



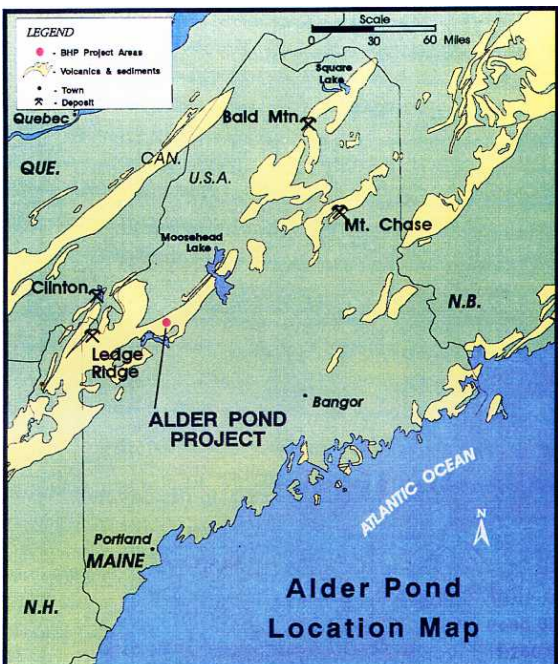
Open-Pit Mines in Maine: Serious Risks to Our Environment

For the first time in decades, out-of-state mining companies are seriously considering mining copper, zinc, and other metals in Maine, posing serious risks to our waters, forests, and wildlife in some of Maine's most treasured areas.

Background: In 2012, the Maine Legislature passed a bill to weaken Maine's mining regulations, at the request of J.D. Irving Limited, a huge Canadian conglomerate and the largest landowner in Maine. Open-pit mining refers to a type of mining where metals and other substances are removed from the earth from an open pit, as opposed to tunneling through the earth. Most of the discussion during the legislative session focused on J.D. Irving's Bald Mountain site in central Aroostook County, but there are many other places in Maine where open-pit mining could occur.



Acid mine drainage in western Pennsylvania



The Maine Geological Survey map (left) of volcanic and sedimentary rock deposits shows that very large deposits (shown in yellow) are spread throughout the state, including near some of Maine's most precious natural areas. There are deposits on both sides of Moosehead Lake, throughout the North Woods, and next to Cobscook Bay. Volcanic and sedimentary rock often hold massive sulfide deposits, which in turn can contain metals such as copper and zinc. Massive sulfide deposits are what open-pit mining companies will be looking for in Maine.

Problems with Sulfide Mining: Problems with mining massive sulfide deposits occur when waste rock (rock that contains no valuable ore) and the tailings (materials left over after ore has been removed from ore-bearing rock) react with air and water to form sulfuric acid. This acid then gets into ground and surface waters, where it can cause terrible damage to water quality and aquatic creatures. This is called Acid Mine Drainage (AMD), and it can have devastating consequences (see image above).



At the Iron Mountain Mine near Redding, California, AMD has caused extensive fish kills in the nearby rivers and streams. The Environmental Protection Agency (EPA) described AMD impacts at this site: “Prior to EPA’s cleanup of the site, most of the acidic effluent from Iron Mountain flowed or seeped out of the mines into adjacent streams and eventually into Keswick Reservoir, a run-of-river reservoir on the Sacramento River. Consequently, the creeks draining Iron Mountain are essentially devoid of aquatic life downstream (though not upstream) of the mines... State records document more than 20 fish-kill events in the Sacramento River downstream of IMM since 1963. Acid mine drainage from Iron Mountain killed 100,000 or more fish on separate occasions in 1955, 1963, and 1964; and at least 47,000 trout died during a one-week period in 1967.”

Cleanup costs at the Iron Mountain site are more than \$200 million to date. EPA constructed elaborate treatment (above, left) and sludge disposal (above right) systems to neutralize AMD. Although this has been effective so far, EPA notes, “Unless researchers eventually figure out an effective and reliable way to prevent the formation of acid mine drainage at Iron Mountain, the lime-neutralization/HDS water treatment plant will have to continue operating for a *very* long time. USGS scientists estimate that at current erosion rates, Iron Mountain will continue to produce acid mine drainage for 2,500 to 3,000 years, until the estimated 12 million tons of sulfide deposits remaining within the mountain have weathered away... despite years of investigation and consideration of many possible alternatives (e.g., strip mining Iron Mountain in its entirety, mining out the remaining sulfide ore, or sealing the mine portals and flooding Iron Mountain with water or an inert gas), it remains unclear whether there is a good, permanent solution to the problem.”

