

EAST ARM BASIN

ET THEN GROUP (pP-Ep, pP-Ev, pP-Em)

Subaerial flows of trachybasalt with minor basalt and basaltic trachyandesite, variably amygdaloidal; un-named formation within the Murky Formation

GREAT SLAVE SUPERGROUP (pPGS) (~1895 to 1857 Ma)

CHRISTIE BAY GROUP (-Cf, -Cpmv, -Ctp, -Cs)

Sediments (lacustrine); dolomite, argillite, shale, conglomerate

WILSON ISLAND GROUP (pP-Wb, pP-Wsf, pP-Wr); >1895 and <1928 Ma

pPGS-Cf Buff, feldspathic sandstone; Fortress Formation

SLAVE CRATON NEOPROTEROZOIC (1000 to 540 Ma) MESOPROTEROZOIC (1600 to 1000 Ma)

Kimberlites ca. 542 Ma. MESOPROTEROZOIC (1600 to 1000 Ma) mPUDb Unknown diabase dykes of uncertain age; variable trend

- mPThDb
 Thistlethwaite diabase dykes; trending 80 to 90°. U-Pb (baddeleyite) igneous age 1167 ± 11 Ma and paleomagnetic correlation, Thistlethwaite Lake type locality, approximately 100 km north of Yellowknife
- "305' diabase dykes; fine-to medium-grained, well developed chill margins; typically 10 to 20 m wide, unmetamorphosed, moderately magnetic, trending 300 to 310°; ca. 1250 Ma by paleomagnetic correlation
- Mackenzie diabase dykes; medium- to coarse-grained, sub-ophitic, well developed chill margins; typically 20 to 50 m wide; vertical; unmetamorphosed; strongly magnetic, trending 320 to 340°; U-Pb (baddeleyite) igneous ages from south of McDonald fault, 1267 ± 3 Ma, and from 4 dykes outside of study area, Northwest Territories and Saskatchewan, 1267 ± 2 Ma PALEOPROTEROZOIC (2500 to 1600 Ma)
- Artillery Lake Formation; dolomite, pale yellow-brown to orange weathering, locally stromatolitic and brecciated; minor red and grey shale; locally with minor thin lenses of fine-grained, well-rounded quartz pebble conglomerate; Pb isotopes in 15 galena samples from Pb-Zn-Cu veins cutting folded dolomite give age ranges 1890 to 1990 Ma, initial radiogenic Pb source dates 2670-2590 Ma. pPGDb Ghost diabase dykes; trending 20 to 35°; U-Pb (baddeleyite) igneous ages 1886 ± 5 Ma, 1884 ± 6 Ma, 1884 ± 2 Ma, west of Yellowknife.
- pPADb Aylmer diabase dykes; trending 50 to 60°; uncertain age pPHDb Hearne diabase dykes; trending 40 to 50°; amphibolitic. Approximately 3km north of Hearne Channel, Great Slave Lake, U-Pb (baddeleyite) igneous age 1901.2 ± 3.9 Ma pPLDb

 Lac de Gras diabase dykes; medium- to coarse-grained, ophitic, well developed chill margins; typically 30 to 40 m wide, steep to vertical, very weak deuteric alteration; strongly magnetic, trending 0 to 20° (typically 10°); U-Pb (baddeleyite) igneous ages 2027 ± 4 Ma, 2023 ± 2 Ma, north of Lac de Gras, approximately 85 km northwest of study area
- pPIDb Indin diabase dykes; trending 310 to 320°; U-Pb (baddeleyite) igneous ages 2126 ± 3 Ma, 2118 ± 1 Ma, 2108 ± 2 Ma. These dykes cut the MacKay dyke swarm, the Thor Lake syenite, and the Grace Lake granite. Blatchford Intrusive Suite (pPBlaSy, pPBlaGr, pPBlGr, pPBGr-hb, pPBlSy-q, pPBlGb) Thor Lake syenite: Dark green, zoned, coarse- to medium-grained fayalite - hedenbergite syenite; coarse-grained, equigranular and inequi-granular ferrorichterite syenite. 3km north of Hearne Channel, U-Pb (zircon) igneous mineralization age 2094 ± 10 Ma
- Grace Lake granite: Light grey to pale pinkish grey, massive, medium- to coarse-grained equigranular riebeckite bearing alkali feldspar granite. South shore Blatchford Lake, U-Pb (zircon, monazite) igneous age 2176.2 ± 1.3; Ar-Ar (mica) mineralization/alteration age 2118 ± 16 Ma. pPBIGr Mad Lake granite: Pink, massive, subporphyritic granite
- learne Channel granite: Pink, massive, hornblende-bearing subporphyritic granite. North shore, Great Slave Lake, -Pb (zircon) igneous age, 2175 ± 5 Ma Whiteman Lake quartz syenite: Dark green fayalite-clinopyroxene, medium-grained quartz syenite (older phase) and light green to pinkish grey medium-grained hornblende - quartz syenite (younger phase). U-Pb (zircon) igneous age, pPBIGb Caribou Lake gabbro: Massive olivine gabbro and medium-grained, equigranular, weakly-layered noritic gabbro, with magnetite and sulphide-bearing medium-grained to pegmatoidal gabbro; U-Pb igneous age 2185.7 ± 1.2 Ma
- MacKay diabase dykes: medium- to coarse-grained, plagioclase-phyric, olivine-absent, well developed chill margins; typically 30 to 50 m wide; weak deuteric or low grade metamorphic alteration/overprint; weakly magnetic, trending 80 to 100° (typically 80°). Central Slave, U-Pb (baddeleyite) igneous age ca. 2210 Ma; differentiated from similar trending Dogrib dykes (not occuring in the area of study) by their light REE enrichment Malley diabase dykes: medium- to coarse-grained, ophitic, well developed chill margins; typically 20 to 40 m wide, weak pPMaDb deuteric or low grade metamorphic alteration/overprint; weak- to moderately-magnetic, trending 40 to 50° (typically 45°); U-Pb (baddeleyite) igneous age 2231 ± 2 Ma, 50 km northeast of study area PALEOPROTEROZOIC or NEOARCHEAN

