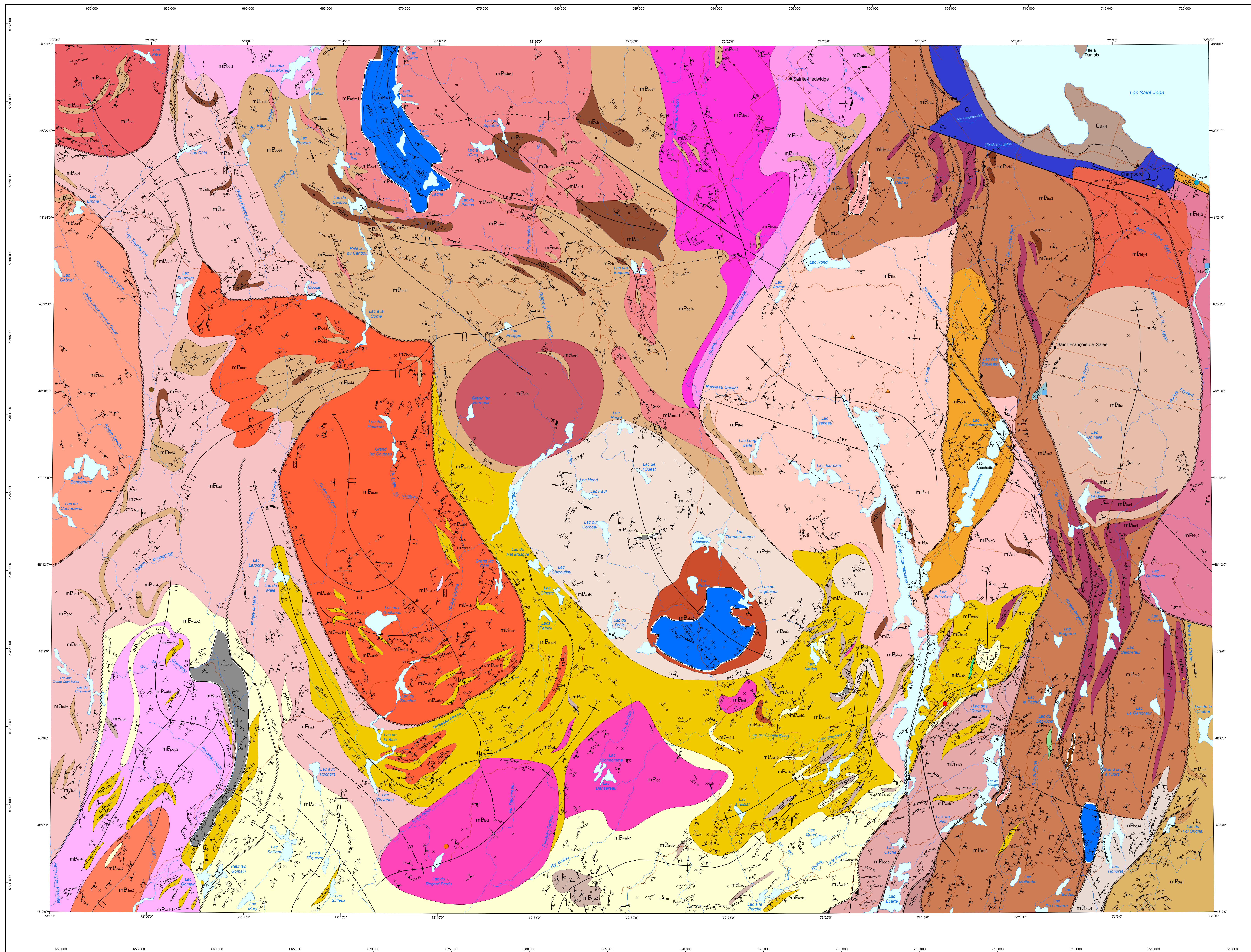


Geology of the Commissaires Lake Area, Grenville Province, Saguenay – Lac-Saint-Jean Region, Quebec, Canada



STRATIGRAPHIC LEGEND

ST. LAWRENCE PLATFORM

ORDOVICIAN

Pointe St-Jean Formation

Shale, conglomeratic calcarenite, limestone

Trenton Group

Limestone with local fossiliferous horizons and shale, dolomite and sandstone horizons; from bottom to top, it consists of three subhorizontal formations: Trenton (horizontally bedded), Shipshaw (horizontally bedded) and Gales (horizontally bedded).

