

Alaska Metals Mining

David Coil, PhD, Director¹, Erin McKittrick, M.S., Director², Bretwood "Hig" Higman, PhD, Executive Director³, Andrew Mattox, MBA, Director⁴
contact@groundtruthtrekking.org

Last Modified: 13th May 2017

Metal mining in Alaska is dominated by gold, silver, zinc, and lead mining, with Large and small metal mines are scattered throughout Alaska (see [map](#)). Metal mining plays a strong but minority role in the state economy (7% of GDP), and is both economically and environmentally controversial.

Mined metal is a valuable export and source of cash income for workers, and mining jobs pay above the state average. Major mines are mostly owned by out-of-state corporations, leading most of their profits to be exported. Excise **taxes** on mined minerals are low compared to oil production, making mining only a minor contributor to government funds. Several existing mines have caused water contamination problems, which can impact waterways, wild ecosystem health, and fisheries, other industries, and subsistence users.

Alaska's **mining history** began with gold. Russian exploration for **placer gold** began in the early 1800's. The subsequent gold rushes in the 1890's (perhaps the most famous being the Canadian **Klondike Gold Rush**) were responsible for a population and settlement boom in Alaska, and contributed to the founding of Fairbanks, Juneau, and Nome. Today, roughly **300 placer mines** are still operating and making money in Alaska, but their output in both metal tonnage and value is small compared to the state's major hardrock mines. The vast majority of metal today is extracted from four large mines, which use open-pit and underground mining techniques to target solid rock ore bodies.

Alaska contains large deposits of metal ore which have never been mined, including copper, gold, silver, and zinc. Exploration for new ore bodies is ongoing.

Major Mines

Alaska has five major metal mines in operation: **Red Dog** zinc-lead mine, **Fort Knox** gold mine, **Pogo** gold mine, **Kensington** gold mine, and **Greens Creek** silver mine. Annually, they produced 34 million tons of ore combined in 2012.

Two mines – Kensington and Red Dog – are remote, having no connection to the highway system or to established electrical grids. Fort Knox is by far the largest mine by tonnage; in 2012, it accounted for **70%** of the tailings produced. Red Dog is a major global source of zinc: In 2012, it provided **7%** of the **world's zinc** from its exceptionally rich ore. The rest of Alaska's mines, large and small, make only a small contribution to world metal supply.

Alaska's major mines, existing and proposed, are mostly owned and capitalized by outside companies, with the exception of Red Dog, which is half-owned by **NANA** regional native corporation. Major mines have

Background on Mining

- [Acid Mine Drainage](#)
- [Gold Cyanidation](#)
- [Gold Mining Methods](#)
- [Mine Tailings](#)
- [Mining Taxes and Revenue in AK](#)
- [Perpetual Waste Storage](#)
- [Powering Large Mines in AK](#)
- [Rare Earth Elements \(REEs\)](#)
- [Alaska's Economy & Metal Mining](#)

Active Mines in Alaska

- [Fort Knox Gold Mine](#)
- [Greens Creek Silver Mine](#)
- [Kensington Gold Mine](#)
- [Pogo Gold Mine](#)
- [Red Dog Zinc/Lead Mine](#)

Pebble Mine Articles

- [Pebble Mine Overview](#)
- [Powering Pebble](#)
- [Water Management at Pebble](#)
- [Block Caving at Pebble](#)
- [Mining Claims Near Pebble](#)
- [Bristol Bay Fisheries](#)
- [Keystone Dialogue on Pebble](#)
- [Tailings Storage at Pebble](#)
- [Alternative Tailings Storage at Pebble](#)
- [Pebble and Perpetuity](#)
- [Opposition to Pebble](#)
- [Earthquake Risks at Pebble](#)

Other Major Active Mining Proposals in Alaska

- [Bokan - Dotson Ridge REE Prospect](#)
- [Chandalar Gold Prospect](#)
- [Donlin Creek Gold Prospect](#)
- [Graphite Creek Prospect](#)
- [Lik Zinc/Lead Prospect](#)
- [Livengood Gold Prospect](#)
- [Niblack Prospect](#)
- [Tangle Lakes/MAN Prospect](#)
- [Upper Kobuk Mineral Project \(formerly Ambler Prospect\)](#)
- [Whistler Gold/Copper Prospect](#)