Mafic-ultramafic intrusions; diorite, gabbro, pyroxenite, and peridotite sills and dykes of unknown age

- rnetiferous orthogneiss, minor interlayered paragneiss and migmatitic gneiss; age relative to Yellowknife Supergroup
- Metasedimentary paragneiss, minor amphibolite; age relative to Yellowknife Supergroup unknown ARCHEAN (>2500 Ma)
- Post-Yellowknife Supergroup Granitoid Rocks (ca. 2622 to 2581 Ma) AGr Undivided granitoid rocks, may consist of granite through diorite, and granitoid gneiss, massive to variably foliated
- Biotite monzogranite, porphyritic to sub-porphyritic; K-feldspar-rich; light red to pinkish-white weathering, medium- to coarse-grained; massive; typically 10% biotite, muscovite absent (or <1%), some secondary muscovite. Microcline-rich pegmatite dykes are generally not associated with these granites; where rarely observed, they contain only biotite. Includes the Lockhart (Artillery) granite with U-Pb (monazite, zircon) igneous ages 2595 ± 10 Ma, 5 km east of Clinton Colden Lake, and 2596 +3/-6 Ma, 7 km west of Artillery Lake; the Mountain River granite, 5 km southwest of Indian Mountain Lake, U-Pb (monazite) igneous age 2590 +5/-3, Ma; and the Musclow granite, 5 km east of Clinton Colden Lake, U-Pb (zircon) igneous age 2603 +5/-4 Ma. r-b-inc AMGr-b with common metasedimentary rafts and inclusions
- Biotite monzogranite, equigranular; K-feldspar-rich, equigranular equivalent of porphyritic biotite monzogranite; U-zircon, monazite) metamorphic age/minimum age of crystallization, 2581 ± 4 Ma, north shore Goodspeed Lake Gr-b*-inc AMGr-b* with common metasedimentary rafts and inclusions
- Muscovite biotite monzogranite; white to light grey-green weathering, massive, equigranular, sub-equal quartz, plagioclase and K-feldspar, 5 to 10% biotite and muscovite; apatite and tourmaline common accessories, with zircon and monazite; garnet, cordierite and sillimanite present in granite close to metasedimentary inclusions. Pegmatite dykes are common both within and adjacent to these granite plutons. Reid Lake granite, 3 km east of Reid Lake, U-Pb (monazite, zircon) igneous ages 2615 +3.5/-2.2 and 2615 ± 8 Ma; Ptarmigan Lake granite, 13 km north of Artillery Lake U-Pb (monazite) igneous age 2606 ± 5 Ma; Cook Lake granodiorite, 1.5 km east of Walmsley Lake U-Pb (zircon) igneous age 2602 ± 2.5 Ma; Zyena pluton, 9 km west of study area, U-Pb (monazite) igneous age 2602 ± 2 Ma; Marlo Lake granite pluton, 17 km north of study area, U-Pb (zircon) igneous age 2588 ± 1.6 Ma. Muscovite – biotite pegmatite; white weathering, massive, microcline-rich; dykes typically metres to tens of metres wide; consist of microcline, quartz, albite, biotite and muscovite, and accessory tourmaline, apatite, sillimanite and garnet; close spatial association with muscovite - biotite granite
- Biotite granodiorite; equigranular, medium-grained, light brown-grey weathering; subhedral to anhedral plagioclase and biotite, interstitial microcline and quartz; accessory magnetite and minor hornblende, with apatite, zircon and pyrite; weakly to moderately foliated; hornblende-rich micro-diorite enclaves rare to absent; contains minor phases of hornblende-biotite tonalite and more rarely quartz diorite and diorite. Includes Smart tonalite gneiss, north shore, Smart Lake, U-Pb (zircon) igneous age, 2602 ± 2 Ma bhedral quartz, biotite and hornblende, minor K-feldspar, accessory magnetite, pyrite, epidote and zircon; homblen cro-diorite enclaves common; moderately foliated; contains minor phases of biotite granodiorite, quartz diorite and
- AT-hb,b with common metasedimentary rafts and inclusions iorite; dark buff-brown weathering; massive, medium-to coarse-grained, equigranular; mineralogy consists of euhedral agioclase and homblende with minor clinopyroxene; accessory biotite, magnetite, pyrite, and quartz in quartz diorite; oderately to strongly magnetic. Includes Margaret Lake hornblende-diorite, 1 km west of southern Margaret Lake, U-Pb ircon) igneous age 2614 ± 2 Ma, and Timber Bay diorite, U-Pb (zircon) igneous age 2615 ± 10 Ma
- on, strong plagioclase and quartz mineral lineation; abundant plagioclase plus quartz, minor K-feldspar and bioti <10%), hornblende absent or very rare. Tarantula tonalite, southwest shore, Clinton-Colden Lake, U-Pb (zircon ATr with common metasedimentary rafts and inclusions YELLOWKNIFE SUPERGROUP (AY) Sedimentary and Volcanic Rocks (no stratigraphic order implied; ca. 2698 to 2671 Ma)
- Sedimentary rocks: Metamudstone and metagreywacke, interlayered; centimetre to metre thick paired units; thicker metagreywacke dominated beds, massive; metagreywacke grades into mudstone characteristic of turbidity current deposits; thin beds of graphite-rich metasediments and iron formation are rare; metamorphic grade varies from lower greenschist through upper amphibolite AYs-sst Sandstone, feldspathic arenite to quartz arenite; moderately- to poorly-sorted, sub-angular to sub-rounded grains, medium-grained, massive, white weathering
- AYs-b Biotite-bearing spotted schists, typically grey-green to blue-green weathering.
- AYs-s Sillimanite ± cordierite porphyroblastic 'knotted' schist, typically rusty-brown, to brown weathering

