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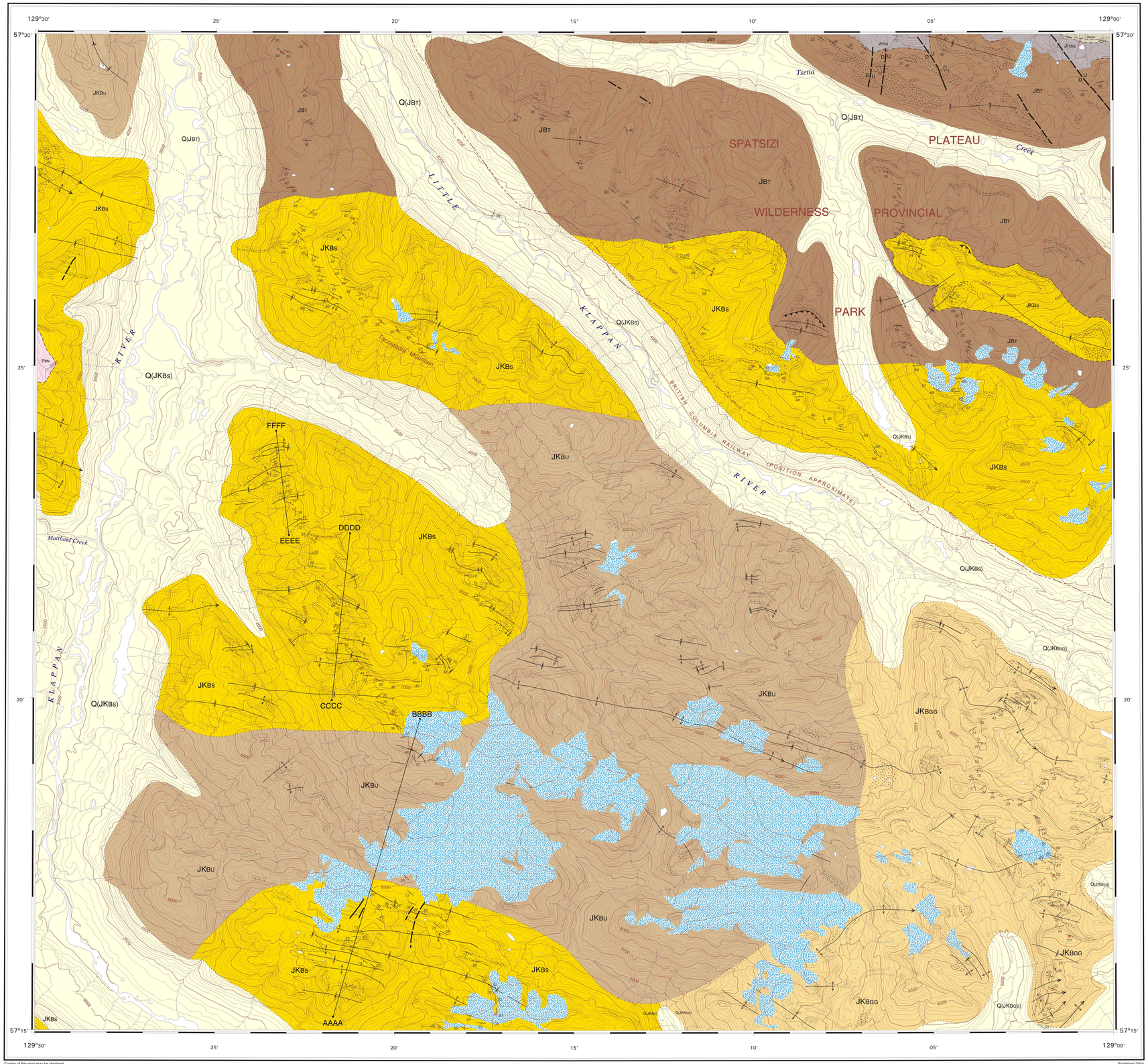
GEOLOGICAL SURVEY OF CANADA | COMMISSION GÉOLOGIQUE DU CANADA



