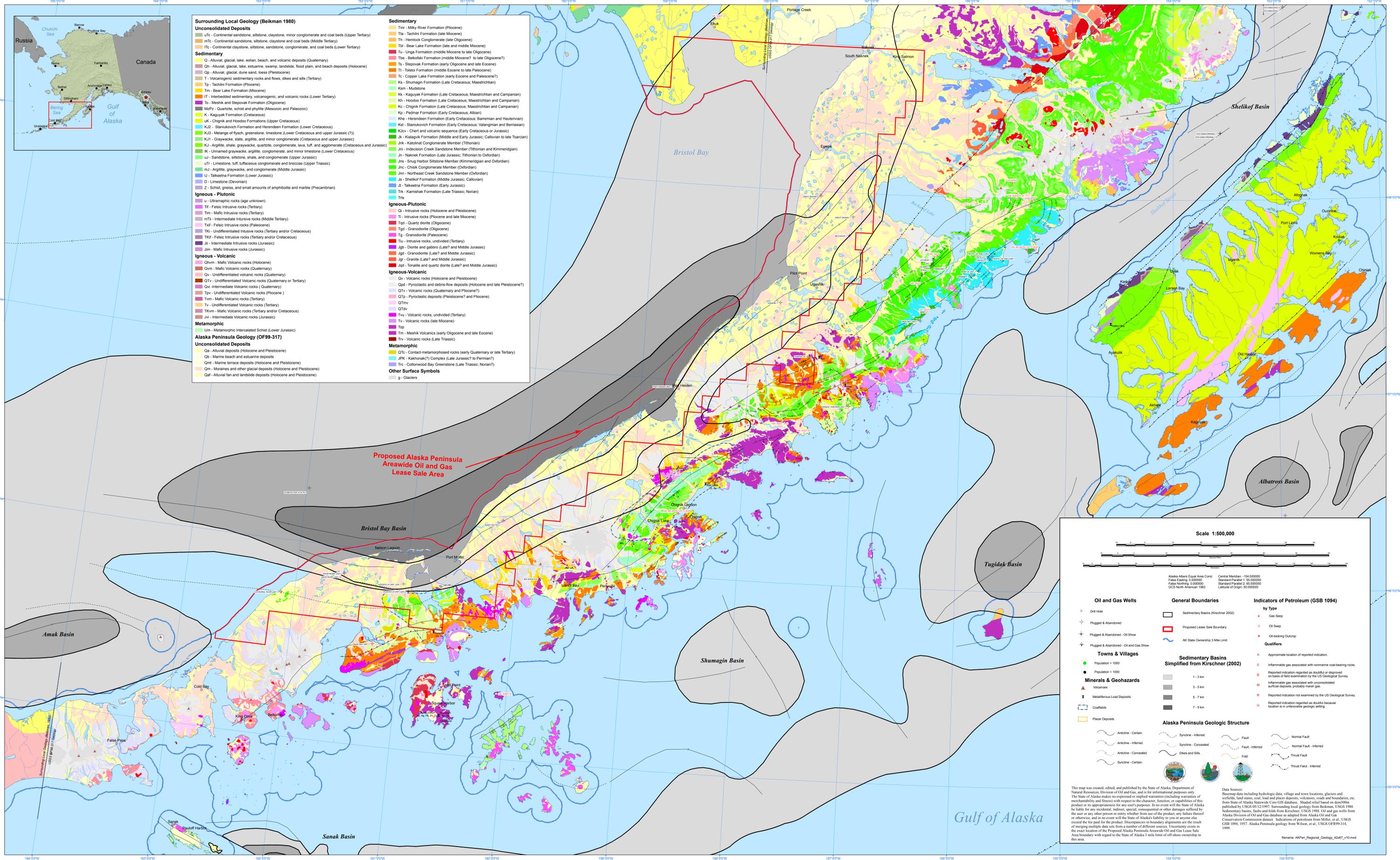


Regional Geology for the Bristol Bay Region and Alaska Peninsula



Surrounding Local Geology (Beikman 1980)

Unconsolidated Deposits

- uTs - Continental sandstone, siltstone, claystone, and coal beds (Upper Tertiary)
- mTs - Continental sandstone, siltstone, claystone and coal beds (Middle Tertiary)
- lTs - Continental claystone, siltstone, sandstone, conglomerate, and coal beds (Lower Tertiary)

