



# Alaska Resource Data File, Stepovak Bay quadrangle, Alaska

By Steven H. Pilcher <sup>1</sup>

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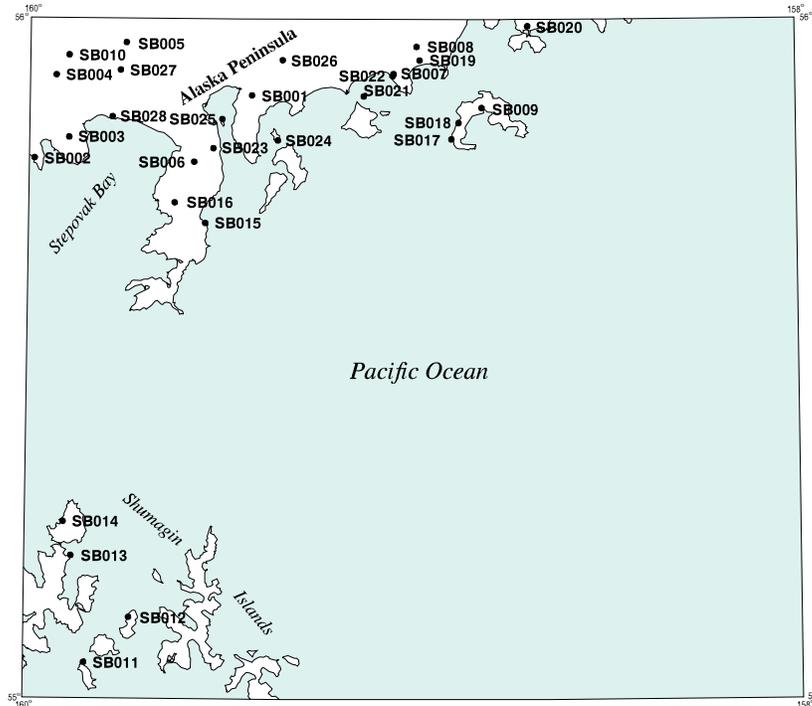
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards or with the North American Stratigraphic Code. Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

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

<sup>1</sup> Anchorage, Alaska

## Stepovak Bay quadrangle

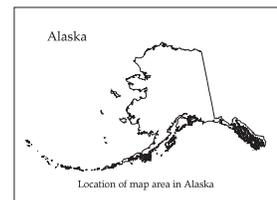
Descriptions of the mineral occurrences shown on the accompanying figure follow. See U.S. Geological Survey (1996) for a description of the information content of each field in the records. The data presented here are maintained as part of a statewide database on mines, prospects and mineral occurrences throughout Alaska.



*Distribution of mineral occurrences in the Stepovak Bay  
1:250,000-scale quadrangle, Alaska*

This and related reports are accessible through the USGS World Wide Web site <http://ardf.wr.usgs.gov>. Comments or information regarding corrections or missing data, or requests for digital retrievals should be directed to: Frederic Wilson, USGS, 4200 University Dr., Anchorage, AK 99508-4667, e-mail [fwilson@usgs.gov](mailto:fwilson@usgs.gov), telephone (907) 786-7448. This compilation is authored by:

Steven H. Pilcher  
Anchorage, AK



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**Site name(s):** Ivanof; Kawisgag

**Site type:** Prospect

**ARDF no.:** SB001

**Latitude:** 55.888

**Quadrangle:** SB D-5

**Longitude:** 159.420

**Location description and accuracy:**

This site is located on an unnamed peninsula between Humpback and Ivanof Bays. It presents a wide area northwest of triangulation station Short (MacKevett and Holloway, 1977, locality 1; Nokleberg and others, 1987, locality AP 8; Green and others, 1988, locality 88; Wilson and others, 1988, locality 1; Young and others, 1997, locality 35). The map site is at an elevation of 1,250 feet, at the midpoint of the boundary between secs. 1 and 36, T. 49 and 50 S., R. 65 W, of the Seward Meridian. The location is accurate.

**Commodities:**

**Main:** Ag, Au, Cu, Mo

**Other:** As, Pb, Zn

**Ore minerals:** Arsenopyrite, bornite, chalcopyrite, covellite, gold, molybdenite, pyrite, pyrrhotite

**Gangue minerals:** Quartz

**Geologic description:**

At this prospect sandstones, grits, and conglomerates of the Eocene to Paleocene Tolstoi Formation are cut by an intrusive complex. (Fields, 1977; Wilson and others, 1995). Biotite from the complex has been dated at 7 million years (Wilson and others, 1994). The sedimentary rock near the complex exhibits intense thermal metamorphism resulting in biotite-quartz hornfels.

The intrusive complex, best exposed in two cirque basins, consists of an early diorite porphyry phase and a later, more extensive, quartz porphyry phase. The quartz porphyry intrudes the diorite as well as the Tolstoy Formation. Peripheral sills and dikes similar in composition to the intrusive complex cut the sedimentary units.

Both intrusive phases are mineralized, but only the diorite contains copper-molybdenum values. The sulfide mineralization, which includes arsenopyrite, pyrite, pyrrhotite, chalcopyrite, bornite, and covellite, covers an area of approximately 2 by 2.5 miles. Pyrite is pervasive as disseminations and fracture fillings in the quartz porphyry and in the sedimentary rocks throughout a 3-square-mile area. Two zones of copper-molybdenum-quartz stockwork mineralization were outlined by Bear Creek Mining (Fields, 1977), each ex-

tending over an area of approximately 2,000 by 600 feet and occurring in the diorite as well as in the surrounding sedimentary rock. Base metal values in surface rock samples ranged from 500 to 1,700 ppm copper and 20 to 240 ppm molybdenum, along with weakly anomalous gold values. Fields describes the pyrite:chalcopyrite ratio as 1:1 to 2:1 in the main mineralized areas and 5:1 to 10:1 in surrounding areas. Rock samples collected by Resource Associates of Alaska in 1979 in the northern cirque contained as much as to 790 ppm copper, 2,400 ppm molybdenum, and 2.4 ppm silver.

Farnstrom (1991) associates the mineralization with two separate, intersecting quartz-sulfide stockworks. The older stockwork consists of quartz-sulfide-chlorite veinlets in the diorite that are traceable for as much as to 3,000 feet into the sedimentary rock. These veinlets contain pyrite, pyrrhotite, and chalcopyrite. Pyrite:chalcopyrite ratios exceed 5:1. The younger stockwork consists of veinlets as much as 0.4 inches wide containing pyrite, molybdenite, and only trace amounts of chalcopyrite, covellite, bornite, and malachite. According to Farnstrom (1991), the distribution of the copper-rich stockwork is spotty; the best deposits are at the contact of the diorite and the sedimentary country rocks.

In 1979, Resource Associates of Alaska discovered quartz veins containing gold and arsenopyrite in areas peripheral to the copper-molybdenum mineralization (Moller and others, 1982). Some of these veins are as much as 30 feet wide and can be traced for as much as 2,400 feet along strike. Typical widths are approximately 5 to 8 feet. Their gold content ranges from 0.08 to 0.20 ounce per ton.

Strong secondary biotite is localized in and around the diorite over an area approximately 1,000 feet in diameter. Widespread sericitic alteration surrounds the biotite zone and coincides with the pyritic halo. Propylitic alteration forms an outer zone (Fields, 1977).

Farnstrom (1991) described the alteration in and around the diorite as generally relatively slight. Mineralized areas, however, are marked by intense bleaching and silicification. According to Farnstrom, chlorite replaces mafic minerals, and also occurs in stockwork veinlets in both intrusive phases. In the diorite the chlorite is accompanied by epidote. Feldspars in both intrusive phases are altered to sericite, but this type of alteration tends to be more intense in the quartz porphyry. In contrast to Field's (1977), Farnstrom's alteration description does not indicate any zonal pattern. Some of the alteration she describes may be deuteric in origin rather than hydrothermal.

**Alteration:**

According to Fields (1977), the alteration exhibits a zonal pattern with a central potassic core surrounded by a phyllic zone and an outer propylitic zone. Farnstrom (1991) describes sericitic (phyllic) alteration that is related in part to mineralization.

**Age of mineralization:**

Seven million years or younger.