AYs-c Cordierite ± andalusite ± staurolite porphyroblastic 'knotted' schist, typically brown-green weathering

- Migmatite (partial melt); leucosome and restite schlieren, typically brown-white weathering.
- Injection gneiss; 20 to 80% psammitic to pelitic paleosome, with granitoid neosome ranging from centimetres to metres in thickness that are dominantly foliation-parallel injections of granite melt, producing a gneissic texture; metasedimentary host typically at sillimanite or migmatite grade. Undifferentiated volcanic and volcaniclastic rocks; undivided, typically complexly interlayered rocks of basaltic, andesitic, dacitic, and rhyolitic composition; wide volcanic textural variations that include pyroclastic and epiclastic rocks, flows, and
- Felsic volcanic and volcaniclastic rocks; cream, pink, buff, white, pale gree, pale green-grey, dark grey weathering dacitic to rhyolitic rocks; variably quartz-, plagioclase-, K-feldspar-phyric; more rarely hornblende- or biotite-phyric. Includes: massive lava domes, flows, flow breccias, lapilit luff, ash tuff, and pillow lavas; minor associated proportions of mafic and intermediate volcanic rocks. Indian Mountain greenstone belt, east of Indian Mountain Lake, rhyodacite U-Pb (zircon) igneous age 2675.5 ± 1.5 Ma, rhyolite, 2672 ± 4 Ma, and 'Brislane tuff' 2678 ± 13 Ma; rhyolite from the 'Upper Diverse Volcaniclastic series' Aylmer Lake volcanic belt, 5 km southeast Aylmer Lake, U-Pb (zircon) igneous age 2674 ± 3 Ma; rhyolite, on island, east Clinton-Colden Lake, U-Pb (zircon) igneous age 2671 +2/-4 Ma
- ene) phyric. Intermediate volcaniclastic rock, Cook Lake volcanic belt, 5 km south of Walmsley Lake U-Pb (zircon
- AYv-m mental, and massive flows with hyaloclastite and associated breccias; minor intermediate and felsic volcanic rocks; aphanitic- to fine-grained, and hornblende (after pyroxene, olivine) phyric AYV-sch Layered schists and gneisses, derived from mafic, intermediate and felsic volcaniclastic protolith; minor pelitic and semi-pelitic schists, quartz and feldspar sandstone, and volcanic clast-rich wackes Syn-Yellowknife Supergroup sub-volcanic intrusions and granitoid rocks
- volcanic foliated to gneissic granitoid (granodiorite tonalite diorite) plutonic rocks associated with the Indian ntain and Healey Lake greenstone belts. Healey Lake meta-quartz diorite, Healey Lake, U-Pb (zircon) igneous age ± 3 Ma and 'Brislane' tonalite (Indian Mountain belt), 5 km east of Indian Mountain Lake, U-Pb (zircon) igneous age Syn-volcanic mafic intrusions: Green to brown weathering; dykes, sills, plutons (varied size) of medium- to coarse-grained, gabbro to diorite to anorthosite; massive, rarely well foliated, sometimes with ophitic texture, typically hornblende-phyric; also hornblende- and plagioclase-phyric; minor clino- or ortho-pyroxene and biotite, traces of magnetite, titanite, pyrite; associated with the Cook Lake and Aylmer Lake greenstone belts. Includes Clinton-Colden gabbro-anorthosite, ~ 3 km southeast of Clinton Golden Lake, U- Pb (zircon) igneous age 2686 ± 3 Ma

