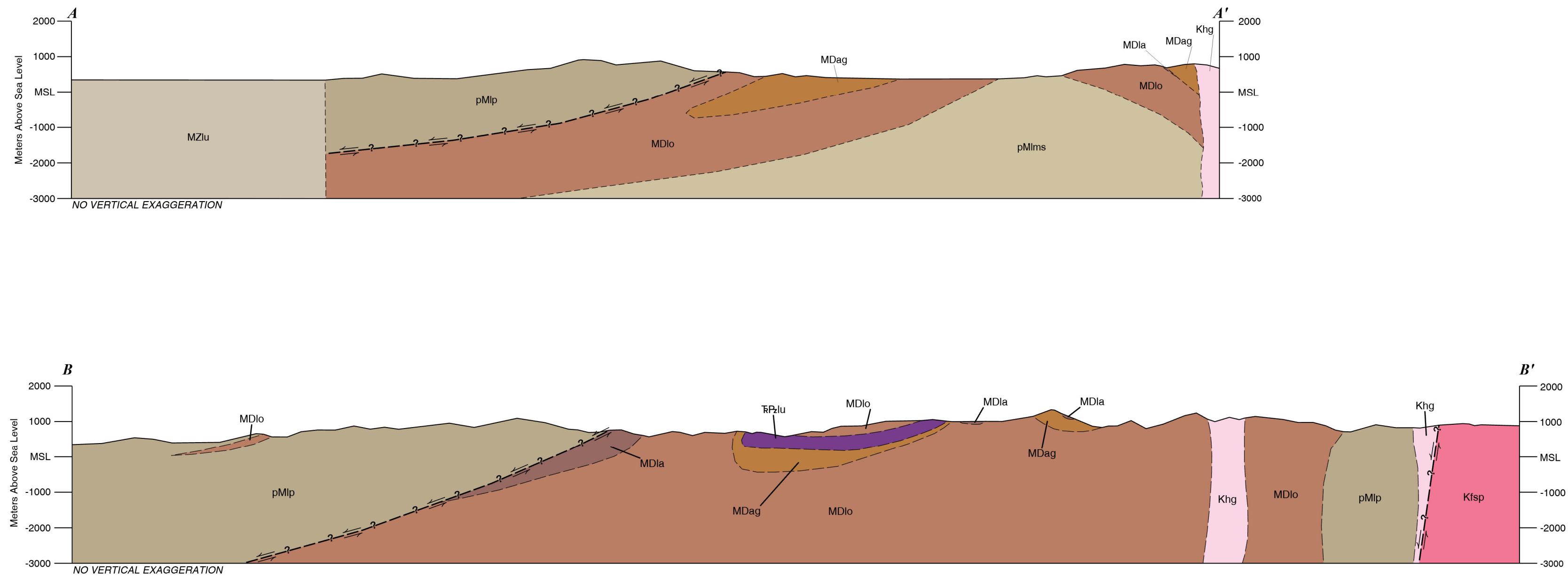


Shaded-relief base map and topographic lines created from:
U.S. Geological Survey, EROS Data Center, 2013, Digital elevation,
Interferometric Synthetic Aperture Radar (IFSAR) Alaska
Hydrology from:
U.S. Geological Survey National Hydrologic Dataset (2018)
Projection:
Universal Transverse Mercator Zone 6N
Datum:
North American Datum of 1983
Geologic field investigations by:
R.J. Newberry, A.D. Wildland, M.L. Barrera, M.M. Gavel,
T.J. Naibert, Evan Twelker, Alicia Wypych (2022, 2023)
N.J. Blackwell, S.N. Fessenden, I.P. Muller,
D.J. Szumigala, D.A. Harvey (2022)
J.W. Buchanan (2023)
Geologic interpretation by:
T.J. Naibert, A.D. Wildland, Alicia Wypych, R.J. Newberry,
Evan Twelker, M.M. Gavel (2022–2025)
Geologic GIS data layers created by:
T.J. Naibert, M.M. Gavel, C.M. Truskowski (2022–2025)
Cartography by:
T.J. Naibert, C.M. Truskowski (2023–2025)
Cartographic review by:
A.E. Macpherson (2025)
Peer review by:
S.P. Regan (2025)



GEOLOGIC MAP UNITS

Please see accompanying report for descriptions of the map units.

