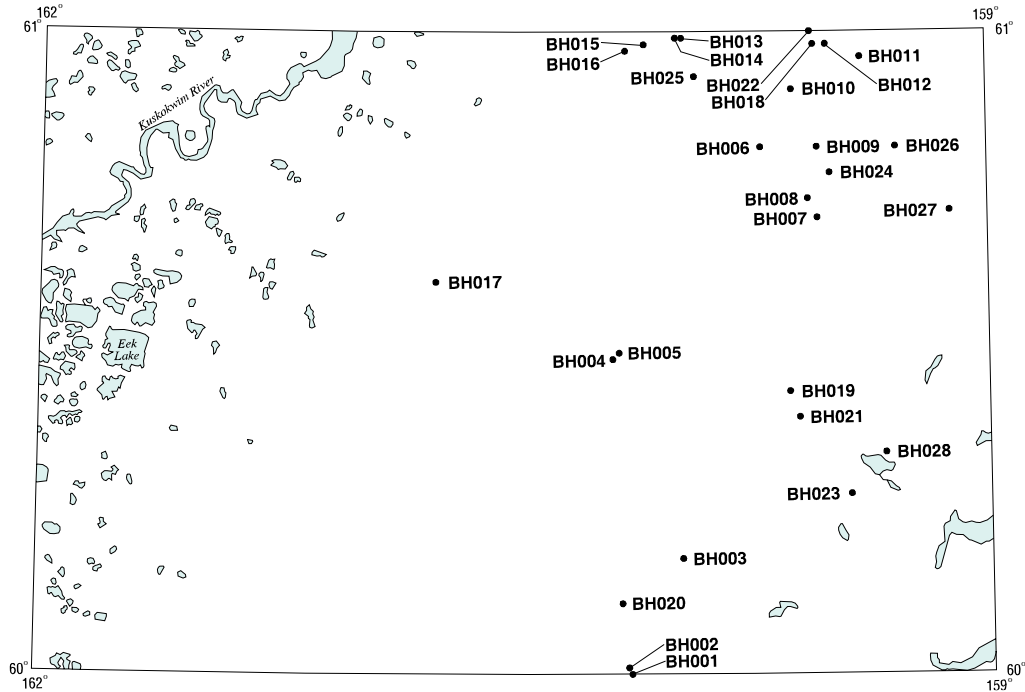


Bethel quadrangle

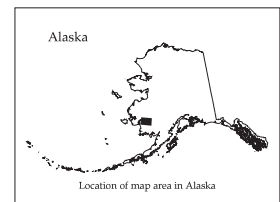
Descriptions of the mineral occurrences shown on the accompanying figure follow. See U.S. Geological Survey (1996) for a description of the information content of each field in the records. The data presented here are maintained as part of a statewide database on mines, prospects and mineral occurrences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



*Distribution of mineral occurrences in the Bethel
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, telephone (907) 786-7448. This compilation is authored by:

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Sequim, WA



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, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

OPEN-FILE REPORT 01-219

Site name(s): Arsenic Creek**Site type:** Prospect**ARDF no.:** BH001**Latitude:** 60.00**Quadrangle:** BH A-4**Longitude:** 160.13**Location description and accuracy:**

Arsenic Creek is a small, south-headwater tributary of Rainy Creek (BH002). This lode prospect is on the south side of Arsenic Creek, at an elevation of about 1,700 feet and about 1,000 feet upstream of the confluence with Rainy Creek. This is locality 5 of Cobb (1972 [MF 455]) and of Hoare and Cobb (1977). It is in the Togiak National Wildlife Refuge and the Togiak Wilderness.

Commodities:**Main:** Hg**Other:** As**Ore minerals:** Cinnabar, orpiment, realgar**Gangue minerals:** Quartz**Geologic description:**

Lode mercury mineralization was identified on Arsenic Creek sometime between 1910 and 1920 (Rutledge, 1948). In 1947, the U. S. Bureau of Mines completed 1,500 feet of dozer trenching and 1,440 feet of hand trenching in the area of known lode mineralization (Rutledge, 1948). Three separate small but high-grade lode deposits were identified over a distance of 200 feet on the south side of the creek. These deposits are along or within 50 feet of the creek. The larger deposit (Deposit 1 of Rutledge, 1948, p. 5) is a sheared and fractured zone that is primarily developed in sandstone. The enclosing shears strike N 30 to 35 E, approximately parallel to bedding, but dip 70 northwest, opposite to bedding. Mineralization in the sheared zone includes realgar, cinnabar, and quartz in vein stockworks and seams along fractures and bedding. Eight samples collected over the 25-foot wide zone ranged in grade from 0.6 to 35.4 pounds of mercury per ton; a weighted average for these samples is 3.4 pounds of Hg per ton. Rutledge (1948, p. 5) concluded that the mineralized zone had a rhombohedral, pipe-like form and could not be traced along strike. Another lode deposit, 100 feet upstream, is similar in form but smaller. Five samples from this deposit ranged in grade from 1.6 to 44.6 pounds of Hg per ton; the higher grades were from thin sulfide-rich zones, including silicified shale, only a few inches thick. The third lode deposit, 200 feet east of the first, includes small lenses of

white and gray quartz with enclosed cinnabar along a vertical N 30 E-striking fault zone. A composite sample of three, 3- to 6-inch-thick high grade lenses contained 45.8 pounds of Hg per ton. Arsenic, up to 18 percent or more, is present in all samples. In the larger deposits, realgar is the most abundant sulfide mineral. Orpiment is locally present. A realgar- and orpiment-rich sample contained 0.05 ppm Au (Frost, 1990, table 1, sample 7TF003). Although specific lode deposits could not be traced along strike, dozer trenches revealed thin mercury-bearing zones over about 700 feet of length; 0.5- to 1.6-foot-wide samples from these trenches contained 0.2 to 3.4 pounds of Hg per ton and 0.05 to 0.1 percent As. The bedrock in Arsenic Creek is sandstone and shale of the mid-Cretaceous Kuskokwim Group locally intruded by mafic dikes or sills (Rutledge, 1948; Hoare and Cobb, 1977; Box and others, 1993).

Alteration:

Silicification.

Age of mineralization:

Post mid-Cretaceous, the age of the host sedimentary rocks. The mineralization may be Late Cretaceous or Early Tertiary, the age of widespread intermediate to felsic igneous activity in the region (Box and others, 1993).

Deposit model:

Epithermal mercury.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

In 1947, the U. S. Bureau of Mines completed 1,500 feet of dozer trenching and 1,440 feet of hand trenching, and collected 19 samples in the area of known lode mineralization (Rutledge, 1948).

Production notes:

About 2,000 pounds of cinnabar concentrates were recovered during placer mining operations on Rainy Creek (BH002), mostly below the mouth of Arsenic Creek.

Reserves:**Additional comments:****References:**

Rutledge, 1948; Cobb, 1972 (MF 455); Hoare and Cobb, 1977; Frost, 1990; Box, 1993.

Primary reference: Rutledge, 1948

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Rainy Creek**Site type:** Mine**ARDF no.:** BH002**Latitude:** 60.01**Quadrangle:** BH A-4**Longitude:** 160.14**Location description and accuracy:**

This placer mine is in the southeast corner of the Bethel A-4 quadrangle. It is in the headwaters of Rainy Creek, an east tributary to upper Eek River. The placer mine workings are present over about 3/4 mile of Rainy Creek and the coordinate location is the approximate midpoint of the workings, just downstream from the mouth of Arsenic Creek (BH001). This is locality 7 of Cobb (1972 [MF 455]) and of Hoare and Cobb (1977). It is in the Togiak National Wildlife Refuge and the Togiak Wilderness.

