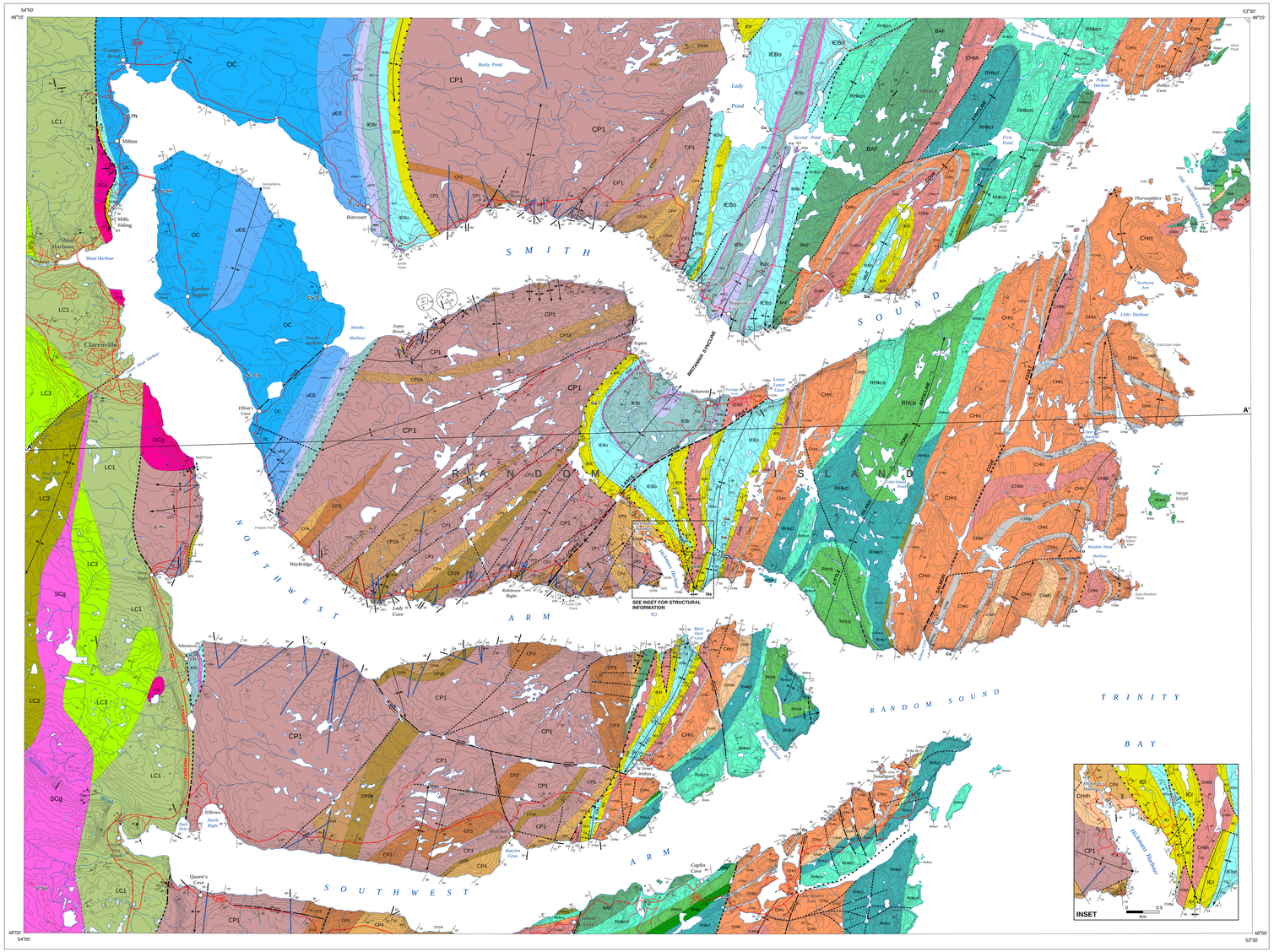
Newfoundland Labrador
NATURAL RESOURCES



MAP 2012-06

OPEN FILE 002C/04/0191

GEOLOGY OF THE RANDOM ISLAND MAP AREA (NTS 2C/04), NEWFOUNDLAND

Scale 1:50 000

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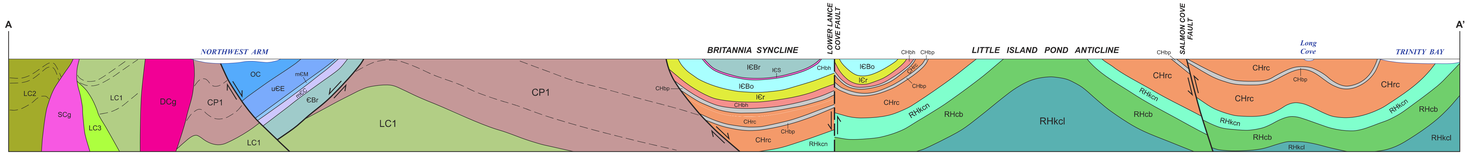
Kilometres



LEGEND

SEDIMENTARY ROCKS

ORDOVICIAN

HARCOURT GROUP

- OC — Clarenville Formation: Dark grey to black, rusty on bedding planes, thin parallel laminated mudstones. Development of black, light yellow-brown weathering, flattened, saucer-shaped concretions with cone-in-cone internal structures occurring along select bedding planes

CAMBRIAN

- uEE — Elliotts's Cove Formation: Silver grey, graphitic, micaceous mudstones interbedded with dark grey, light brown weathering, thin-medium-bedded, well indurated fine-grained sandstone and siltstone. Siltstone, 0 to 25% of the outcrop has tool marks on the basal surface along with a variety of arthropod and annelid trace fossils, including *Diplocraterion*, *Skolithos*, *Planolites*, *Cruziana*, *Triptichnus pedum*, and *Rusophycus*
- mCM — Manuels River Formation: Black to dark brown, weathers dark grey, thin parallel-laminated to thick-bedded, fissile and friable siltstone interbedded with rare thin light yellow-brown, silty limestone beds

ADEYTON GROUP

- mCC — Chamberlains Brook Formation: Dark-red manganiferous mudstone, calcareous at the base
- lCBr — Brigus Formation: Red, grey and green nodular shale with occasional light pink to brick-red nodular, thin to medium limestone beds
- lCS — Smith Point Formation: Richly fossiliferous pink to brick-red highly indurated limestone with dark red shale interbeds. Includes trilobite debris, stromatolites, oncolites and hyoliths
- lCBo — Bonavista Formation: Red and grey intensely cleaved shales with light pink limestone nodules, occasionally coalescing into distinct limestone beds