LEGEND

MESOPROTEROZOIC (1600 to 1000 Ma)

- Unknown dykes of uncertain age; variable trend mPUDb Unknown dykes, variable trend; crosscutting ca. 1268 Ma gabbro sills Mackenzie diabase dykes; medium- to coarse-grained, sub-ophitic, well developed chill margins; typically 20 to 50 m wide; vertical; unmetamorphosed; strongly magnetic, trending 320 to 340°; U-Pb (baddeleyite) igneous ages from south of McDonald fault, 1267 ± 3 Ma, and from 4 dykes outside of study area, Northwest Territories and Saskatchewan, 1267 ± 2 Ma mPMDb

 Mackenzie diabase dykes; medium- to coarse-grained, sub-ophitic, well developed chill margins; typically 20 to 50 m wide; vertical; unmetamorphosed; strongly magnetic, trending 320 to 340°; U-Pb (baddeleyite) igneous ages from south of McDonald fault, 1267 ± 3 Ma, and from 4 dykes outside of study area, Northwest Territories and Saskatchewan, 1267 ± 2 Ma
- PALEOPROTEROZOIC (2500 to 1600 Ma) mPMGb Mackenzie gabbro sills and irregular hypabyssal bodies; medium- to coarse-grained, sub-ophitic; well developed chill margins, sills up to 190 m thick; unmetamorphosed; strongly magnetic, ca. 1268 Ma, cut by vertical Mackenzie diabase dykes Hudson granite and related rocks: biotite-bearing, massive- to weakly-foliated, equigranular, porphyritic, may contain disseminated magnetite and fluorite; ca. 1.85 - 1.81 Ga PALEOPROTEROZOIC (2500 to 1600 Ma)
- Syenite, hornblende syenite, monzonite. Southern Lynx Lake, quartz syenite chill margin, K-Ar (hornblende) igneous age 1822 ± 14 Ma pP-Ep Crossbedded, feldspathic-lithic, red, pebbly sandstone and sandstone (fluvial); Preble Formation. Red sandstone, eastern Et Then Island, U-Pb detrital zircon maximum age of deposition, < 1872 ± 18 Ma. pPR-An Anorthosite, norite, east of Whitefish Lake
 - pPR-Qm Quartz monzonite, Garde Lake

pP-Em Conglomerate, sedimentary breccia, lithic-feldspathic sandstone (alluvial fans); Murky Formation. Conglomerate, Prebble Island, 12 km southeast of study area, U-Pb detrital zircon maximum age of deposition, < 1888 ± 12 Ma i,Gb Diorite and gabbro Petitot volcanic breccia dykes; northeast-trending, intrusive mafic (basalt) dykes containing Archean basement, Sosan Gp, and Stark Fm clasts; age relative to Compton intrusive suite unknown