Commodities:**Main:** Au, Hg**Other:****Ore minerals:** Cinnabar, gold**Gangue minerals:****Geologic description:**

About 0.7 mile of upper Rainy Creek has been placer mined (Rutledge, 1948, fig. 3). This includes operations both above and below the mouth of Arsenic Creek, a small south tributary to Rainy Creek with identified lode mercury mineralization (BH001). A small part of the placer deposit extends downstream into the Goodnews Bay quadrangle (GO012). The upper drainage does not appear to have been glaciated and the gravels are locally derived. The placer operations recovered both gold and cinnabar. About 2,000 pounds of cinnabar were recovered and shipped, mostly from Rainy Creek below the mouth of Arsenic Creek. Some cinnabar was recovered from above the mouth of Arsenic Creek; a possible bedrock source for this cinnabar was identified on the south side of Rainy Creek, 1.25 miles above the mouth of Arsenic Creek (Rutledge, 1948, p. 7). Bedrock in upper Rainy Creek and its tributaries is clastic sedimentary rocks of the mid-Cretaceous Kuskokwim Group locally cut by mafic dikes or sills (Rutledge, 1948; Box and others, 1993).

Alteration:

Age of mineralization:

Quaternary.

Deposit model:

Placer Au-PGE; with cinnabar (Cox and Singer, 1986; model 39a).

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

39a

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Open-cut placer workings are present along about 0.7 mile of the creek. Mining occurred sometime between 1920 and 1946.

Production notes:

About 2000 pounds of cinnabar were recovered from the placer operation (Malone, 1962). No figures are available on gold production.

Reserves:**Additional comments:****References:**

Rutledge, 1948; Malone, 1962; Cobb, 1972 (MF 455); Hoare and Cobb, 1977; Box and others, 1993.

Primary reference: Rutledge, 1948

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Canyon Creek

Site type: Mine

ARDF no.: BH003

Latitude: 60.18

Quadrangle: BH A-3

Longitude: 159.97

Location description and accuracy:

Canyon Creek is a headwater tributary of Fork Creek. According to coordinates given by Hoare and Cobb (1977), about 2.5 miles or almost all the creek upstream of its mouth, has been placer mined. The map site is the approximate midpoint of the placer workings. It is in the NW1/4 of section 13, T 1 N, R 62 W, of the Seward Meridian. This is locality 8 of Cobb (1972 [MF 455]) and of Hoare and Cobb (1977).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Placer gold was discovered on Canyon Creek in 1913 and mining occurred almost every year up to and possibly after WW II (Hoare and Cobb, 1977). The creek has not been glaciated. Gravels in the narrow flood plain, up to 300 feet wide, were 14 feet thick at the mouth and thinned upstream to thicknesses of 1 to 4 feet (Maddren, 1915). About 2.5 miles of the creek were mined, mostly by crude hand methods that, before WWII, included ripping up and washing individual bedrock slabs. The recovered gold was coarse and included flat, pumpkin-seed-size nuggets. The grade ran from 0.06 to 0.12 ounce of gold per square foot of bedrock. Panning of the tailings after WW II recovered much fine gold (Hoare and Cobb, 1977, p. 6). An alluvial bench, with gravels up to 10 feet thick, is present along the east side of the creek. Gold is reported to be present throughout the bench gravels (Hoare and Cobb, 1977). Bedrock in the drainage is mostly clastic sedimentary rocks of the mid-Cretaceous Kuskokwim Group. These rocks are intruded and thermally metamorphosed by an Upper Cretaceous felsic stock in the headwaters of the creek; dikes and sills are present locally elsewhere (Hoare and Cobb, 1977; Box and others, 1993).

Alteration:

Age of mineralization:

Quaternary.

Deposit model:

Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

39a

Production Status: Yes; small

Site Status: Undetermined

Workings/exploration:

The creek has been mined by open-cut methods over about 2.5 miles of its length. Much of the mining before WW II was by crude hand methods; a dozer was not added to the the operations until 1947. The amount of mining since WW II has not been reported.

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

Maddren, 1915; Cobb, 1972 (MF 455); Hoare and Cobb, 1977; Box and others, 1993.

Primary reference: Hoare and Cobb, 1977

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Unnamed (north end of Greenstone Ridge)

Site type: Occurrence

ARDF no.: BH004

Latitude: 60.49

Quadrangle: BH B-4

Longitude: 160.19

Location description and accuracy:

This lode prospect is on the north end of Greenstone Ridge, about 3/4 mile southwest of Golden Gate Falls on the Kisaralik River. It is approximately located, perhaps within 1/2 mile. It is locality 1 of Cobb (1972 [MF 455]) and of Hoare and Cobb (1977).

Commodities:

Main: Cu

Other:

Ore minerals:

Gangue minerals:

Geologic description:

Hoare and Coonrad (1959) reported traces of copper minerals in a fault zone in green amphibole schist derived from Jurassic mafic volcanic rocks. It appears that this site is along or near the high-angle reverse fault mapped along the west side of Greenstone Ridge (Box and others, 1993). Hoare and Cobb (1977, p. 16) note that this occurrence may also have been referred to in the literature under the names Golden Butte Mines, Inc., Rigagalik River, and Royal Quartz Mines. The Golden Butte Mines occurrence is reported to be quartz veins carrying some gold that were traceable for several hundred feet (Smith, 1932, B 824, p. 22). The Royal Quartz occurrence was reported to be in slate intruded by granitic rocks, and to consist of shear zones with quartz veins that contained Sb, Au, and Ag (Brooks, 1912, p. 35). Geologically, neither the Royal Quartz or the Golden Butte Mines occurrences appears to be the same one as at this locality; they apparently were not located by Cobb (1972 [MF 455]) or Hoare and Cobb (1977). The Rigagalik River occurrence in the upper part of the Kisaralik River is described in a separate record (BH021).

Alteration:

Age of mineralization:

Not known; postdates host Jurassic volcanic rocks.

Deposit model:

Copper-bearing minerals in fault zone.

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

Production Status: None

Site Status: Inactive

Workings/exploration:

Limited surface observations appear to be the extent of activity at this locality.

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

Brooks, 1912; Smith, 1932 (B 824); Hoare and Coonrad, 1959; Cobb, 1972 (MF 455);
Hoare and Cobb, 1977; Box and others, 1993.

Primary reference: Hoare and Cobb, 1977

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Golden Gate Falls**Site type:** Prospect**ARDF no.:** BH005**Latitude:** 60.50**Quadrangle:** BH C-4**Longitude:** 160.17**Location description and accuracy:**

This placer prospect is just below Golden Gate Falls on the Kisaralik River. Golden Gate Falls is a narrow stretch of rapids where Kisaralik River flows across basalt at the north end of Greenstone Ridge. This is locality 2 of Cobb (1972 [MF 455]) and of Hoare and Cobb (1977).

Commodities:**Main:** Au**Other:****Ore minerals:** Gold**Gangue minerals:****Geologic description:**

Recovery of fine gold from flood plain alluvium has been attempted below Golden Gate Falls (Hoare and Cobb, 1977, p. 16). Golden Gate Falls is a narrow stretch of rapids where Kisaralik River flows across basalt at the north end of Greenstone Ridge (Box and others, 1993).