Inactive Mines in Alaska

- [Rock Creek Gold Mine](#)
- [Nixon Fork Gold Mine](#)

Abandoned Prospects in Alaska

- [Council Gold Prospect](#)
- [Johnson River Prospect](#)
- [Yakutat Forelands Prospects](#)

Historical Mines in Alaska

- [AJ Gold Mine](#)
- [Beatson Copper Mine](#)
- [Illinois Creek Gold Mine](#)
- [Kennecott Copper Mine](#)
- [Queen Chrome/Red Mountain Mine](#)
- [Red Devil Mercury Mine](#)
- [Ross Adams Uranium Mine](#)
- [Salt Chuck Mine](#)

Placer Mines

- [Goodnews Bay Platinum](#)

¹David Coil, PhD, Director;

²Erin McKittrick, M.S., Director;

³Bretwood "Hig" Higman, PhD, Executive Director; contact@groundtruthtrekking.org



been proposed that could dramatically expand the industry. Some of these new mines could make noticeable contributions to global metals production. The proposed **Pebble Mine** , if built, would be one of the largest open pit mines in North America, and would be a major source of gold and copper on the world stage. A **rare earth element** mine, if developed in one of Alaska's many REE deposits, might be strategically as well as economically significant, since virtually all REE production is currently controlled by China.

Outside

- [BC Transboundary Mines](#)
- [KSM Mine \(BC\)](#)
- [Kvanefield REE \(Greenland\)](#)
- [Red Chris Mine \(BC\)](#)

Economics

Minerals are one of Alaska's most important exports. The total value of metal production and exploration in Alaska was just over **\$3.4 billion** in 2012, representing around **7% of the gross state product** , and producing several thousand jobs. Mining pays a 2% state tax on its revenue.

Due to mines being owned out-of-state and the importance of out-of-state vendors to support and supply mines, it is unclear how much economic value generated by mines is retained in-state. Figures are not available on how many of mine workers who reside and spend their wages in Alaska versus how many live out-of-state.

Controversy

Metals mining is controversial in Alaska. Pebble Mine is the most well-known and controversial mine proposal, since it poses **large potential threat** to the Bristol Bay salmon watershed, and it is the target of far greater opposition than any other mine project in Alaska history. There are also **multimillion dollar lawsuits** in-progress over impacts from existing mines such as Red Dog. Much of the concern around mines focuses on impacts (ongoing or potential) caused by water contamination, and its downstream impacts on fisheries, subsistence resources, and general environmental health.

Hardrock metal mining often creates massive long-term environmental economic liabilities, predominantly in the form of toxic **tailings impoundment facilities** and water-related environmental damages, which may impose major ongoing and future costs on Alaskans, as well as leaving behind physical facilities which in some cases must be **maintained indefinitely**. Some mining companies have argued that tailings impoundments are an asset, since improved metal extraction may let future miners reprocess the tailings to extract more value. While this may at occur at some point in time, depending on metal prices and technological inventions, tailings impoundments are economic and environmental liabilities for the immediately foreseeable future.

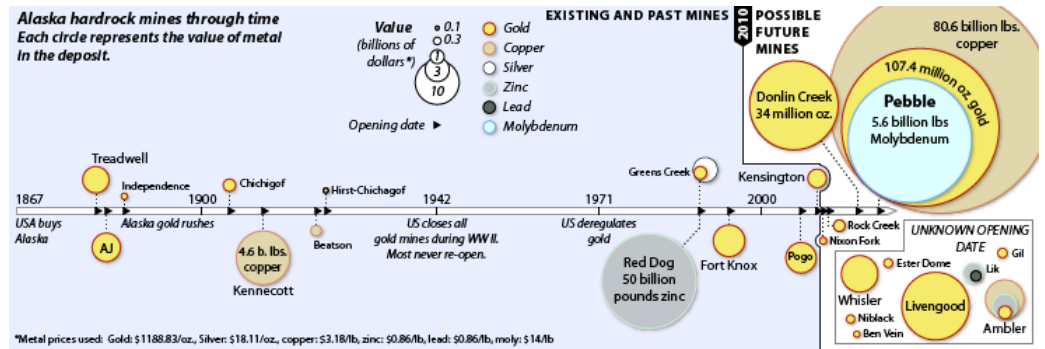
Metal mining has a history of causing severe and long-term environmental contamination outside Alaska.

