

**BCAA**  
 Ministry of Energy,  
 Mines and Petroleum  
 Resources

Geological Survey Branch

**GEOSCIENCE MAP 1993-9**  
**GEOLOGY OF THE NOAXE CREEK AND**  
**SOUTHWESTERN BIG BAR CREEK MAP AREAS**  
 NTS 920/1, 2

Geology compiled by P. Scharlizza and R.G. Gaba

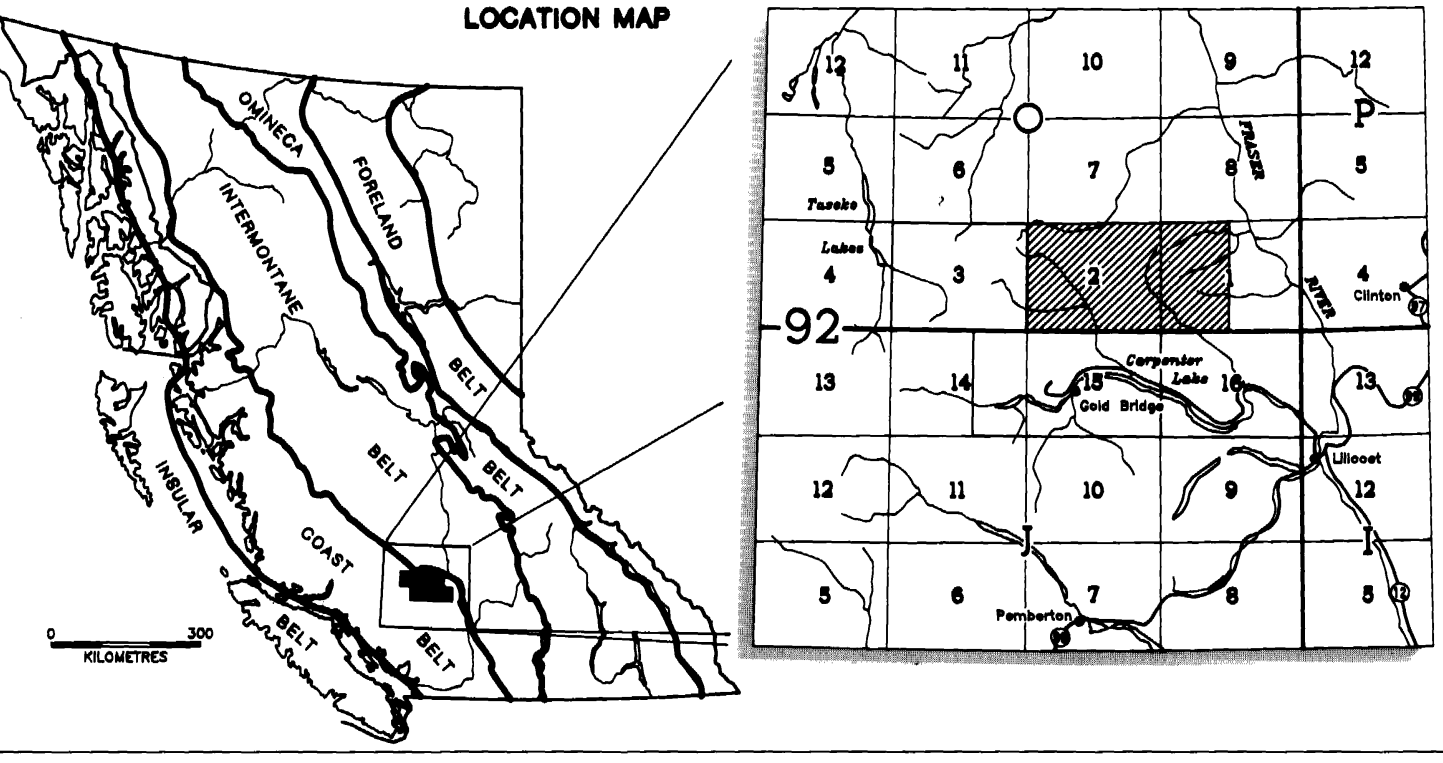
Based on geological mapping by P. Scharlizza, J.K. Glover, J.J. Garver, P.J. Umhoefer,  
 R.G. Gaba, J.M. Hedges, D.F. Payne, R.W.J. Macdonald, T. Lynch, K.E. Saiton and  
 P.P. Sagarika (1986-1989)

