

**MINFILE MAP**  
**NTS 093E**  
**WHITESAIL LAKE**

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Scale 1:250 000

0 5 10 15 20 25 Kilometres

**GEOLOGICAL LEGEND**

**LAYERED ROCKS**

**MIOCENE to PLEISTOCENE**  
**CHILCOTIN GROUP**  
Olivine basalt flows; thick, massive, columnar jointed, flat lying; includes olivine basalt necks and plugs

**EOCENE to LOWER MIOCENE**

**ENDAKO GROUP**  
Basalt and andesite; massive, vesicular and amygdaloidal minor breccia and tuff; aphyric to bladed plagioclase porphyry.  
**BUCK CREEK FORMATION** andesite and basalt flows, fine grained, amygdaloidal, flat lying; includes thin to basalt, mostly andesite, 43-48 Ma.  
**GOOSLY LAKE FORMATION** trachydiorite, trachyte and basalt; tabular feldspar phenocrysts to 1 cm; includes minor syenite.

**OTOSA LAKE GROUP**

Predominantly rhyolite; flow-banded; spherulitic; quartz and biotite phryic phases; felsite; may include small intrusions 49-53 Ma. Includes: **WHITESAIL VOLCANIC COMPLEX**; rhyodacite to rhyolite flows; ash-flow tuff, debris flows, porphyritic rhyolite; rhyodacite to rhyolite flows; andesite, minor basalt, andesite flows and breccia. Includes **Archie Mountain** and **Swing Peak outliers**.

**PALEOCENE and EOCENE or Younger**

**PES** Undifferentiated siliciclastic, pyroclastic, shale, coaly shale, coal, interbedded tuff, tuffaceous siltstone and conglomerate; continental, fluvial origin; polygenic; clasts of feldspar and hornblende porphyry, rhyolite, chert, argillite. Eocene pyroclastics. Includes **Taudil River sediments**.

**LOWER TO UPPER CRETACEOUS**

**KASALKA GROUP** Predominantly hornblende-feldspar-phryic andesite flows and related lahar, interbedded with andesite and amygdaloidal tuff; minor basalt and andesite; hornblende-biotite-feldspar-phryic facies to rhyodacite, aphyric to quartz-phryic basaltic andesite, flow-banded quartz-phryic rhyolite, hornblende-biotite-bearing tephra, andesite, minor basalt. Contains **Chilliwack** rocks with angular discordance. Basal member is a red polygenic conglomerate; porphyritic flows are in part the extensive equivalent of the Bulkley Intrusions.

**LOWER CRETACEOUS**

**SKEEKA GROUP** Undifferentiated marine sedimentary rocks; sandstone, siltstone, argillite and chert pebble conglomerate.  
**ROCKY RIDGE VOLCANICS** Subsidiary to subsequent adiabatic basalt to basaltic andesite; aphyric to pyroclastic, pillow and amygdaloidal; minor volcaniclastic sediments; includes Mt. Hey volcanics.

**GAMBIER GROUP**

Thick-bedded andesite to rhyolite flows, tuff and breccia; minor conglomerate, sandstone and siltstone; Hauterivian in whole or in part.

**MIDDLE TO UPPER JURASSIC**

**BOWSER LAKE GROUP** ASHMAN FORMATION: Dark grey, thin-bedded siltstone and shale; with lenses of chert-pebble conglomerate and compositionally similar fine to coarse sandstone; late Bajocian to early Oxfordian.

**LOWER TO MIDDLE JURASSIC**

**HAZELTON GROUP** SHIMMERS FORMATION: marine, shallow-water feldspathic sandstone, siltstone, argillite, dolomite, locally clastic and limy; minor ash, crystal and silt-clay tuff; volcanic breccia, volcanic-pebble conglomerate, limestone; very fossiliferous; Aalenian to Bajocian.  
**mJb**  
**mJbV**  
**mJn**  
**NANIKI FORMATION**: cream coloured, reddish and dark grey rhyolite flows, breccia and tuff; minor siltstone and sandstone.  
**Ur**  
**Uv**  
**Upper Triassic**  
**Uv**  
**UPPER PALEOZOIC (?) to MIDDLE JURASSIC or younger**

**GAMSBY METAMORPHIC COMPLEX** Schistose and mylonitic felsic and mafic flows, tuff, lesser orthogneissic sediments; possible metamorphosed equivalent of the lesser amphibole and leucosomes; undeformed to weakly foliated; granoblastic orthogneiss; minor marble and slate; metamorphosed to greenschist and amphibolite (?) facies (transition zone between Coast and Intermontane belts).

**FMg**

**DEVONIAN, CARBONIFEROUS AND PERMIAN**

**IPS** Undifferentiated series of probable Permian or older age; includes carbonatic, flow-layered and spherulitic rhylite and flow breccia; intermediate tuff, lapilli tuff, ash-flow tuff; basalt and andesite flows, tuff and calcs.

