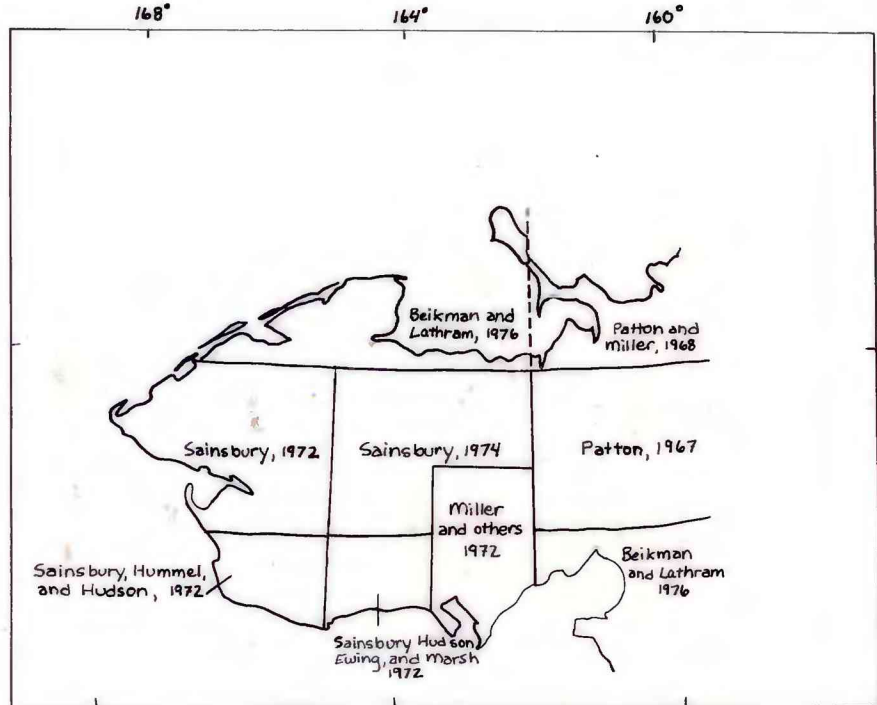
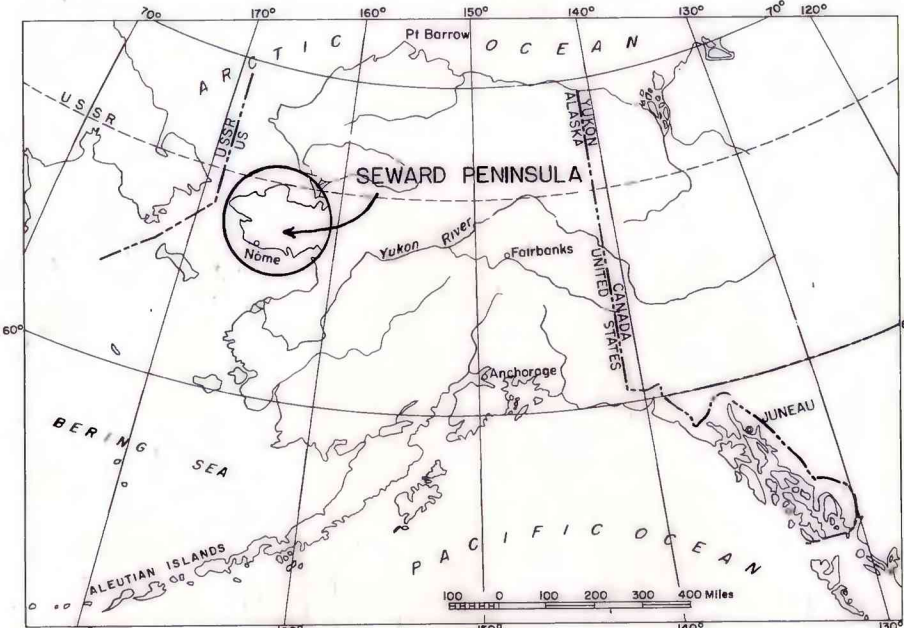




Base from National Atlas 1:2,000,000 series:
NORTHERN ALASKA, SHEET #40, 1970.