- pPN Undivided Nonacho Group: quartzite, arkose, greywacke, slate, and minor conglomerate ompton intrusive suite; calc-alkaline plutons and laccoliths of hornblende and biotite monzonite with minor diorite and onzogranite. Quartz monzonite U-Pb (zircon) igneous ages 1872 ± 8 Ma, Stark Lake, and 1861 ± 17 Ma, south shore, with Shore. pPNcon Nonacho Group polymictic conglomerate with minor grit; unassigned to any formation
- paerial flows of basaltic trachyandesite with minor trachyandesite and basaltic andesite, minor inter-flow argillite; arson Formation. Compton intrusions are interpreted as possible temporal plutonic equivalents. UPPER SEQUENCE (Fining upward; fault-induced basin followed by erosional retreat of source areas) TALTSON FORMATION (Fluvial, eolian, and lacustrine deposits; overlies Thekulthili Fm) Red, crossbedded, lithic-feldspathic sandstone; red mudcrack, muddy siltstone with pseudomorphs after halite and gypsum; Tochatwi and Portage Inlet formations
- pPN-T Undivided clastic sedimentary rocks Megabreccia consisting of packed clasts of stromatolitic, wave-rippled, dolomitic limestone, and red, silty to sandy mudstone with pseudomorphs after halite; minor pillow basalt; Stark Formation Red pelite member: Interbedded with quartz arenite, sandstone, and red mudstone; MacInnis Lake PETHEI GROUP (-Pmpd, -Pwh, -Pbmp, -Pu, -Pt) PGS-Pmpd Slope facies laminated marlstone, conophytic marlstone, limestone rhythmite, rhythmite-clast breccia; McLean, Pekanatui and Douglas Peninsula formations ly sandstone member; pebble beds contain diverse suite of clasts. Detrital zircons from basal Taltson Fm aleoplacers approximately 7 km east of MacInnis Lake yielded multiple source ages, no detrital zircons younger than .91 Ga were found - giving a maximum age of deposition of <1920 Ma; major statistical peaks at 1.97 and 2.38 Ga rere recorded as well as minor peaks at 2.10, 2.50 and 2.58 Ga.
- THEKULTHILI FORMATION pPGS-Pwh Platform facies stromatolitic, oolitic, fenestrate and intraclastic dolomitic limestone; Wildbread and Hearne formations (Alluvial fan deposits; varied polymictic conglomerate) Granite clast member: locally derived granitoid rocks and intraformational sandstone clasts; distinguished from the Hjalmar Lake Fm by stratigraphic position
- pPN-TTmq Milky quartz clast member: predominantly milky quartz clasts pPGS-Pu Ramp facies conophytic dolomitic limestone; Utsingi Formation **pPN-TTqa** Quartz-arenite clast member: 50 to 90% well-rounded, unmetamorphosed, quartz arenite clasts pPGS-Pt Platform facies stromatolitic and intraclastic dolomite; Taltheilei Formation KAHOCHELLA GROUP (-Kmc, -Kg, -Kgmc) Polymictic clast member: porphyry, felsic tuffs, intraformational sandstone and conglomerate, quartz arenite, milky quartz, amphibolite, and granitoid rocks commonly of nearby basement
- pPGS-Kmc Red, green and dark green (sulphidic) concretionary shale; McLeod Bay and Charlton Bay formations MIDDLE SEQUENCE (Coarsening upward; fault-induced basin deepening) NEWSHETHDEZZA FORMATION pPGS-Kg Red shale, minor dark green concretionary shale, granular hematite ironstone, basalt tuff; Gibraltar Formation (Fluvial and eolian; identified only where Chief Nataway Fm can be recognized beneath it) Quartzite and arkose, quartzite and greywacke. Northwestern arm of Nonacho Lake, detrital zircons from base of Newshethdezza Formation, provide maximum age of depostion <1908 ± 8 Ma, with multiple-source statistical peaks of 2.49 Ga (major) and 2.38, 2.31, and 2.03 Ga (minor).
- ty (turbiditic) mudstone, concretionary mudstone, minor granular hematitic ironstone; Gibraltar, McLeod Bay, and nariton Bay formations Seton volcanic rocks (-Sv-m1, -Sv-i1, -Sv-f1, -Sv-m2, -Sv-f2, -Sv-m3) CHIEF NATAWAY FORMATION (Deep-water, perennial-lake, beach, beach cliff, and fan delta deposits) pPN-CN Undivided clastic sedimentary rocks pPGS-Sv-m3 Tephrite - trachybasalt flows and irregular-shaped subvolcanic intrusions (plugs, sills, and dykes).
- pPN-CNcon

 Conglomerate member: basal in character with predominantly monomictic granitic clasts, northwest Nonacho; polymictic, contains clasts similar to Thekulthili Fm and in some localities, is directly overlain by the Thekulthili Fm, central Nonacho pPGS-Sv-f2 Aphyric rhyolite, plugs, domes, lava flows pPN-CNsm Sandstone-mudstone member: rhythmic and laterally continuous interlaying of sandstone and mudstone pPGS-Sv-m2

 Basalt - trachybasalt - basaltic trachyandesite; pillow lava, pillow breccia, phreatomagmatic breccia pipes, and related maar volcano lapilli and crystal tuff deposits
- Mixed member: basal mudstone and siltstone with interbeds of coarse sandstone; mudstone reddish in colour pPGS-Sv-f1 Crystal-rich (quartz, feldspar) trachyte, rhyolite, minor dacite; lava flows, domes, tuffs pPGS-Sv-i1