Alteration:**Age of mineralization:**

Holocene.

Deposit model:

Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

39a

Production Status: Undetermined

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:

Cobb, 1972 (MF 455); Hoare and Cobb, 1977; Box and others, 1993.

Primary reference: Hoare and Cobb, 1977

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Fisher Dome**Site type:** Occurrence**ARDF no.:** BH006**Latitude:** 60.82**Quadrangle:** BH D-3**Longitude:** 159.72**Location description and accuracy:**

This lode occurrence is 1.6 miles southeast of Fisher Dome and 1.4 miles due south of the headwaters of Fisher Creek. It is approximately located, perhaps within miles. The coordinates provided by Hoare and Cobb (1977) do not match the location shown by Cobb (1972 [MF 455]), which is the one used in this record. The map site is on the mid-line of the ridge at an elevation of about 2,500 feet, in the SE1/4 of section 34, T 9 N, R 39 W, of the Seward Meridian. This is locality 4 of Cobb (1972 [MF 455]) and of Hoare and Cobb (1977).

Commodities:**Main:** Sb**Other:** Au (?)**Ore minerals:** Stibnite**Gangue minerals:** Quartz**Geologic description:**

Hoare and Coonrad (1959) report that a stibnite-bearing quartz vein cuts rhyolite at this location. Frost (1990) and Frost and others (1992), report analytical data for two stibnite-quartz samples from this site that contain up to 1 ppm Au, 7 ppm Ag, 1,500 ppm As, and greater than 10,000 ppm Sb. Box and others (1993) show a small felsic stock intruding hornfels in sedimentary rocks of the mid-Cretaceous Kuskokwim Group in this area. Isotopic dating of similar intrusive rocks elsewhere in the Bethel quadrangle has yielded ages of 62 to 66 Ma (Box and others, 1993). Frost (1990).

Alteration:**Age of mineralization:**

Late Cretaceous or Early Tertiary; assumed to be related to emplacement of felsic intrusive rocks in the area. The intrusive stock at Marvel Dome, about 12 miles to the north, has yielded K/Ar ages of 65.1 +/- 2.0 and 66.6 +/- 2.0 Ma (Box and others, 1993). An intrusive stock at the head of Dome Creek about 12 miles to the south-southeast has yielded

an Ar/Ar age of 62.2 +/- 1.9 Ma (Box and others, 1993).

Deposit model:

Simple Sb deposit (Cox and Singer, 1986; model 27d).

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

27d

Production Status: None

Site Status: Inactive

Workings/exploration:

There are no reports of exploration at this location.

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

Hoare and Coonrad, 1959; Cobb, 1972 (MF 455); Hoare and Cobb, 1977; Frost, 1990;
Frost and others, 1992; Box and others, 1993.

Primary reference: Hoare and Coonrad, 1959

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Cripple Creek (upper)**Site type:** Mine**ARDF no.:** BH007**Latitude:** 60.71**Quadrangle:** BH C-2**Longitude:** 159.54**Location description and accuracy:**

Cripple Creek is a southeast headwater tributary of the Salmon River. This placer mine is one of two locations given by Cobb (1972 [MF 455]) on Cripple Creek. It is along about 11/4 mile of the upper creek above the mouth of Loco Creek, a southwest tributary to Cripple Creek. The map site is at the approximate midpoint of the placer, in the SE1/4 of section 7, T 7 N, R 58 W, of the Seward Meridian. This is locality 17 of Cobb (1972 [MF 455]) and of Hoare and Cobb (1977).

Commodities:**Main:** Au**Other:****Ore minerals:** Gold, magnetite**Gangue minerals:****Geologic description:**

Cripple Creek was prospected and staked soon after placer gold was discovered on Marvel Creek (BH010) in 1911. The headwaters of Cripple Creek have coarse outwash or morainal deposits, and a glacier occupied the headwater valley of Loco Creek, a west tributary. Most of the Cripple Creek drainage is filled with alluvial outwash deposits. These have been incised by the present drainage that cuts 10 to 30 feet into bedrock along the lower reaches of the creek. Placer mining along Cripple Creek above the mouth of Loco Creek, has taken place over at least a mile of the creek and seems restricted to the active flood plain (Cobb, 1972 [MF 455]). The flood plain gravels are about 6 feet thick and some of the pay is reported to have run about 0.003 ounce of gold per cubic yard (Hoare and Cobb, 1977, p. 9). The gold is fine and flaky and accompanied by much magnetite. Bedrock in the headwaters of Cripple Creek and Loco Creek include a Lower Tertiary granitic stock and a rhyolite intrusive (?) in mid-Cretaceous sedimentary rocks of the Kuskokwim Group (Box and others, 1993).

Alteration:

Age of mineralization:

Quaternary.

Deposit model:

Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

39a

Production Status: Yes; small

Site Status: Undetermined

Workings/exploration:

Cobb (1972 [MF 455]) shows that over a mile of the active flood plain has been placer mined in this area.

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

Maddren, 1915; Cobb, 1972 (MF 455); Hoare and Cobb, 1977; Box and others, 1993.

Primary reference: Hoare and Cobb, 1977

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Cripple Creek (lower)**Site type:** Mine**ARDF no.:** BH008**Latitude:** 60.74**Quadrangle:** BH C-2**Longitude:** 159.57**Location description and accuracy:**

Cripple Creek is a southeast headwater tributary of the Salmon River. This placer mine is one of two locations given by Cobb (1972 [MF 455]) on Cripple Creek. It is along about 1 mile of the lower creek between the mouths of Porcupine and Dome Creeks, both west tributaries to Cripple Creek. The map site is at the approximate midpoint of the placer, in the SW1/4 of section 36, T 8 N, R 59 W, of the Seward Meridian. This is locality 16 of Cobb (1972 [MF 455]) and of Hoare and Cobb (1977).

Commodities:**Main:** Au**Other:****Ore minerals:** Gold, magnetite**Gangue minerals:****Geologic description:**

Cripple Creek was prospected and staked soon after placer gold was discovered on Marvel Creek (BH010) in 1911. The headwaters of Cripple Creek have coarse outwash or morainal deposits, and a glacier occupied the headwater valley of Loco Creek, a west tributary. Most of the Cripple Creek drainage is filled with alluvial outwash deposits. These have been incised by the present drainage that cuts 10 to 30 feet into bedrock along the lower reaches of the creek. Placer mining along Cripple Creek below the mouth of Dome Creek, has taken place over at least a mile of the creek and seems restricted to the active flood plain (Cobb, 1972 [MF 455]). The flood plain gravels are about 6 feet thick and some of the pay is reported to have run about 0.003 ounce of gold per cubic yard (Hoare and Cobb, 1977, p. 9). The gold is fine and flaky and accompanied by much magnetite. Maddren (1915) reports that bench-placer gold prospects are present on lower Dome Creek near its confluence with Cripple Creek. The bench alluvium is up to 100 feet thick. Early tunneling along the bedrock base of the benches indicated that gold was concentrated on bedrock (Maddren, 1915, p. 349). Hoare and Cobb (1977, p. 9) report that bench deposits have comparable gold content to flood plain deposits in some areas. Bedrock in the headwaters of Cripple Creek and Loco Creek include a Lower Tertiary granitic

stock and a rhyolite intrusive (?) in mid-Cretaceous sedimentary rocks of the Kuskokwim Group (Box and others, 1993).