**Deposit model:**

Porphyry Cu, Porphyry Cu-Mo, Porphyry Cu-Au (Cox and Singer, 1986; models 17, 21a, 20c)

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

17, 21a, 20c

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

Bear Creek Mining mapped and sampled this prospect for Bristol Bay Native Corporation in the 1970's (Fields, 1977). Copper values in rock samples ranged from 500 to 1,700 ppm and molybdenum from 20 to 240 ppm. Minor gold values were also detected. Resource Associates of Alaska mapped and sampled the deposit in the mid 1980's, and ran approximately 9 line miles of VLF-EM and magnetics on the prospect. The U.S. Geological Survey sampled the deposit in the mid-1980's. Their rock samples 83APk7-12, 83AAi15, and 84AGe28-32 showed multiple element anomalies (Wilson and others, 1988). Cominco mapped and sampled the deposit in 1990 (Farnstrom, 1991).

**Production notes:**

**Reserves:**

**Additional comments:**

This prospect is located on land interim-conveyed to, or patented by, the Bristol Bay Native Corporation.

**References:**

MacKevett and Holloway, 1977; Fields, 1977; Hollister, 1978; Moller and others, 1982; Angeloni and others, 1985; Nokleberg and others, 1987; Green and others, 1988; Wilson and others, 1988; Farnstrom, 1991; Frisken, 1992; Wilson and others, 1988; Wilson and others, 1994; Wilson and others, 1995; Young and others, 1997.

**Primary reference:** Fields, 1977

**Reporter(s):** S.H. Pilcher

**Last report date:** 10/17/00

**Site name(s):** Clark Bay

**Site type:** Occurrence

**ARDF no.:** SB002

**Latitude:** 55.83

**Quadrangle:** SB D-6

**Longitude:** 159.90

**Location description and accuracy:**

This occurrence is located on the Alaska Peninsula, on Red Hill between Clark Bay and Grub Gulch (Christie, 1974, color anomaly 82; MacKevett and Holloway, 1977, locality 2; Wilson and others, 1988, locality 2). The map site is on the east shore of Clark Bay, due west of the center of sec. 5, T. 51 S., R. 69 W., of the Seward Meridian. The location is accurate to within 1 mile.

**Commodities:**

**Main:** Cu

**Other:** Ag, Au, Mo, Zn

**Ore minerals:** Chalcopyrite, pyrite

**Gangue minerals:**

**Geologic description:**

This occurrence is marked by a color anomaly measuring approximately 8,000 by 4,300 feet (Christie 1974). The area contains Miocene basalt and andesite and Oligocene to Eocene sandstones and siltstones of the Stepovak Bay Formation (Wilson and others, 1995). Biotite from the volcanic rocks has been dated at 10 to 6 million years (Wilson and others, 1994).

Christie (1974) describes fine-grained porphyritic diorite at this location. The rock carries traces of chalcopyrite and as much as 1 percent pyrite. The volcanic rocks carry 1 to 12 percent pyrite. Soil and rock chip samples contained as much as 235 ppm copper, 0.46 ppm gold, 15 ppm molybdenum, 5.8 ppm silver, and 455 ppm zinc. Arbogast and others (1987) describes an intermediate intrusive rock containing abundant pyrite. Silt samples collected at this locality contained 100 ppm copper, 10 ppm molybdenum, and 1 ppm silver; pan concentrates contained 10 ppm molybdenum and 100 ppm tungsten (Friskén, 1992).

**Alteration:**

**Age of mineralization:**

Tertiary.

**Deposit model:**

Porphyry Cu, Porphyry Cu-Mo, Porphyry Cu-Au (Cox and Singer, 1986; models 17, 21a, 20c)

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

17, 21a, 20c

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

This site was sampled by the Aleut-Quintana-Duval joint venture in 1974 (Christie, 1974). Additional sampling was carried out by the U.S. Geological Survey in the mid-1980's (Arbogast and others, 1987; Frisken, 1992).

**Production notes:****Reserves:****Additional comments:**

This site is on land selected by the Aleut Corporation.

**References:**

Christie, 1974; MacKevett and Holloway, 1977; Arbogast and others, 1987; Wilson and others, 1988; Frisken, 1992; Wilson and others, 1988; Wilson and others, 1994; Wilson and others, 1995.

**Primary reference:** Christie, 1974

**Reporter(s):** S.H. Pilcher

**Last report date:** 10/18/00

**Site name(s): Dent Point****Site type:** Occurrence**ARDF no.:** SB003**Latitude:** 55.85**Quadrangle:** SB D-6**Longitude:** 159.79**Location description and accuracy:**

This occurrence is located on the Alaska Peninsula on the ridge land between Ramsey Bay and Grub Gulch (Christie, 1974, color anomaly 81; MacKevett and Holloway, 1977, locality 3; Wilson and others, 1988, locality 3). The map site is at an elevation of about 2,000 feet, 0.35 mile northeast of the top of hill 2704, in the S1/2 of sec. 23, T. 50 S., R. 69 W., of the Seward Meridian. The location is accurate to within 2 miles.

**Commodities:****Main:** Ag, Au, Cu**Other:** As, Mo, Pb, Zn**Ore minerals:** Chalcopyrite, galena, gold, molybdenite, pyrite, pyrrhotite, sphalerite**Gangue minerals:** Quartz**Geologic description:**

This occurrence is marked by a color anomaly measuring approximately 2,000 by 5,000 feet (Christie, 1974). The area contains Miocene to Pliocene volcanic rocks cut by small granodiorite and diorite intrusives (Wilson and others, 1995). The rocks exhibit argillic, phyllic, and propylitic alteration. Hornblende collected from some of the volcanic rocks from the general area gave ages of 5 million to 6 million years (Wilson and others, 1994).

Trace amounts of chalcopyrite and molybdenite are present in fractures in hornfels and in quartz veins cutting medium-grained diorite. A zone of highly fractured quartz latite and latite porphyry contains pyrite veins as much as 0.25 inch thick. Agglomerate containing pods of large, euhedral pyrite crystals have been noted (Butherus and others, 1979). Other sulfide minerals reported include galena, pyrrhotite, and sphalerite. Some of the volcanic rocks contain quartz veins as much as 4 inches thick.

The earliest known investigation of this area was by Eakins (1970), who collected stream-sediment samples containing as much as 300 ppm copper. Many of the rocks collected by Butherus and others (1979) contained anomalous copper values, and some also carried anomalous amounts of gold, lead, silver, and zinc. A sample of a siliceous andesite dike contained 0.3 ppm gold and 1.4 ppm silver. Soils contained as much as 0.8 ppm gold and 0.9 ppm silver. Pan concentrates contained as much as 0.5 ppm gold and 1.3

ppm silver.

Stream-sediment samples collected by the U.S. Geological Survey contained as much as 150 ppm copper, 50 ppm lead, 50 ppm molybdenum, and 0.5 ppm silver; and pan concentrates contained as much as 700 ppm copper, 150 ppm molybdenum, 15,000 ppm lead, 2,000 ppm zinc, and 70 micrograms gold per pan (Frisken, 1992). Rock samples contained as much as 100 ppm copper, 0.042 ppm gold, 100 ppm lead, and 20 ppm molybdenum (Arbogast and others, 1987).

**Alteration:**

The rocks exhibit argillic, phyllic, and propylitic alteration.

**Age of mineralization:**

Miocene or younger.

**Deposit model:**

Porphyry Cu, Porphyry Cu-Mo, Porphyry Cu-Au (Cox and Singer, 1986; models 17, 21a, 20c)

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

17, 21a, 20c

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

The occurrence was sampled in 1974 by an Aleut-Quintana-Duval joint venture (Christie, 1974). The area was mapped and sampled by Resource Associates of Alaska (Butherus and others, 1979). The U.S. Geological Survey examined and sampled the area in the mid-1980's (Wilson and others, 1988).

**Production notes:**

**Reserves:**

**Additional comments:**

This site is on lands selected by the Aleut Corporation.

**References:**

Eakins, 1970; Christie, 1974; MacKevett and Holloway, 1977; Hollister, 1978; Butcherus and others, 1979; Arbogast and others, 1987; Wilson and others, 1988; Wilson and others, 1994; Wilson and others, 1995.

**Primary reference:** Butcherus and others, 1979

**Reporter(s):** S.H. Pilcher

**Last report date:** 10/31/00

**Site name(s):** Unnamed (northeast of Ramsey Bay)

**Site type:** Occurrence

**ARDF no.:** SB004

**Latitude:** 55.79

**Quadrangle:** SB D-6

**Longitude:** 159.99

**Location description and accuracy:**

This occurrence is located on the Alaska Peninsula near the head of an unnamed creek draining into Ramsey Bay (Christie, 1974, color anomaly 86; MacKevett and Holloway, 1977, locality 4; Wilson and others, 1988, locality 4). The map site is at an elevation of about 2,200 feet, in the SW1/4 of sec. 22, T. 49 S., R. 69 W., of the Seward Meridian. The location is accurate to within 2 miles.