GRENVILLE PROVINCE

ALLOCTHON

MESOPROTEROZOIC

Rhénane Intrusive Suite (285 ± 10 Ma, Collé et al., 2016)

Syenite, quartz + nepheline syenite, Fe-Ti oxide gabbro/monzonite, minor amounts of hypersthene syenite, biotite monzonite, syenogabbro, monzogabbro and mangerite

Jobbar Mangerite

Mangerite, charnockite, paragneiss enclaves

Leda Intrusive Suite

Monzogabbro, syenogabbro, alkali feldspar granite, quartz + orthopyroxene syenite, mangerite, minor amounts of hypersthene diorite and quartz monzonite

Leo Plutonic Suite

Mangerite, charnockite, epidote gabbro/monzonite

Saint-Hedwige Intrusive Suite

Porphyritic quartz syenite and mangerite, syenogabbro, alkali feldspar granite and gabbro/monzonite, some granitic gneiss and paragneiss enclaves

Monzonite

Quartz monzonite, syenite, quartz monzonite, minor amounts of syenogabbro and monzogabbro

Roc Suite (1912 ± 11 Ma, Mouchal et al., 2016)

Foliated gabbro/monzonite and gabbro; minor amount of Fe-Ti oxide mafic rocks

Chêne

Chêne websterite, pyroxenite, gabbro/monzonite, gabbro

Lachance Mangerite

Foliated porphyritic amphibole-biotite-magnetite ± orthopyroxene mangerite, syenite and alkali feldspar granite

Travers Suite (1876 ± 18 Ma, Pappasidou, 2018)

Syenite, orthopyroxene syenite, quartz syenite, alkali feldspar granite, minor amount of quartz monzonite

Massive K-feldspar

Massive K-feldspar porphyritic granite, syenogabbro, minor amounts of gabbro/monzonite and quartz syenite, paragneiss enclaves

Mangerite

Mangerite, syenite, hypersthene syenite, minor amounts of syenogabbro and granite

Gabbro/monzonite

Gabbro/monzonite, hypersthene diorite, mangerite, minor amount of alkali feldspar-hypersthene granite

Montmorency Plutonic Suite

Mangerite, syenite with or without orthopyroxene, orthopyroxene monzonite, syenogabbro

Barbeau Plutonic Suite

Syenogabbro, alkali feldspar granite, monzonite, quartz monzonite, syenite, quartz syenite, minor amounts of gabbro/monzonite and mangerite; magnetite paragneiss and quartzite enclaves

Rodez Plutonic Suite

Anorthosite, leucocrinite, mangerite, charnockite, gabbro/monzonite and Fe-Ti-P-V oxide mafic rocks, minor amounts of pyroxenite and quartz diorite

Porphyritic quartz syenite

Porphyritic quartz syenite, alkali feldspar granite, syenogabbro, gabbro/monzonite, charnockite, paragneiss enclaves. Cut by granitic pegmatite dykes

Clare Gabbro/monzonite

Ruby Fe-Ti-P-V oxide gabbro/monzonite locally melanocratic; gabbro, minor amount of monzonite

Minerva Plutonic Suite

Mangerite, quartz syenite, orthopyroxene syenite, monzogabbro, alkali feldspar granite, granodiorite with or without orthopyroxene, minor amounts of quartz monzonite and diorite dykes with K-feldspar leucocrysts

Marianne Plutonic Suite

Mangerite, orthopyroxene syenite, gabbro/monzonite, migmatized gabbro/monzonite, quartz monzonite, minor amounts of alkali feldspar granite, pyroxenite, hypersthene diorite, charnockite and granitic gneiss, enclaves and lenses of metasedimentary rocks

Thérèse Plutonic Suite

Foliated porphyritic to megacrystic mangerite (phenocrysts 3-7 cm long, 15-40% of the rock), orthopyroxene syenite, quartz syenite, syenogabbro, alkali feldspar granite, charnockite, minor amount of gabbro/monzonite

Outaouais Anorthositic Suite

Moderate to coarse-grained foliated gabbro/monzonite, foliated leucocratic gabbro (variable anorthite) with completely recrystallized paragneiss, leucocrinite, gabbro/monzonite; minor amount of mangerite

La Grande Anorthositic Suite (1160-1130 Ma, Higgins and van Breemen, 1996)

Light grey to white gabbro/monzonite and leucocrinite, locally spotted (orthopyroxene); small horizons of Fe-Ti oxide-rich gabbro/monzonite

Wabouché Complex (maximum age 1204 ± 24 Ma, Mouchal et al., 2016)

Coarse-grained orthopyroxene and orthopyroxene amphibole, granitic; quartzofeldspathic rock (basic melanocratic rock?) ± sillimanite ± garnet ± orthopyroxene ± quartz

Ruby

Ruby biotite ± graphite ± garnet ± sillimanite ± pyrite ± pyroxene paragneiss, minor amounts of quartzite, pyrite-chalcopyrite-garnet quartzite, mafic, granitic and granitic gneiss

Migmatized paragneiss

Migmatized paragneiss, migmatite of sedimentary origin, granite

Berens Complex

Biotite quartzofeldspathic paragneiss, locally migmatized quartzite

Granodiorite to tonalite

Granodiorite to tonalite orthogneiss; grey amphibole-biotite gneiss; locally orthopyroxene-bearing

Bellefleur Plutonic Suite

Quartz syenite, monzonite, quartz monzonite, minor amounts of granite and alkali feldspar granite

Megacrystic quartz monzonite

Megacrystic quartz monzonite, minor amount of quartz monzonite

Foliated and K-feldspar porphyritic syenogabbro and quartz syenite

Foliated and K-feldspar porphyritic syenogabbro and quartz syenite

Popo Plutonic Suite (1302 ± 16 Ma, Dostal, 2016)