 Crystal-rich (plagioclase) basaltic trachyandesite and trachyandesite, rare phonotephrite, minor dacite; lava flows, crystal-rich lapilli tuffs. Phonotephrite on island 2km north of Wilson Island, Great Slave Lake, U-Pb (zircon) igneous age 1857 ± 11 Ma, pPN-CNsi Siltstone member: silts and muds comprise generally 70%; with thin interbeds of sandstone LOWER SEQUENCE (Fining upward; fault-induced basin followed by erosional retreat of source areas)
- Tephrite, alkaline basalt, and trachybasalt; lava flows, minor phreatomagmatic breccia pipes, and related maar, volcano lapilli, and crystal tuff deposits TRONKA CHUA FORMATION (Alluvial plain, eolian, and isolated lacustrine deposits; ~90% medium-to coarse-grained arkose) SOSAN GROUP (-Ska, -Shd) Mature, subfeldspathic quartzite, red and buff, micaceous, glauconitic sandstone, and siltstone, localized volcanic sandstone, basaltic tuff, minor granular hematite ironstone; Kluziai and Akaitcho formations. Volcaniclastic conglomerate and sandstone, Seton Island, Great Slave Lake, U-Pb detrital zircon maximum age of deposition < 1883 ± 10 Ma. Sandstone eastern McLeod Bay, U-Pb detrital zircon maximum age of deposition < 1927 ± 34 Ma pPN-TC Undivided sedimentary clastics rocks
- pPGS-Shd

 Crossbedded feldspathic quartzite, dolomitic quartzite, impure stromatolitic dolomite, minor quartz-pebble conglomerate, basaltic tuff; Hornby and Duhamel formations. Sandstone conglomerate outlier, 18 km south of Stark Lake, U-Pb detrital zircon maximum age of deposition < 1908 ± 6 Ma. Monomictic, pebbly sandstone member, clasts generally granitic; gradually grades into pPN-TCpoly. South of study area, 14 km south of MacInnis Lake, detrital zircons provide maximum deposition of age <1907 ± 15 Ma, with multiple-source statistical peaks of 2.40 Ga (major), and 2.03 and 2.65 Ga (minor). pre-GREAT SLAVE SUPERGROUP Polymictic pebbly sandstone member: diverse clast suite, grades upwards into pPN-TCmono e diabase dykes and irregular-shaped hypabyssal intrusions north of Wilson Island: trending 40 to 50°; amphibolitic. (baddeleyite) igneous age 1901 ± 4 Ma dated 3 km north of Hearne Channel, Great Slave Lake.
 - HJALMAR FORMATION UNION ISLAND GROUP (pP-Umv2, pP-UDb, pP-Umv1, pP-Us) ca. 1901 Ma (Talus, slope, alluvial fan, fan delta, and isolated pond deposits; basal conglomeritic unit marks the onset of fault-induced sedimintation in Nonacho basin) Pillow lavas (30 cm - 2 m in size) and lava tubes of basanite and alkaline basalt pPN-Hconsst Conglomeratic sandstone member: alternating sheet-like beds of conglomerate, pebbly sandstone and sandstone
 - Breccia-conglomerate member: basal, massive, coarse, thick-bedded monomictic-oligomictic breccia and conglomerate Plagioclase-phyric, glomeroporphyritic diabase sills, up to 200 m thick, with chill margins and columnar jointing ides few-metre thick, discontinuous lenses of a mudstone -carbonate member, comprising of alternating bands of stone and massive, commonly brownish-red, calcite or dolomite. ck, massive flows and minor pillow lavas of basanite and alkaline basalt, rare lapilli tuffs of slightly more differentiated
 - pPR-mv Metabasalt (amphibolite)
- Quartzite, ferruginous quartzite, semi-pelite, hematitic ironstone, pelitic siltstone, laminated mudstone; minor porphyritic basalt; Basile Formation PALEOPROTEROZOIC or ARCHEAN Feldspathic quartz sandstone, dolomitic sandstone, sandy dolomite; Safety Cove and Five Snares formations. Cut by Butte Island intrustive suite granite, 20 km southwest of Wilson Island, outside study area, U-Pb (zircon) igneous age 1895 \pm 5 Ma, maximum age of deposition Tectonite; protomylonite to ultramylonite, straight gneiss; ± garnet ± clinopyroxene ± orthopyroxene ± magnetite
- tercalated basaltic trachyandesite basaltic andesite and rhyolite flows, with minor andesite and dacite; lithic ldspathic sandstone, pebbly sandstone, polymictic conglomerate; Reinhardt Formation. Felsic hypabyssal intrusive, ilson Island, U-Pb (zircon) igneous age 1928 ± 11 Ma, constraining minimum deposition age APGr Granite; massive to poorly foliated, pink APTo, Gd Tonalite to granodiorite; foliated to gneissic; hornblende-quartzo-feldspathic gneiss ± hypersthene
- MacKay diabase dyke (formerly Simpson Island dyke): Continuous, 31 km long, up to 120 m thick, east-west trending, mainly vertical, dipping southeast 50° western end. Differentiated: from alkali (potassic) olivine and clinopyroxene gabbro (western end), to homblende and biotite diorite (central part), to albite syenite (eastern end). Southern shore, Simpson Island, coarse-grained syenite, eastern segment, U-Pb (baddeleyite) igneous age, 2217 ± 4 Ma APGd Massive granodiorite, with few inclusions, within gneissic granitic terrain APqfgn Quartzofeldspathic gneiss, commonly layered and garnetiferous, felsic-mafic amphibolite lenses
 - APgn, my Felsic to intermediate gneiss complex with abundant, but discontinuous, cataclasite, protomylonite, and mylonite zones Unsubdivided, high-grade metasedimentary rocks: migmatite, plagioclase-hornblende and/or biotite schist and gneiss, calc-silicate gneiss, garnetiferous schist, amphibolite and amphibolitic migmatite (± hornblende ± clinopyroxene ± orthopyroxene ± garnet ± sillimanite); uppermost amphibolite to granulite grade. Includes discontinuous panels of protomylonite to ultramylonite derived from granitoid and metasedimentary protoliths. Granodiorite enclosing mafic rocks of the Berrigan Lake complex, west of Taltson Lake, U-Pb (zircon) igneous age 2294 ± 5 Ma APGr, Gd Granite to granodiorite; foliated to mylonitic; ± garnet, ± hypersthene
 - LaPgn