Scale 1:50 000



LEGEND

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| <p><b>QUATERNARY</b></p> <p>Qal Unconsolidated glacial, fluvial and alluvial deposits; locally may include small bedrock exposures not examined during the present study</p> <p><b>TERTIARY</b></p> <p>Miocene and(?) Pliocene<br/> <b>CHILCOTIN GROUP</b></p> <p>MPC Olivine basalt flows</p> <p><b>Eocene(?)</b></p> <p>ESV Big Sheep Mountain Volcanics: quartz-phyric rhyolite</p> <p><b>RED MOUNTAIN VOLCANICS (Esv to Ems)</b></p> <p>Esv Rhyolite; Esv1 - partly intrusive</p> <p>Esd Andesite; in part pyroxene-feldspar-phyric</p> <p>Esa Sandstone, siltstone and conglomerate</p> <p><b>RELAY MOUNTAIN - BRIDGE RIVER OVERLAP (UPPER TYAUGHTON BASIN)</b></p> <p><b>UPPER CRETACEOUS</b></p> <p>UPPER CRETACEOUS FORMATION: medium to dark green volcanic breccia and lapilli tuff; volcanic conglomerate; pyroxene porphyry flows</p> <p><b>LOWER AND/OR UPPER CRETACEOUS</b></p> <p>ALBION AND/OR CANADIAN<br/> <b>BLUESHEDDICK FORMATION:</b> medium to thick-bedded pebble to cobble conglomerate containing clasts of chert, volcanic rock and sandstone; lesser amounts of sandstone, siltstone and shale; upper part of unit includes intercalations of volcanic breccia and volcanic conglomerate</p> <p><b>LOWER AND/OR UPPER CRETACEOUS</b></p> <p>ALBION AND/OR CANADIAN<br/> <b>TAYLOR CREEK GROUP (IKTCS to IKTC)</b><br/> <b>BECKE CREEK SUCCESSION:</b> sandstone, siltstone and shale; pebble conglomerate containing clasts of chert, volcanic rock and calcareous sandstone and shale; ash and crystal tuff</p> <p><b>ALBION AND/OR OLDER</b></p> <p>IKV Medium green to grey volcanic breccia and lapilli tuff; mafic to intermediate volcanic flows; volcanic conglomerate and sandstone</p> <p><b>IKVZ LIZARD FORMATION:</b> thin to medium-bedded, light brown to grey weathering micaceous quartzofeldspathic sandstone, and dark grey laminated shale; IKVZ1 - thick-bedded polymict conglomerate intercalated with micaceous quartzofeldspathic sandstone; green lithic sandstone, conglomeratic sandstone and polymict conglomerate</p> <p><b>IKVZ2 DASH FORMATION:</b> orange-weathering, medium to thick-bedded, locally massive chert-pebble conglomerate, thin to medium-bedded chert-rich sandstone, and dark grey shale and siltstone</p> <p><b>ALBION AND/OR OLDER</b></p> <p>IKR PARADISE FORMATION: thin-bedded medium to dark grey shale and green-grey sandstone; lesser amounts of thick-bedded pebble to cobble conglomerate containing volcanic clasts and less abundant sedimentary and plutonic clasts</p> <p><b>IKR2 ELBOW PASS FORMATION:</b> medium to thick-bedded green-grey sandstone, dark grey shale, and pebble conglomerate containing intermediate and mafic volcanic clasts</p> <p><b>RELAY MOUNTAIN TERRANE (LOWER TYAUGHTON BASIN)</b></p> <p><b>MIDDLE JURASSIC TO LOWER CRETACEOUS</b><br/> <b>RELAY MOUNTAIN GROUP (IKKMS to IKKMS)</b><br/> <b>HASTINGS AND/OR BARMAN</b><br/> <b>IKKMS</b> Dark grey shale and siltstone; lesser amounts of sandstone and calcareous sandstone</p> <p><b>Upper Oxfordian to Valanginian</b><br/> <b>IKKMS2</b> Grey, brown and green sandstone and siltstone, locally calcareous; commonly massive, locally medium to thick-bedded; <i>Buzia</i> pelecypods and <i>Salemites</i> common; <i>Coquina</i> beds locally abundant; lesser amounts of conglomerate and conglomeratic sandstone containing mainly volcanic and plutonic clasts</p> <p><b>Callovian to lower Oxfordian</b><br/> <b>IKKMS3</b> Dark grey siliceous shale intercalated with thin beds of green to brown siltstone and fine grained sandstone; commonly rusty-weathering; lesser amounts of thin to medium-bedded, medium to coarse grained sandstone, calcareous