**Commodities:**

**Main:** Cu, Mo

**Other:** Ag, Zn

**Ore minerals:**

**Gangue minerals:**

**Geologic description:**

The country rocks at this occurrence consist either of sedimentary units of the Miocene Bear Lake Formation or of volcanic and sedimentary units of the Oligocene to Eocene Steповak Bay Formation (Wilson and others, 1995).

Christie (1974) noted a small color anomaly at this location. He collected one silt sample that contained 48 ppm copper, 4 ppm molybdenum, 63 ppm zinc, and 1.6 ppm silver. MacKevett and Holloway (1977) describe the occurrence as an altered zone in Tertiary rocks.

**Alteration:**

**Age of mineralization:**

Eocene or younger.

**Deposit model:**

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

This site was very briefly examined and sampled by an Aleut-Quintana-Duval joint venture in 1974 (Christie, 1974).

**Production notes:**

**Reserves:**

**Additional comments:**

This site is on land selected by the Aleut Corporation.

**References:**

Christie, 1974; MacKevett and Holloway, 1977; Wilson and others, 1988; Wilson and others, 1995.

**Primary reference:** Christie, 1974

**Reporter(s):** S.H. Pilcher

**Last report date:** 10/31/00

**Site name(s):** Big River

**Site type:** Occurrence

**ARDF no.:** SB005

**Latitude:** 55.94

**Quadrangle:** SB D-6

**Longitude:** 159.93

**Location description and accuracy:**

This occurrence is located on the Alaska Peninsula near the head of Big River, which enters Stepovak Bay just west of Stepanof Flats (Christie, 1974, color anomaly 85; MacKevett and Holloway, 1977, locality 5; Wilson and others, 1988, locality 5). The map site is at an elevation of 1,200 feet, at the northeast corner of sec. 5, T. 49 S., R. 68 W., of the Seward Meridian. The location is accurate to within 1 mile.

**Commodities:**

**Main:** Cu

**Other:**

**Ore minerals:** Pyrite

**Gangue minerals:**

**Geologic description:**

The country rocks at this site are Quaternary volcanic rocks (Wilson and others, 1995). Christie (1974) described this occurrence as disseminated pyrite in vesicular volcanic rocks. Fields (1977), however, describes a color anomaly near the head of Big River that is developed in pyritized andesites, agglomerates, acid tuffs, and sedimentary rocks. Apparently, there are several color anomalies in this area.

**Alteration:**

Pyritization.

**Age of mineralization:**

Quaternary.

**Deposit model:**

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

An Aleut-Quintana-Duval joint venture examined the area in of this occurrence 1974 (Christie, 1974). Bear Creek Mining Company examined it in 1977 (Fields, 1977). The U. S. Geological Survey sampled in this general area in the mid-1980's (Wilson and others, 1988).

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Christie, 1974; Fields, 1977; MacKevett and Holloway, 1977; Angeloni and others, 1985; Arbogast and others, 1987; Wilson and others, 1988; Wilson and others, 1995.

**Primary reference:** Christie, 1974

**Reporter(s):** S.H. Pilcher

**Last report date:** 11/2/00

**Site name(s):** Unnamed (on Kupreanof Peninsula)

**Site type:** Occurrence

**ARDF no.:** SB006

**Latitude:** 55.79

**Quadrangle:** SB D-5

**Longitude:** 159.57

**Location description and accuracy:**

This occurrence is on the Kupreanof Peninsula, near the head of Osterback Creek (MacKevett and Holloway, 1977, locality 6; Wilson and others, 1988, locality 6). The map site is at an elevation of 1,500 feet, 0.2 mile southeast of the center of sec. 1, T. 51 S., R. 67 W., of the Seward Meridian. The location is accurate to within 2 miles.

**Commodities:**

**Main:** Cu

**Other:** Ag, Zn

**Ore minerals:**

**Gangue minerals:**

**Geologic description:**

There are contradictory descriptions of the geology of the area of this occurrence. MacKevett and Holloway (1977) and Hollister (1978) reported several altered zones in Tertiary bedded rocks, in or near Tertiary granitic plutons. Hollister (1978) classified the plutons as quartz diorite and reported a color anomaly marking areas of stockwork mineralization accompanied by phyllic, argillic, and propylitic alteration. In the mid-1980s the U.S. Geological Survey mapped the rocks in the area as Eocene to Oligocene Meshik Formation, and did not report any granitic rocks (Wilson and others, 1995). They collected few samples that were reported to be anomalous in copper, silver, and zinc (Wilson and others, 1988).

**Alteration:**

Hollister (1978) reported phyllic, propylitic, and argillic alteration in an area marked by a large color anomaly.

**Age of mineralization:**

Tertiary.

**Deposit model:**

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):****Production Status:** None**Site Status:** Inactive**Workings/exploration:**

The U.S. Geological Survey mapped and sampled this area in the mid-1980's. Samples 83AYb590-594 and 83AWs78-81 were reported to be anomalous in copper, zinc, and silver (Wilson and others, 1988).

**Production notes:****Reserves:****Additional comments:**

This occurrence is in the Alaska Peninsula National Wildlife Refuge, near the boundary of land selected by the Bristol Bay Native Corporation.

**References:**

MacKevett and Holloway, 1977; Hollister, 1978; Angeloni and others, 1985; Wilson and others, 1988; Wilson and others, 1995.

**Primary reference:** Wilson and others, 1988**Reporter(s):** S.H. Pilcher**Last report date:** 11/7/00

**Site name(s):** Kametolook

**Site type:** Occurrence

**ARDF no.:** SB007

**Latitude:** 55.92

**Quadrangle:** SB D-4

**Longitude:** 159.05

**Location description and accuracy:**

The map site of this occurrence is at an elevation of 500 feet, 0.9 mile due south of the top Red Bluff Mountain (MacKevett and Holloway, 1977, locality 7; Wilson and others, 1988, locality 7). The location is accurate to within 1 mile.

**Commodities:**

**Main:** Cu, Pb, Zn

**Other:**

**Ore minerals:**

**Gangue minerals:**

**Geologic description:**

The rocks at this location consist of sedimentary units of the Paleocene to Eocene Tolstoy Formation (Wilson and others, 1995). The occurrence is described by MacKevett and Holloway (1977) as an altered zone associated with Tertiary granitic rocks. U.S. Geological Survey mapping in the mid-1980s shows no granitic plutons in the area (Wilson and others, 1988). Samples of sedimentary rock collected in this area by the U.S. Geological Survey in the mid-1980's contained as much as 100 ppm copper, 20 ppm lead, and 150 ppm zinc (Angeloni and others, 1985).

**Alteration:**

**Age of mineralization:**

**Deposit model:**

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

The U.S. Geological Survey mapped and sampled this area in the mid-1980's (Wilson and others, 1988). Samples of sedimentary rock contained as much as 100 ppm copper, 20 ppm lead, and 150 ppm zinc (Angeloni and others, 1985).

**Production notes:**

**Reserves:**

**Additional comments:**

This occurrence is located on land patented by, or interim-conveyed to, the Bristol Bay Native Corporation.

**References:**

MacKevett and Holloway, 1977; Angeloni and others, 1985; Wilson and others, 1988; Wilson and others, 1995.

**Primary reference:** Wilson and others, 1988

**Reporter(s):** S.H. Pilcher

**Last report date:** 11/3/00

**Site name(s):** Unnamed (north of Anchor Bay)

**Site type:** Occurrence

**ARDF no.:** SB008

**Latitude:** 55.96

**Quadrangle:** SB D-3

**Longitude:** 158.99

**Location description and accuracy:**

This occurrence is located on the Alaska Peninsula about 1.7 miles north of Anchor Bay, and 0.45 mile west-southwest of the top of hill 1325 (MacKevett and Holloway, 1977, locality 8; Wilson and others, 1988, locality 8). The location is accurate to within 1 mile.

**Commodities:**

**Main:** Cu, Pb, Zn

**Other:**

**Ore minerals:**

**Gangue minerals:**

**Geologic description:**

The country rocks at this occurrence are sedimentary units of the Paleocene to Eocene Tolstoy Formation (Wilson and others, 1995). The occurrence is described by MacKevett and Holloway (1977) as an altered zone associated with Tertiary granitic rocks. U.S. Geological Survey mapping in the mid-1980s does not show granitic plutons in this area (Wilson and others, 1988). Samples of sedimentary rock collected in this area by the U.S. Geological Survey in the mid-1980's contained as much as 20 ppm copper, 20 ppm lead, and 80 ppm zinc (Angeloni and others, 1985).

**Alteration:**

**Age of mineralization:**

**Deposit model:**

MacKevett and Holloway (1977) report an altered zone associated with granitic rocks.