During the 2012 legislative session debate, Irving’s lobbyists promised the company would treat the contaminated water from an open-pit mine at Bald Mountain, *but will they treat it for hundreds, even thousands of years?* That’s how long sulfide deposits can continue to produce AMD. Do Maine people want large treatment plants in the North Woods for the next thousand years? Will mining companies pay to operate such treatment plants for *centuries*?



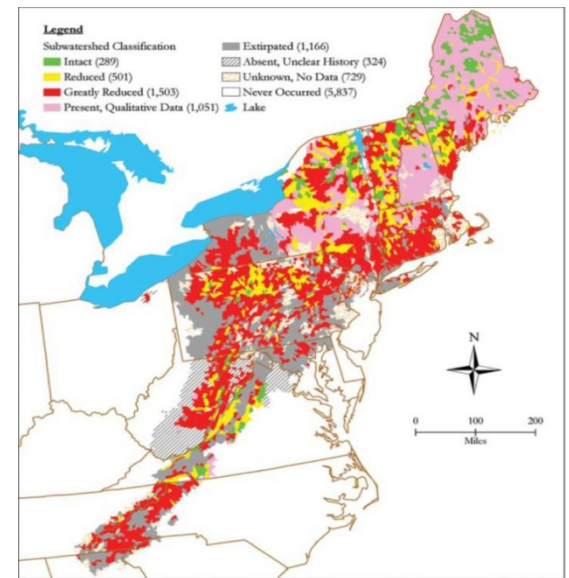
Eastern brook trout (USFWS)

Impacts Near Bald Mountain: A lot is at stake if Aroostook County’s Bald Mountain becomes an open-pit mine. Pollution there would likely drain into the Fish River and Fish River Chain of Lakes, which provide some of the best brook trout fishing in the country. Aroostook County Tourism describe this area this way: “Shady brooks, spring-fed ponds, and crystal clear streams are the perfect home for brook trout. And there’s nothing like the feeling of gently laying out 30 feet of line right on the edge of the deep pool where you know they’re waiting. Aroostook is one of the last strongholds in the northeastern United States for the native brook trout, and the Fish River Chain of Lakes is the last remaining cold water fishery in the State of Maine free of any invasive warm water or exotic species of fish.”

As Jeff Reardon, New England conservation director for Trout Unlimited, put it, “If you look at Bald Mountain through brook-trout-colored glasses, [the deposits] could not be in a worse place.”

Maine is one of the last strongholds of the eastern brook trout. The map (right) shows eastern brook trout populations throughout their historic range. Almost all of the remaining healthy populations are in Maine—one of the largest areas where brook trout have healthy populations is central Aroostook County, not far from Bald Mountain. Many people in this area make their living by guiding fishermen or from revenue generated by stays at local inns and camps.

According to the U.S. Fish and Wildlife Service, fishing brought \$257 million to the Maine economy in 2006, the latest year for which data were available. A massive open-pit mine could devastate one of the best places to fish for the state's most prized game fish is very shortsighted. Mining jobs will come and go quickly, but Maine's fishing-related economy is sustainable and can contribute to the economy indefinitely, if we are wise stewards of the resource.



Mining Companies Often Cut and Run: Mining companies have a track record of shutting down their operations and leaving taxpayers with cleanup costs. This is what happened with the two largest sulfide mines in Maine.



The Callahan mine in Brooksville (left) operated for only four years, closing in 1972. The company left taxpayers with an estimated clean-up bill of \$23 million, and the largest parts of the clean-up have not even occurred yet— 40 years later. Contaminated soil and sediment remain and are a risk for people and harmful to fish and wildlife. Recent Navy studies in nearby Goose Pond found sediments that were 100 percent lethal to sand-dwelling worms and sea urchins. PCBs are spread widely throughout the site. EPA has asked that people stay away to avoid exposure to these cancer-causing chemicals.

The Kerramerican mine in Blue Hill (right) also left a mess. The original owners of the site did an inadequate job of cleaning up when they ceased operations in 1977. In the mid-1990s, investigations showed that the site was leaking 10–12,000 pounds of zinc per year. Zinc is very toxic to fish and aquatic life. They also found that portions of the soil cap on the tailings impoundment were not properly vegetated. It took until 2006 for the owners and DEP to reach agreement on cleaning up the site, and another two years of work to recap the area. Currently, the site is being monitored to make sure the cap is working properly, *35 years after mining operations ended at the site!*



Ralph Chapman, State Representative for the Blue Hill area, said this about the Kerramerican mine, which operated from 1972 to 1977: “In 1964, with great fanfare, the Black Hawk mining operation was estimated to be able to run for ten to twenty years, employ 200 to 300 workers, and produce many millions of tons of ore. After exploratory work was completed, the estimate was 4.5 million tons...the mine produced only one million tons using 100 employees for five years.”