LEGEND

CENOZOIC

QUATERNARY
PLEISTOCENE AND RECENT

Q — *Glacial till, alluvium, and colluvium; unit designators in parentheses are the inferred underlying bedrock units.*

TERTIARY
PLIOCENE

PMv — *MAITLAND VOLCANICS: olivine basalt flows; columnar jointed, with rare pillows and breccia; 5.2 to 4.6 Ma (K-Ar; dated rocks are in 104 H/5, /12, /13).*

MESOZOIC

JURASSIC AND CRETACEOUS
UPPER JURASSIC AND LOWER CRETACEOUS
BOWSER LAKE GROUP (units JKBu–JKBGG)

JKBGG — *GROUNDHOG-GUNANOOT ASSEMBLAGE (deltaic assemblage): sandstone, siltstone, and carbonaceous and calcareous mudstone, with minor conglomerate and coal, locally arranged in fining-upward cycles; sandstone is fine- to medium-grained with planar bedding and planar-tabular crossbedding; large proportion of sandstone is thin- and thick-bedded, medium-grained, recessive drab green- or brown-weathering wacke; resistant and light grey-weathering arenite is less common and forms discontinuous sheets and lenses; finer grained strata are thinly bedded and locally include densely packed plant fossils; conglomerate sheets and lenses, which constitutes 10% of the unit, are light grey-weathering, with large-scale crossbedding; plant fossils common and include in situ trees; marine fossils rare.*

JKBS — *SKELHORNE ASSEMBLAGE (deltaic assemblage): thinly intermixed and varicoloured siltstone, sandstone, and conglomerate (with or without coal), commonly arranged in coarsening- and thickening-upward cycles; common features of sandstone are parallel bedding, crossbedding, ripples, burrows, bivalve coquina, and brown-, green-, and grey-weathering; conglomerate is rusty- and grey-weathering, but constitutes a lower proportion (15–30%) of the unit than in the Eaglenest assemblage; conglomerate units, up to 50 m thick, cap cycles up to 70 m thick, and tops locally have meganipples; plant and marine fossils are ubiquitous, trace fossils including Skolithus and Diplocraterion are present, as are tree fragments several metres long.*

JKBU — *Undivided Bowser Lake Group.*

JURASSIC
UPPER MIDDLE TO UPPER JURASSIC
BOWSER LAKE GROUP (unit JBT)

JBT — *TODAGIN ASSEMBLAGE (slope assemblage): siltstone, fine-grained sandstone, and conglomerate; mainly laminated siltstone and/or fine-grained sandstone, which is dark grey- to black-weathering and includes thin, orange-weathering claystone beds and syndepositional faults and folds; chert-pebble conglomerate occurs as lenses; marine fossils.*

LOWER AND LOWER MIDDLE JURASSIC
HAZELTON GROUP
PLIENSBACHIAN TO BAJOCIAN
SPATSIZI FORMATION (units JHSW–JHSQ)

JHSQ — *QUOCK MEMBER: siliceous, well bedded, (?)tuffaceous siltstone, siltstone, and limy siltstone; black-, cream-, rusty-, and pink-weathering.*

JHSA — *ABOU MEMBER: calcareous to siliceous organic shale, laminated, light-weathering.*

JHSW — *WOLF DEN MEMBER: shale, dark grey- to black-weathering, with minor calcareous concretionary beds.*

Geological boundary (defined, approximate, assumed or inferred beneath unit Q)

Trace of individual beds from ground observation and airphoto interpretation

Fault, unknown displacement (defined, approximate)

Thrust fault (defined); symbol on hanging-wall side

Steeply dipping fault, dip unknown (defined, approximate); U on upthrown side, D on downthrown side — U / D

Anticline, trace of axial surface (defined, approximate, overturned); arrow on line indicates direction of plunge

Syncline, trace of axial surface (defined, approximate, overturned); arrow on line indicates direction of plunge

Open, inclined syncline, trace of axial surface (defined); long arrow points in direction of dip of axial surface

Cross-section location. The cross-sections for this map area are shown in Figure 173 of GSC Bulletin 577 (Evenchick and Thorkelson, in press) — A B

Bedding (inclined, vertical, overturned)

Cleavage (inclined)