EARLY CAMBRIAN

- lCR — Random Formation: White, pink near the base, medium- to thick-bedded quartzarenite interbedded with green-grey, fine- to medium-grained sandstone and grey siltstone. Well-sorted, medium- to coarse-grained quartzarenites display herring-bone crossbedding. Interbedded sandstones and siltstones host abundant synaeresis cracks and diverse trace fossil assemblages that are mutually exclusive

NEOPROTEROZOIC

MUSGRAVETOWN GROUP

Crown Hill Formation (CH)

- CHBH — *Broad Head facies*: Dark red to pink, pebble conglomerate interbedded with purple-pink, sandstone. The thick-bedded, large-scale trough crossbedded, coarse-grained sandstone contains dark purple-red mudstone rip-up clasts and locally displays irregular erosional boundaries with pebble lags at the basal contact. The conglomerates are thickbedded, subrounded, poorly sorted, crudely stratified and vary from clast to matrix supported
- CHrc — *Red Cliff facies*: Dark purple-red, thin- to medium-bedded, fine- to medium-grained sandstone containing bright red, thin-laminated to disrupted siltstone beds and sand dykes
- CHbp — *Blue Point Horizon*: Grey to green (locally brown where copper and pyrite mineralization occur) laminated siltstone, mudstone and fine- to locally coarse-grained sandstone. Generally occurring as two reduced horizons from 10 to 15 m thick, with copper mineralization restricted to the uppermost horizon
- CHdh — *Duntara Harbour facies*: Dark purple to red, thin-bedded siltstone interbedded with light grey wavy bedded to discontinuous fine-grained sandstone with polygonal desiccation cracks, and asymmetric ripples
- CHbpf — *Brook Point facies*: Tan to yellow siliceous flow-banded 2.5 m thick rhyolite flow with rare pink thin wavy laminations and gypsum pseudomorphs distributed near the top of the bed