Sedimentary

- Q - Alluvial, glacial, lake, estuarine, beach, and volcanic deposits (Quaternary)
- Oh - Alluvial, glacial, lake, estuarine, swamp, landslide, flood plain, and beach deposits (Holocene)
- Op - Alluvial, glacial, dune sand, loess (Pleistocene)
- T - Volcanogenic sedimentary rocks and flows, dikes and sills (Tertiary)
- Tp - Tachini Formation (Pliocene)
- Tm - Bear Lake Formation (Miocene)
- IT - Interbedded sedimentary, volcanogenic, and volcanic rocks (Lower Tertiary)
- To - Meshik and Stepovak Formation (Oligocene)
- MpZ - Quartzite, schist and phyllite (Mesozoic and Paleozoic)
- K - Kaguyak Formation (Cretaceous)
- Kh - Chignik and Hoodoo Formations (Upper Cretaceous)
- KZp - Stanikovich Formation and Herendeen Formation (Lower Cretaceous)
- KJ3 - Melange of flysch, greenstone, limestone (Lower Cretaceous and upper Jurassic?)
- KJ1 - Graywacke, slate, argillite, and minor conglomerate (Cretaceous and upper Jurassic)
- KJ - Argillite, shale, graywacke, quartzite, conglomerate, lava, tuff, and agglomerate (Cretaceous and Jurassic)
- U - Unnamed graywacke, argillite, conglomerate, and minor limestone (Lower Cretaceous)
- uJ - Sandstone, siltstone, shale, and conglomerate (Upper Jurassic)
- uT - Limestone, tuff, tuffaceous conglomerate and breccias (Upper Triassic)
- nJ - Argillite, graywacke, and conglomerate (Middle Jurassic)
- U - Talkeetna Formation (Lower Jurassic)
- D - Limestone (Devonian)
- Z - Schist, gneiss, and small amounts of amphibolite and marble (Precambrian)

Igneous - Plutonic

- u - Ultramafic rocks (age unknown)
- Tf - Felsic Intrusive rocks (Tertiary)
- Tm - Mafic Intrusive rocks (Tertiary)
- mTi - Intermediate Intrusive rocks (Middle Tertiary)
- TaI - Felsic Intrusive rocks (Paleocene)
- TkG - Undifferentiated Intrusive rocks (Tertiary and/or Cretaceous)
- TkF - Felsic Intrusive rocks (Tertiary and/or Cretaceous)
- JiI - Intermediate Intrusive rocks (Jurassic)
- Jm - Mafic Intrusive rocks (Jurassic)

Igneous - Volcanic

- Qvm - Mafic Volcanic rocks (Holocene)
- Qv - Undifferentiated volcanic rocks (Quaternary)
- QTV - Undifferentiated Volcanic rocks (Quaternary or Tertiary)
- Qvi - Intermediate Volcanic rocks (Quaternary)
- QvI - Undifferentiated Volcanic rocks (Pliocene)
- Tvm - Mafic Volcanic rocks (Tertiary)
- Tv - Undifferentiated Volcanic rocks (Tertiary)
- Tvm - Mafic Volcanic rocks (Tertiary and/or Cretaceous)
- Jvi - Intermediate Volcanic rocks (Jurassic)

Metamorphic

- Um - Metamorphic intercalated Schist (Lower Jurassic)

Alaska Peninsula Geology (OF99-317)

Unconsolidated Deposits

- Qa - Alluvial deposits (Holocene and Pleistocene)
- Qb - Marine beach and estuarine deposits
- Qmt - Marine terrace deposits (Holocene and Pleistocene)
- Qm - Moraines and other glacial deposits (Holocene and Pleistocene)
- Qaf - Alluvial fan and landslide deposits (Holocene and Pleistocene)

Sedimentary

- Tm - Milky River Formation (Pliocene)
- Tta - Tachini Formation (late Miocene)
- Th - Herlock Conglomerate (late Oligocene)
- Tal - Bear Lake Formation (late and middle Miocene)
- Tu - Unga Formation (middle Miocene to late Oligocene)
- Tbe - Bekofaki Formation (middle Miocene? to late Oligocene?)
- Ts - Stepovak Formation (early Oligocene and late Eocene)
- To - Totol Formation (middle Eocene to late Paleocene)
- Tc - Copper Lake Formation (early Eocene and Paleocene?)
- Ks - Shumagin Formation (Late Cretaceous; Maestrichtian)
- Ksm - Mudstone
- Kk - Kaguyak Formation (Late Cretaceous; Maestrichtian and Campanian)
- Kh - Hoodoo Formation (Late Cretaceous; Maestrichtian and Campanian)
- Kc - Chignik Formation (Late Cretaceous; Maestrichtian and Campanian)
- Kp - Peimar Formation (Early Cretaceous; Albian)
- Kha - Herendeen Formation (Early Cretaceous; Barremian and Hauterivian)
- Kst - Stanikovich Formation (Early Cretaceous; Valanginian and Berriasian)
- KJov - Chert and volcanic sequence (Early Cretaceous or Jurassic)
- JK - Kialagvik Formation (Middle and Early Jurassic; Callovian to late Toarcian)
- JkI - Kabilinat Conglomerate Member (Triassic)
- JiI - Inedction Creek Sandstone Member (Triassic and Kimmeridgian)
- JN - Nakek Formation (Late Jurassic; Tithonian to Oxfordian)
- Jns - Snug Harbor Siltstone Member (Kimmeridgian and Oxfordian)
- Jnc - Chisk Conglomerate Member (Oxfordian)
- Jin - Northeast Creek Sandstone Member (Oxfordian)
- Ja - Shelkoff Formation (Middle Jurassic; Callovian)
- JT - Talkeetna Formation (Early Jurassic)
- Jk - Kamishak Formation (Late Triassic; Norian)
- JTs