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

The U.S. Geological Survey mapped and sampled this area in the mid-1980's (Wilson and others, 1988). Samples of sedimentary rock contained as much as 20 ppm copper, 20 ppm lead, and 80 ppm zinc (Angeloni and others, 1985).

**Production notes:**

**Reserves:**

**Additional comments:**

This site is located on land interim-conveyed to, selected by, or patented by the Bristol Bay Native Corporation.

**References:**

MacKevett and Holloway, 1977; Angeloni and others, 1985; Wilson and others, 1988; Wilson and others, 1995.

**Primary reference:** Wilson and others, 1988

**Reporter(s):** S.H. Pilcher

**Last report date:** 11/3/00

**Site name(s):** Unnamed (on Mitrofanía Island)

**Site type:** Occurrence

**ARDF no.:** SB009

**Latitude:** 55.87

**Quadrangle:** SB D-3

**Longitude:** 158.82

**Location description and accuracy:**

This occurrence is located on Mitrofanía Island approximately 1,200 feet north of the north shore of Sosbee Bay (MacKevett and Holloway, 1977, locality 9; Wilson and others, 1988, locality 9). The map site is at an elevation of about 500 feet, 0.4 mile due east of the center of sec. 11, T. 50 S., R. 62 W., of the Seward Meridian. The location is accurate to within 1 mile.

**Commodities:**

**Main:** Cu, Pb, Zn

**Other:**

**Ore minerals:**

**Gangue minerals:**

**Geologic description:**

The country rocks in the area of this occurrence are Tertiary volcanic rocks (Wilson and others, 1995). MacKevett and Holloway (1977) described the occurrence as an altered zone associated with Tertiary granitic rocks, but mapping by the U.S. Geological Survey in the mid-1980's did not indicate any granitic plutons in the general area (Wilson and others, 1995). Samples of volcanic rock collected by the U.S. Geological Survey contained as much as 50 ppm copper, 15 ppm lead, and 55 ppm zinc (Angeloni and others, 1985).

**Alteration:**

**Age of mineralization:**

**Deposit model:**

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

The U.S. Geological Survey mapped and sampled this area in the mid-1980's (Wilson and others, 1988; 1995). Samples of volcanic rock contained as much as 50 ppm copper, 15 ppm lead, and 55 ppm zinc (Angeloni and others, 1985).

**Production notes:**

**Reserves:**

**Additional comments:**

This occurrence is on lands selected by the Bristol Bay Native Corporation, near the boundary of the Alaska Peninsula National Wildlife Refuge.

**References:**

MacKevett and Holloway, 1977; Angeloni and others, 1985; Wilson and others, 1988; Wilson and others, 1995.

**Primary reference:** Wilson and others, 1988

**Reporter(s):** S.H. Pilcher

**Last report date:** 11/4/00

**Site name(s):** Unnamed (northwest of Ramsey Bay)

**Site type:** Occurrence

**ARDF no.:** SB010

**Latitude:** 55.9

**Quadrangle:** SB D6

**Longitude:** 159.9

**Location description and accuracy:**

The map site of this approximately located occurrence is at an elevation of about 3,200 feet, at the midpoint of the boundary between secs 10 and 15, T. 49 S., R. 69 W., of the Seward Meridian. (Wilson and others, 1988, locality 10). The location is probably accurate to within 4 miles.

**Commodities:**

**Main:** S

**Other:**

**Ore minerals:** Pyrite, sulfur

**Gangue minerals:** Opal

**Geologic description:**

This occurrence is a sulfur deposit in an area of Quaternary volcanic rocks (Wilson and others, 1995). The sulfur-bearing rock is estimated to be approximately 100 feet thick and to extend approximately 2,500 feet along in the wall of a cirque (Maddren, 1919). Possible extensions are snow-covered. Steaming fumaroles are visible at the west end of the deposit. The outcrop faces south and is visible from Ramsey Bay.

The deposit is not accessible and the following description is based on sulfur-bearing boulders as much as 40 feet in diameter, which occur in the moraine below the deposit. The sulfur occurs in the interstices of volcanic breccia and in vesicles in the breccia fragments. Some of the sulfur forms veins 1/8 to 1/4 inches thick; bulk samples of these veins are estimated to contain as much as 20 percent sulfur (Maddren, 1919). Most of the sulfur is finely disseminated in rock that is estimated to contain 5 to 10 percent sulfur. Fine-grained disseminated pyrite, accompanied by opal, occurs locally. One sample contained 50 percent pyrite and 50 percent opal (Eakins, 1970).

**Alteration:**

Argillic?

**Age of mineralization:**

Quaternary.

**Deposit model:**

Fumarolic sulfur

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:****Production notes:****Reserves:****Additional comments:**

This location is inaccessible, and information is based on float samples. It is on land selected by the Aleut Corporation.

**References:**

Maddren, 1919; Eakins, 1970; Cobb, 1980 (OFR 80-909); Wilson and others, 1988; Wilson and others, 1995.

**Primary reference:** Eakins, 1970

**Reporter(s):** S.H. Pilcher

**Last report date:** 11/4/00

**Site name(s): Unnamed (on Turner Island)****Site type:** Occurrence**ARDF no.:** SB011**Latitude:** 55.053**Quadrangle:** SB A-6**Longitude:** 159.844**Location description and accuracy:**

This site is located at the north end of Turner Island in East Nagai Strait. It is referred to as SBRGX-37 in Wilson and others (1988, locality 11). The location is accurate to within 2,500 feet.

**Commodities:****Main:** Zn**Other:****Ore minerals:****Gangue minerals:****Geologic description:**

The country rocks at this occurrence are sedimentary units of the Lower Cretaceous Shumagin Formation (Wilson and others, 1995). Wilson and others (1988) report anomalous zinc values in sandstone, siltstone, and shale.

**Alteration:****Age of mineralization:****Deposit model:****Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):****Production Status:** None**Site Status:** Inactive**Workings/exploration:**

Rock samples 84AJm649-650 collected by the U. S. Geological Survey in the mid-1980's were reported to be anomalous in zinc (Wilson and others, 1988).

**Production notes:**

**Reserves:**

**Additional comments:**

This occurrence is located on land selected by the Aleut Corporation.

**References:**

Angeloni and others, 1985; Wilson and others, 1988; Wilson and others, 1995.

**Primary reference:** Wilson and others, 1988

**Reporter(s):** S.H. Pilcher

**Last report date:** 11/4/00

**Site name(s):** Unnamed (on Spectacle Island)

**Site type:** Occurrence

**ARDF no.:** SB012

**Latitude:** 55.12

**Quadrangle:** SB A-6

**Longitude:** 159.73

**Location description and accuracy:**

The map site of this occurrence is at an elevation of about 500 feet, above the northwest shore of Spectacle Island in East Nagai Strait. It is referred to as SBRGX-38 in Wilson and others (1988, locality 12). The location is accurate to within 1 mile.

**Commodities:**

**Main:** Zn

**Other:**

**Ore minerals:**

**Gangue minerals:**

**Geologic description:**

The country rock at this site is Cretaceous mudstone (Wilson and others, 1995). Wilson and others (1988) reported anomalous zinc values in rocks collected in this area.

**Alteration:**

**Age of mineralization:**

**Deposit model:**

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

Rock samples 84ACe97, 98, 100, collected by the U.S. Geological Survey in the mid-1980's, were reported to be anomalous in zinc (Wilson and others, 1988).

**Production notes:**

**Reserves:**

**Additional comments:**

This occurrence is located on lands selected by the Aleut Corporation.

**References:**

Angeloni and others, 1985; Wilson and others, 1988; Wilson and others, 1995.

**Primary reference:** Wilson and others, 1988

**Reporter(s):** S.H. Pilcher

**Last report date:** 11/4/00

**Site name(s): Unnamed (on Nagai Island)****Site type:** Occurrence**ARDF no.:** SB013**Latitude:** 55.21**Quadrangle:** SB A-6**Longitude:** 159.88**Location description and accuracy:**

This occurrence is located on Nagai Island near the point between Northwest Bight and Pirate Shake. The site is 0.3 mile west-northwest of triangulation station Wreck. It is referred to as SBRGX-39 in Wilson and others (1988, locality 13). The location is accurate to within 1,200 feet.

**Commodities:****Main:** Cu, Zn**Other:** As**Ore minerals:****Gangue minerals:****Geologic description:**

The country rocks at this site are sedimentary strata of the Lower Cretaceous Shumagin Formation (Wilson and others, 1995). The sedimentary rocks are intruded by a pyritized granodiorite sill. Anomalous values in arsenic, copper, and zinc have been reported both in sedimentary rock and in the intrusive (Wilson and others, 1988).