Alteration:

Age of mineralization:

Quaternary.

Deposit model:

Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

39a

Production Status: Yes; small

Site Status: Undetermined

Workings/exploration:

Several tunnels up to 60 feet long were dug into bench gravels above bedrock. They are on the west side of Cripple Creek, 2.5 miles upstream from its mouth, where the stream is incised 10 to 15 feet into bedrock (Maddren, 1915). Cobb (1972 [MF 455]) shows about a mile of placer workings along this part of Cripple Creek.

Production notes:

Reserves:

Additional comments:

References:

Maddren, 1915; Cobb, 1972 (MF 455); Hoare and Cobb, 1977; Box and others, 1993.

Primary reference: Hoare and Cobb, 1977

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Fisher Creek**Site type:** Prospect**ARDF no.:** BH009**Latitude:** 60.82**Quadrangle:** BH D-2**Longitude:** 159.54**Location description and accuracy:**

Fisher Creek is a west tributary to Salmon River with headwaters on the east side of Fisher Dome. This locality is at the mouth of Fisher Creek. It is locality 15 of Cobb (1972 [MF 455]) and of Hoare and Cobb (1977).

Commodities:**Main:** Au**Other:****Ore minerals:** Gold**Gangue minerals:****Geologic description:**

Fine placer gold was found at the mouth of Fisher Creek. Prospect shafts in frozen silt and gravel were dug about 4 miles upstream of the mouth, but without encouraging results (Madden, 1915, p. 347). Bedrock was encountered in the prospect shafts at depths of 15 to 30 feet. The west headwaters of Fisher Creek are underlain by a small, undated felsic stock and nearby hornfels in sedimentary rocks of the mid-Cretaceous Kuskokwim Group (Box and others, 1993).

Alteration:**Age of mineralization:**

Holocene.

Deposit model:

Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

39a

Production Status: None

Site Status: Inactive

Workings/exploration:

About 6 prospect shafts 15 to 30 feet deep were sunk in frozen silt and gravel to bed-rock, about 4 miles upstream from the mouth of Fisher Creek.

Production notes:

Reserves:

Additional comments:

References:

Maddren, 1915; Cobb, 1972 (MF 455); Hoare and Cobb, 1977; Box and others, 1993.

Primary reference: Maddren, 1915

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Marvel Creek

Site type: Mine

ARDF no.: BH010

Latitude: 60.91

Quadrangle: BH D-2

Longitude: 159.62

Location description and accuracy:

Marvel Creek is a north tributary to Eagle Creek, a west tributary of the Salmon River. About 3 miles of Marvel Creek have been placer mined. The map site is the approximate midpoint of the placer workings, at the southwest corner of section 32, T 10 N, R 58 W, of the Seward Meridian. It is locality 12 of Cobb (1972 [MF 455]) and of Hoare and Cobb (1977).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Marvel Creek has been extensively placer mined over about 3 miles, or most of its length. It is in a non-glaciated valley with headwaters in an area where the Upper Cretaceous granitic stock of Marvel Dome is surrounded by hornfels in sedimentary rocks of the mid-Cretaceous Kuskokwim Group (Box and others, 1993). A small undated felsic stock is bedrock at the head of the placer workings. Hornfels near the intrusive rocks is locally cut by abundant quartz stringers and veins up to 8 inches wide. Some iron-staining accompanies the quartz veins, but metallic minerals are not obvious (Maddren, 1915, p. 341).

Marvel Creek valley has not been glaciated. The alluvium is moderately well sorted but locally derived, coarse, and subangular. Silt is present in the gravels and a discontinuous yellow clay horizon is present on or near bedrock. Pay is on bedrock and in bedrock fractures, or on the clay horizon where it is present. There are discontinuous sloping bench deposits that are incised by the active stream along lower parts of the creek. The lower creek also incises bedrock, and the initial discovery of gold in 1911 was on bench bedrock exposed in a cutbank there (Maddren, 1915, p. 343). Along the present flood plain, the gravel deposits are about 800 feet wide and 5 to 25 feet thick. It appears that they thicken upstream; near the head of mining a 60-foot deep shaft failed to reach bedrock

(Maddren, 1915, p. 342). The creek has been placer mined over 3 miles of its length. Most of the mining on the lower part was by a small dredge. Mining took place almost every year from the 1920s to 1940 and recommenced after WW II until at least 1970 (Hoare and Cobb, 1977). Much of the pay ranged in grade from 0.01 to 0.02 ounce of gold per square foot and much of the gold was coarse (Hoare and Cobb, 1977, p. 19). In 1912, a 20,000-square-foot open cut completed with pick and shovel recovered about 0.03 ounce of gold per square foot (Maddren, 1915, p. 344).

Alteration:**Age of mineralization:**

Quaternary.

Deposit model:

Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

39a

Production Status: Yes; medium

Site Status: Active

Workings/exploration:

The creek has been placer mined over 3 miles of its length. Most of the mining on the lower part was by a small dredge. Hydraulic and open-cut methods were used above the dredged area. Mining took place almost every year from the 1920s to 1940 and recommenced after WW II until at least 1970 (Hoare and Cobb, 1977).

Production notes:

Maddren (1915) reported that about 1,100 ounces of gold were produced between 1912 and 1914. In 1912, a 20,000-square-foot open cut completed with pick and shovel recovered about 0.03 ounce of gold per square foot (Maddren, 1915, p. 344). Much of the pay ranged in grade from 0.01 to 0.02 ounce per square foot, and much of the gold was coarse (Hoare and Cobb, 1977, p. 19).

Reserves:**Additional comments:****References:**

Maddren, 1915; Cobb, 1972 (MF 455); Hoare and Cobb, 1977; Box and others, 1993.

Primary reference: Hoare and Cobb, 1977

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Dominion Creek**Site type:** Prospect**ARDF no.:** BH011**Latitude:** 60.96**Quadrangle:** BH D-2**Longitude:** 159.4**Location description and accuracy:**

Dominion Creek is a west tributary to Salmon River. This location is at the mouth of the creek. It is locality 14 of Cobb (1972 [MF 455]) and of Hoare and Cobb (1977).

Commodities:**Main:** Au**Other:****Ore minerals:** Gold**Gangue minerals:****Geologic description:**

Dominion Creek and its principal tributaries head on Mt. Plummer and Marvel Dome, where an Upper Cretaceous granitic stock is surrounded by hornfels in sedimentary rocks of the mid-Cretaceous Kuskokwim Group (Box and others, 1993). Placer gold has been found at various places along Dominion Creek. A small glacier occupied the headwater valley of Dominion Creek. The middle and lower part of the drainage contains outwash deposits that are incised by the present creek (Maddren, 1915, p. 337). Fine gold colors have been found at the mouth of the creek (Maddren, 1915).

Alteration:**Age of mineralization:**

Quaternary.

Deposit model:

Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

39a

Production Status: None

Site Status: Probably inactive

Workings/exploration:

Placer claims have been staked on at least the lower half of Dominion Creek and some exploration is assumed to have taken place.

Production notes:

Reserves:

Additional comments:

References:

Maddren, 1915; Cobb, 1972 (MF 455); Hoare and Cobb, 1977; Box and others, 1993.