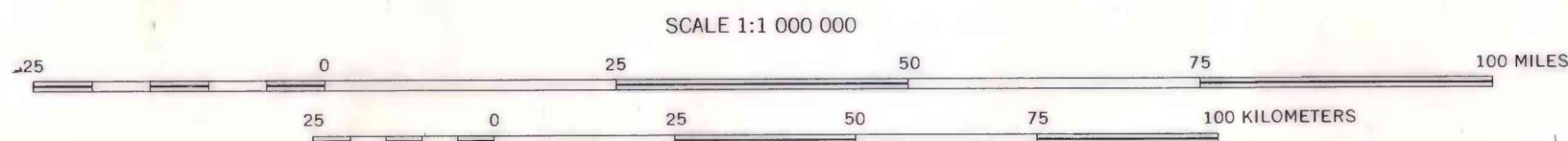


INDEX MAP SHOWING PRINCIPAL SOURCES OF GEOLOGIC DATA



LOCATION OF SEWARD PENINSULA, ALASKA

GEOLOGIC MAP OF SEWARD PENINSULA, ALASKA



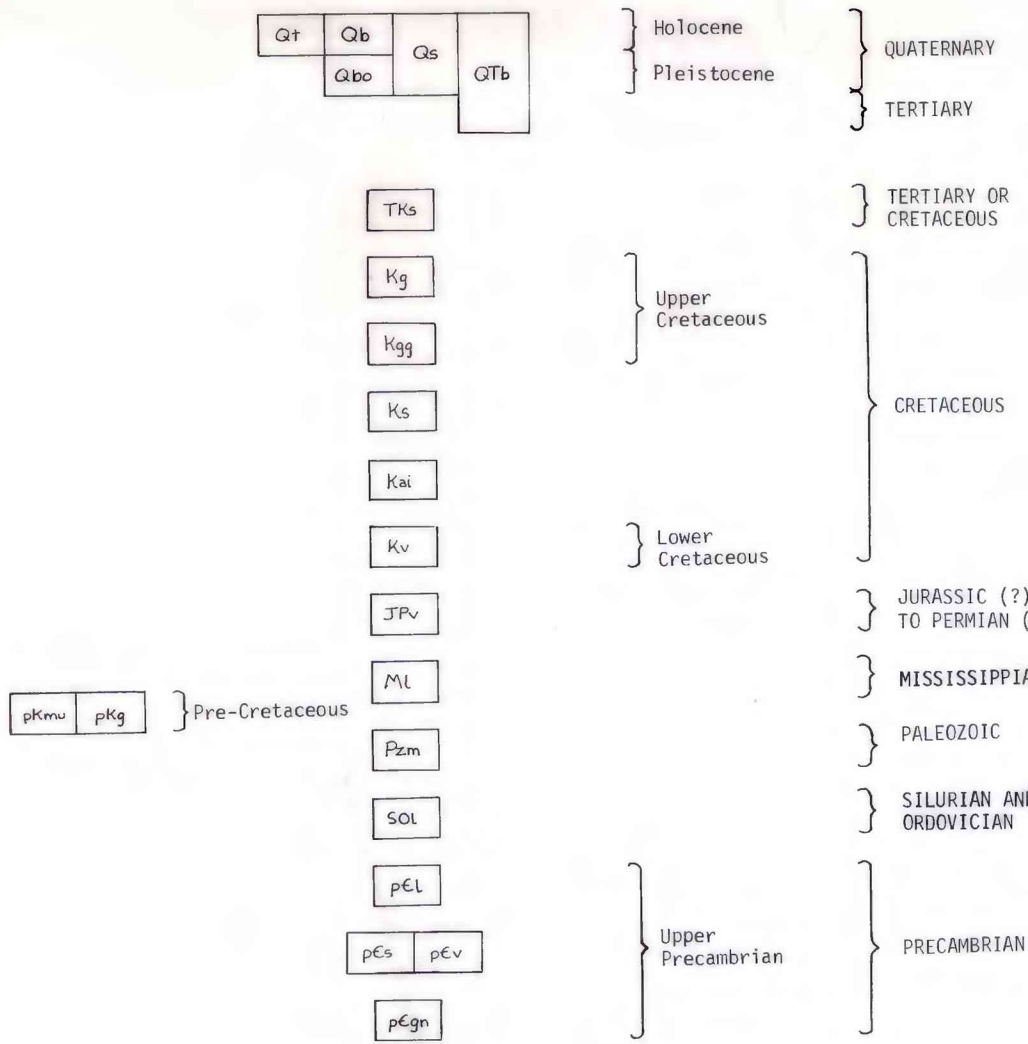
Compiled by
Travis Hudson

1977

EXPLANATORY NOTE

This map is one of several data components prepared as a foundation for evaluating the mineral resource potential of Seward Peninsula. In addition to the sources of geologic data credited in the index map, Sainsbury's (1975) summary of his extensive geologic studies on Seward Peninsula has been particularly helpful. The map, unit descriptions, and correlations reflect as closely as possible the geology as published in the principal sources of geologic data. Important sources of additional and more detailed descriptive data are referenced in the description of map units.

CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

- Qt** TUNDRA (Holocene) Dense vegetation mat consisting of herbaceous and shrubby plants. Shown only in areas where it forms an extensive and essentially continuous mantle on bedrock or other surficial materials. (Sigfoss, 1968)
- Qb** YOUNGER BEACH DEPOSITS (Holocene) Sand and gravel deposits related to present beach environment
- Qbo** SURFICIAL DEPOSITS UNDIVIDED (Holocene and Pleistocene) Silt, sand, gravel, and glacial drift. Commonly covered by tundra (Qt)
- Qtb** OLDER BEACH DEPOSITS (Pleistocene) Sand and gravel deposits shown only in Port Clarence and Cape Rodney areas. Commonly covered by tundra (Qt) and other surficial deposits (Qb)
- Tks** BASALT (Quaternary and Upper Tertiary) Dominantly vesicular olivine basalt but includes breccia, agglomerate, scoria, tuff, and cinder deposits. Present locally throughout the Seward Peninsula but forms extensive subaerial accumulations to a few hundred meters thick in the Imuruk Lake area, in major drainages of the northeastern map area, and southwest of Cape Enderby. K/Ar ages as old as 5.7 m.y. (Hopkins and others, 1971). (Hopkins, 1968)
- Ks** SEDIMENTARY ROCKS (Tertiary and Upper Cretaceous) Predominantly nonmarine clastic rocks including conglomerate, sandstone, siltstone, shale, claystone, and coal. Impure calcareous rocks are present locally along the Kupuk River. Definite Tertiary rock known only from the basin in the upper reaches of the Kupuk River. Similar basins probably include Imuruk Basin, McCarthy's North, and Death Valley. Rocks of Late Cretaceous age, and possibly in part of Tertiary age, are found in the Kupuk River valley and in a north-trending belt east of the Darby Mountains. Coal-bearing siltstone is present in a small exposure in the Siku River area of southwestern Seward Peninsula
- Kai** BIOTITE GRANITE (Upper Cretaceous) Equigranular to porphyritic and generally non-foliate. Forms several apizonal, composite plutons in a 175 km belt from Cape Prince of Wales northeast to headwaters of Serpentine River. Reported K/Ar ages range from 69 to 78 m.y. (Sainsbury, 1969, 1976; Hudson, 1977). (Knopf, 1968; Stettin and Cathcart, 1972; Sainsbury, 1969, 1976; Sainsbury, Hudson, Kachadoorian, and Richards, 1970; Hudson, 1977)
- Kv** BIOTITE GRANITE AND GRANODIORITE (Cretaceous) Fine- to coarse-grained, equigranular to porphyritic, and massive to foliate; hornblende and garnet occur locally as accessory minerals. Forms main plutons of Bendeleben and Darby Mountains, a large pluton mostly covered by young volcanic rocks (Qtb) north of the Bendeleben Mountains, and many smaller plutons (mostly unmapped) in the western Bendeleben and in the Kluak Mountains. K/Ar ages of the Darby pluton range from 88-94 m.y., and the Bendeleben pluton has a K/Ar age of 80 m.y. (Miller and Bunker, 1976). Some undated bodies could be younger
- Jrv** SEDIMENTARY ROCKS (Cretaceous) Dominantly marine clastic rocks including graywacke, calcareous graywacke, conglomerate, and mudstone. Derived mostly from older Mesozoic volcanic and plutonic rocks that border Seward Peninsula along its eastern margin. (Patton, 1973)
- Ml** ALKALIC AND ASSOCIATED INTRUSIVE ROCKS (Cretaceous) Quarts monzonite, monzonite, syenite, and nepheline syenite. Fine- to coarse-grained, equigranular to porphyritic, generally non-foliate, locally trachytic; fluorite is a common accessory mineral. Many associated subvolcanic and potassium-rich dikes. Forms several apizonal and composite plutons in a 200 km northwesterly trending belt from Golovin Bay to northeast of the Buckland River. Reported K/Ar ages range from 59 to 108 m.y. (Miller and others, 1966; Miller, 1972; Miller and Bunker, 1976)
- Pzm** ANDESITIC VOLCANIC ROCKS (Lower Cretaceous) Flows, tuff, breccia, agglomerate, and volcanogenic sedimentary rocks. Principally exposed east of Kluak River where they are intruded by mid-Cretaceous plutons (Kai). (Patton, 1973)
- Sol** MAFIC METAVOLCANIC ROCKS (Jurassic (?) to Permian (?)) Metabasalt with minor sheared serpentinite in a thin northerly trending belt near the southeast boundary of the peninsula. Age unknown but lithologically correlated with rocks of a Permian to Jurassic (?) ophiolite-like assemblage present along parts of the Yukon-Koyukuk province margin. (Patton, 1973)
- Qtb** LIMESTONE (Mississippian) Dark limestone, marble, and subordinate shale near Tin City and north of the Inachuk River. Area north of the Inachuk River probably includes rocks of several other units
- Qtb** MARBLE (Paleozoic) Chiefly light- to dark-gray calcareous and dolomitic marble but with lesser limestone, dolomitic limestone, dolomite, and clastic sedimentary rocks. Widely distributed and sparsely fossiliferous; fossils commonly suggestive or definitive of a Devonian age but in part probably includes older rocks
- Sol** LIMESTONE (Silurian and Ordovician) Fossiliferous limestone, argillaceous limestone, and shale, locally with chert lenses and nodules. Forms a complexly faulted and in large part allochthonous terrane in the western map area. Stratigraphic thickness probably exceeds 3000 m. Locally includes Devonian and possibly Cambrian and late Precambrian rocks. (Sainsbury, 1969)

pL

pLs

pLs

pLs

pLs

pLs

MAP SYMBOLS

Contact

Major fold axis showing direction of plunge

Fault, sawtooth on upper plate, dashed where concealed or inferred

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This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey standards and nomenclature.

Supersedes Open File Report 77-167A