 Undifferentiated mixed gneiss, granite, orthogneiss, quartzo-feldspathic migmatite; minor metasedimentary and metavolcanic gneisses; mainly Archean but may include Proterozoic undifferentiated gneiss. Tonalite gneiss, southeast of Campbell Lake, U-Pb (zircon) igneous age 3129 + 13/-10 Ma (this single age might not be representative of the unit); likely Queen Maud block correlatitive

pPN-TCmud Drab mudstone member: rhythmic interlayers of sandstone and mudstone; green, blue-grey, and beige

ARCHEAN (>2500 Ma)

- AR-amgn Amphibolite and amphibolitic gneiss, migmatite; heterogeneous, contains intruded sheets of foliated granite
- Metasedimentary migmatite; layered with white plagioclase-quartz leucosome, biotite-rich paleosome with garnet, and intruded sheets of foliated graniotoid rocks
- AR-sgn, mig Sedimentary gneiss and migmatite
- AR-To-Gd Mafic-rich, K-feldspar augen tonalite to granodiorite, hornblende-bearing; ± clinopyroxene ± orthopyroxene ± garnet, recrystalized, well-foliated flaser-textured or protomylonite

CHURCHILL PROVINCE (Rae Domain)

(Deposited on Paleoproterozoic and Archean gneiss and granitoid rocks. South of study area, maximum age of deposition <1907 ± 15 Ma, detrital zircon, and minimum age defined by cross-cutting 1827 ± 4 Ma Sparrow dykes)

- Mackenzie diabase dykes; medium- to coarse-grained, sub-ophitic, well developed chill margins; typically 20 to 50 m wide; vertical; unmetamorphosed; strongly magnetic, trending 320 to 340°; U-Pb (baddeleyite) igneous ages from south of McDonald fault, 1267 ± 3 Ma and from 4 dykes, outside of study area, Northwest Territories and Saskatchewan, 1267 ± 2 Ma **TALTSON ZONE**
 - PALEOPROTEROZOIC (2500 to 1600 Ma)

MESOPROTEROZOIC (1600 to 1000 Ma)

- Granite, hypersthene-bearing 'charnockite'; grey to white, fine- to medium-grained, mafic minerals largely altered to biotite and /or chlorite; highly deformed and metamorphosed, locally crosscut by unfoliated pegmatite
- pPTa-Gd-hb Granodiorite, hornblende-rich (up to 10%); pink, massive, medium-grained to megacrystic, weakly foliated
- Taltson Magmatic Suite (1980 to 1930 Ma)