Primary reference: Maddren, 1915

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Dominion Creek (upper)

Site type: Mine

ARDF no.: BH012

Latitude: 60.98

Quadrangle: BH D-2

Longitude: 159.51

Location description and accuracy:

Dominion Creek is a west tributary to Salmon River. This location is 1/2 mile below the mouth of Eureka Creek (BH018), a west tributary to Dominion Creek. The map site is in the SE1/4 of section, T 10 N, R 58 W, of the Seward Meridian. It is locality 13 of Cobb (1972 [MF 455]) and of Hoare and Cobb (1977).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Dominion Creek and its principal tributaries head on Mt. Plummer and Marvel Dome, where an Upper Cretaceous granitic stock is surrounded by hornfels in sedimentary rocks of the mid-Cretaceous Kuskokwim Group (Box and others, 1993). Placer gold has been found on the creek but there apparently has been no mining (Hoare and Cobb, 1977). A small glacier occupied the headwater valley of Dominion Creek. The middle and lower part of the drainage contains outwash deposits that are incised by the present creek (Maddren, 1915, p. 337).

Alteration:

Age of mineralization:

Quaternary.

Deposit model:

Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

39a

Production Status: None

Site Status: Probably inactive

Workings/exploration:

Placer claims have been staked on at least the lower half of Dominion Creek and some exploration is assumed to have taken place.

Production notes:

Reserves:

Additional comments:

References:

Maddren, 1915; Cobb, 1972 (MF 455); Hoare and Cobb, 1977; Box and others, 1993.

Primary reference: Maddren, 1915

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Unnamed (south side of Tuluksak River)

Site type: Prospect

ARDF no.: BH013

Latitude: 60.99

Quadrangle: BH D-3

Longitude: 159.97

Location description and accuracy:

This lode occurrence is on the south side of the Tuluksak River, within an area of placer workings (BH014). The occurrence is in bedrock that was dredged during placer mining. The location is approximate. The map site is just inside the north boundary of section 5, T 10 N, R 60 W, of the Seward Meridian. It is locality 3 of Cobb (1972 [MF 455]) and of Hoare and Cobb (1977).

Commodities:

Main: Cu

Other:

Ore minerals:

Gangue minerals:

Geologic description:

Hoare and Coonrad (1959) reported that copper-bearing minerals had been observed in andesitic bedrock dredged from the base of the Tuluksak River placer deposit (BH014). They show a lode copper prospect approximately at this map site but the accuracy of this location is not known. Bedrock in the area is Jurassic andesitic and basaltic volcanic rocks (Box and others, 1993).

Alteration:

Age of mineralization:

Jurassic or younger; host rocks to copper minerals are Jurassic andesitic and basaltic volcanic rocks (Box and others, 1993).

Deposit model:

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

Production Status: None

Site Status: Probably inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:

Hoare and Coonrad, 1959; Cobb, 1972 (MF 455); Hoare and Cobb, 1977; Box and others, 1993.

Primary reference: Hoare and Coonrad, 1959

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Tuluksak River**Site type:** Mine**ARDF no.:** BH014**Latitude:** 60.99**Quadrangle:** BH D-3**Longitude:** 159.99**Location description and accuracy:**

This placer mine extends along the Tuluksak River for about 3 miles upstream from the mouth of Slate Creek. The area of placer mining is about 0.4 mile wide and continues upstream into the Russian Mission quadrangle. The map site is at the approximate midpoint of the workings in the Bethel quadrangle, at the northeast corner of section 6, T 10 N, R 60 W, of the Seward Meridian. It is locality 11 of Cobb (1972 [MF 455]) and of Hoare and Cobb (1977).

Commodities:**Main:** Ag, Au, Pt**Other:****Ore minerals:** Gold**Gangue minerals:****Geologic description:**

Extensive dredging has taken place on Tuluksak River for about 3 miles upstream of the mouth of Slate Creek. The dredged area is up to 0.4 mile wide and it continues upstream into the Russian Mission quadrangle. Mining on this river started as early as 1909 and continued until 1964 (Hoare and Cobb, 1977). Some platinum was produced along with the gold. There have been some attempts to renew placer mining without apparent success. Copper mineralization in andesitic bedrock was dredged up locally (BH013). A significant part of the bedrock in the drainage is hornfels in Jurassic volcanic rocks surrounding a mid-Cretaceous pluton (Box and others, 1993).

Alteration:**Age of mineralization:**

Quaternary.

Deposit model:

Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

39a

Production Status: Yes; medium**Site Status:** Undetermined**Workings/exploration:**

Dredge tailings at least 3 miles long and up to 0.4 mile wide are present along the river. Ditches, flume, airstrip, buildings, and power line are shown on the USGS Bethel D-3 1:63,360-scale topographic map (1951/1971 edition).

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

Cobb, 1972 (MF 455); Hoare and Cobb, 1977; Box and others, 1993.

Primary reference: Hoare and Cobb, 1977**Reporter(s):** Travis L. Hudson**Last report date:** 03/24/01

Site name(s): Granite Creek

Site type: Mine

ARDF no.: BH015

Latitude: 60.98

Quadrangle: BH D-3

Longitude: 160.09

Location description and accuracy:

Granite Creek is a short north tributary to Tuluksak River (BH014). The mouth of Granite Creek, at an elevation of about 350 feet, is 3 miles upstream from the lowlands of the lower Kuskokwim River. Placer mine tailings are present along about 3/4 mile of lower Granite Creek. The map site is at the approximate midpoint of the placer workings, at the southwest corner of section 3, T 10 N, R 61 W, of the Seward Meridian. This is locality 10 of Cobb (1972 [MF 455]) and of Hoare and Cobb (1977).

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

About 3/4 mile of lower Granite Creek has been placer mined for gold. Most of the Granite Creek drainage is within a mid-Cretaceous granitic pluton but the lower part crosses the contact with hornfels in Jurassic volcanic rocks (Box and others, 1993). Mining took place in 1938-1940 and in 1946 but additional information about the placer deposit is not available (Hoare and Cobb, 1977).

Alteration:

Age of mineralization:

Quaternary.

Deposit model:

Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

39a

Production Status: Yes; small

Site Status: Undetermined

Workings/exploration:

Placer mine tailings from open-cut operations are present along about 3/4 mile of lower Granite Creek.

Production notes:

Reserves:

Additional comments:

References:

Cobb, 1972 (MF 455); Hoare and Cobb, 1977; Box and others, 1993.

Primary reference: Hoare and Cobb, 1977

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Tuluksak River (below Granite Creek)**Site type:** Prospect**ARDF no.:** BH016**Latitude:** 60.97**Quadrangle:** BH D-4**Longitude:** 160.15**Location description and accuracy:**

In the original reference to this placer prospect on Tuluksak River, Maddren (1915) located it 5 miles downstream from the mouth of Granite Creek (BH015). For this record, however, it is assumed to be at a cabin and trailhead, about 3 miles downstream from the mouth of Granite Creek. The map site is at the southwest corner of section 7, T 10 N, R 61 W, of the Seward Meridian. This is locality 9 of Cobb (1972 [MF 455]) and of Hoare and Cobb (1977).

Commodities:**Main:** Au**Other:****Ore minerals:** Gold**Gangue minerals:****Geologic description:**

Maddren (1915) reported that fine gold was found in a 50-foot prospect shaft that was dug in frozen ground on this part of the Tuluksak River. This prospect is on the lower part of the river, where the gradient decreases and it enters onto the lowlands of the lower Kuskokwim River. The low elevation and proximity to the Kuskokwim River lowlands suggests that Quaternary sea level fluctuations could have influenced placer development on the lower Tuluksak River.

