U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

Prepared in cooperation with the
KENNECOTT GREENS CREEK MINING COMPANY

PROFESSIONAL PAPER 1763
PLATE 4–1

GEOLOGY OF THE GREENS CREEK MINE AREA, ALASKA

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2010

LIST OF MAP UNITS

[See chapter 4 for more complete lithologic descriptions and a discussion of regional stratigraphic correlations.]

Jurassic-Cretaceous

- KJs — Seymour Canal flysch

Upper Triassic
HYD GROUP

- Trhba — Basalt
- Trhgb — Gabbro
- Trh(?)am — Amphibolite
- Trhl — Limestone
- Trha — Mine argillite
- Trhc — Conglomerate
- Trhbx — Fault breccia
- Trhsr — Siliceous rock
- Trhgc — Green carbonate
- Trhse — Serpentinite
- Trhpb — Black phyllite

Permian-Carboniferous
CANNERY FORMATION (?)

- Pcpw — Siliceous white phyllite
- Pcs — Siliceous schistose sedimentary rock
- Pcp — Dolomitic phyllite

Devonian
RETREAT GROUP

- Drg — Greenstone
- Drpb — Black phyllite
- Drm — Marble

DEFORMATION HISTORY

POST SEYMOUR CANAL FLYSCH

D_5—Major northwest-trending, generally right-lateral brittle or ductile faults
D_4—Late reactivation of D_2 thrust faults following D_3
D_3—Northwest-southeast-trending chevron folds with spaced axial planar cleavage
D_2—Dominant east-west-trending, shallow, south-dipping, penetrative foliation axial planar to recumbent isoclinal folds and north-verging thrusts (Zinc Creek and Upper Cliff Creek thrusts)

POST RETREAT GROUP, PRE CANNERY FORMATION

D_1—Relict metamorphic segregation foliation in Retreat Group greenstone and black phyllite

METAMORPHIC DOMAINS

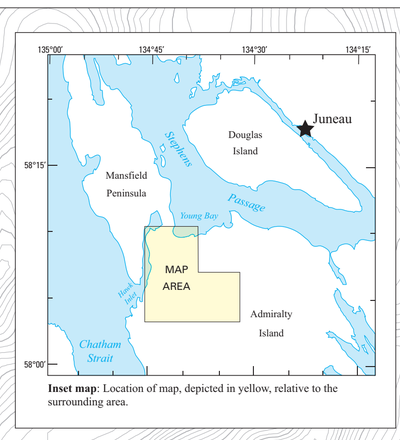
Greenschist facies—Greens Creek domain bounded by Young Bay shear zone and Greens Creek thrust fault
Epidote amphibolite facies—Northeast of Young Bay shear zone and southwest of Greens Creek thrust fault
Garnet amphibolite facies—South of Upper Cliff Creek thrust fault

EXPLANATION

- **Lithologic contact**
- **Major fault**—Brittle or ductile fault
- **D_2 thrust fault**—Sawteeth on upper (tectonically higher) plate
- **Inclined bedding (S_0)**—Showing strike and dip
- **Vertical bedding (S_0)**—Showing strike
- **Inclined S_2 foliation**—Showing strike and dip
- **Vertical S_2 foliation**—Showing strike
- **Inclined S_3 foliation**—Showing strike and dip
- **Vertical S_3 foliation**—Showing strike
- **L_2 lineation**—Showing bearing and plunge
- **L_3 lineation**—Showing bearing and plunge
- **D_2 Fold**—Showing plunge of axis and dip of axial plane
- **D_3 Fold with inclined axial plane**—Showing plunge of axis and dip of axial plane
- **D_3 Fold with vertical axial plane**—Showing plunge of axis
- **Overturned F_2 or F_3 fold**—Showing axial trace of syncline (arrows ponting toward trough) or anticline (arrows pointing away from trough)
- **Prospects or mineral occurrences**

BOUNDARIES
- Admiralty Island National Monument
- Experimental forest
- Greens Creek joint venture
- Land exchange

SURFACE FEATURES
- Roads
- Buildings
- Streams
- Waterbody



Inset map: Location of map, depicted in yellow, relative to the surrounding area.