TALTSON and THELON MAGMATIC-TECTONIC ZONE

- ch Lake granite: deformed, megacrystic, K-feldspar, hercynite and garnet-bearing, magnetite-series granite. Lithological id spatially continuous with Konth granite; separated by N-S mylonite zone. K-feldspar megacrystic granite-syenogranite i0 km south of study area, at Arch Lake, U-Pb (zircon, monazite) weighted igneous average age 1938 ± 3 Ma agnon granite: Older phase, megacrystic biotite-hornblende monzogranite; 20 km south of Gagnon Lake, U-Pb (zircon, onazite) igneous age 1940 ± 8 Ma and south shore Gagnon Lake, ca. U-Pb (zircon, titanite) ages 1960-1920 Ma. bunger phase, fine- to medium-grained equigranular biotite-chlorite granite
- Konth granite: K-feldspar megacrystic, syenitic, S-type, ilmenite series granite; ± garnet ± cordierite ± hypersthene ± spinel; intrudes Middle Taltson granite. Northwest zone, moderate eastward dips and less developed foliation, dated 60 km southwest of study area, U-Pb (monazite) igneous age 1935 +3/-1 Ma; southwest zone, broad areas with horizontal lineation, dated 97 km southwest of study area, U-Pb (monazite) igneous age 1938 +3/-1 Ma; east zone, vertical foliation, dated 50 km south of study area, U-Pb (monazite) igneous age 1936+2/-1 Ma. Anorthosite - Berrigan Lake complex. Undeformed anorthosite,12 km southeast of Rutledge Lake, U-Pb (zircon) igneous age, 1956 ± 3 Ma
- Middle Taltson granite (formerly 'Slave type granite'): In part mylonitic, medium-grained equigranular to K-feldspar megacrystic, biotite monzogranite-granite pluton; garnet, cordierite and green spinel common, locally ± silliminate, hypersthene, corundum, andalusite. S-type, ilmenite series granite, east of Deskenatlata Lake, approximately 60 km southeast of study area, U-Pb (zircon, monazite) igneous age 1955 ± 2 Ma. PTa-qfgn Quartzo-feldspathic gneiss (undivided); granulite grade; both supracrustal and granitoid parentage, but largely of undetermined origin
- Tectonite and highly laminated and sheared rocks; rectilinear, thinly layered gneiss or schist derived from plutonic and/or sedimentary protoliths, varicoloured. Local cataclasite, protomylonite, mylonite, ultramylonite; locally well developed L-S tectonite; age relative to pPN (Nonacho Group) uncertain, may in part post-date pPR-Hg (Hudson granite). South of Meridian Lake, U-Pb (zircon) igneous ages, horizontally lineated granite, 1978 ± 5 Ma, and vertically lineated granite, 1976 ± 5 Ma
- pPMLDb McKee Lake diabase dykes; trending 70°; U-Pb (baddeleyite) igneous age 2038 ± 3 Ma, 2.5 km south of McDonald fault, northwest of McKee Lake.
- pP-mar Marble and calc-silicate rocks, includes minor graphitic mica schist
- RUTLEDGE RIVER BASIN (Rift basin along western Rae margin) Rutledge River Assemblage: predominantly pelitic- to semipelitic- paragneiss with minor volcanic rocks and gabbro. Thub Lake biotite schist U-Pb (zircon) maximum age of deposition ca. 2153 and U-Pb (zircon, monazite) 2nd phase of metamorphism ca. 1905 Ma, island, east shore of Thubun Lake, pP-sgn-M

 Mama Moose paragneiss and associated metabasite: Banded paragneiss, Rutlege Lake, U-Pb (zircon) maximum age of deposition, 2152.5 ± 1.1 Ma, and U-Pb (monazite, zircon), minimum age of deposition 2079.6 ± 1.0 Ma and oldest age of metamorphism
- PALEOPROTEROZOIC or ARCHEAN APGr-hb

 Augen granite, hornblende-rich, typically sheared. Borrowes Lake granite, K-feldspar megacrysts (up to 4 cm) with hornblende rims (up to 2.5 cm thick); U-Pb (zircon) igneous age 2436 ± 12 Ma
- A-Gr, To

 Granite, tonalite, quartz-monzodiorite; often foliated. Vein crosscutting Sandwich granite, ~ 17 km southwest of eastern Stark Lake, U-Pb (zircon) igneous age 2562 ± 20 Ma
- THELON ZONE PALEOPROTEROZOIC (2500 to 1600 Ma)
- PTh-Gb Gabbro and anorthositic gabbro; small homogeneous pods, lenses and discontinuous layers, composition varies with location Granitoid gneiss, undivided: leucocratic layered gneiss to strongly foliated granitoid rocks; granulite or retrograded granulite. Tonalitic granulite gneiss, .5 km north of study area, U-Pb (zircon) igneous and metamorphic overprint age 1895 ± 52 Ma
- Critchell granite: microcline megacrystic, strongly foliated hornblende-biotite granite. Deformed and porphyroclastic megacrystic granite, 4 km east of northeast Smart Lake, U-Pb (zircon) igneous age 1950 ± 5 Ma
- Sifton gneiss: layered, strongly foliated, commonly porphyroclastic (feldspar, hornblende) granodioritic to tonalitic; derived from a granitoid migmatite; granulite or retrograded granulite grade. Tonalite gneiss, northeastern arm Sifton Lake U-Pb (zircon) minimum igneous age, maximum metamorphic age, ca. 1975 Ma Quartzo-feldspathic gneiss, undivided; heterogeneous, layered, quartzo-feldspathic gneiss of both supracrustal and granitoid parentage; biotite-rich paleosome; ± hornblende ± clinopyroxene ± orthopyroxene ± garnet ± sillimanite; granulite or retrograde granulite. North of Moraine Lake, U-Pb (zircon, monazite) mixed igneous and metamorphic age 1970 ± 20 N
- PTh-mar Marble and impure siliceous carbonate; commonly associated with metasedimentary migmatite gneiss Metasedimentary migmatite; plagioclase-quartz dominated leucosome and biotite-rich paleosome; ± hornblende ± clino-pyroxene ± orthopyroxene ± garnet ± sillimanite; U-Pb (zircon) metamorphic age 2000 ± 10 Ma and detrital (zircon) deposition age <2200 ± 20 Ma
- pPTh-agn Amphibolite gneiss to amphibolitic migmatite