sandstone, and calcareous siltstone; locally includes pebble conglomerate containing mainly felsic to intermediate volcanic clasts</p> <p><b>BRIDGE RIVER TERRANE</b><br/> <b>BRIDGE RIVER COMPLEX</b><br/> <b>IKKMS4</b> Undivided ribbon chert, argillite and pillowed to massive greenstone, with lesser amounts of limestone, gabbro, diabase, sandstone, pebble conglomerate and serpentinite; <b>IKKMS4</b> - limestone; <b>IKKMS4</b> - serpentinite with knookers and fault silvers of other Bridge River rock types</p> <p><b>LOWER TO MIDDLE JURASSIC</b><br/> <b>Hastings to Balmuccia</b><br/> <b>IKKMS5</b> <b>LAST CREEK FORMATION:</b> brown calcareous sandstone, siltstone and conglomerate; overlain by dark grey to black calcareous shale</p> <p><b>UPPER TRIASSIC</b><br/> <b>TYAUGHTON GROUP (UTS and UTN)</b><br/> <b>Upper Norian</b><br/> <b>UTS</b> Limestone conglomerate; overlain by thin to medium-bedded green sandstone intercalated with green to pebble conglomerate containing mainly volcanic and limestone clasts; overlain by brown sandstone and siltstone intercalated with beds of fossiliferous calcareous sandstone; overlain by thin to medium-bedded green sandstone intercalated with thin beds of pebble conglomerate containing intermediate to felsic volcanic clasts</p> <p><b>Middle(?) and upper Norian</b><br/> <b>UTN</b> Massive to thick bedded conglomerate and conglomeratic sandstone intercalated with medium to thin-bedded red to brown sandstone; conglomerate contains clasts of limestone, intermediate to felsic volcanic rocks and locally plutonic rocks; overlain by thick to thin-bedded grey limestone</p> <p><b>Lower and middle Norian</b><br/> <b>CADWALLADER GROUP</b><br/> <b>ULC</b> Thin to thick-bedded sandstone, calcarenite and siltstone; lesser amounts of polymict conglomerate with clasts of limestone, mafic to felsic volcanic rocks and granitic rocks; locally includes pebbly mudstone, limestone-greenstone breccia and micritic limestone</p> <p><b>ULC1</b> Greenstone, mafic volcanic breccia and tuff intercalated with sandstone, tuffaceous sandstone, micritic limestone and polymict conglomerate containing clasts of limestone, mafic to felsic volcanic rocks and granitoid rocks</p> <p><b>OPHOLITIC ASSEMBLAGES</b><br/> <b>PERMIAN</b><br/> <b>BRALORNE-EAST LIZA COMPLEX</b><br/> <b>PSL</b> Serpentinite, gabbro, diabase, greenstone; <b>PSL1</b> - mainly pillowed greenstone</p> | <p><b>OPHOLITIC ASSEMBLAGES (continued)</b></p> <p><b>PERMIAN (AND YOUNGER OR OLDER)</b><br/> <b>SHILKUS ULTRAMAFIC COMPLEX (Pm and Pm1)</b><br/> <b>PSM</b> SERPENTINITE MELANGE UNIT: serpentinite, derived from olivine-clinopyroxene ultramafite with inclusions of ultramafic rock, gabbro, diorite, diabase, amphibolite, greenstone, rhyolite, chert, phyllite, sandstone, conglomerate and limestone</p> <p><b>PSM1</b> HARZBURGITE UNIT: harzburgite with lesser amounts of dunite and orthopyroxene (variably serpentinitized); locally with a penetrative foliation and lineation inferred to be a matrix tectonic fabric</p> <p><b>PALEOZOIC AND/OR MESOZOIC</b><br/> <b>PSM2</b> Serpentinite and serpentinitized ultramafite, in part altered to quartz-carbonate-mariposite rock (lawsonite); <b>PSM2</b> - undivided serpentinite, lawsonite and fault silvers of mafic dykes and veins</p> <p><b>METHOW TERRANE - YALAKOM MOUNTAIN FACIES</b><br/> <b>LOWER CRETACEOUS</b><br/> <b>JACKASS MOUNTAIN GROUP (IKJMS and IKJMS)</b><br/> <b>Albion</b><br/> <b>IKJMS1</b> Arkosic sandstone, conglomeratic sandstone, siltstone, shale and conglomerate</p> <p><b>Barmann-Aptian</b><br/> <b>IKJMS2</b> Green to grey lithic sandstone, granule conglomerate and conglomeratic sandstone; lesser amounts of siltstone and shale; very minor amounts of laminated silty limestone</p> <p><b>MIDDLE JURASSIC(?)