Alteration:**Age of mineralization:**

Quaternary.

Deposit model:

Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

39a

Production Status: None

Site Status: Inactive

Workings/exploration:

A 50-foot-deep prospecting shaft was dug in frozen ground at this locality.

Production notes:

Reserves:

Additional comments:

References:

Maddren, 1915; Cobb, 1972 (MF 455); Hoare and Cobb, 1977.

Primary reference: Maddren, 1915

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Columbia Creek**Site type:** Prospect**ARDF no.:** BH017**Latitude:** 60.61**Quadrangle:** BH C-5**Longitude:** 160.75**Location description and accuracy:**

Columbia Creek flows northwest to the lower Kisaralik River. This approximately located placer prospect is in the headwaters of Columbia Creek, at an elevation of about 225 feet, and 1.75 mile southwest of USGS Benchmark Naomi (1,658 feet elevation). The map site is in the northern 1/2 of section 18, T 6 N, R 65 W, of the Seward Meridian. It is locality 6 of Cobb (1972 [MF 455]) and of Hoare and Cobb (1977).

Commodities:**Main:** Au**Other:****Ore minerals:** Gold**Gangue minerals:****Geologic description:**

A placer gold deposit was staked and prospected by churn drilling in 1949 or 1950 along this part of Columbia Creek, but mining apparently has not occurred (Hoare and Cobb, 1977, p. 8). Bedrock in the headwaters of the creek includes Jurassic volcanic rocks intruded by a mid-Cretaceous granitic pluton to the west, and an undated diorite and gabbro pluton to the south (Box and others, 1993). Hoare and Cobb (1977) report that hydrothermally altered bedrock in the low divide at the head of the creek (where Box and others, 1993, map diorite or gabbro) was prospected by pits and trenches before 1949. Frost (1990, fig. 1, loc. 4) reports that a quartz vein in sandstone or quartz porphyry from this general area contains 0.40 ppm Au.

Alteration:**Age of mineralization:**

Quaternary.

Deposit model:

Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

39a

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

Claims were staked and prospected in 1949 or 1950 using a churn drill. Hydrothermally altered bedrock at head of valley was prospected by pits and trenches before 1949.

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

Cobb, 1972 (MF 455); Hoare and Cobb, 1977; Frost, 1990; Box and others, 1993.

Primary reference: Hoare and Cobb, 1977**Reporter(s):** Travis L. Hudson**Last report date:** 03/24/01

Site name(s): Eureka Creek

Site type: Prospect

ARDF no.: BH018

Latitude: 60.98

Quadrangle: BH D-2

Longitude: 159.55

Location description and accuracy:

Eureka Creek is a west tributary to Dominion Creek (BH012), a west tributary to Salmon River. The headwaters of Eureka Creek are on the west side of Marvel Dome. For this record, the map site is arbitrarily placed at the trailhead on the middle part of the creek, in the NW1/4 of section 10, T 10 N, R 58 W, of the Seward Meridian (USGS Bethel D-2 topographic map, 1979 edition). Hoare and Cobb (1977) included this location under the name 'Eureka Ck.'

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Eureka Creek heads on Marvel Dome, where an Upper Cretaceous granitic stock is surrounded by hornfels in sedimentary rocks of the mid-Cretaceous Kuskokwim Group (Box and others, 1993). Placer gold has been found on the creek, but mining apparently has not occurred (Hoare and Cobb, 1977). A small glacier occupied the upper part of Eureka Creek valley, and outwash deposits, including many boulders, fill the lower part of the valley (Maddren, 1915, p. 339). The outwash deposits are incised by the present stream.

Alteration:

Age of mineralization:

Quaternary.

Deposit model:

Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

39a

Production Status: None

Site Status: Probably inactive

Workings/exploration:

Some exploration is assumed to have taken place on this creek.

Production notes:

Reserves:

Additional comments:

References:

Maddren, 1915; Hoare and Cobb, 1977; Box and others, 1993.

Primary reference: Maddren, 1915

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Rocky Creek**Site type:** Prospect**ARDF no.:** BH019**Latitude:** 60.44**Quadrangle:** BH B-2**Longitude:** 159.63**Location description and accuracy:**

Rocky Creek is a south tributary to the upper part of Quicksilver Creek. This is locality 18 of Cobb (1972 [MF 455]) and of Hoare and Cobb (1977). The map site for this approximately located placer prospect is in the NW1/4 of section 33, T 5 N, R 59 W, of the Seward Meridian.

Commodities:**Main:** Au**Other:****Ore minerals:** Cinnabar, gold**Gangue minerals:****Geologic description:**

Rocky Creek has been prospected and gold and cinnabar colors have been recovered in pan concentrates. A glacier occupied the pass at the head of Rocky Creek and the stream valley contains outwash deposits. Sedimentary bedrock of the mid-Cretaceous Kuskokwim Group is exposed over large parts of the drainage (Box and others, 1993).

Alteration:**Age of mineralization:**

Quaternary.

Deposit model:

Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

39a

Production Status: None

Site Status: Inactive

Workings/exploration:

Reconnaissance surface exploration has occurred along Rocky Creek.

Production notes:

Reserves:

Additional comments:

References:

Cobb, 1972 (MF 455); Hoare and Cobb, 1977; Box and others, 1993.

Primary reference: Hoare and Cobb, 1977

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Kapon Creek**Site type:** Mine**ARDF no.:** BH020**Latitude:** 60.11**Quadrangle:** BH**Longitude:** 160.16**Location description and accuracy:**

Kapon Creek is an east tributary to the Eek River. The mouth of Kapon Creek is 9.5 miles downstream of the mouth of Rainy Creek (BH002) on the Eek River. This placer mine was referred to under the name 'Kapon Ck.' by Hoare and Cobb (1977). The map site is in the SE1/4 of section 6, T 1 S, R 63 W, of the Seward Meridian. It is approximately located, perhaps within miles, as the headwaters of this creek are about 4 miles further upstream from the map site.

Commodities:**Main:** Au, Hg**Other:****Ore minerals:** Arsenopyrite, cinnabar, gold, magnetite**Gangue minerals:****Geologic description:**

Placer gold mining along Kapon Creek is reported to have taken place in 1914 and 1915 (Hoare and Cobb, 1977, p. 18). The lower part of the creek is in a glaciated area of outwash deposits. The upper reaches don't appear to have been occupied by glaciers but some outwash deposits may be present. The extreme headwaters of Kapon Creek are across a narrow saddle from the headwaters of Rainy Creek (BH002), where lode cinnabar mineralization has been identified (BH001). Coarse gravels in Kapon Creek were ground sluiced in 1914 and found to be of low grade (Maddren, 1915, p. 357). The gold was dark and flaky and accompanied by magnetite, arsenopyrite, and small cinnabar pebbles. Bedrock in the Kapon Creek drainage is clastic sedimentary rocks of the mid-Cretaceous Kuskokwim Group locally cut by felsic and mafic dikes (Hoare and Cobb, 1977; Box and others, 1993).

Alteration:**Age of mineralization:**

Quaternary.

Deposit model:

Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

39a

Production Status: Yes; small

Site Status: Inactive

Workings/exploration:

Kapon Creek has been prospected and some small surface workings are probably present locally along the creek.

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

Maddren, 1915; Hoare and Cobb, 1977; Box and others, 1993.