**Alteration:**

Pyritization.

**Age of mineralization:****Deposit model:****Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):****Production Status:** None**Site Status:** Inactive

**Workings/exploration:**

Rock samples 84ACe102a-c collected by the U. S. Geological Survey in the mid-1980's, were reported to be anomalous in arsenic, copper, and zinc (Wilson and others, 1988).

**Production notes:****Reserves:****Additional comments:**

This occurrence is located on lands selected by the Aleut Corporation.

**References:**

Angeloni and others, 1985; Wilson and others, 1988; Wilson and others, 1995.

**Primary reference:** Wilson and others, 1988

**Reporter(s):** S.H. Pilcher

**Last report date:** 11/4/00

**Site name(s):** Unnamed (on northern Nagai Island)

**Site type:** Occurrence

**ARDF no.:** SB014

**Latitude:** 55.260

**Quadrangle:** SB B-6

**Longitude:** 159.901

**Location description and accuracy:**

The map site of this occurrence is at an elevation of 200 feet, on Nagai Island approximately 2.5 miles south-southwest of Cape Wedge. It is referred to as SBRGX-40 in Wilson and others (1988, locality 14). The location is accurate to within 2,500 feet.

**Commodities:**

**Main:** Pb, Zn

**Other:**

**Ore minerals:**

**Gangue minerals:**

**Geologic description:**

This occurrence is in interbedded siltstone and sandstone in the Lower Cretaceous Shumagin Formation near a contact with a dike or outlier of the Shumagin Batholith (Wilson and others, 1995). Anomalous values in lead and zinc have been reported in the sedimentary rock (Wilson and others, 1988).

**Alteration:**

**Age of mineralization:**

**Deposit model:**

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

Rock sample 84ADt177, collected by the U. S. Geological Survey in the mid-1980's,

was reported to be anomalous in lead and zinc (Wilson and others, 1988).

**Production notes:**

**Reserves:**

**Additional comments:**

This occurrence is located on land selected by the Aleut corporation.

**References:**

Angeloni and others, 1985; Wilson and others, 1988; Wilson and others, 1995.

**Primary reference:** Wilson and others, 1988

**Reporter(s):** S.H. Pilcher

**Last report date:** 11/6/00

**Site name(s):** Unnamed (near Hag Peak on Kupreanof Peninsula)

**Site type:** Occurrence

**ARDF no.:** SB015

**Latitude:** 55.70

**Quadrangle:** SB C-5

**Longitude:** 159.54

**Location description and accuracy:**

The map site of this occurrence is at an elevation of about 500 feet on Kupreanof Peninsula, about 0.4 mile north of Hag Peak. It is referred to as SBRGX-41 in Wilson and others (1988, locality 15). The location is accurate to within 1 mile.

**Commodities:**

**Main:** Ag, Pb, Zn

**Other:** As, Bi

**Ore minerals:**

**Gangue minerals:** Quartz

**Geologic description:**

This occurrence is in bedded rocks of the Paleocene to Eocene Stepovak Bay Formation, near a small diorite or quartz diorite intrusion (Wilson and others, 1995). Wilson and others (1988) describe altered volcanic andesitic(?) breccia cut by a series of N 70 E-trending vertical shear zones. Some of the shears contain mineralized quartz veins. Alteration appears along shears and extends for approximately 600 feet along the beach east of the map site (Wilson and others, 1988). Rock samples collected by the U.S. Geological Survey in the mid-1980s were reported to be anomalous in silver, lead, zinc, arsenic, and bismuth (Angeloni and others, 1985; Wilson and others, 1988).

**Alteration:**

Alteration consists of pink to tan bleaching of originally dark-green andesitic(?) breccia.

**Age of mineralization:**

Tertiary.

**Deposit model:**

Polymetallic veins (Cox and Singer, 1986; model 22c)

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

22c

**Production Status:** None**Site Status:** Inactive**Workings/exploration:**

Rock samples 83AWs85-86 collected by the U.S. Geological Survey in the mid-1980's were reported to be anomalous in silver, lead, zinc, arsenic, and bismuth (Angeloni and others, 1985; Wilson and others, 1988).

**Production notes:****Reserves:****Additional comments:**

The site is on the Alaska Peninsula National Wildlife Refuge.

**References:**

Angeloni and others, 1985; Wilson and others, 1988; Wilson and others, 1995.

**Primary reference:** Wilson and others, 1988**Reporter(s):** S.H. Pilcher**Last report date:** 11/6/00

**Site name(s):** Unnamed (on Kupreanof Peninsula)

**Site type:** Occurrence

**ARDF no.:** SB016

**Latitude:** 55.73

**Quadrangle:** SB C-5

**Longitude:** 159.62

**Location description and accuracy:**

This site is located on Kupreanof Peninsula approximately 2.55 miles east-southeast of Pad Island and 1.5 miles northeast of Island Bay. It is referred to as SBRGX-42 in Wilson and others (1988, locality 16). The location is accurate to within 2 miles.

**Commodities:**

**Main:** Ag

**Other:**

**Ore minerals:**

**Gangue minerals:**

**Geologic description:**

This occurrence is in porphyritic dacite that is part of an undivided sequence of late Miocene volcanic rocks (Wilson and others, 1988, 1995). Potassium-argon dating of hornblende in the dacite gave an age of approximately 10 million years (Wilson and others, 1994). One sample collected by the U.S. Geological Survey was reported to contain anomalous values in silver (Wilson and others, 1988).

**Alteration:**

**Age of mineralization:**

**Deposit model:**

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

Rock sample 83ACe52 collected by the U. S. Geological Survey in the mid-1980's, was reported to be anomalous in silver (Wilson and others, 1988).

**Production notes:**

**Reserves:**

**Additional comments:**

This site is in the Alaska Peninsula National Wildlife Refuge, near land selected by the Aleut corporation.

**References:**

Angeloni and others, 1985; Wilson and others, 1988; Wilson and others, 1994; Wilson and others, 1995.

**Primary reference:** Wilson and others, 1988

**Reporter(s):** S.H. Pilcher

**Last report date:** 116/00

**Site name(s):** Unnamed (southwest shore of Mitrofanina Island)

**Site type:** Occurrence

**ARDF no.:** SB017

**Latitude:** 55.824

**Quadrangle:** SB D-3

**Longitude:** 158.899

**Location description and accuracy:**

This site is on the southwest shore of Mitrofanina Island about 0.6 mile southwest of the top of hill 1490. It is referred to as SBRX-43 in Wilson and others (1988, locality 17). The location is accurate to within 2,500 feet.

**Commodities:**

**Main:** Ag, Au, Pb, Zn

**Other:** As, Sb

**Ore minerals:** Pyrite

**Gangue minerals:** Calcite, quartz

**Geologic description:**

This occurrence is in an area mapped as undivided Tertiary volcanic rocks (Wilson and others, 1995). Small plutons Miocene or Pliocene granodiorite to quartz diorite crop out a few miles to the north and south of the occurrence (Wilson and others, 1995). At this location altered andesite(?) flows are cut by numerous quartz-calcite veins as much as 6 inches thick (Wilson and others, 1988). Some of the veins are braided and contain pyrite and probably others sulfides. Rock samples collected by the U.S. Geological Survey were reported to be anomalous in silver, gold, lead, zinc, antimony, and arsenic (Angeloni and others, 1985; Wilson and others, 1988).

**Alteration:**

**Age of mineralization:**

Tertiary.

**Deposit model:**

Polymetallic veins (Cox and singer, 1986; model 22c).

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

22c

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

Rock samples 84AGe17-20 and 83AWs 63 collected by the U.S. Geological Survey in the mid-1980's, were reported to be anomalous in silver, gold, lead, zinc, antimony, and arsenic (Angeloni and others, 1985; Wilson and others, 1988).

**Production notes:**

**Reserves:**

**Additional comments:**

This site is located on land selected by the Bristol Bay Native Corporation.

**References:**

Angeloni and others, 1985; Arbogast and others, 1987; Wilson and others, 1988; Wilson and others, 1995.

**Primary reference:** Wilson and others, 1988

**Reporter(s):** S.H. Pilcher

**Last report date:** 11/7/00

**Site name(s): Unnamed (western Mitrofanía Island)****Site type:** Occurrence**ARDF no.:** SB018**Latitude:** 55.848**Quadrangle:** SB D-3**Longitude:** 158.880**Location description and accuracy:**

This site is located on the west shore of Mitrofanía Island, 0.6 mile west-northwest of the top of hill 1660. It is referred to as SBRGX-44 in Wilson and others (1988, locality 18). The location is accurate to within 2,500 feet.

