JOHN ISLAND MONZOGRANITE (Dm): pale grey, moderately foliated, medium-grained muscovite-biotite monzogranite

Dsm — SHELBURNE PLUTON (and related plutons)(Dsm): pale grey, moderately foliated, medium-grained biotite-muscovite monzogranite; abundant aplite and pegmatite dykes

Dbt — BARRINGTON PASSAGE PLUTON (and related plutons (Dbt)): grey, medium-grained, strongly foliated to equigranular biotite tonalite to quartz diorite and granodiorite; rare hornblende; locally layered

Dmgp — MURRAY COVE GABBRONORITE (Dmgp): black, massive, medium- to coarse-grained gabbronorite

Dt — LYONS BAY TONALITE (Dt): grey, medium-grained, equigranular hornblende- and biotite-bearing quartz diorite to tonalite; locally mylonitic

EARLY CAMBRIAN TO EARLY ORDOVICIAN

HALIFAX GROUP

LЄHc — *CUNARD FORMATION* (LЄHc): black to rust-brown slate with thin beds and lenses of minor black metasiltstone; medium-bedded, fine-grained, crosslaminated metasandstone; sulphide minerals common

GOLDENVILLE GROUP

MЄGm — *MOSHERS ISLAND FORMATION* (MЄGm): green to greenish-grey to grey, well-laminated metasiltstone to slate; minor, very thin- to thin-bedded, fine-grained metasandstone; abundant manganiferous nodules, laminations and coticules

MЄGgp — *GOVERNMENT POINT FORMATION* (MЄGgp): grey, thin- to thick-bedded metasandstone with minor calc-silicate nodules and rare manganese nodules; laminated, green to greyish-green to purple metasiltstone and rare black slate; trace fossils common

EЄGg — *GREEN HARBOUR FORMATION* (EЄGg): grey, thick-bedded, medium-grained metasandstone with minor calc-silicate nodules; minor green, cleaved metasiltstone and slate; rare trace fossils

EЄGml — *MOSES LAKE FORMATION* (EЄGml): grey, thin- to medium-bedded, fine- to medium-grained metasandstone with minor calc-silicate nodules interlayered with sulphide-bearing, magnetic slate; minor green, cleaved metasiltstone

Symbols*

- Outcrop, Float, Felsenmeer
- Quarry (operating, abandoned)
- Mine (abandoned)
- Shaft
- Fossil
- Drillhole (after Fisher, 2006)
- Mineral occurrence (modified after O'Reilly et al., 2009): Ag - silver, As - arsenic, Au - gold, Be - beryllium, Bi - bismuth, Co - cobalt, Cu - copper, F - fluorine, Fe - iron, Li - lithium, Mo - molybdenum, Pb - lead, Sb - antimony, Si - silicon, Sn - tin, U - uranium, V - vanadium, W - tungsten, Zn - zinc)
- Radiometric date (Ma) [reference]**
  - U-Pb (z - zircon, m - monazite, dz - detrital zircon, zm - zircon monazite, t - titanite, wr - whole rock) — Uz 374±4 [1]
  - $^{40}Ar/^{39}Ar$ (b - biotite, h - hornblende, m - muscovite, p - phlogopite, wr - whole rock) — Ab 374±4 [1]; Hwr 374±4 [1]
  - $^{207}Pb/^{206}Pb$ (wr - whole rock)
- Bedding; tops known (inclined, vertical, overturned)
- Bedding; tops unknown (inclined, vertical)
- Fold axis; first generation (fold style unknown, m fold, z fold)
- Fold axis; second generation (fold style unknown, m fold, horizontal)
- Fold axis; third generation (fold style unknown)
- Fold axis; unknown generation (fold style unknown, horizontal)
- Cleavage; first generation (inclined, vertical)
- Cleavage; second generation (inclined, vertical)
- Kink band; first generation, inclined (sinistral)
- Geological contact (assumed, approximate, defined)
- Fault (assumed, approximate, defined)
- Anticline (assumed, approximate, defined)
- Overturned anticline (approximate, defined)
- Syncline (assumed, approximate, defined)
- Overturned syncline (approximate)
- Shear zone
- Historical gold district (after Fisher, unpublished)
- Area of concentrated drilling
- Rock in water
- Arterial highway — 103
- Trunk highway — 4
- Collector highway — 333
- Hard surface road
- Loose surface/resource access road
- Trail, footpath, cart track
- Railway (active, inactive)
- Coastline
- River, stream
- County boundary
- Transmission line (multi, single line)
- National Park
- Wetlands
- Lake/ocean

* **Note:** Compiled symbols list for Open File Maps ME 2012-077 to 2012-101. All symbols may not appear on each map.