**PALEOZOIC - TERTIARY (?)**

**CENTRAL GNEISSIC COMPLEX (COAST BELT)** Orthogneiss, migmatite, granitized gneiss; amphibolite; subordinate unfoliated plutonic rocks; includes areas of undifferentiated Er (**Tsawytia plutonic Suite**). Quartz-feldspar-biotite schist, hornblende schist, amphibolite; lesser granitic gneiss; minor marble and granited dikes; amphibolite facies.

**INTRUSIVE ROCKS**

**PALEOCENE TO EOCENE?**

**COAST PLUTONIC COMPLEX (50 - 65 Ma)**: granitoid stocks. Medium to coarse-grained, biotite ± hornblende granite; granodiorite; minor quartz diorite. Includes co-genetic dyke swarms.

**Egd**

**Egi** Goosly Intrusions: synenomonzonite to gabbro stocks and dykes; bladed feldspar phenocrysts; 48-54 Ma.

**Er** Rhyolite, quartz-feldspar porphyry; plugs, domes and dikes. Possible intrusive equivalent of Otosa Lake Group rhyolitic flows.

**EN** Nanika Intrusions: grey to pink, porphyritic (Enp) to non-porphyritic granite, quartz monzonite; pink porphyritic granite and quartz porphyry as small stocks, plugs, dykes and sills; 47-54 Ma.

**EO** Quanuchs Intrusions: grey to pink feldspar porphyry of granitic to quartz dioritic composition, lesser non-porphyritic, granodiorite.

**ET** Tsawytia Plutonic Suite: granodiorite, quartz monzonite, tonalite, granite; generally fresh and with biotite > hornblende; commonly well-foliated; restricted to the Coast Belt.

**LATE CRETACEOUS TO EARLY TERTIARY (PALEOCEANE)**

**Ktg** Granodiorite, quartz monzonite, quartz diorite, lesser granite; biotite or biotite-hornblende; generally unfoliated and non-porphyritic.

**Ktg** Diorite, gabbro, microdiorite, synenodiorite, partly equivalent to Kasalka intrusions.

**LATE CRETACEOUS**

**Lkg** Granodiorite, quartz monzonite, granite, lesser tonalite; generally equigranular and unfoliated to weakly foliated, includes Maclellan, Horlick Dyke.

**Lkg** Bulkley Intrusions: biotite-hornblende granodiorite; granodiorite to quartz diorite; quartz monzonite; minor aplite (Lkg); minor feldspar porphyry (Kkg); feldspar porphyry; biotite-hornblende-feldspar porphyry; biotite-feldspar porphyry; hornblende feldspar porphyry (Lkg); minor andesite, felsite, aplite, diabase and intrusive breccia, stocks, plugs, sills and dykes; 64 to 81 Ma.

**Lkgd** Kasalka Intrusions: crowded hornblende granodiorite porphyry, porphyritic biotite-augite microdiorite, small stocks and volcanic necks.

**MIDDLE CRETACEOUS**

**Mkgd** Quartz diorite, granodiorite, leuco-granodiorite, minor granite.

**JURASSIC**

**Jgm** Post kinematic stocks; porphyritic to non-porphyritic, pink, quartz monzonite, biotite-hornblende granodiorite, quartz monzonite, unfoliated plutons.

**MIDDLE TO LATE JURASSIC**

**MJg** Gamsby Complex: well-foliated, green, chloritized quartz diorite; lesser augen gneiss and chlorite schist; may grade into Tkg. Includes Whitecan pluton.

**Middle Jurassic**

**MJg** Trapper Plutonic Suite: weakly to well-foliated quartz diorite, granodiorite and tonalite; lesser granite, orthogneiss; green-schist to amphibolite facies.

**Mjd** Three Sisters Plutonic Suite (172 - 177 Ma): Medium to coarse-grained gabbro, diabase and syenite.

**EARLY JURASSIC**

**Ejt** Topley Intrusions: granodiorite, quartz diorite, diorite (Ejt), minor granite.

**Ejg** Gamsby Complex: hornblende diorite, tonalite; lesser greenstone and felsic metavolcanic rocks; cut by granodiorite, tonalite and metabasalt dykes; metagreywacke to greenish facies; includes Tahltah Complex and southern part of Morice Lake plutonic complex.

**LATE TRIASSIC TO EARLY CRETACEOUS**

**tkb** Topley Intrusions: granodiorite, quartz diorite, diorite; minor granite; possibly a granofels complex of layered pelton and diorite, tonalite; granodiorite, lesser mafic dyke swarms; amphibolite and greenstone, strongly foliated to unfoliated; part of Gamsby Complex.

**Reference**

MacIntyre, D.G., Ash, C.H. and Ballou, J.M. (1994). Geological Compilation, Skeena-Nasus Area, West Central British Columbia (NTS 52 E. to M., 53 S. to I., J., K., O, P., 104 A, B). B.C. Ministry of Energy, Mines and Petroleum Resources, Open File 1994-14.

