



Sulfide-Ore Copper Mining

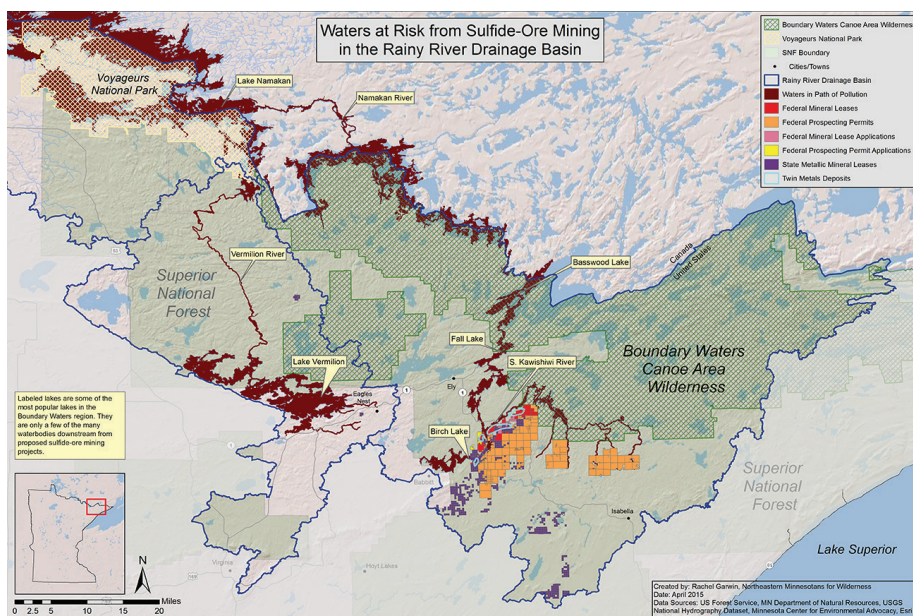
Creates Unacceptable Risks to the Boundary Waters

Photo: Jim Brandenburg

Sulfide-ore copper mining would irreparably harm the Boundary Waters Canoe Area Wilderness in northeastern Minnesota.

The Boundary Waters Canoe Area Wilderness is an irreplaceable national treasure. The natural beauty and quiet wilderness character of the Boundary Waters are threatened by sulfide-ore copper mines proposed within the watershed of the Wilderness. While federal and state laws prohibit mining activities within the Wilderness and on some adjacent national forest lands, the laws are not sufficient to limit impacts and encroachment on the Wilderness from activities that occur outside the Boundary Waters.

Independent scientific studies show that sulfide-ore copper mining on lands adjacent to rivers and lakes that flow into the Boundary Waters and into Voyageurs National Park and Ontario's Quetico Provincial Park would seriously harm the Wilderness and the Parks as well as the lands and waters on which mining activity occurs. Because of the spectacular natural quality of the area, the likelihood of contamination from outside the Wilderness borders reaching its interior and flowing through to Quetico and Voyageurs, and the consistent record of pollution and destruction by the sulfide-ore copper mining industry, the watershed of the Boundary Waters is the wrong place for such mining.



“There are some places that simply warrant permanent protection because of their ecological (and economic) significance—the Boundary Waters definitely falls into this category.” — Collin O’Mara, President and CEO, National Wildlife Federation



At Risk: Our Cherished Boundary Waters Canoe Area Wilderness

“If sulfide mines are developed in the Rainy Headwaters [part of the Boundary Waters watershed], it is not a question of whether, but when, a leak will occur that will have major impacts on the water quality of the Boundary Waters Canoe Area Wilderness.”

— Tom Myers, PhD, hydrologist

Photo: Jim Brandenburg

Every year, hundreds of thousands of people travel from all over the world to experience the natural wonders, accessible recreation opportunities and peaceful solitude of the Boundary Waters, Voyageurs and Quetico. These public lands constitute one of the largest expanses of protected intact boreal forest in North America.

The clean water in the interconnected lakes, streams and wetlands supports abundant populations of walleye, northerns, trout and bass that attract anglers from all over the world. Beloved Northwoods animals and birds—moose, wolves, lynx, deer, pine martens, loons, bald eagles, ospreys, warblers, jays, owls, woodpeckers and many more—call the Boundary Waters, Quetico and Voyageurs home and rely on their unparalleled habitat.

The ecosystem’s size and ecological integrity are assets against climate change as well. Approximately 2 million acres of forest in the Boundary Waters, Quetico and Voyageurs remove carbon dioxide from the atmosphere. Further, the intact natural habitat allows ecological processes to occur with little interference from humans, resulting in increased opportunities for adaptation, migration and other responses to climate change. The magnitude of the lands and waters at risk from copper mining is breathtaking.



Scientists agree that some places are too ecologically sensitive to risk to mining.