Granite, charnockite, granitic gneiss, mangerite, highly magnetic, minor amounts of quartz monzonite, monzonite, websterite and alkali feldspar granite

La Bastonnière Complex (1410-1371 ± 32 Ma, Nadeau and van Breemen, 1994; Contain, 1995)

Granodiorite, gabbro/monzonite, quartz monzonite, minor amounts of diorite, gabbro, monzogabbro, and mangerite; all fine to medium-grained, massive to granitic and migmatitic

Gabbro/monzonite

Gabbro/monzonite, gabbro and diorite ± quartz, homogeneous, medium-grained, dark bluish grey, 30-40% hornblende-biotite ± hypersthene relic ± augite relic ± garnet ± Fe-Ti oxides, foliated to massive; minor amounts of monzonite, monzogabbro, hypersthene monzonite and syenite

Montauban Group (1460 Ma, Nadeau and van Breemen, 1994)

Granodioritic amphibolite (contact origin?) basal, anorthositic, lapilli tuft, fine to medium-grained, locally in boudins, a porphyroblastic garnet, ruby garnet, trace Fe sulphide, generally homogeneous, strong local contactic compositional banding (etc. bedding), foliated; variable amounts of biotite paragneiss, quartzofeldspathic gneiss and granitic

Light grey mesocratic paragneiss

Light grey mesocratic paragneiss, fine to medium-grained, locally banded (centimetre scale), 10-20% hornblende-biotite, locally migmatitic

LITHOLOGIC LEGEND

MESOPROTEROZOIC

R11 Quartz veins

PERSPECTIVE ZONE FOR MINERAL EXPLORATION

Rare earth elements

Iron

Nickel

Sillimanite

SHOWING AND DEPOSIT

Copper, iron

Molybdenum, thorium

Zinc

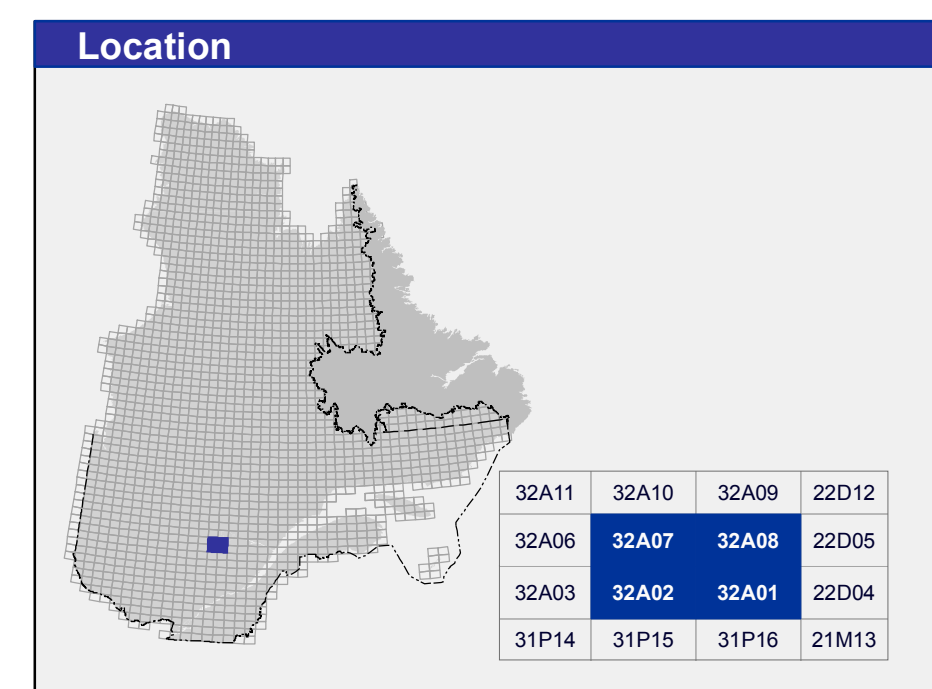
Sillimanite

Quartz (silicium)

Archaeological stone

Crushed stone

Symbols and abbreviations used on this map are described in the DV 2014-06 publication of the Ministère de l'Énergie et des Ressources naturelles.



Metadata

Geodetic reference frame : GRS 80 ellipsoid

Geodetic reference system : NAD 83 compatible with the world geodetic system WGS 84

Cartographic projection : Universal Transverse Mercator (UTM), zone 18

Original longitude : 72° 30'

Original latitude : 0°

Sources

Data

Base de données topographiques et administratives (BDTA 2004)

Organization

Ministère de l'Énergie et des Ressources naturelles

Realization

Geology : Abdou Mouchal, Yannick Daudoune (2018)

References : Benoit, F.-W., Valiquette, G. (1971) - RG 140; Madin, S., Tremblay, C., Gagnon, F., Mouchal, A., Daigneault, R. (2015) - MB 2015-07

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To obtain the most recent data for this region, we suggest that you consult the geoportal directory of Québec's Geomining Information System (SIGEM).

Bulletin géologique

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