PLUTONIC ROCKS

TAURUS PLUTONIC SUITE

- KGdt GRANODIORITE (latest Cretaceous)
- KGag GRANITE (early Late Cretaceous)
- KGdt GRANODIORITE (early Late Cretaceous)
- KGp PORPHYRY (early Late Cretaceous)

GARDINER PLUTONIC SUITE

- KGt TONALITE (Mid-Cretaceous)

HARPER PLUTONIC SUITE

- KGh GRANITE (late Early Cretaceous)
- KGdt GRANODIORITE (late Early Cretaceous)
- KGp GRANITE PORPHYRY (late Early Cretaceous)

METAMORPHIC ROCKS PARAUTOCHTHONOUS NORTH AMERICA

LAKE GEORGE ASSEMBLAGE

- MPu META-ULTRAMAFIC ROCKS (Triassic to Paleozoic)
- MDag DIVIDE MOUNTAIN AUGEN GNEISS (Early Mississippian to Late Devonian)
- MDa AMPHIBOLITE (Early Mississippian to Late Devonian)
- MDo ORTHOGNEISS (Early Mississippian to Late Devonian)
- pMns METASEDIMENTARY ROCKS (Pre-Mississippian)
- pMp PARAGNEISS (Pre-Mississippian)
- MZu LAKE GEORGE ASSEMBLAGE, UNDIVIDED (Mississippian to Proterozoic)

- MAP UNIT POINTS — Dikes or other localized map unit with observations too small to draw at map scale; colored and labeled the same as map units above.

EXPLANATION OF MAP SYMBOLS

Linework is solid where location is accurate, long-dashed where location is approximate, and short-dashed where location is inferred. Question marks indicate the existence or identity of the feature is questionable. Localities with multiple planar feature measurements use asymmetric symbols with the tail ends joined at the measurement point.

CONTACTS AND FAULTS

- CONTACT
- FAULT — sense of movement indeterminate
- STRIKE-SLIP FAULT, LEFT-LATERAL OFFSET
- LOW-ANGLE FAULT (UNKNOWN SENSE OF SLIP) — half-circles on hanging wall

PLANAR FEATURES

- INCLINED METAMORPHIC or TECTONIC FOLIATION — showing strike and dip
- SMALL, MINOR INCLINED DIKE — showing strike and dip
- SMALL MINOR VERTICAL DIKE — showing strike
- INCLINED GNEISSIC LAYERING — showing strike and dip
- SMALL, MINOR INCLINED VEIN — showing strike and dip
- SMALL MINOR VERTICAL VEIN — showing strike
- INCLINED SLATY CLEAVAGE — showing strike and dip

LINEAR FEATURES

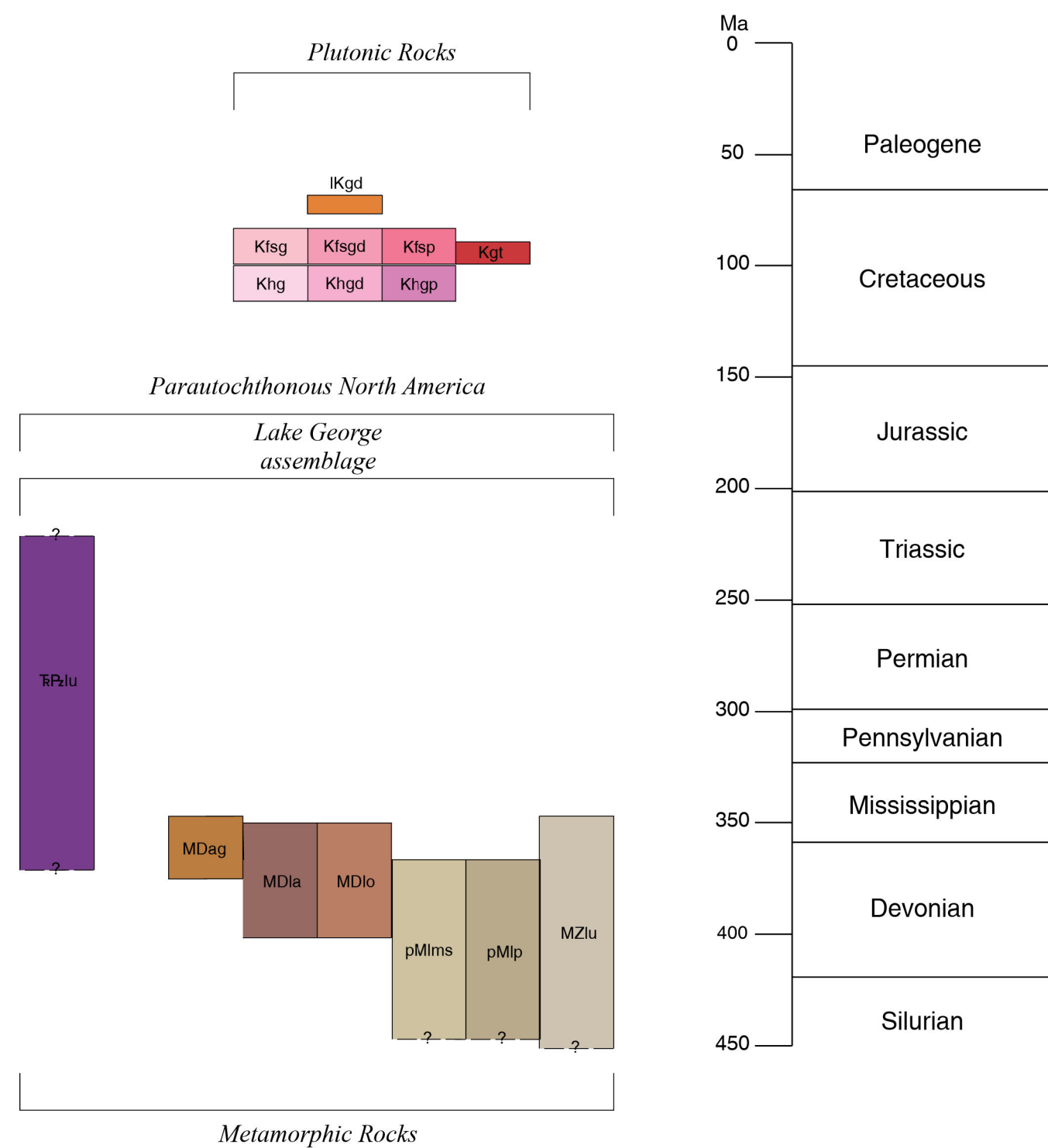
- INCLINED SLICKENLINE ON FAULT SURFACE — showing trend and plunge
- INCLINED ALIGNED-MINERAL LINATION — showing trend and plunge
- INCLINED FOLD HINGE OF SMALL, MINOR FOLD — showing trend and plunge

