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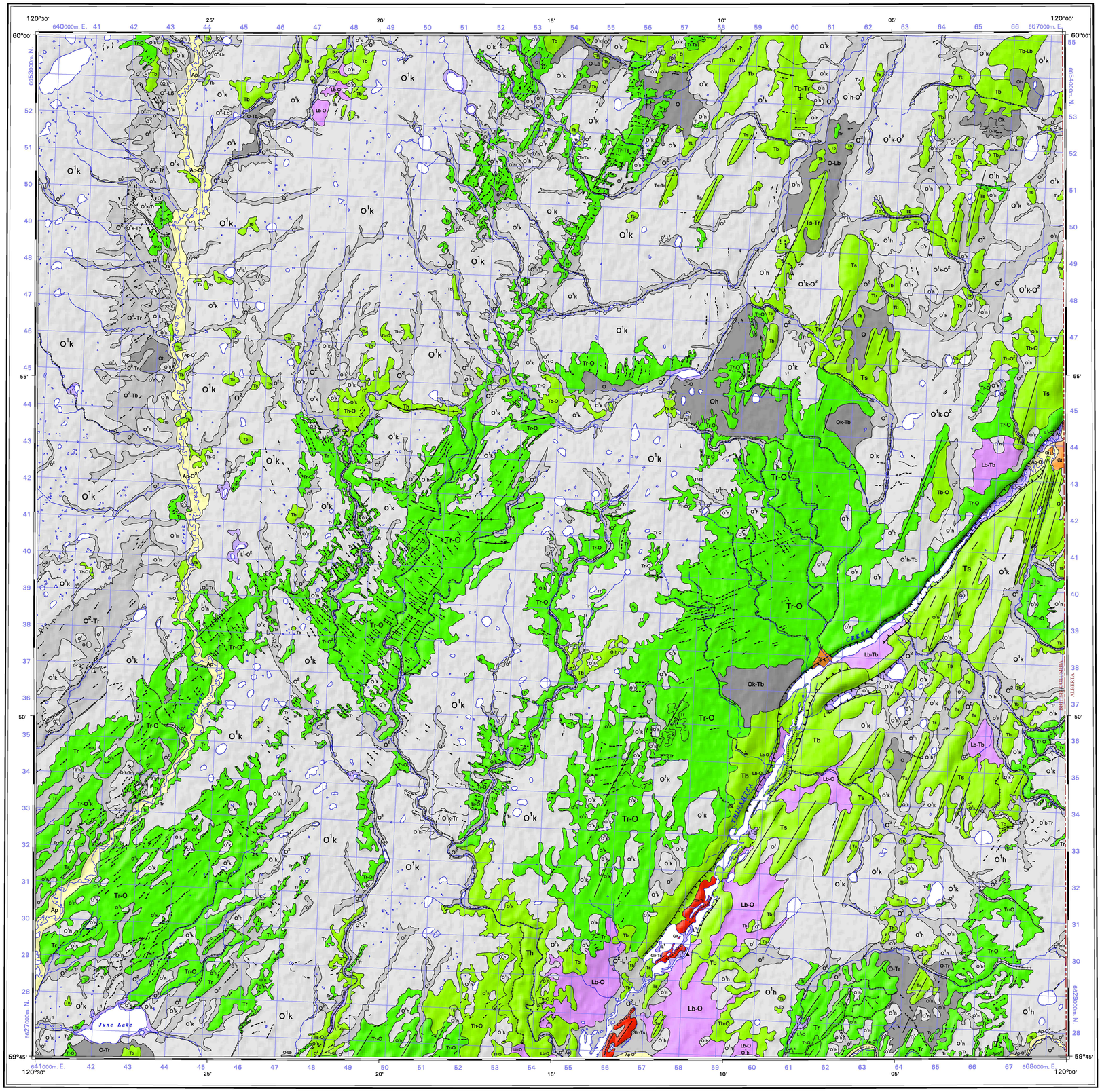
GEOLOGICAL SURVEY OF CANADA | COMMISSION GÉOLOGIQUE DU CANADA



LOCATION MAP

OPEN FILE 5480

SURFICIAL GEOLOGY

JUNE LAKE

BRITISH COLUMBIA

Scale 1:50 000/Échelle 1/50 000

kilometres 1 0 1 2 3 4 kilomètres

Universal Transverse Mercator Projection
North American Datum 1983
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Projection transverse universelle de Mercator
Système de référence géodésique nord-américain, 1983
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NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND INDEX TO ADJOINING GEOLOGICAL SURVEY OF CANADA MAPS

Canada

LEGEND

This legend is common to GSC Open File maps produced for NTS sheet 94 P. Not all map units in the common legend appear on this map.

