DESCRIPTIVE NOTES

The Baie Verte map area in the northwest part of Baie Verte Peninsula (Newfoundland and Labrador) is one of three 1:50 000 scale maps in this area that are based on new and compiled bedrock geological and remotely sensed data (Fig. 1; Skulski et al., 2015a, b). This part of the Newfoundland Appalachians is underlain by Mesoproterozoic basement rocks, Ediacaran to Silurian cover rocks of the Humber continental margin, dismembered Cambrian ophiolite, Ordovician ophiolite cover, and Upper Ordovician to Silurian continental volcano-plutonic complexes (Fig. 2; IUGS Time Scale of Cohen et al. (2013) is utilized herein).

TECTONOSTRATIGRAPHY AND SETTING

The East Pond Metamorphic Suite constitutes Mesoproterozoic basement (de Wit, 1980; de Wit and Armstrong, 2014) to the overlying Fleur de Lys Supergroup and consists of psammitic and semipelitic gneiss, quartzite, amphibolite, migmatitic gneiss, and granitic gneiss (until nPOHm). The overlying Fleur de Lys Supergroup represents the Humber continental margin and includes, from west to east, the Pacquet Harbour Group (Fig. 3; Skulski et al., 2010), interpreted herein to be an extensional allochthon (Rafting Brook Group), and a para-autochthonous continental margin (Mings Bight, Old House Cove, and White Bay groups). The Birchy Complex includes: interbedded psammite and pelite (until nRBy) overlain by Proterozoic metabasalt and mafic metatuff cut by metagabbro sills and dykes (unit nPBm); coarse-grained mafic metaclastic rocks (unit nPBc); and coarse-grained gabbro sills dated at 558.3 ± 0.7 Ma (location 25; Table 1; unit nPBg). These are cut by a 1 km wide zone of mylonite, which is interpreted to be a Silurian extensional shear zone (Rogers et al., 2010) and yielded a 40Ar-39Ar age of 408 ± 4 Ma (location 24; Table 1); and tectonic melange including large chaotic blocks of serpentinite-matrix mélange (unit nPOu), metapyroxenite, metagabbro, mafic volcanic and metasedimentary clasts, and locally, ultramafic-derived wacke (unit nPBc). These are intruded by quartz diorite and tonalite (unit nPQm) and overlain by greenschist-facies pelite (unit nPBp) and calcareous semipelite (unit nPBcp). The Flat Point Formation (unit nPRFP) lies at the top of the Birchy Complex and is composed of: mafic to felsic, in part pillowed, volcanic rocks; felsic volcaniclastic rocks; and polymictic conglomerate. Detrital zircon grains in Flat Point sandstone have a Laurentian provenance and maximum depositional age of 990 ± 52 Ma (van Staal et al., 2013). The Rafting Brook Group, believed to originally conformably overlie the Birchy Complex (Skulski et al., 2010), is composed of: mafic volcanic rocks (unit nPRBv); felsic volcaniclastic rocks (unit nPRBt); and coarse-to-fine grained, quartz-feldspar-rich, psammitic and pelitic schist (locally unit nPRBq), pelite, calcareous pelite, and marble breccia (unit nPOHm). Para-autochthonous Humber margin rocks include Ediacaran rift-facies and Cambrian to Early Ordovician drift-facies metasedimentary rocks (carbonate and transgressive clastic sediments) subdivided into three, likely cover-tectonostratigraphic groups that basement include the White Bay (west of present map area), Old House Cove, and Mings's Bight groups (Fig. 3; Skulski et al., 2010; van Staal et al., 2013; van Staal and Zagorevski, 2014; van Staal and Barr, 2012). Includes psammite, semipelitic schist, quartz-pebble conglomerate, and graphitic schist with pods of metagabbro and metapyroxenite (unit nPOM). The metaclastic rocks are associated with panels of massive to pillowed, tholeiitic metabasalt and amphibolite (Petty Point schist of Hibbard (1983), that are correlated with the Birchy Complex. The Old House Cove Group includes a lower polymict metaconglomerate (Middle Arm Metaconglomerate; unit nPOOm) that locally contains clasts of the Petty Point schist (Hibbard, 1983; Skulski et al., 2010). The Middle Arm Metaconglomerate and metacongloomerate are separated from the Old House Cove Group by tectonized mica schist (unit nPOwt). Structurally overlying psammite, semipelitic schist, minor pelitic psammitic schist, graphitic schist (unit nPOwp), massive amphibolite (unit nPOOma), and marble and calcareous pelite (unit nPOOmm) make up the rest of the group. Amphibolitized eclogitic gabbro sills and dykes (unit nPBm) locally cut the East Pond Metamorphic Suite and Middle Arm Metaconglomerate. Rafting Brook Group rocks are intruded by: 1) the Cape Brule Porphyry (unit nPQcb) and associated quartz-feldspar porphyry (unit nPQu) occur as meter- to decimeter-scale lenses or as fault-bounded slivers and may represent mantle (metatharzburgite; van Staal et al. (2013)) and or ultramafic cumulate rocks.

The Baie Verte Line (Hibbard, 1983) is a steeply dipping, reactivated tectonic zone that separates the Humber margin to the west, from the Baie Verte Oceanic Tract and its ophiolite cover to the east. The Baie Verte Oceanic Tract includes intact ophiolite (Betts Cove Complex) and dismembered ophiolite (Point Rousse Complex) that structurally and progressively deeper structural levels toward the west. The Pacquet complex only exposes the volcanic section comprising pillowed basinite of the Betts Head Formation (unit CBmb), locally interbedded with thin felsic volcanic flows (unit CBmt), overlain by plagioclase-phyric, island-arc tholeiitic basalt and boninite units of the Mount Misery Formation (unit CMMm). These are capped by a felsic volcanic dome comprising fragmental rocks (unit CMmt) and flows (unit CMmr) of the Betts Cove Complex (Coyle, 1990; Coyle et al., 1991; Skulski et al., 2015a, b). The Point Rousse Complex includes fault-bounded blocks of serpentinized ultramafic rock including cotectic mantle (unit CsOu) and layered ultramafic-cumulate rocks (unit CSmu), and faulted blocks of layered gabbro and metagabbro (unit CSmg), massive gabbro, gabbro noritic, and tonsilitgneiss (dated at 491 ± 5 Ma (location 23; Table 1). The upper section includes inverted pillows (unit CSmv) and pillowed, light rare-earth element-depleted, island-arc tholeiitic basalt of the Mount Misery Formation. Boninitic lavas are not observed but are inferred to be present in the section because of the occurrence of boninite clasts in the Betts Cove Complex. Ophiolite cover includes hornfelsed, fault-bounded blocks of serpentinized ceramic mantle and mantle harzburgite (unit CMn), and faulted blocks of layered ultramafic cumulate, layered metagabbro, pyroxenite and gabbro, and anorthositic gabbro and tonsilitgneiss (unit CSmu). Massive gabbro (unit CSmm) is locally cut by dykes and altered to rodingite (unit CSmr) near serpentinized zones. Sheeted dykes (unit CSmd) include ophytic and plagioclase-phyric dykes. Boninite dykes are observed to cut the sheeted dykes. The ultramafic rocks are cut by felsic dykes (unit CSmf).

The Lower to Middle Ordovician Snooks Arm Group overlies the Baie Verte Oceanic Tract across Baie Verte Peninsula (Skulski et al., 2010). Basinward, the lower contact with the Pacquet and Point Rousse complexes is locally ⅠⅠⅠ