**Commodities:****Main:** Ag, Au, Pb, Zn**Other:** As, Bi, Cu, Sb**Ore minerals:** Pyrite, unidentified sulfides**Gangue minerals:** Calcite, quartz**Geologic description:**

This occurrence is in an area mapped as undivided Tertiary volcanic rocks (Wilson and others, 1995). Small plutons of Miocene or Pliocene granodiorite to quartz diorite crop out a few miles to the north and south of the occurrence (Wilson and others, 1995). At this site, fractured and silicified volcanic flows are cut by numerous quartz-calcite veinlets as much as 2 inches thick, which fill the fracture zones (Wilson and others, 1988). Some veinlets carry as much as 80 to 90 percent pyrite and other, unidentified, sulfides. Rock samples collected by the U.S. Geological Survey contained 10 ppm or less gold, and as much as 500 ppm antimony, 26,000 ppm arsenic, 1,500 ppm copper, 300 ppm lead, 50 ppm silver, and 10,000 ppm or more zinc (Angeloni and others, 1985; Wilson and others, 1988). Bismuth is also reported in some of the analyses.

**Alteration:**

Silicification.

**Age of mineralization:**

Tertiary.

**Deposit model:**

Polymetallic veins (Cox and Singer, 1986; model 22c).

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

22c

**Production Status:** None**Site Status:** Inactive**Workings/exploration:**

Rock samples 84AGe10-16 collected by the U.S. Geological Survey in the mid-1980's, contained 10 ppm or less gold, and as much as 500 ppm antimony, 26,000 ppm arsenic, 1,500 ppm copper, 300 ppm lead, 50 ppm silver, and greater than 10,000 ppm zinc (Angeloni and others, 1985; Wilson and others, 1988). Bismuth is also reported in some of the analyses.

**Production notes:****Reserves:****Additional comments:**

This site is located on land selected by the Bristol Bay Native Corporation.

**References:**

Angeloni and others, 1985; Arbogast and others, 1987; Wilson and others, 1988; Wilson and others, 1995.

**Primary reference:** Wilson and others, 1988**Reporter(s):** S.H. Pilcher**Last report date:** 11/8/00

**Site name(s):** Unnamed (north of Anchor Bay)

**Site type:** Occurrence

**ARDF no.:** SB019

**Latitude:** 55.940

**Quadrangle:** SB D-3

**Longitude:** 158.982

**Location description and accuracy:**

This occurrence is on the Alaska Peninsula approximately 2,500 feet north of Anchor Bay. It is referred to as SBRGX-45 in Wilson and others (1988, locality 19). The map site is at an elevation of about 500 feet, 0.17 mile southeast of the top of hill 1040. The location is accurate to within 2,500 feet.

**Commodities:**

**Main:** Cu

**Other:** As

**Ore minerals:** Pyrite

**Gangue minerals:** Quartz

**Geologic description:**

This occurrence is hosted by volcanic units of the Eocene to Oligocene Meshik Formation (Wilson and others, 1995). It consists of fractured and iron-stained volcanic flows cut by pyrite-bearing, vuggy quartz veins (Wilson and others, 1988). One sample collected by the U.S. Geological Survey is reported to contain anomalous values in arsenic and copper (Angeloni and others, 1985; Wilson and others, 1988).

**Alteration:**

Iron-staining.

**Age of mineralization:**

Eocene or younger.

**Deposit model:**

Polymetallic veins (Cox and Singer, 1986; model 22c)

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

22c

**Production Status:**

**Site Status:** Inactive

**Workings/exploration:**

Rock sample 83AYb509, collected by the U.S. Geological Survey in the mid-1980's, was reported to be anomalous in copper and arsenic (Angeloni and others, 1985; Wilson and others, 1988).

**Production notes:****Reserves:****Additional comments:**

This site is located on land interim-conveyed to, or patented or selected by, the Bristol Bay Native corporation.

**References:**

Angeloni and others, 1985; Wilson and others, 1988; Wilson and others, 1995.

**Primary reference:** Wilson and others, 1988

**Reporter(s):** S.H. Pilcher

**Last report date:** 11/8/00

**Site name(s):** Unnamed (north of Mitrofanina Harbor)

**Site type:** Occurrence

**ARDF no.:** SB020

**Latitude:** 55.99

**Quadrangle:** SB D-3

**Longitude:** 158.70

**Location description and accuracy:**

This site is on the Alaska Peninsula about 0.6 mile north of inner Mitrofanina Harbor. It is referred to as SBRGX-46 in Wilson and others (1988, locality 20). The map site is in the SE1/4 of sec. 30, T. 48 S., R. 60 W., of the Seward Meridian. The location is accurate to within 1 mile.

**Commodities:**

**Main:** Cu, Zn

**Other:** Sb

**Ore minerals:**

**Gangue minerals:**

**Geologic description:**

This occurrence is probably in a mudstone unit of the Upper Cretaceous Hoodoo Formation (Wilson and others, 1995). At this location hornfelsed mudstone crops out near hypabyssal andesite or dacite plugs and dikes (Wilson and others, 1988). Samples collected by the U.S. Geological Survey were reported to be anomalous in antimony, copper, and zinc (Wilson and others, 1988).

**Alteration:**

**Age of mineralization:**

**Deposit model:**

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

Rock samples 84ACe117 and 84ACe122, collected by the U.S. Geological Survey in the mid-1980's, were reported to be anomalous in antimony, copper, and zinc (Wilson and others, 1988).

**Production notes:****Reserves:****Additional comments:**

This site is in the Alaska Peninsula National Wildlife Refuge, near the boundary of land selected by the Bristol Bay Native Corporation.

**References:**

Angeloni and others, 1985; Wilson and others, 1988; Wilson and others. 1995.

**Primary reference:** Wilson and others, 1988

**Reporter(s):** S.H. Pilcher

**Last report date:** 11/8/00

**Site name(s): Unnamed (on Shapka Island)****Site type:** Occurrence**ARDF no.:** SB021**Latitude:** 55.887**Quadrangle:** SB D-4**Longitude:** 159.128**Location description and accuracy:**

This site is located on the shore of Shapka Island approximately 2 miles south of Perryville. It represents several samples collected on the shoreline around the island. The site is referred to as SBRGX-47 in Wilson and others (1988, locality 21). The location is accurate to within 1,200 feet.

**Commodities:****Main:** Sb**Other:** As**Ore minerals:****Gangue minerals:** Calcite, quartz**Geologic description:**

This occurrence is in rocks mapped as Eocene to Oligocene Mashik Formation (Wilson and others, 1995). Potassium-argon dating of hornblende from leuco-basalt gave an age of 43 million years (Wilson and others, 1994). Sandstone and siltstone are cut by felsic and porphyritic hornblende andesite(?) or diorite dikes. Some of the dikes are sulfide-bearing (Wilson and others, 1988). A slightly altered hornblende diorite dike is cut by a shear zone or by fractures filled with carbonate or quartz veins. Rock samples are reported to be anomalous in antimony and arsenic.

**Alteration:**

Some of the dikes are described as 'altered'.

**Age of mineralization:**

Eocene or younger.

**Deposit model:****Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

Rock samples 84ACe113-116, collected by the U.S. Geological Survey in the mid-1980's, were reported to be anomalous in antimony and arsenic (Wilson and others, 1988).

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Angeloni and others, 1985; Wilson and others, 1988; Wilson and others, 1994; Wilson and others, 1995.

**Primary reference:** Wilson and others, 1988

**Reporter(s):** S.H. Pilcher

**Last report date:** 11/8/00

**Site name(s):** Unnamed (south of Red Bluff Mountain)

**Site type:** Occurrence

**ARDF no.:** SB022

**Latitude:** 55.917

**Quadrangle:** SB D-4

**Longitude:** 159.052

**Location description and accuracy:**

This site is on the west coast of Coal Cape, about 1.2 miles south of the top of Red Bluff Mountain. It is referred to as SBRGX-48 in Wilson and others (1988, locality 22). The location is accurate to within 1,200 feet.

**Commodities:**

**Main:** Pb, Zn

**Other:** As, Sb

**Ore minerals:** Pyrite

**Gangue minerals:** Calcite, quartz

**Geologic description:**

At this occurrence the rocks consist primarily of sandstone and shale of the Paleocene to Eocene Tolstoi Formation. The site is near the contact with the Eocene to Oligocene Meshik Formation (Wilson and others, 1995). The sedimentary rocks are cut by andesite or basalt dikes that tend to be pyritized and iron-stained. The sandstone locally contains disseminated pyrite and rare aggregates of pyrite. Some small, barren, calcite veins occur in fracture zones. Samples collected by the U.S. Geological Survey were reported to contain anomalous amounts of lead, zinc, antimony, and arsenic (Wilson and others, 1988).