Rocky Harbour Formation (RH)

- RHkd — *Herring Cove facies*: Pink, elongate to ropey shaped cobble to boulder-size felsic peperites originally intruded into unconsolidated siltstones and fine-grained sandstones
- RHkcn — *Kings Cove North facies*: Green-grey, occasionally dark grey or tan to light yellow, thin parallel to wavy laminated siltstone, coarsening up section to channelized sandstone units
- RHkcl — *Kings Cove Lighthouse facies*: Dark grey-purple to light grey-pink, medium- to coarse-grained sandstones are thin- to medium-bedded, with large-scale epsilon crossbedding, interbedded with grey to dark purple wavy laminated siltstones with dark purple mud drapes
- RHMB — *Monk Bay facies*: Dark grey, thick-bedded, fine- to very coarse-grained, poorly sorted, low-angle crossbedded sandstone interbedded with poorly sorted, sub-rounded, trough crossbedded pebble conglomerate capped by large scale symmetrical ripples
- RHcb — *Cape Bonavista facies*: Dark grey to light pink-grey, trough crossbedded, medium- to coarse-grained arkosic sandstones. A slightly mottled appearance is caused by a reduced dark grey halo surrounding dark grey, wispy, thin siltstone interbeds
- RHkd — *Jones Pond facies*: Dark grey to black, polymictic, well rounded, clast-supported, poorly sorted pebble to cobble conglomerate

CONNECTING POINT GROUP

- CP1 — *Connecting Point Group facies 1*: Dark green thin- to medium-bedded, siliceous siltstones possibly massive or planar parallel or wavy laminated, separated by a single black lamination (rarely couplets), with a rusty hematite coating
- CP2A — *Connecting Point Group facies 2A*: Interbedded dark green thin- or medium-bedded siliceous siltstone (commonly massive) and grey to tan, thin- or medium-bedded very fine- or fine-grained, massive quartz arenite
- CP2B — *Connecting Point Group facies 2B*: Rhythmic beds of grey-green thin-bedded, very fine- to fine-grained massive quartz arenite normally grading into siltstone which may be massive or wavy laminated. Light grey normally graded, coarse- to fine-grained tuffs occur within the siltstone along with rare calcareous ovoid concretions and soft-sediment deformation
- CP3 — *Connecting Point Group facies 3*: Blue, grey and green thick-bedded, massive, very fine- to medium-grained quartz arenite; locally subfeldsarenite containing rare large-scale slump features
- CP4 — *Connecting Point Group facies 4*: Chaotic beds of boulder-size siltstone and sandstone intraclasts are preserved within a dark brown andesitic, porphyritic matrix. Clasts range from angular to well rounded and while the sorting is generally poor, reverse grading has been observed. Volcaniclastic sedimentary rocks are associated with the mixites as well as slumped and disrupted light brown to grey, medium- to thick-bedded, medium- to coarse-grained sandstones

IGNEOUS ROCKS

DEVONIAN - CARBONIFEROUS

- DCg — Clarenville Granite: Orange-pink, equigranular, medium-grained, biotite–hornblende granite locally containing sericite, chlorite and epidote

NEOPROTEROZOIC

- Felsic Dykes: Orange-pink coarse-grained biotite granite dykes range from 5 to 40 m wide and occur only within the Connecting Point Group. The felsic dykes occur less frequently than the mafic equivalent and based on contact relationships, postdates them
- Mafic Dykes: Dark grey-green or blue-grey aphanatic, basalt dykes. Mafic dykes range from 1 to 15 m wide, occurring as swarms within the Connecting Point Group but also as one occurrence intruding Cown Hill Formation sedimentary rocks
- Intermediate Dykes: Dark grey porphyritic dykes are rare on the margins of the Connecting Point Group. White plagioclase phenocrysts are 2 to 20 mm long. Mafic xenoliths have been found aligned parallel to each other (possible flow-indicator)
- SCg — Swift Current Granite: Orange-pink medium-grained biotite, hornblende granite and granodiorite with rare fluorite veins