According to the Environmental Protection Agency, mining has contaminated portions of the headwaters of over **40 percent of watersheds** in the western continental U.S., and reclamation of 500,000 abandoned mines in 32 states will cost **tens of billions of dollars** . Within Alaska, most mines and mining prospects have faced similar environmental problems, most notably water contamination, impacts of **open-pit mining** , and **acid mine drainage**.

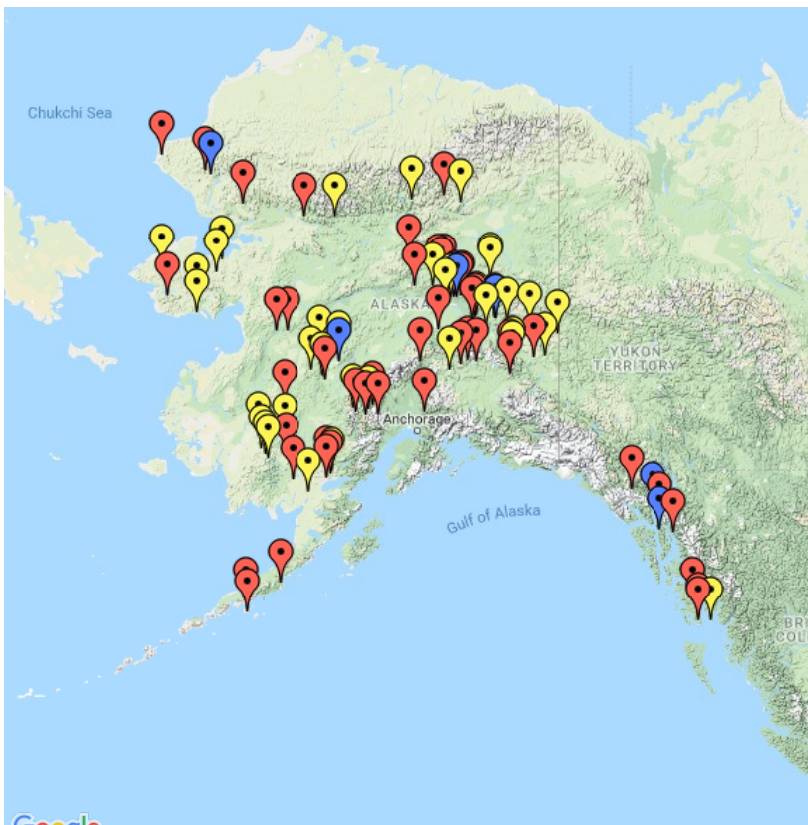
Exploration

Prospectors are actively pursuing new mineral resources in Alaska. 2011 was the record year for Alaska mineral exploration, with **\$365 million** spent on exploration, roughly 10% of the industry's \$3.5 billion economic contribution. Since 2011, yearly exploration expenditures have consistently fallen, reaching a 2014 estimated low of **\$80-\$100 million** . The majority of exploration expenditures in recent years have been on the **Pebble Mine**, **Donlin Creek**, and **Livengood** prospects. Work on smaller projects is also proceeding, such as on the **Niblack Prospect** in the southeast, and the **Upper Kobuk Mineral Project** in the Interior.

Exploration can be locally lucrative, regardless of whether a mine is built - as is seen in the town of Iliamna, the jumping off point for the massive, multi-year exploration of the nearby Pebble prospect. The **recent contraction** of the Pebble project also highlights the volatile nature of exploration. After major investors pulled out, the number of Pebble jobs in the region dropped from 1,403 in 2013 to 184 in 2014.



Alaska Hardrock Metal Mines Through Time: A timeline of metal mining in Alaska, from the known output of historical mines to the estimated reserve size of current mines and proposed future mines



Alaska mining map from Ground Truth Trekking. © Creative Commons Attribution Non-Commercial

Hardrock Mining Prospects in Alaska

- Abandoned Prospects (since 2010)
- Operating Mines
- Active Prospects

All hardrock mining exploration projects and operating mines in Alaska, (dynamically updated). To receive e-mail alerts about an area of interest, please see the [original version of this map](#).

Date Created: 4th May 2010