Primary reference: Hoare and Cobb, 1977

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Kisaralik River (Riglagalik River)

Site type: Occurrence

ARDF no.: BH021

Latitude: 60.4

Quadrangle: BH B-2

Longitude: 159.6

Location description and accuracy:

This occurrence is assumed to be on the upper Kisaralik River, formerly called the Riglagalik River. Hoare and Cobb (1977), under the name 'Riglagalik R.', included an early report of a gold and possibly cassiterite occurrence on this river but a specific location was not available. For this record, the map site is in the SW1/4 of section 12, T 3 N, R 60 W, of the Seward Meridian.

Commodities:

Main: Au, Sn (?)

Other:

Ore minerals: Cassiterite (?), gold

Gangue minerals:

Geologic description:

The Kisaralik River is a large drainage that heads in the eastern part of the Bethel quadrangle. Fine gold (Brooks, 1912, p. 41) and cassiterite in heavy mineral concentrates (Martin, 1919, p. 43) have been reported at unknown locations on the Riglagalik River, an early name for the Kisaralik River (Hoare and Cobb, 1977, p. 21). Whereas placer gold is likely to have been found along many parts of Kisaralik River, such as at Golden Gate Falls (BH005), the presence of cassiterite has not been verified. For this record, the location of these reported occurrences is arbitrarily placed in the upper part of the river.

Alteration:

Age of mineralization:

Quaternary.

Deposit model:

Placer Au-PGE; with cassiterite ? (Cox and Singer, 1986; model 39a).

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

39a

Production Status: None

Site Status: Inactive

Workings/exploration:

Reconnaissance exploration for placer deposits has occurred along many parts of the Kisaralik River.

Production notes:

Reserves:

Additional comments:

References:

Brooks, 1912; Martin, 1919; Cobb, 1972 (MF 455); Hoare and Cobb, 1977.

Primary reference: Hoare and Cobb, 1977

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Robin Creek**Site type:** Prospect**ARDF no.:** BH022**Latitude:** 61.00**Quadrangle:** BH D-2**Longitude:** 159.56**Location description and accuracy:**

Robin Creek is a west tributary to upper Dominion Creek (BH012), a west tributary to Salmon River. The headwaters of Robin Creek are on the east flank of Mt. Plummer and the north flank of Marvel Dome. This prospect is assumed to be on the lower part of the creek, about 1/2 mile upstream of the confluence with Dominion Creek. The map site is in the SW1/4 of section 34, T 11 N, R 58 W, of the Seward Meridian. Hoare and Cobb (1977) included this locality under the name 'Robin Ck.'.

Commodities:**Main:** Au (?)**Other:****Ore minerals:** Gold (?)**Gangue minerals:****Geologic description:**

Robin Creek is one of the drainages that heads on Marvel Dome, where an Upper Cretaceous granitic stock is surrounded by hornfels in sedimentary rocks of the mid-Cretaceous Kuskokwim Group (Box and others, 1993). Quartz veins, without obvious metallic minerals, are present in bedrock near its head (Maddren, 1915, p. 338). A small glacier occupied the upper part of Robin Creek valley and outwash deposits, including many boulders 1 to 5 feet in diameter, fill the lower part of the valley (Maddren, 1915, p. 338). The outwash deposits are incised by the present stream. Placer claims have been staked on Robin Creek, but the presence of placer gold has not been verified.

Alteration:**Age of mineralization:**

Quaternary.

Deposit model:

Placer Au-PGE (Cox and Singer, 1986; model 39a).

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

39a

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

Placer claims have been staked and some exploration is assumed to have taken place on Robin Creek.

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

Maddren, 1915; Hoare and Cobb, 1977; Box and others, 1993.

Primary reference: Maddren, 1915**Reporter(s):** Travis L. Hudson**Last report date:** 03/24/01

Site name(s): Gold Lake**Site type:** Occurrence**ARDF no.:** BH023**Latitude:** 60.28**Quadrangle:** BH B-2**Longitude:** 159.44**Location description and accuracy:**

Frost (1990) and Frost and others (1992; 1993), reported mineralization approximately at this locality. It is about 1 mile east of Gold Creek, 4 miles north-northeast of Gold Lake, and 3 miles southwest of Kisaralik Lake. For this record, the map site is at an elevation of about 2,100 feet on the northwest end of a ridge, in the NW1/4 of section 12, T 2 N, R 59 W, of the Seward Meridian.

Commodities:**Main:** Ag, Au**Other:** Pb, Sb, W**Ore minerals:** Galena**Gangue minerals:** Calcite, chlorite, quartz**Geologic description:**

Oxidized pyrite-bearing rhyolite dikes and sulfide-bearing quartz veins cut Jurassic volcanoclastic rocks at this locality (Box and others, 1993). Anomalous values of Ag, As, Au, Cu, Hg, Mo, Pb, Sb, and W are found in quartz veins, altered dikes, and hydrothermal breccia (Frost, 1990; Frost and others, 1993). The maximum gold value is 2 ppm and the maximum silver value is 7 ppm. The dikes are variably replaced by sericite, illite, and quartz. Galena is the only sulfide mineral identified in the quartz veins.

Alteration:

Silicification, argillization, and oxidation.

Age of mineralization:

Late Cretaceous or Early Tertiary (?); postdates Jurassic host rocks and is probably related to the Upper Cretaceous/Lower Tertiary suite of intermediate to felsic intrusive rocks in the region (Box and others, 1993).

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:**

Reconnaissance surface sampling and observation is all that has been reported for this locality.

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

Frost, 1990; Frost and others, 1992; Frost and others, 1993; Box and others, 1993.

Primary reference: Frost and others, 1990**Reporter(s):** Travis L. Hudson**Last report date:** 03/24/01

Site name(s): Bell Creek

Site type: Prospect

ARDF no.: BH024

Latitude: 60.78

Quadrangle: BH D-2

Longitude: 159.5

Location description and accuracy:

Bell Creek is an east tributary to the Salmon River. The mouth of Bell Creek is about halfway between the mouths of Fisher Creek (BH009) and Cripple Creek (BH008). For this record, the map site of this approximately located placer prospect is at the north boundary of section 20, T 6 N, R 58 W, of the Seward Meridian.

Commodities:

Main: Au

Other:

Ore minerals: Gold

Gangue minerals:

Geologic description:

Placer gold claims were staked along Bell Creek soon after discovery of gold on Marvel Creek (BH 010) in 1911, but mining has apparently not taken place (Madden, 1915, p. 347). Bedrock in the Bell Creek drainage is clastic sedimentary rocks of the Cretaceous Kuskokwim Group (Box and others, 1993).

Alteration:

Age of mineralization:

Quaternary.

Deposit model:

Placer Au-PGE (Cox and Singer, 1986; model 29a).

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

39a

Production Status: None

Site Status: Inactive

Workings/exploration:

Some prospecting on Bell Creek occurred early in the mining history of the area.

Production notes:

Reserves:

Additional comments:

References:

Maddren, 1915; Box and others, 1993.

Primary reference: Maddren, 1915

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Unnamed (lower Slate Creek)

Site type: Occurrence

ARDF no.: BH025

Latitude: 60.93

Quadrangle: BH D-2

Longitude: 159.93

Location description and accuracy:

This occurrence is on the southwest side of Slate Creek, about 4 miles upstream of the confluence of Slate Creek with the Tuluksak River. The map site is in the SW1/4 of sec. 21, T 10 N, R 60 W, of the Seward Meridian. It is locality 5 of Frost (1990).