**Alteration:**

Pyritization and iron-staining.

**Age of mineralization:**

Tertiary.

**Deposit model:**

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

Rock samples 84AGe21-26, collected by the U.S. Geological Survey in the mid-1980's, were reported to contain anomalous amounts of lead, zinc, antimony, and arsenic (Wilson and others, 1988).

**Production notes:**

**Reserves:**

**Additional comments:**

This site is located on land interim-conveyed to, or patented by, the Bristol Bay Native Corporation.

**References:**

Angeloni and others, 1985; Wilson and others, 1988; Wilson and others, 1995.

**Primary reference:** Wilson and others, 1988

**Reporter(s):** S.H. Pilcher

**Last report date:** 11/9/00

**Site name(s):** Unnamed (east side of upper Kupreanof Peninsula)

**Site type:** Occurrence

**ARDF no.:** SB023

**Latitude:** 55.81

**Quadrangle:** SB D-5

**Longitude:** 159.52

**Location description and accuracy:**

This occurrence is on the east side of upper Kupreanof Peninsula. The map site is at an elevation of 1,500 feet, just east of the midpoint of the boundary between secs. 5 and 32, T. 50 and 51 S., R. 66 W., of the Seward Meridian. It is referred to as SBRGX-49 in Wilson and others (1988, locality 23). The location is accurate to within 1 mile.

**Commodities:**

**Main:** Pb

**Other:** As

**Ore minerals:**

**Gangue minerals:**

**Geologic description:**

This occurrence is volcanic rocks of the Eocene to Oligocene Meshik Formation (Wilson and others, 1995). At the site, an olivine basalt dike cuts tuff and altered and mineralized dacite (Wilson and others, 1988). A rock sample collected by the U.S. Geological Survey was reported to be anomalous in arsenic and lead (Wilson and others, 1988). The alteration and mineralization are not described.

**Alteration:**

**Age of mineralization:**

Eocene or younger.

**Deposit model:**

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

Rock sample 84ADt181, collected by the U.S. Geological Survey in the mid-1980's, was reported to be anomalous in arsenic and lead (Wilson and others, 1988).

**Production notes:****Reserves:****Additional comments:**

This occurrence is in the Alaska Peninsula National Wildlife Refuge, near the boundary of land selected by the Bristol Bay Native Corporation.

**References:**

Angeloni and others, 1985; Wilson and others, 1988; Wilson and others, 1995.

**Primary reference:** Wilson and others, 1988

**Reporter(s):** S.H. Pilcher

**Last report date:** 11/9/00

**Site name(s):** Unnamed (south shore of Egg Island)

**Site type:** Occurrence

**ARDF no.:** SB024

**Latitude:** 55.822

**Quadrangle:** SB D-5

**Longitude:** 159.352

**Location description and accuracy:**

This site is located on the south shore of Egg Island in Humpback Bay on the Alaska Peninsula. It is referred to as SBRGX-50 in Wilson and others (1988, locality 24). The location is accurate to within 1,200 feet.

**Commodities:**

**Main:** Cu, Zn

**Other:** As

**Ore minerals:** Galena, pyrite, sphalerite

**Gangue minerals:** Calcite

**Geologic description:**

This occurrence is in an area mapped as Paleocene to Eocene Tolstoy Formation (Wilson and others, 1995). The occurrence consists of sandstone, shale, and coal beds that are cut by andesite sills and a hypabyssal andesite plug (Wilson and others 1988). Calcite veins occur in an intensely fractured zone in andesite. The veins are as much as 4 inches thick and contain galena, pyrite, and sphalerite, along with inclusions of brecciated andesite. The controlling fractures are probably localized along a thrust fault mapped through this area (Wilson and others, 1988). Samples collected by the U.S. Geological Survey were reported to be anomalous in arsenic, copper, and zinc (Wilson and others, 1988).

**Alteration:**

**Age of mineralization:**

Tertiary.

**Deposit model:**

Polymetallic veins (Cox and Singer, 1986; model 22c)

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

22c

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

Rock samples 84AWs170, 172-173, collected by the U.S. Geological Survey in the mid-1980's, were reported to be anomalous in arsenic, copper, and zinc (Wilson and others, 1988).

**Production notes:**

**Reserves:**

**Additional comments:**

This site is located on land interim-conveyed to, or patented by, the Bristol Bay Native Corporation.

**References:**

Angeloni and others, 1985; Wilson and others, 1988; Wilson and others, 1995.

**Primary reference:** Wilson and others, 1988

**Reporter(s):** S.H. Pilcher

**Last report date:** 11/9/00

**Site name(s):** Unnamed (northwest shore of Road Island)

**Site type:** Occurrence

**ARDF no.:** SB025

**Latitude:** 55.853

**Quadrangle:** SB D-5

**Longitude:** 159.497

**Location description and accuracy:**

This site is on the northwest shore of Road Island in Ivanof Bay. It is referred to as SBRGX-51 in Wilson and others (1988, locality 25). The location is accurate to within 1,200 feet.

**Commodities:**

**Main:** Au, Cu

**Other:**

**Ore minerals:**

**Gangue minerals:**

**Geologic description:**

This occurrence is in within volcanic rocks of the Eocene to Oligocene Meshik Formation (Wilson and others, 1995). A sample from a lahar deposit collected at this site by the U.S. Geological Survey is reported to be anomalous in copper and gold (Wilson and others, 1988).

**Alteration:**

**Age of mineralization:**

**Deposit model:**

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

Rock sample 83AWs84, collected by the U.S. Geological Survey in the mid-1980's, was

reported to be anomalous in gold and copper (Wilson and others, 1988).

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Angeloni and others, 1985; Wilson and others, 1988; Wilson and others, 1995.

**Primary reference:** Wilson and others, 1988

**Reporter(s):** S.H. Pilcher

**Last report date:** 11/9/00

**Site name(s):** Unnamed (east of Ivanof River)

**Site type:** Occurrence

**ARDF no.:** SB026

**Latitude:** 55.94

**Quadrangle:** SB D-5

**Longitude:** 159.34

**Location description and accuracy:**

This occurrence is on the Alaska Peninsula east of Ivanof River. The map site is at an elevation of 1,500 feet, in the NE1/4 of sec. 16, T. 49 S., R. 65 W., of the Seward Meridian. It is referred to as SBRGX-52 in Wilson and others (1988, locality 26). The location is accurate to within 2 miles.

**Commodities:**

**Main:** Ag, Cu

**Other:**

**Ore minerals:**

**Gangue minerals:**

**Geologic description:**

This occurrence is probably in sedimentary units of the Lower Cretaceous Naknek Formation (Wilson and others, 1995). It consists of hornfelsed siltstone and sandstone (Wilson and others, 1988). One sample collected by the U.S. Geological Survey was reported to be anomalous in copper and silver.

**Alteration:**

**Age of mineralization:**

**Deposit model:**

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

Rock sample 86AGs18c, collected by the U.S. Geological Survey in the mid-1980's, was reported to be anomalous in copper and silver (Wilson and others, 1988).

**Production notes:**

**Reserves:**

**Additional comments:**

This site is located on land interim-conveyed to, or patented by, the Bristol Bay Native Corporation.

**References:**

Angeloni and others, 1985; Wilson and others, 1988; Wilson and others, 1995.

**Primary reference:** Wilson and others, 1988

**Reporter(s):** S.H. Pilcher

**Last report date:** 11/9/00

**Site name(s):** Unnamed (west of Big River)

**Site type:** Occurrence

**ARDF no.:** SB027

**Latitude:** 55.97

**Quadrangle:** SB D-6

**Longitude:** 159.82

**Location description and accuracy:**

This site represents eight rock geochemical sample sites spread over a radius of 3 miles west of Big River. The map site, at the approximate center of this area, is at an elevation of 500 feet on a west tributary of Big River, in the SW1/4 of sec. 17, T. 49 S., R. 68 W., of the Seward Meridian. The site is referred to as SBRGX-53 in Wilson and others (1988, locality 27).

**Commodities:**

**Main:** Cu, Zn

**Other:** As, Sb, Sn

**Ore minerals:**

**Gangue minerals:**

**Geologic description:**

The area of this occurrence is underlain by several Tertiary formations, most of which are sedimentary (Wilson and others, 1995). Eight rock samples collected by the U.S. Geological Survey were reported to be anomalous in one or more of the following: copper, zinc, antimony, tin, and arsenic (Wilson and others, 1988).