Universal Transverse Mercator projection. 1927 North American Datum (NAD 27)
5,000-meter Universal Transverse Mercator grid ticks, zone 8, shown in blue
100-foot contours are from 1997 AreoMap computer-drawn map, with modifications from field surveys
Contour elevations are relative to sea level

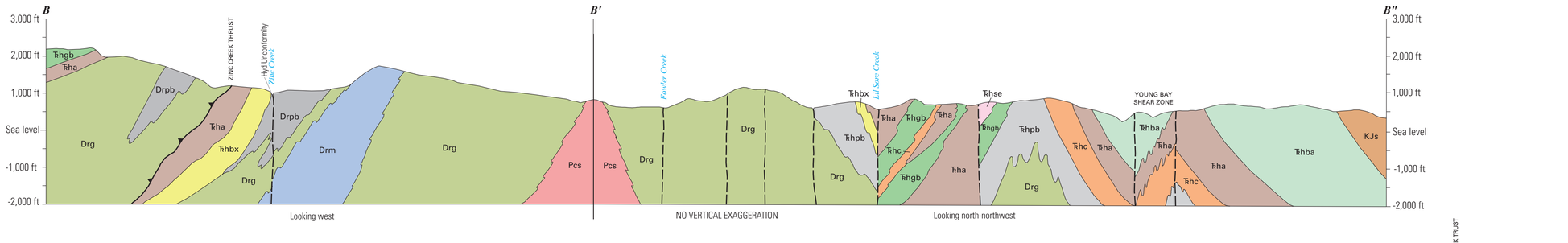
APPROXIMATE MEAN DECLINATION, 2001

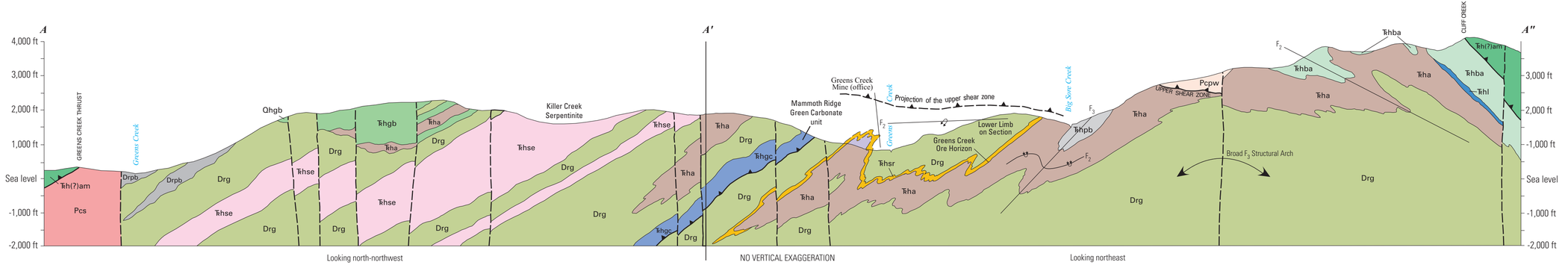
SCALE 1:24 000

CONTOUR INTERVAL 100 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

Compiled by N.A. Duke and A.W. West in 2001

Data sources: Early compilations by T.C. Crafford (1980s), area mapping by N.A. Duke (1995–2001), detailed mapping by P.A. Lindberg (1994–1998), J. M. Proffett (1997–2001), A.W. West (2000–2001), and C.M. Schrader (2000)





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Suggested citation:
Taylor, C.D., and Johnson, C.A., editors, 2010, Geology, geochemistry, and genesis of the Greens Creek massive sulfide deposit, Admiralty Island, southeastern Alaska: U.S. Geological Survey Professional Paper 1763, 429 p., 7 plates on CD.

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