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Geology of Porcher Island and northern Grenville Channel, northwestern British Columbia (parts of NTS 103G/15, 16, H/13, J/1,2)

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LEGEND

Intrusive units

Post-accretionary plutons

- Cretaceous**
- K qf** Captain Cove, West Porcher, Peninsula Point, Spiller Range, Kennedy and unnamed smaller plutons: granodiorite, minor tonalite and diorite. Overall homogeneous, coarse grained, marginal pegmatites.
- K t** Diorite, gabbro, quartz diorite; heterogeneous, multi-phase.

Alexander terrane

- Devonian-Mississippian**
- Swede Point pluton**
- DM sp** Intrusives: granodiorite, granite, tonalite, diorite. Some phases are small-plagioclase porphyritic.

Early Devonian

- Porcher Creek pluton**
- D i** Diorite, gabbro, basalt, tonalite; very heterogeneous, multi-phase.
- Ordoevian**
- Hunt Inlet pluton**
- O i** Tonalite and leucotonalite, commonly with blue quartz veins. Primary mafic minerals recrystallized in lower greenschist facies (epidote, chlorite, biotite).

Neoproterozoic-Cambrian?

- McNicking pluton**
- O w** Troctolite, mostly coarse-grained, equigranular; uniform composition.
- O a** Border phase: tonalite, diorite in cross-cutting bodies; variably textured.

Metamorphic-intrusive complexes

Alexander terrane

- Ordoevian**
- Willy Bay complex**
- O w** Meta-andesite, basalt, tonalite, granodiorite, diorite intrusive complex.
- Ordoevian?**
- O w** Mafic intrusive complex on southern Kennedy Island: metagabbro, metabasalt.
- Neoproterozoic-Cambrian?**
- Ogden Channel complex**
- HC 70** Metadiorite, metabasalt, metatonalite complex: polydeformed and in amphibolite facies.

SYMBOLS

- Contact (defined, approximate, assumed, transitional) -----
- Fault (defined, approximate, assumed) -----
- Strike-slip fault, shown sense of shear ----->>>
- Bedding: top unknown; known -----
- First phase foliation (F1); second phase foliation (F2) -----
- First phase lineation (L1); second phase lineation (L2) -----
- First phase fold axis (F1); second phase fold axis (F2) -----
- 2009 Field station location -----
- Contour interval 100 metres
- Universal Transverse Mercator projection - Zone 09
- North American Datum (NAD) 83

1:50 000 scale map has been produced from TRM 1:20 000 topographic data supplied by the Province of BC.

References: Nelson, J.L., Mahoney, J.B., Gehrels, G.E., van Staal, C. and Foster, J.J., 2010. Geology and Mineral Potential of Porcher Island, northern Grenville Channel and vicinity, northwestern British Columbia. In Geological Heritage 2010, BC Ministry of Energy, Mines and Production Resources Paper 2010-1, p. 19-42.

Note: Some unit ages on this map supersede those presented in the above article, as they are based on preliminary U-Pb data that were not available at time of publication (J.L. Mahoney, unpubl. data 2010).

Questions on unit ages reflect remaining uncertainties.

All local unit names are informal.

Geology of most island areas is based on interpretation of SPOT satellite imagery and low-altitude flight observations.

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Stratified units

Graevia belt/Yukon-Tanana terrane?

- UP +** Upper Paleozoic or possibly Mesozoic
- Kumaleon classic unit**: plane bedded grey sandstone with pebbles interlayers, minor pebble beds.

Paleozoic

- UP +** Yukon-Tanana terrane?
- Limestone**: limestone with tuffaceous interbeds; contains rare solitary corals, brachiopods.

Devonian

- F v** Meta-andesite, metabasalt, minor meta-rhyolite; also includes metamorphosed fine grained diorite.

Alexander terrane

Devonian

- DM sp** Sandstone, minor pebble bed and volcanic pebble and quartz pebble conglomerate. Cross-stratification well developed in Kennedy Island exposures.

Ordoevian

- DM sp** Northern Porcher Island (SW of Lampoot fault)
- O 10g** Volcanic pebble conglomerate, sandstone.
- O 10s** Volcanic lithic arenite and wacke.
- O 10x** Dacite and andesite tuff and tuffaceous sedimentary beds.
- O 10b** Limestone with tuff interbeds, lime-matrix andesite breccia.
- O 10d** Dacite tuff.

Neoproterozoic-Cambrian?

- O 10v** Andesite tuff, lapilli tuff, and breccia (greenschist facies).
- O 10w** Meta-rhyolite and meta-dacite, aphyric to quartz phyric; also quartz-sericite schist.
- O 10y** Meta-andesite, metabasalt; includes metamorphosed fine grained diorite and metarhyolite/metabasalt. Volcaniclastic textures preserved locally. Includes metre-scale intervals of thin-layered mafic and metafelsic.
- O 10z** Intermediate to felsic meta-tuff, iron formation.
- O 10a** Border phase: rhyolite, dacite, andesite composition; meta-schist? with Mn-oxide, arsenic.
- O 10w** Thinly-layered meta-tuff, pelite.

Neoproterozoic-Cambrian?

- HC 70w** Laminated meta-sedimentary unit: pelite, calc-schist, marble, quartzite, in Ogden Channel complex, intruded by metadiorite; bodies.

Neoproterozoic-Cambrian?

- O 10w** Pelite basalt, basalt (amphibolite facies).
- O 10w** Marble with thin green meta-tuff interbeds.
- O 10w** Biotite schist, pelite, meta-tuff, minor thin mafic and calc-schist.
- O 10w** Meta-rhyolite and meta-dacite, aphyric to quartz phyric; also quartz-sericite schist.
- O 10w** Meta-andesite, metabasalt; includes metamorphosed fine grained diorite and metarhyolite/metabasalt. Volcaniclastic textures preserved locally. Includes metre-scale intervals of thin-layered mafic and metafelsic.

Neoproterozoic-Cambrian?

- HC 70w** Laminated meta-sedimentary unit: pelite, calc-schist, marble, quartzite, in Ogden Channel complex, intruded by metadiorite; bodies.

Metallic mineral occurrences

- Gold-quartz vein -----
- Gold-quartz vein (past producer); Porcher Island gold mine -----
- Iron formation (stromatolite, stratobound; in Devonian Formation) -----
- Copper-zinc skarn -----
- Porphyry Mo -----
- Porphyry Mo-Cu -----
- Published U-Pb date; also compiled, unpublished detrital sample (66) -----

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