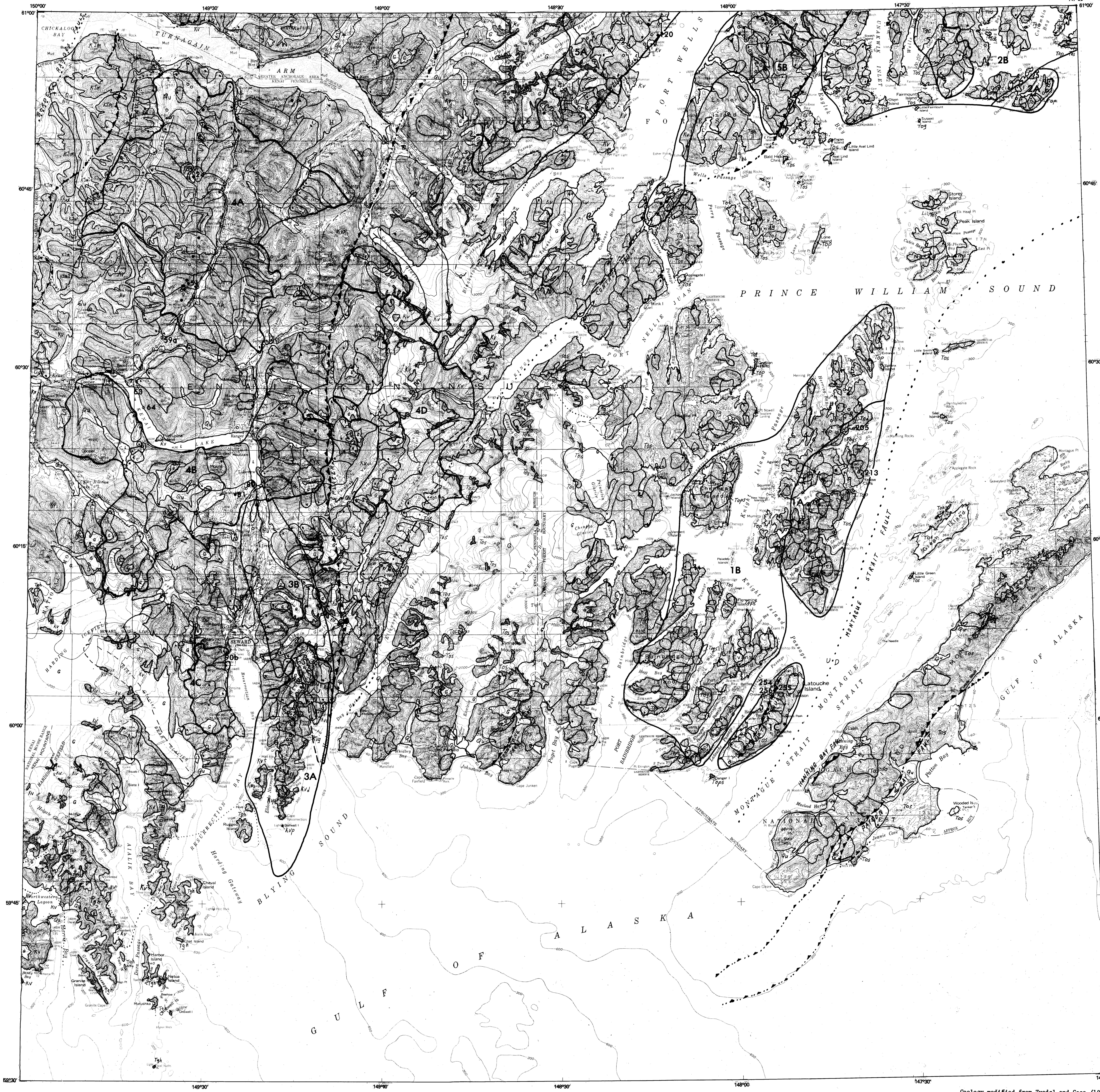
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

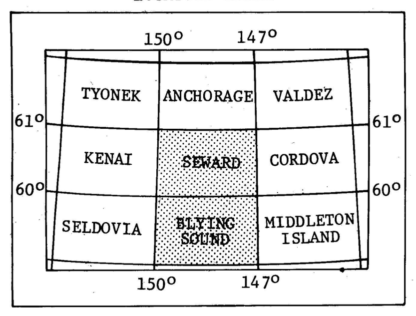
MISCELLANEOUS FIELD STUDIES
MAP MF-880-H
FOLIO OF THE SEWARD AND BLYING SOUND QUADRANGLES, ALASKA
SHEET 1 OF 2



Base from U.S. Geological Survey, Seward, Blying Sound, 1:250,000, 1953

Geology modified from Tysdal and Case (1979)

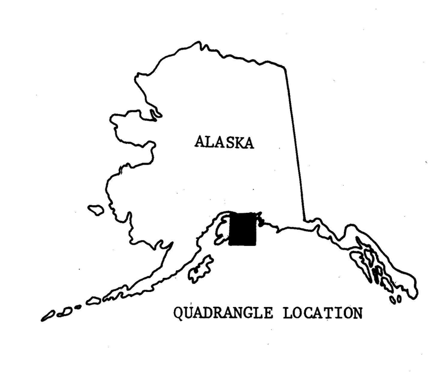
LOCATION INDEX



SCALE 1:250 000

5 0 5 10 15 20 25 MILES

5 0 5 10 15 20 25 KILOMETERS



QUADRANGLE LOCATION

METALLIFEROUS MINERAL RESOURCE POTENTIAL OF THE SEWARD AND BLYING SOUND QUADRANGLES, SOUTHERN ALASKA

By
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1982

CORRELATION OF MAP UNITS

Units	Age	Period
L, G, Qu	Holocene	QUATERNARY
Tg	Oligocene	TERTIARY
Tgc	Eocene(?)	TERTIARY
Tgh	Eocene	TERTIARY
Tos, Tog, Top, Tod, Togs, Tops, Togb	Lower Eocene(?) and Paleocene	TERTIARY
Tgb	Oligocene(?) Eocene(?), or Paleocene(?)	TERTIARY
Kv, Kvs, Kvp, Kvd, Kvt, Kvg, Kvu	Upper Cretaceous	CRETACEOUS
KJm	Cretaceous and(or) Upper Jurassic	CRETACEOUS AND (OR) JURASSIC