NOTE: In areas where the surficial cover forms a complex pattern, the area is coloured according to the dominant unit and labelled in descending order of cover (e.g. O-Tr). Where buried aggregate deposits (sand and gravel - commonly associated with Gt or Gd surficial units) are known, or suspected, areas are coloured according to the overlying unit and labelled in the following manner: Lv/Gd.

QUATERNARY
SURFICIAL DEPOSITS
POST LAST GLACIATION
NONGLACIAL ENVIRONMENTS

ORGANIC DEPOSITS: *peat and muck; 1 to 3 m thick on average; formed by the accumulation of plant material in various stages of decomposition; generally occurs as flat, wet terrain (swamps and bogs) over poorly drained substrates.*

O¹ — ***Bog peat:*** *sphagnum or forest peat formed in an ombrotrophic environment; wet terrain; may be treed or treeless; O¹h, hummocky, mounds and plateaus; area may be underlain by ground ice or shallow permafrost conditions; O¹k, thermokarst terrain related to melting ground ice.*

O² — ***Fen peat:*** *peat derived from sedges and partially decayed shrubs in a eutrophic environment; forms relatively open peatlands with a mineral-rich water table that persists seasonally near the surface; generally covered with low shrubs and sometimes a sparse layer of trees.*

O — ***Undifferentiated bog and fen deposits:*** *Oh, undifferentiated hummocky bog and fen deposits; area may be underlain by ground ice or shallow permafrost conditions; Ok, undifferentiated bog and fen deposits with thermokarst terrain related to melting of ground ice; Oc, undifferentiated bog and fen deposits cut by numerous subparallel channels on gentle slopes.*

COLLUVIAL DEPOSITS: *mass wasting debris; poorly sorted, massive to stratified debris deposited by direct, gravity-induced movement; composition dependant on source material.*

Ch — ***Landslide and slump debris:*** *active and inactive landslides; hummocky topography; diamicton, generally 1 to 10 m thick, but may exceed 10 m near the toe of large landslides.*

Cv — ***Colluvial veneer:*** *thin and discontinuous cover of slumped and/or soliflucted material <1 m thick; overlies bedrock or till.*

C — ***Undifferentiated colluvial deposits.***

ALLUVIAL DEPOSITS: *sorted gravel, sand, minor silt, and organic detritus deposited by streams; commonly stratified.*

Ap — ***Floodplain deposits:*** *sorted gravel, sand, silt, and organic detritus >1 m thick; forming active floodplains close to river level with meander channels and scroll marks.*

At — ***Fluvial terrace deposits:*** *inactive terraces above modern floodplain; >2 m thick; represents a potential aggregate source.*

Af — ***Alluvial fan deposits:*** *poorly sorted gravel, sand, and organic detritus >1 m thick.*

Av — ***Alluvium veneer:*** *< 1 m thick; primarily as uniform sheets of slope wash on gentle slopes.*

A — ***Undifferentiated fluvial deposits.***

L¹ — ***LACUSTRINE DEPOSITS:*** *sand, silt, and minor clay deposited in a former lake; >1 m thick; generally overlain by organic deposits; exposed by recent fluctuations in lake levels.*

NONGLACIAL AND PROGLACIAL ENVIRONMENTS

EOLIAN DEPOSITS: *wind-deposited medium to fine sand; derived from deltaic or glaciolacustrine deposits; in some areas eolian sediments are thin or absent between dunes.*

Er — ***Ridged eolian deposits:*** *forming dunes; generally >2 m thick.*

Ev — ***Eolian veneer:*** *discontinuous veneer of eolian sediments; <1 m thick.*

POSTGLACIAL OR LATE WISCONSINAN
PROGLACIAL AND GLACIAL ENVIRONMENTS

GLACIOLACUSTRINE DEPOSITS: *fine sand, silt, and clay, with minor debris-flow diamicton, deposited in glacier-dammed lakes in valleys and along the margin of the retreating Laurentide Ice Sheet; usually overlain by organic deposits in lowlands.*

Lb — ***Glaciolacustrine blanket:*** *>1 m thick.*

Lv — ***Glaciolacustrine veneer:*** *thin and discontinuous; <1 m thick.*

GLACIOFLUVIAL DEPOSITS: *well to poorly stratified sand and gravel; minor diamicton; deposited behind, at, or in front of the ice margin by glacial meltwater; represents a potential aggregate source.*