MISCELLANEOUS MAP SYMBOLS

- CROSS SECTION LINE
- FIELD STATION LOCALITY
- USGS LEGACY FIELD STATION LOCALITY (Weber and Foster, 1960–1979)
- U-Pb GEOCHRONOLOGY SAMPLE
- ⁴⁰Ar/³⁹Ar GEOCHRONOLOGY SAMPLE

See table 1 in accompanying report (Twelker and others, 2025)

CORRELATION OF MAP UNITS



Looking east toward meta-ultramafic rocks of the Lake George assemblage at station 22TJN173. Photograph taken 7/29/2022 by T.J. Naibert.

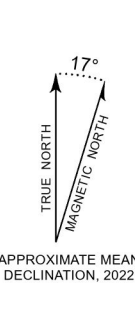
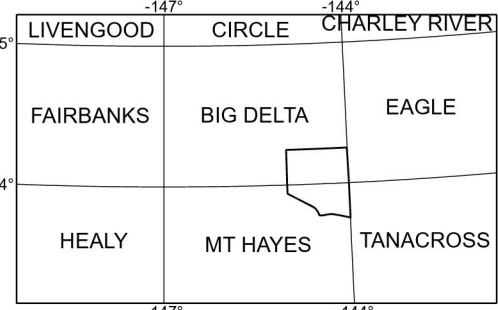
ACKNOWLEDGMENTS

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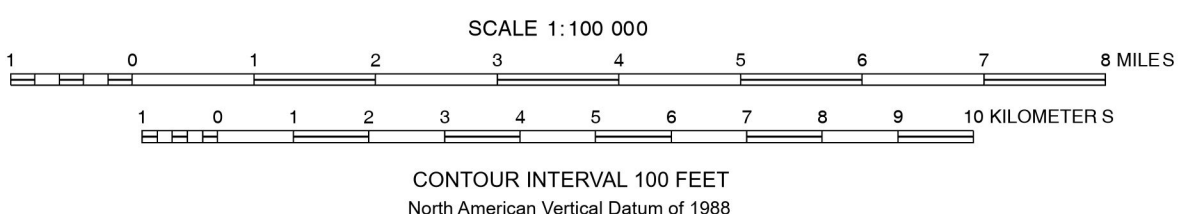
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Bedrock geologic map of the Volkmar River–Healy River area, Big Delta and Mt. Hayes quadrangles, Alaska

by
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I.P. Muller¹, S.N. Fessenden², J.W. Buchanan¹, N.J. Blackwell², D.A. Harvey², and A.D. Wildland²

2025



REFERENCES CITED

Twelker, Evan, Newberry, R.J., Naibert, T.J., Wypych, Alicia, Gavel, M.M., Barrera, M.L., Szumigala, D.J., Truskowski, C.M., Muller, I.P., Fessenden, S.N., Blackwell, N.J., Harvey, D.A., and Wildland, A.D., 2025, Bedrock geologic maps of the Mount Harper-Middle Fork area, Volkmar River-Healy River area, Goodpastor River-Shaw Creek area, and the Richardson mining district, Alaska: Alaska Division of Geological & Geophysical Surveys Preliminary Interpretive Report 2025-2, 38 p. <http://doi.org/10.14509/31648>

Weber, F.R., and Foster, H.L., 1960–1979, Unpublished field station locations, archived rock samples, and field notebooks from the Big Delta and Eagle quadrangles; courtesy of U.S. Geological Survey.

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