SEDIMENTARY ROCKS

MUSGRAVETOWN GROUP

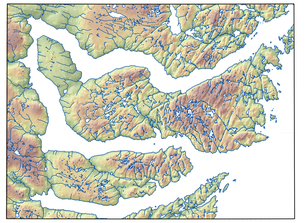
- BAF — Bull Arm Formation: Lithologically diverse group of volcanic and sedimentary rocks including vesicular basalts, ignimbrites, peperites, tuffs, agglomerates, sandstones and siltstones

LOVE COVE GROUP

- LC1 — *Love Cove Group facies 1*: Dark green-black to dark purple, aphanitic andesitic lavas with abundant hematite stain and rare epidote micro-veining. Also includes rare dark reddish-purple aphanitic, brecciated mafic volcanic rocks, medium green grey, weathers red, green and brown, altered flow-laminated basalt and dark purple amygdaloidal basalt
- LC2 — *Love Cove Group facies 2*: Buff, greenish, friable, sericite and chlorite schist
- LC3 — *Love Cove Group facies 3*: Dark grey-green, medium, parallel-bedded siliceous siltstone interbedded with variegated (green, red, orange and white) fine-grained metasomatized sandstone

SYMBOLS

- *Geological contact (defined, approximate, assumed, gradational)*
- *Unconformity*
- *Major fault (defined, approximate, assumed)*
- *Minor fault (defined, approximate, assumed)*
- *Normal fault (defined, approximate, assumed; teeth indicate direction of dip)*
- *Dextral fault*
- *Sinistral Fault*
- *Thrust fault (defined, approximate, assumed; teeth indicate direction of dip)*
- *Anticline, showing plunge*
- *Syncline, showing plunge*
- *Bedding (tops unknown, known, overturned, horizontal, vertical)*
- *Dyke*
- *Fault (dextral, normal, thrust, sinistral, unknown)*
- *Joint*
- *Fold axis, generation unknown*
- *Paleoflow*
- *Contact*
- *Foliation or cleavage, generation unknown*
- *Igneous layering, tops unknown*
- *Striation, direction unknown*
- *Vein*
- *Shear zone, sense unknown*
- *Station*



Topographic map showing shaded relief

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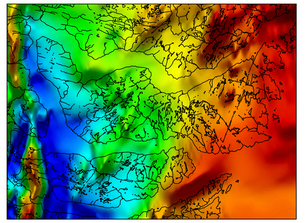
Kilometres



Aeromagnetic map prepared by G. Kilfoil, Geological Survey of Newfoundland and Labrador, from Geological Survey of Canada data. (Red end of spectrum - magnetic highs; Blue end of spectrum - magnetic lows)

MINERAL OCCURRENCES

Status		Commodity	
Producer	⊗	Au	Gold
Past producer - dormant	⊗	Cy	Clay
Past producer - exhausted	⊗	Cu	Copper
Prospect	○	Lst	Limestone
Showing	×	Mn	Manganese
Indication	×	Pb	Lead
		Shl	Shale
		Sla	Silica
		Sla	Slate
		Stn	Dimension stone

Geology by L. S. Normore (2011) field assistance by C. Phillips, M. Devine, M. Colbourne and A. Noftall.

GIS/digital cartography by A. Paltanavage.

CarrVec Base map in digital format published by Geomatics Canada, Earth Sciences Sector, Natural Resources Canada, Ottawa.

Approximate magnetic declination, 2011, at centre of map 19° 29' west, annual change 12.0'/year East.

Elevations in metres above mean sea level. Contour interval 10 metres.

Universal Transverse Mercator projection (UTM) Zone 22.

North American Datum (NAD) 1927.

Copies of this map may be obtained from the Geoscience Publications and Information Section, Geological Survey, Department of Natural Resources, Government of Newfoundland and Labrador, P.O. Box 8700, St. John's, NL, Canada A1B 4J6 (pub@gov.nl.ca).

Department Website: http://www.nr.gov.nl.ca/nr
Geological Survey Website: http://www.nr.gov.nl.ca/nr/mines/Geoscience/

This map is subject to revision and modification. Symbols for bedding and selected minor structures are plotted near the exposure location.

Published 2012

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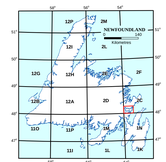

INDEX MAP

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Note: Geological Survey Division file numbers are indicated in square brackets.