Fossil location

Conglomerate

Icefield

Note: not all units on this figure appear on this map; refer to Evenchick and Thorkelson (in press) for descriptions

Figure 1. Approximate ages and relationships of units in the Bowser Lake Group

Figure 2. Tectonic elements of Spatsizi River map area (NTS 104 H) and location of NTS 104 H/6 (Map 2034A)

Figure 3. Reference map for NTS 104 H/6

Sources of information for this compilation are geological mapping by 1) C.A. Evenchick, 1987–1990 with G.M. Green and P.S. Mustard, 1988; 2) H. Gabrielse and H.W. Tipper, 1983, (1984); 3) Thomson et al. (1986); 4) Koo (1986); and 5) Moffat (1985). Dates in parentheses are years of publications. Other dates are years of fieldwork from which fieldnotes are the source of information.

Previous geological map of the region is by Geological Survey of Canada (1957).

Geology of the surrounding region (NTS 104 H) and descriptive notes are given by Evenchick and Thorkelson (in press).

REFERENCES

Evenchick, C.A. and Thorkelson, D.J.
In press: Geology of the Spatsizi River map area, north-central British Columbia; Geological Survey of Canada, Bulletin 577.

Gabrielse, H. and Tipper, H.W.
1984: Bedrock geology of Spatsizi map area (104 H); Geological Survey of Canada, Open File 1005, scale 1:125 000.

Geological Survey of Canada
1957: Stikine River area, Cassiar District, British Columbia; Geological Survey of Canada, Map 9-1957, scale 1:253 440.

Koo, J.
1986: Geology of the Klappan coalfield in northwest British Columbia; British Columbia Ministry of Energy, Mines, and Petroleum Resources, Open File Map 1986-3, scale 1:50 000.

Moffat, I.W.
1985: Nature and timing of deformational events and organic-inorganic metamorphism in the Northern Groundhog coalfield: implications for the tectonic history of the Bowser Basin; Ph.D. thesis, University of British Columbia, Vancouver, British Columbia, 204 p.

Thomson, R.C., Smith, P.L., and Tipper, H.W.
1986: Lower to Middle Jurassic (Pliensbachian to Bajocian) stratigraphy of the northern Spatsizi area, north-central British Columbia; Canadian Journal of Earth Sciences, v. 23, p. 1963–1973.

Published 2004

Copies of this map may be obtained from the Geological Survey of Canada:
601 Booth Street, Ottawa, Ontario K1A 0E8
3303-33rd Street, N.W., Calgary, Alberta T2L 2A7
101-605 Robson Street, Vancouver, B.C. V6B 5J3

LOCATION MAP

MAP 2034A

GEOLOGY

LITTLE KLAPPAN RIVER

BRITISH COLUMBIA

Scale 1:50 000/Échelle 1/50 000

kilometres 1 0 1 2 3 4 kilometres

Universal Transverse Mercator Projection
North American Datum 1927

Projection transverse universelle de Mercator
Système de référence géodésique nord-américain, 1927

Geology by C.A. Evenchick (1987 to 1990), with G.M. Green (1989), and P.S. Mustard (1988)

Map compilation by C.A. Evenchick

Digital geological cartography by C.L. Wagner and R. Cocking, Earth Sciences Sector Information Division (ESS Info), D. Dunn, C. Evenchick, and D. McKee, Geological Survey of Canada

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

Digital base map produced by vectorization of paper copy base map from Geomatics Canada, modified by ESS Info

Mean magnetic declination 2004, 23°39' E, decreasing 15.2' annually

Elevations in feet above mean sea level

Contour interval 100 feet

104 H/12	104 H/11	104 H/10
2028A	2029A	2030A
104 H/5	104 H/6	104 H/7
2035A	2034A	2033A
104 H/4	104 H/3	104 H/2
2036A	2037A	2038A

NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND INDEX TO ADJOINING GEOLOGICAL SURVEY OF CANADA MAPS

Canada

Recommended citation:
Evenchick, C.A. and Green, G.M.
2004: Geology, Little Klappan River, British Columbia; Geological Survey of Canada, Map 2034A, scale 1:50 000.