G — ***Proglacial outwash:*** *cross-stratified gravel and sand deposited in front of the ice margin; Gp, outwash plain deposits, generally 1 to 5 m thick, generally mantle valley floors and surfaces adjacent to glacial meltwater channel margins; Gt, outwash terrace deposits, generally associated with meltwater channels and canyons; 1 to 10 m thick; Gd, glaciofluvial delta deposits; 1 to >30 m thick; Gv, glaciofluvial veneer thin and discontinuous; <1 m thick; Gf, glaciofluvial fan deposits; >1 m thick.*

Gi — ***Ice-contact stratified drift:*** *poorly-sorted sand and gravel with minor diamictons; deposited in contact with the retreating glacier; 1 to >20 m thick; Gih, hummocky topography relating to melting of underlying ice; Gik, surface marked by kettle holes; Gir, esker ridges; Gil, kame terraces; Gid, ice-contact glaciofluvial delta deposits; 1 to >30 m thick, surface marked by kettles.*

TILL: *diamicton deposited directly by the Laurentide Ice Sheet; sandy to clayey matrix with striated clasts of various lithologies, including many Canadian Shield, carbonate, and sandstone erratics; clast content is typically low (<10 %).*

Tb — ***Till blanket:*** *>1 m thick, continuous till cover forming undulating topography that locally obscures underlying units.*

Ts — ***Streamlined and fluted till:*** *>1 m thick, till surface marked by streamlined landforms including flutes and drumlins.*

Th — ***Hummocky till:*** *>1 m thick; hummocky till surface.*

Tr — ***Ridged till deposits:*** *>1 m thick, moraines or crevasse fillings forming a ridged topography.*

Tv — ***Till veneer:*** *<1 m thick, discontinuous till cover, underlying bedrock topography is discernible.*

PRE-QUATERNARY
BEDROCK

R — ***Sedimentary bedrock:*** *Cretaceous Fort St. John Group shales (including the Shaftesbury Formation) and Dunvegan Formation sandstone exposed in highlands and along meltwater channel and canyon walls.*

Geological boundary (defined, approximate)

Meltwater channel or underfit channel, small (paleoflow direction known, unknown)

Meltwater channel, large (paleoflow direction unknown)

Esker

Major moraine

Minor morraine or crevasse filling

Ice moulded form in till (direction of flow inferred, not inferred)

Field observation site

NOTES

The surficial geology of the June Lake (NTS 94 P/16) map area is dominated by the effects of continental glaciation during the Late Wisconsinan stage (ca. 25 000–10 000 years ago). In general the ice sheet advanced from the northeast, but as the ice thinned during deglaciation, the flow emanated from the Mackenzie River valley from the north-northwest. This ice flow was caused by a lobe in the ice sheet that filled a broad lowland, centered down the east half of the map area. The central axis of the lowland is occupied by a large meltwater channel in which Thinahtea Creek, and a string of small lakes, currently lie. Several eskers also run along the channel floor, which suggest that the channel may have initially formed as a subglacial tunnel. The lobate pattern of the ice margin is marked by numerous small ridges of till, which form nested arcuate patterns. The ridges are thought to be either end moraine segments or crevasse fillings and their arcuate is thought to show the progressive retreat of the ice margin to the northwest, when considered with the nested pattern of meltwater channels. Much of the map area is underlain by thick clayey till, which is poorly drained and covered by extensive muskeg, which forms hummocky peatlands. Areas of thick peat are likely underlain by permafrost and probably contain significant amounts of ground ice.

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Geology by J.M. Bednarski, 2003–2005, with additional data provided by V. Levson and T. Ferbey, Resource Development and Geoscience Branch, BC Energy, Mines, and Petroleum Resources

Airphoto interpretation by J.M. Bednarski, 2006

Compilation of geology was onto 1:40 000 orthorectified airphoto mosaic by J.M. Bednarski

Digital cartography by N.Côté, Data Dissemination Division (DDD)

This map was produced from processes that conform to the Scientific and Technical Publishing Services Subdivision (DDD) Quality Management System, registered to the ISO 9001: 2000 standard

Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada

Digital base map provided by the BC Watershed Atlas (1:50 000, TRIM base), modified by J.M. Bednarski

Shaded relief image prepared by DDD, derived from the digital elevation model supplied by J.M. Bednarski, based on SRTM imagery
Illumination: azimuth 310°, altitude 45°, vertical factor 4.8x

Magnetic declination 2008, 21°37'E, decreasing 24.2' annually

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