**Alteration:**

**Age of mineralization:**

**Deposit model:**

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**

**Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

Rock samples 84AWs182, 84AGe33, 84ADt200, 84AJm668-669, 84AYb610, and 84ACe142-143, collected by the U.S. Geological Survey in the mid-1980's, were reported to be anomalous in one or more of the following: copper, zinc, antimony, tin, and arsenic (Wilson and others, 1988).

**Production notes:****Reserves:****Additional comments:**

This site is located on land interim-conveyed to, or patented by, the Bristol Bay Native Corporation.

**References:**

Angeloni and others, 1985; Wilson and others, 1988; Wilson and others, 1995.

**Primary reference:** Wilson and others, 1988

**Reporter(s):** S.H. Pilcher

**Last report date:** 11/10/00

**Site name(s): Louie's Corners****Site type:** Occurrence**ARDF no.:** SB028**Latitude:** 55.9413**Quadrangle:** SB D-6**Longitude:** 159.3389**Location description and accuracy:**

This occurrence is located at or near the shore of the Alaska Peninsula at the east end of Ramsey Bay. The map site is 2,000 feet east of triangulation station Lou. The location is accurate to within 500 feet.

**Commodities:****Main:** Gold**Other:****Ore minerals:** Gold, marcasite, pyrite**Gangue minerals:** Calcite, chalcedony**Geologic description:**

This occurrence consists of a series of northeast-trending sulfide-carbonate-chalcedony veins 150 to 300 feet apart that range up to 20 feet thick (Retherford and Hickok, 1990). The veins are thought to be controlled by a series of high-angle faults cutting andesite porphyry of the Eocene to Oligocene Meshik Formation. Alteration consists of illite-sericite halos bordering the veins. Eight rock-chip or channel samples contained 142 to 544 ppb gold.

**Alteration:**

Alteration consists of illite-sericite halos enveloping the veins.

**Age of mineralization:**

Eocene or younger.

**Deposit model:****Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):****Production Status:** None

**Site Status:** Inactive

**Workings/exploration:**

This site was investigated by Resource Associates of Alaska in 1981-82, and by Retherford and Hickok in 1990.

**Production notes:**

**Reserves:**

**Additional comments:**

This site is located on land patented by, or interim-conveyed to, the Bristol Bay Native Corporation.

**References:**

Retherford and Hickok, 1990.

**Primary reference:** Retherford and Hickok, 1990

**Reporter(s):** S.H. Pilcher

**Last report date:** 12/21/00

## References

- Alaska Department of Natural Resources, 2000, State of Alaska General Land Status, Alaska Peninsula, scale 1:1,000,000.
- Angeloni, L.M., Wilson, F.H., and Suttlet, S., 1985, Map and tables showing preliminary rock geochemical data, Port Moller, Stepovak Bay, and Simeonof Island quadrangles, Alaska: U.S. Geological Survey Open-File Report 85-470, 179 p., 1 map sheet, scale 1:250,000.
- Arbogast, B.F., Bailey, E.A., and Frisken, J.G., 1987, Analytical results and sample locality maps of stream-sediment, heavy-mineral concentrate, and rock samples from Port Moller, Stepovak Bay, and Simeonof Island quadrangles, Alaska: U.S. Geological Survey Open-File Report 87-502, 122 p., 2 map sheets, scale 1:250,000.
- Butherus, D.L., Gressitt, E.E., Pray, J., Corner, N.G., Lindberg, P.A., and Fankhauser, R.E., 1979, Exploration and evaluation of the Aleut Native Corporation Lands: Resource Associates of Alaska report, 69 p., 90 map sheets, various scales. (Held by the Aleut Corporation, Anchorage)
- Christie, J.S., 1974, Aleut-Quintana-Duval joint venture final report: Quintana Minerals Corporation report 22 p. (Held by the Aleut Corporation, Anchorage)
- Cobb, E.H., 1972, Metallic mineral resources map of the Port Moller quadrangle: U.S. Geological Survey Miscellaneous Field Studies Map MF-443, scale 1:250,000.
- Cobb, E.H., 1980, Summaries of data on and lists of references to metallic and selected nonmetallic mineral deposits in fifteen quadrangles in southwestern and west-central Alaska: U.S. Geological Survey Open-File Report 80-909, 104 p.
- Cox, D.P., and Singer, D.A., eds., 1986, Mineral deposit models: U.S. Geological Survey Bulletin 1693, 379 p.
- Eakins, G.R., 1970, Mineralization near Stepovak Bay, Alaska Peninsula, Alaska: Alaska Division of Mines and Geology, Special Report 4, 14 p.
- Farnstrom, H.E., 1991, Ivanof Project, 1990 final report: Cominco Alaska, 12 p. (Held by Alaska Earth Sciences, Anchorage)
- Fields, E.D., 1977, 1976 Annual report, Alaska search, Chignik area-Bristol Bay region: Bear Creek Mining Company, 44 p., 22 map sheets. (Held by the Aleut Corporation, Anchorage)
- Frisken, J.G., 1992, Interpretation of reconnaissance geochemical data from the Port Moller, Stepovak Bay, and Simeonof Island quadrangles, Alaska: U.S. Geological Survey Bulletin 1968, 3 map sheets, scale 1:250,000.
- Green, C.B., Bundtzen, T.K., Peterson, R.J., Seward, A.F., Deagen, J.R., and Burton, J.E., 1988, Alaska's mineral industry 1988: Alaska Division of Geological and Geophysical Surveys, Special Report 43, 79 p.
- Hollister, V.F., 1978, Porphyry copper deposits of Alaska, *in* Geology of porphyry copper deposits of the western hemisphere: American Institute of Mining Engineers, New York, p. 55-58.
- MacKevett, E.M., and Holloway, C.D., 1977, Map showing metalliferous mineral deposits in the western part of southern Alaska: U.S. Geological Survey Open-File Report 77-169-F, 38 p., 1 map sheet, scale 1:1,000,000.
- Maddren, A.G., 1919, Sulphur on Unalaska and Akun Islands and near Stepovak Bay: U.S. Geological Survey Bulletin 692-E, p. 282-298.

- Moller, S.A., Bernt, J., Farnstrom, H., Troupe, W., and Hanneman, N., 1982, Exploration and evaluation of precious metal potential of Bristol Bay Native Corporation lands, southwest Alaska: Resource Associates of Alaska, 49 p. (Held by Alaska Earth Sciences, Anchorage).
- Nokleberg, W.J., Bundtzen, T.K., Berg, H.C., Brew, D.B., Grybeck, D., Robinson, M.S., Smith, T.E., and Yeend, W., 1987, Significant metalliferous lode deposits and placer districts of Alaska: U.S. Geological Survey Bulletin 1786, 104 p., 2 map sheets, scale 1:5,000,000.
- Ransome, A.L., and Kerns, W.H., 1954, Names and definitions of regions, districts, and subdivisions in Alaska: U.S. Bureau of Mines Information Circular 7679, 91 p.
- Retherford, R.M. and Hickok, B.D., 1990, Metallogenic setting and gold potential of the Chignik and Iliamna regions, Alaska Peninsula: A report prepared by Alaska Earth Science for Western Gold Mining and Exploration Company, 28 p. (Held by Alaska Earth Sciences, Anchorage).
- Wilson, F.H., Detterman, R.L., Miller, J.W., and Case, J. E., 1995, Geologic map of the Port Moller, Stepovak Bay, and Simeonof Island quadrangles, Alaska Peninsula, Alaska: U.S. Geological Survey Miscellaneous Investigation Series Map I-2272, 2 map sheets, scale 1:250,000.
- Wilson, F.H., Shew, N., DuBois, G.D., and Bie, S.W., 1994, Sample locality map and analytical data for potassium-argon ages in the Port Moller, Stepovak Bay, and Simeonof Island quadrangles, Alaska Peninsula: U.S. Geological Survey Miscellaneous Field Studies Map MF-2155-E, 18 p., 1 map sheet, scale 1:250,000.
- Wilson, F.H., White, W.H., and DuBois, G.D., 1988, Brief description of mines, prospects, and mineral occurrences in the Port Moller and Stepovak Bay quadrangles, Alaska Peninsula: U.S. Geological Survey Open-File Report 88-666, 128 p., 1 map sheet, scale 1:250,000.
- Young, L.E., St. George, P., and Bouley, B., 1997, Porphyry copper deposits in relation to the magmatic history and palinspastic restoration of Alaska, *in* Goldfarb, R.J., and Miller, L.D., eds., Mineral deposits of Alaska: Economic Geology Monograph 9, p. 306-333.