The story of mining companies damaging the environment, cutting jobs, and leaving town has played out many times in many places. At the Summitville Mine in Colorado in 1992, the owner declared bankruptcy and left U.S. taxpayers to pay for most of the cleanup—about \$200 million. The Canadian owner, Galactic Resources, succeeded in mining only \$130 million worth of metals from the site, which was not even enough to pay the cleanup cost. The Pegasus Gold Corporation, another Canadian company, behaved similarly at the Beal Mountain and Zortman-Landusky mines in Montana. At Beal Mountain, a mine located mostly on U.S. Forest Service land, the company had posted a \$6 million bond for cleanup and reclamation, yet taxpayers have spent at least \$14 million so far, and clean-up continues. At the Zortman-Landusky mine,

Pegasus left an even more expensive mess. There, \$40 million in reclamation bonds has already been spent by Pegasus, and state and federal taxpayers have spent \$12 million. Wastewater treatment costs \$1.5 million annually—twice the money available from the company’s wastewater bond. Federal taxpayers have had to pay most of the rest. The Montana Department of Environmental Quality has stated that water treatment will have to continue into “the distant future” and that even then, water quality standards will likely not be met in the 12 streams this mine site has contaminated.

Economic Benefits of Mining Often Overstated: Although mining jobs may pay well for a finite period, the business is risky and highly cyclical. Sometimes mines never pay. A New Mexico economic study has shown that “In New Mexico in 2000, mineral extraction jobs paid \$50,000 per year whereas the average wage and salary job paid \$28,000. Given these high wages, one would expect communities that rely heavily on mineral extraction to be unusually prosperous. That, in general, is not the case. Across the United States, mining communities, instead, are noted for high levels of unemployment, slow rates of growth of income and employment, high poverty rates, and stagnant or declining populations. In fact, our historic mining regions have become synonymous with persistent poverty, not prosperity.”

Maine is not alone: Mining companies have shown renewed interest in mining sulfide ores in Alaska, Minnesota, Michigan, and Wisconsin, in addition to Maine. Fundamentally, this is due to world demand for metal. American mines produced 1.4 billion metric tons of crude ore in 2010—about 4 metric tons of ore per year for every American or 24 pounds of new metal ore per person per day. With this comes waste—1.1 billion metric tons in 2010. In contrast, the total amount of municipal solid waste generated in the U.S. was only about 225 million metric tons in 2010.

Thomas Michael Power, economics research professor and professor emeritus at the University of Montana, wrote, “During metal mining boom times such as the present... new deposits look attractive. We should be cautious, however, about the environmental and social cost we are willing to pay to accommodate the new mining because, as has always been true in the past, this mining boom will lead to a bust and we will again face cleaning up the near permanent toxic mess that metal mining has always left in its wake. This is not a new day for metal mining. It is just the most recent disruptive and potentially destructive phase of an ongoing cycle of boom and bust.”

Maine would be wise to heed this warning. When Maine faced strong interest in mining in the late 1980s and early 1990s, the state wisely took its time developing protective regulations. The Department of Environmental Protection (DEP) drafted regulations over the course of 18 months, and staff visited mining sites in the western U.S. to view the environmental consequences of open-pit mines. Unfortunately, the current DEP does not seem likely to do the same.

What Lies Ahead: Maine’s 2012 mining law directed the DEP to weaken the existing rules for metal mining. NRCM has opposed DEP’s inadequate new rules at every step of the way since then. When the Legislature considered the final rules for adoption in 2014, we successfully persuaded lawmakers to reject them, sending the DEP back to the drawing board. For now, the old, more protective rules remain in effect. But in its current session the Legislature is debating several bills to implement the 2012 law.

With your help, NRCM can stop the weakening of our water quality laws. Please contact your legislators, the governor, and the DEP commissioner to let them know that you want them to protect Maine’s environment from the potentially devastating impacts of open-pit mining. For more information, contact Nick Bennett at nbennett@nrcm.org or visit www.nrcm.org/?p=80. Thank you for helping us protect Maine’s clean water and wildlife.



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