DESCRIPTION OF MAP UNITS

L	LAKE
G	GLACIER
Qu	UNCONSOLIDATED SEDIMENTARY DEPOSITS, UNDIVIDED (Holocene)
Tg	GRANITE AND GRANODIORITE (Oligocene)--Unfoliated granite and granodiorite
Tgc	GRANITE (Eocene(?))--Muscovite-bearing granite of Cedar Bay area
Tgb	GABBRO (Oligocene(?), Eocene(?), or Paleocene(?))--Olivine-bearing plutonic rocks
Tgh	GRANITE OF HARDING ICEFIELD REGION (Eocene)--Foliated granite
	ORCA GROUP (lower Eocene(?) and Paleocene)--Divided into:
Tos	SEDIMENTARY ROCKS, UNDIVIDED--Flysch of sandstone and siltstone
Tog	GREENSTONE, UNDIVIDED--Basaltic rocks not distinguished as to pillows, dikes, or tuffs
Top	PILLOW BASALT--Submarine extrusive basalt
Tod	SHEETED BASALT DIKES--Sequence composed almost wholly of dikes
Togs	GREENSTONE AND SEDIMENTARY ROCKS--Basalt sills and dikes intruding flysch
Tops	PILLOW BASALT AND SEDIMENTARY ROCKS--Interbedded pillow basalt and flysch
Togb	GABBRO--Small plutons and locally coarse-grained dikes
	VALDEZ GROUP (Upper Cretaceous)--Divided into:
Kv	SEDIMENTARY ROCKS, UNDIVIDED--Flysch of sandstone and siltstone, in part metamorphosed to slate and phyllite
Kvs	SCHIST--Sandstone, siltstone, and some tuffs metamorphosed to biotite grade of greenschist facies
Kvp	PILLOW BASALT--Submarine extrusive basalt
Kvd	SHEETED BASALT DIKES--Sequence composed almost wholly of dikes
Kvt	TUFF--Aquagene tuff interbedded with flysch
Kvg	GABBRO--Large pluton that intrudes sheeted dikes and flysch
Kvu	ULTRAMAFIC ROCKS--Small tabular bodies of serpentinized dunite
	McHUGH COMPLEX (Cretaceous and(or) Jurassic)
KJm	McHUGH COMPLEX--Weakly metamorphosed clastic and volcanic rocks; in large part is a melange

SAMPLING AND ANALYSIS METHODS

Stream-sediment and heavy-mineral-concentrate samples were collected from active stream channels and, locally, from the interface of streambeds and intermediate- to low-tide beaches. Most of the stream sediment is fine- to coarse-grained sand, with a clay-silt fraction in streams discharging from glaciers. Stream sediments were air dried, sieved, and the minus-80 mesh (0.2 mm) fraction was used for analysis. A split of each sample was analyzed for copper, lead, zinc, and gold by an atomic-absorption method (Ward and others, 1969). Another split was analyzed for 16 elements by a semiquantitative spectrographic method (Grimes and Marranzino, 1968).

The heavy-mineral concentrates were obtained by panning stream sediments in the field to remove most of the light minerals. The panned samples were sieved through a 20-mesh (0.8 mm) screen in the laboratory, and the minus-20 mesh fraction was further separated with bromoform (specific gravity: 2.86) to remove any remaining light-mineral grains. Magnetite and other strongly magnetic fraction were separated by use of a hand magnet. The remaining sample was passed through a Frantz Isodynamic Separator[1] and a nonmagnetic fraction was obtained at a setting of 0.6 amperes. A split of this fraction was pulverized and analyzed for 16 elements by the semiquantitative spectrographic method used for analyzing the stream sediment. The remaining split of the nonmagnetic fraction was examined for its mineralogical composition using a binocular microscope and X-ray diffraction (Tripp and others, 1978b).

Replicate analyses were not run on the samples and no analysis of variance can be calculated. In general, however, repeatability of analyses with the spectrographic method has been shown to be within one adjoining reporting interval on each side of the mean 83 percent of the time, and withing two adjoining reporting intervals on each side of the mean 96 percent of the time (Matooka and Grimes, 1976). Analyses determined by the atomic absorption method are sulfide specific for the three elements (Cu, Pb, Zn) analyzed and the precision is greater than that for the spectrographic method. In addition, the step intervals for the atomic absorption method are much smaller; hence, the range on either side of the mean are smaller and represent a lower variability.

[1]The use of trade names is for descriptive purposes only and does not constitute endorsement of these products by the U.S. Geological Survey.

EXPLANATION FOR MAP SYMBOLS

- CONTACT--Dashed where approximately located; dotted where concealed
- HIGH ANGLE FAULT--Dotted where concealed
- THRUST FAULT--Dotted where concealed. Sawteeth on upper plate
- DRAINAGE AREA SAMPLED--Dashed where approximately located. Dot represents sample site
- 4A REGION WITH KNOWN OR SUSPECTED MINERAL RESOURCE POTENTIAL--Dashed where one region is overlapped by another region. See tables 1 and 2
- ∘ 213 PROSPECT--Number is from Tysdal (1978a)
- • 81 MINE--Number is from Tysdal (1978a)

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