Commodities:

Main: Hg

Other:

Ore minerals:

Gangue minerals: Carbonate, quartz

Geologic description:

Frost (1990) reported that discontinuous lenses of silica-carbonate rock are present along the Golden Gate fault near where it crosses Slate Creek, an east tributary to the Tuluksak River (Box and others, 1993). Quartz and several generations of carbonate veins, in many cases enclosing relict fragments of serpentinite, make up the silica-carbonate rock. Samples from this locality (Frost, 1990, table 1, locality 5) contain 1.9 to more than 36 ppm Hg.

Alteration:

Quartz and carbonate replacement of serpentinite.

Age of mineralization:

Not known. Postdates or accompanies deformation of the mid-Cretaceous Kuskokwim Group along the Golden Gate fault.

Deposit model:

Silica-carbonate Hg (Cox and Singer, 1986; model 27c).

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

27c

Production Status: None

Site Status: Inactive

Workings/exploration:

Reconnaissance surface observation and geochemical sampling has occurred at this site.

Production notes:

Reserves:

Additional comments:

References:

Frost, 1990; Box and others, 1993.

Primary reference: Frost, 1990

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Unnamed (Kipchuk River area)

Site type: Occurrence

ARDF no.: BH026

Latitude: 60.82

Quadrangle: BH D-1

Longitude: 159.29

Location description and accuracy:

This occurrence is at an elevation of about 2100 feet, about 3.4 miles north of the 'elbow' of Kipchuk River. The map site is in the SW1/4 of sec. 31, T 9 N, R 56 W, of the Seward Meridian. The site corresponds to is locality 7 of Frost (1990, fig. 1). The location is probably accurate within about 1 mile.

Commodities:

Main: Ag, Cu, Hg, Pb, Zn

Other: Sn

Ore minerals:

Gangue minerals: Quartz, tourmaline

Geologic description:

At this occurrence, waterlain tuff near the base of the Kipchuk volcanic field is partially to completely replaced by quartz and tourmaline (Frost, 1990, p. C4). The altered rocks weather as bright red, vegetation-free areas. Rock samples contain up to 70 ppm Ag, 1,500 ppm As, greater than 2,000 ppm B, 1,000 ppm Cu, 2,000 ppm Pb, 1,500 ppm Sb, 100 ppm Sn, greater than 20,000 ppm Zn, and greater than 36 ppm Hg (Frost, 1990; Frost and others, 1992). Gold was detected at less than 0.05 ppm in one sample. The Kipchuk volcanic field is a large area of Upper Cretaceous andesite, basalt, tuff, and local rhyolite in the uplands between the Kipchuk and Aniak River drainages (Box and others, 1993).

Alteration:

Quartz and tourmaline replacement, oxidation.

Age of mineralization:

Post-Late Cretaceous. Quartz and tourmaline replace volcanic rocks of the Kipchuk volcanic field that locally yield 69 to 71 Ma K/Ar ages (Box and others, 1993).

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:**

Reconnaissance surface observation and geochemical sampling has occurred at this site.

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

Frost, 1990; Frost and others, 1992; Box and others, 1993.

Primary reference: Frost, 1990**Reporter(s):** Travis L. Hudson**Last report date:** 03/24/01

Site name(s): Unnamed (west of Aniak River)

Site type: Occurrence

ARDF no.: BH027

Latitude: 60.72

Quadrangle: BH C-1

Longitude: 159.12

Location description and accuracy:

This occurrence is at an elevation of about 1800 feet, approximately 2.3 miles west-northwest of hill 3127 ('Obvious'). The map site is on the northwest-trending ridge, in the SW1/4 of sec. 4, T 7 N, R 56 W, of the Seward Meridian. The site corresponds to locality 8 of Frost (1990, fig. 1). The location is probably accurate to within 1 or 2 miles.

Commodities:

Main: Ag, Cu, Hg, Pb, Sb, Zn

Other: Au

Ore minerals:

Gangue minerals: Quartz, tourmaline

Geologic description:

Quartz and tourmaline variably replace plagioclase porphyry at this occurrence (Frost, 1990, p. C4). Incipient alteration includes tourmaline replacement of plagioclase phenocrysts and quartz replacement of groundmass. More-extensively altered rocks are granular aggregates of fine-grained quartz and clumps of tourmaline. Some rocks are made up of alternating quartz-rich and tourmaline-rich layers. The altered rocks weather as bright red, vegetation-free areas. Rock samples contain up to 70 ppm Ag, 2,000 ppm As, greater than 2,000 ppm B, 500 ppm Cu, 7,000 ppm Pb, 7,000 ppm Sb, 1,000 ppm Zn, and 4.4 ppm Hg (Frost, 1990; Frost and others, 1992). Gold was detected at 0.10 ppm in one sample. The occurrence is at least 100 meters above the base of the Kipchuk volcanic field, a large area of Upper Cretaceous andesite, basalt, tuff, and local rhyolite in the uplands between the Kipchuk and Aniak River drainages (Box and others, 1993).

Alteration:

Quartz and tourmaline replacement, oxidation.

Age of mineralization:

Post-Late Cretaceous. Quartz and tourmaline replace volcanic rocks of the Kipchuk volcanic field that locally yield 69 to 71 Ma K/Ar ages (Box and others, 1993).

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:

Reconnaissance surface observation and geochemical sampling has occurred at this site.

Production notes:

Reserves:

Additional comments:

References:

Frost, 1990; Frost and others, 1992; Box and others, 1993.

Primary reference: Frost, 1990

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

Site name(s): Unnamed (north of Kisarilik Lake)**Site type:** Occurrence**ARDF no.:** BH028**Latitude:** 60.344**Quadrangle:** BH B-1**Longitude:** 159.330**Location description and accuracy:**

The map site of this approximately located occurrence is at an elevation of about 3,200 feet, on the crest of the northwest-trending ridge about 1/2 mile north of Kisarilik Lake. The site is at the midpoint of the north boundary of sec. 22, T 3 N, R 57 W, of the Seward Meridian. It is locality 14 of Frost (1990, fig. 1). The location is accurate within about 1/2 mile.

Commodities:**Main:** Au**Other:** Ag**Ore minerals:** Pyrite**Gangue minerals:** Quartz**Geologic description:**

Pyrite-bearing rhyolite dikes and sulfide-bearing quartz veins cut Jurassic volcanic and sedimentary rocks on the ridges north of Kisarilik Lake (Frost, 1990; Box and others, 1993). Rock samples from this large, red-weathering area, contain up to 0.41 ppm Au, 1.5 ppm Ag, 7,000 ppm As, and 100 ppm Sb (Frost, 1990; Frost and others, 1992).

Alteration:

Quartz veining, oxidation.

Age of mineralization:

Late Cretaceous or Early Tertiary (?); postdates Jurassic host rocks and is probably related to the Upper Cretaceous/Lower Tertiary suite of intermediate to felsic intrusive rocks in the region (Box and others, 1993).

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: Probably inactive

Workings/exploration:

Reconnaissance surface observation and geochemical sampling has occurred at this site.

Production notes:

Reserves:

Additional comments:

References:

Frost, 1990; Frost and others, 1992; Box and others, 1993.

Primary reference: Frost, 1990

Reporter(s): Travis L. Hudson

Last report date: 03/24/01

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