Igneous-Plutonic

- QI - Intrusive rocks (Holocene and Pleistocene)
- Ti - Intrusive rocks (Pliocene and late Miocene)
- TqD - Quartz diorite (Oligocene)
- TgD - Granodiorite (Oligocene)
- Tg - Granodiorite (Paleocene)
- Tiu - Intrusive rocks, undivided (Tertiary)
- JgI - Dikes and gabbro (Late? and Middle Jurassic)
- JgD - Granodiorite (Late? and Middle Jurassic)
- Jgr - Granite (Late? and Middle Jurassic)
- Jgd - Tonalite and quartz diorite (Late? and Middle Jurassic)

Igneous-Volcanic

- Qv - Volcanic rocks (Holocene and Pleistocene)
- Qvi - Prophyritic and debris-flow deposits (Holocene and late Pleistocene?)
- QTV - Volcanic rocks (Quaternary and Pliocene?)
- QTP - Prophyritic deposits (Pleistocene? and Pliocene)
- QTVI
- QTVI
- Tvi - Volcanic rocks, undivided (Tertiary)
- Tv - Volcanic rocks (late Miocene)
- Tvp
- Tm - Meshik Volcanics (early Oligocene and late Eocene)
- Trv - Volcanic rocks (Late Triassic)

Metamorphic

- QJk - Contact-metamorphosed rocks (early Quaternary or late Tertiary)
- JkC - Kabilinat(?) Complex (Late Jurassic; by Thomas?)
- Jk - Cottonwood Bay Greenstone (Late Triassic; Norian?)

Other Surface Symbols

- g - Glaciers

Scale 1:500,000

Alaska Albers Equal Area Conic
False Easting 0.000000
False Northing 0.000000
GCS North American 1983

Central Meridian -154.000000
Standard Parallel 1 -55.000000
Standard Parallel 2 -50.000000
Latitude of Origin 50.000000

Oil and Gas Wells

- DH Hole
- Plugged and Abandoned
- Plugged and Abandoned - Oil Show
- Plugged and Abandoned - Oil and Gas Show

Towns & Villages

- Population > 1000
- Population < 1000

Minerals & Geohazards

- Volcanoes
- Metalliferous Load Deposits
- Coalfields
- Placer Deposits

General Boundaries

- Sedimentary basins (Kirschner 2002)
- Proposed Lease Sale Boundary
- AK State Ownership 3 Mile Limit

Indicators of Petroleum (GSB 1094)

by Type

- Gas Seep
- Oil Seep
- Oil bearing Outcrop

Qualifiers

- A - Inflammable gas associated with normative coal-bearing rocks.
- C - Reported indication regarded as doubtful or disputed on basis of field examination by the US Geological Survey.
- M - Inflammable gas associated with unconsolidated surficial deposits, probably marsh gas.
- R - Reported indication not examined by the US Geological Survey.
- U - Reported indication regarded as doubtful because location is in unfavorable geologic setting.

Sedimentary Basins Simplified from Kirschner (2002)

- 1 - 3 km
- 3 - 5 km
- 5 - 7 km
- 7 - 9 km

Alaska Peninsula Geologic Structure

- Anticline - Certain
- Anticline - Inferred
- Anticline - Concealed
- Syncline - Certain
- Syncline - Inferred
- Syncline - Concealed
- Fault
- Fault - Inferred
- Fold
- Normal Fault
- Normal Fault - Inferred
- Thrust Fault
- Thrust Fault - Inferred

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Data Sources: Basemap data including hydrologic data, village and town locations, glaciers and icefields, land status, soil, land and placer deposits, volcanoes, rivers and headwaters, etc. from State of Alaska Statewide Core GIS Database. Shaded relief based on DEM30m published by USGS 03/12/1997. Surrounding local geology from Beikman, USGS 1980. Sedimentary basins, faults and folds from Kirschner, USGS 1988. Oil and gas wells from Alaska Division of Oil and Gas database as adapted from Alaska Oil and Gas Conservation Commission dataset. Indicators of petroleum from Miller, et al., USGS GSB 1094, 1957. Alaska Peninsula geology from Wilson, et al., USGS OFR99-314, 1999.

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