** **References for Selected Radiometric Age Dates**

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[4] Dallmeyer, R. D. and Keppie, J. D. 1987: Polyphase late Paleozoic tectonothermal evolution of the southwestern Meguma Terrane, Nova Scotia: evidence from $^{40}Ar/^{39}Ar$ mineral ages; Canadian Journal of Earth Sciences, v. 24, p. 1242-1254.

[8] Keppie, J. D. and Dallmeyer, R. D. 1995: Late Paleozoic collision, delamination, short-lived magmatism, and rapid denudation in the Meguma Terrane (Nova Scotia, Canada): constraints from $^{40}Ar/^{39}Ar$ isotopic data; Canadian Journal of Earth Sciences, v. 32, p. 644-659.

[10] Keppie, J. D. and Krogh, T. E. 1999: U-Pb geochronology of Devonian granites in the Meguma Terrane of Nova Scotia, Canada: evidence for hotspot melting of a Neoproterozoic source; The Journal of Geology, v. 107, p. 555-568.

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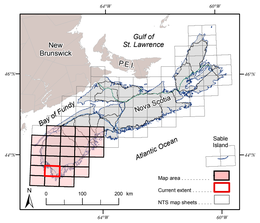
[22] Reynolds, P., Zentilli, M. and Muecke, G. K. 1981: K-Ar and $^{40}Ar/^{39}Ar$ geochronology of granitoid rocks from southern Nova Scotia: its bearing on the geological evolution of the Meguma Zone of the Appalachians; Canadian Journal of Earth Sciences, v. 18, p. 386-394.



Descriptive Text

In 1998 the Nova Scotia Department of Natural Resources initiated a program of geological mapping of the Meguma Terrane of southwestern Nova Scotia. The principal goals of this project are to produce a series of 1:50 000 scale geological bedrock maps of the area, to describe and interpret the sedimentary, igneous, metamorphic and deformational history of the Cambrian to Early Devonian metamorphic rocks, and to evaluate the area's economic potential. This map represents the twentieth in a series of 25 maps highlighting the bedrock geology of southwestern Nova Scotia.

These new maps, combined with stratigraphic, geochemical, geochronological, paleontological and isotopic data (White, 2010; White and Barr, 2010), have highlighted the need to produce a new stratigraphic paradigm together with the 1:50 000 scale geological maps for the Meguma Terrane.

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 1:50 000.

Map Notes

GIS databases, cartography and reproduction by Angie Ehler, Brian Fisher and Jeff McKinnon of the Nova Scotia Department of Natural Resources, Geoscience Information Services Section, 2009-2012. The GIS databases and map were developed using ArcGIS® 9.3.

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 Service Nova Scotia and Municipal Relations (SNSMR), Land Information Services Division (LIS), Nova Scotia Geomatics Centre (NSGC), Amherst, Nova Scotia.

Shaded relief image derived from a 25 m Digital Elevation Model of the Province of Nova Scotia, DP ME 56, version 2, 2006. Azimuth of 0°, sun angle of 45° and a vertical exaggeration of 5.

Nova Scotia Department of Natural Resources
Mineral Resources Branch

Open File Map ME 2012-096

Bedrock Geology Map of the Pubnico Area, NTS Sheet 20P/12, Shelburne and Yarmouth Counties, Nova Scotia

C. E. White

Scale 1:50 000

1 0 1 2 3 4 km

Halifax, Nova Scotia
2012

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S. Barr, R. Raeside, G. O'Reilly and R. Horne are thanked for numerous discussions regarding the geology of southwestern Nova Scotia and the use of samples and unpublished information. D. Rogers is thanked for providing his unpublished field books and field maps. Summer students N. MacLean and D. Wasylik contributed to the mapping on this sheet. T. Lenfesty and J. Brenton are thanked for their help in the departmental library. Map was critically reviewed by S. Barr.

Recommended Citation

White, C. E. 2012: Bedrock geology map of the Pubnico area, NTS sheet 20P/12, Shelburne and Yarmouth counties, Nova Scotia; Nova Scotia Department of Natural Resources, Mineral Resources Branch, Open File Map ME 2012-096, scale 1:50 000.

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Fisher, B. E. 2006: Nova Scotia drillholes database; Nova Scotia Department of Natural Resources, Digital Product ME 3; http://www.gov.ns.ca/natr/meb/download/dp003.asp [ISN:18535][1].

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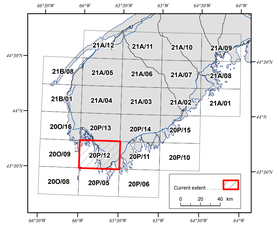
[1] Internal Search Number (ISN) is a unique identifier used in NovaScan - the Nova Scotia Geoscience Maps and Publications Database. The ISN can be used to retrieve a digital version of the listed citation - http://www.gov.ns.ca/natr/meb/default.asp



NOVA SCOTIA

Open File Map ME 2012-096

Oct 10, 2012