</b><br/> <b>IKJMS3</b> Medium to dark grey-green volcanic breccia; andesitic flows; volcanic conglomerate</p> <p><b>LOWER(?) TO MIDDLE JURASSIC</b><br/> <b>Tacton(?) to Balmuccia</b><br/> <b>IKJMS4</b> Lithic-arkosic sandstone intercalated with lesser amounts of granule to small pebble conglomerate, siltstone and shale; thin-bedded siltstone and laminated shale</p> <p><b>METHOW TERRANE - CHURN CREEK FACIES</b><br/> <b>LOWER CRETACEOUS</b><br/> <b>JACKASS MOUNTAIN GROUP (IKJMS and IKJMS)</b><br/> <b>Albion</b><br/> <b>IKJMS5</b> Polymict pebble to boulder conglomerate containing mainly granitoid and volcanic clasts; lesser amounts of sandstone, conglomeratic sandstone, siltstone and shale</p> <p><b>Aptian and(?) older</b><br/> <b>IKJMS6</b> Lithic-arkosic sandstone, conglomeratic sandstone and pebble conglomerate containing mainly volcanic clasts; lesser amounts of siltstone and shale; abundant fossil plant remains</p> <p><b>MIDDLE JURASSIC</b><br/> <b>Balmuccia</b><br/> <b>IKJMS7</b> Grey siltstone and fine-grained sandstone</p> <p><b>INTERMONTANE BELT</b><br/> <b>CRETACEOUS(?)</b><br/> <b>DASH-CHURN SUCCESSION (IKCS to IKCS)</b><br/> <b>IKCS</b> Well stratified volcanic conglomerate and breccia; lesser amounts of thin to medium bedded volcanic sandstone and siltstone</p> <p><b>IKCS1</b> Andesitic volcanic breccia and lapilli tuff; lesser amounts of volcanic sandstone, conglomerate and andesitic flows</p> <p><b>IKCS2</b> Granule to boulder volcanic conglomerate; lesser amounts of volcanic sandstone</p> <p><b>INTRUSIVE ROCKS</b><br/> <b>TERTIARY</b><br/> <b>Miocene and Pliocene(?)</b><br/> <b>MPM</b> Mafic plug</p> <p><b>Eocene(?)</b><br/> <b>EP</b> Hornblende-biotite-quartz-feldspar porphyry</p> <p><b>Paleocene and/or Eocene</b><br/> <b>PEC</b> Hornblende-biotite-quartz-feldspar porphyry, quartz diorite, granodiorite</p> <p><b>LATE CRETACEOUS AND/OR EARLY TERTIARY</b><br/> <b>IKTQ</b> Equigranular quartz diorite to granodiorite</p> <p><b>IKTQ1</b> Hornblende-feldspar porphyry; hornblende-biotite-feldspar porphyry; locally grading to diorite and quartz diorite</p> <p><b>SYMBOLS</b></p> <p>Geological contact (defined, approximate, assumed).....</p> <p>Bedding, tops observed (inclined, vertical; overturned).....</p> <p>Bedding, tops not observed (inclined, vertical).....</p> <p>Bedding estimated from pillows (inclined).....</p> <p>Igneous layering (inclined, vertical).....</p> <p>Cleavage, schistosity (inclined, vertical).....</p> <p>Mesoscopic fold axis.....</p> <p>Anticline (upright, overturned).....</p> <p>Syncline (upright, overturned).....</p> <p>Thrust or reverse fault; teeth on upthrust block (defined, approximate, assumed).....</p> <p>Fault; solid dot indicates downthrown block, arrow indicates relative sense of strike-slip movement (defined, approximate, assumed).....</p> <p>Dike (mainly hornblende-feldspar porphyry and quartz-feldspar porphyry).....</p> <p>Alteration zone (A1 - quartz-carbonate-mariposite; carbonate; A2 - carbonate-carbonate-quartz + sericite + pyrite; A3 - clay; A4 - chlorite-epidote; A5 - biotite).....</p> <p>Mineral occurrence (number refers to 920 MINFILE number).....</p> <p>Macrofossil locality.....</p> <p>Macrofossil from diast in conglomerate.....</p> <p>Conodont fossil locality.....</p> <p>Conodont from diast in conglomerate.....</p> <p>Redoliferous fossil locality.....</p> <p>Limit of quaternary cover.....</p> <p>Limit of geological mapping.....</p> |
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**ADDITIONAL SOURCES OF INFORMATION**

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