In 2014, researchers from Michigan State University, Oregon State University, the USGS Great Lakes Science Center, and the International Joint Commission Great Lakes Regional Office published a peer-reviewed study that concluded,

“Mining should be excluded from ecologically- and culturally-significant catchments [watersheds].”ⁱ



Dr. Tom Myers, a hydrologist who studied the Boundary Waters and Voyageurs watershed, also concluded in his peer-reviewed article,

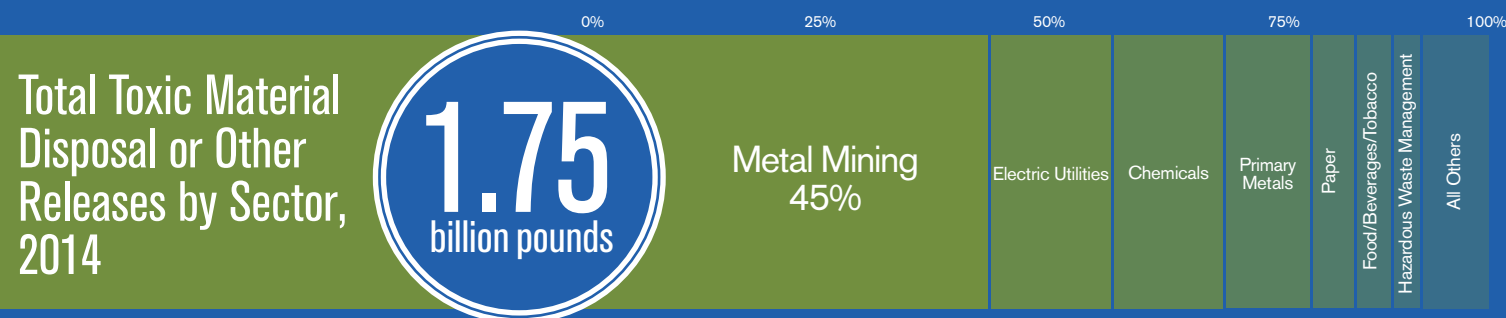
“Mine facilities should be located based on the potential for a leak or spill to damage downstream resources, as predicted with watershed-scale transport modeling . . . Some areas should not be mined at all due to the risk to downstream resources.”ⁱⁱ



Toxic Spills Happen:
Mount Polley, British Columbia, 2014

Photo: Jonathan Hayward, The Canadian Press

Sulfide-Ore Copper Mining Pollution: Only a Matter of Time



Metal mining is America's most toxic industry. (EPA Toxic Release Inventory, 2014)



Widespread Spillage & Water Pollution

An Earthworks study of 14 copper mines representing 89% of US copper production in 2010 found that all 14 experienced some sort of pipeline spill or other accidental release.

93%

Water collection & treatment failures significantly harming water quality occurred at 13 of the 14 mines.ⁱⁱⁱ



Accidents Happen

At least 13 catastrophic dam failures have occurred around the world since the beginning of 2010, killing hundreds of people, flooding towns and impairing drinking water.^{iv}



Catastrophic tailings dam failures are predicted to increase as a result of modern mining practices.^v



Underestimated Damage

Environmental review consistently fails to predict water quality damage or to acknowledge or properly estimate the potential for acid mine drainage at nearly all the mines at which this pollution later occurred, according to a 2006 study of American mines.^{vi}

All Liners Leak

Methods to prevent, treat and mitigate water contamination at modern copper mines are insufficient and have not significantly improved in recent decades. Dr. David Chambers, a mining technologies expert, concluded,

"It is not feasible, given today's or tomorrow's technology, to reduce the risk of impacting waters downstream from a copper/nickel mine in a sulfide ore body to zero."^{vii}

Newspapers and reports say that Antofagasta, the corporate owner of Twin Metals Minnesota, has been accused of harming local water supplies and angering local communities:^{viii}



Los Pelambres Mining, owned by Antofagasta, was responsible for the "biggest amount of toxic spills into the waters in the Region of Coquimbo" between 2008 and 2010, according to two social justice nongovernmental organizations.^{ix}



In Caimanes, locals claimed independent testing showed contamination and that the water was "not fit for human consumption" near the Los Pelambres mine.^x



After local concerns over the disruption of water flow, a Chilean court ordered Antofagasta to tear down its massive tailings dam at Los Pelambres.^{xi}

At Risk: Forests & Wildlife^{xii}

Sulfide-ore copper mining would cause major damage to forest ecosystems over large areas of Superior National Forest and Boundary Waters:

Sulfide-ore copper mining would destroy and fragment thousands of acres of healthy forest for waste piles, tailings ponds, buildings, roads, chemical storage facilities, electric transmission lines, tailings slurry pipelines and other industrial installations.

24-hour noise, light, dust and traffic from mining operations would threaten animals' ability to travel, find core habitat and go about their lives. Animals that are already stressed (like the moose) would be especially at risk.

Reduced forest resiliency would harm not only the natural world, but also recreation and tourism opportunities in the Boundary Waters and the economies of Wilderness-edge communities.

Impacts from industrializing the landscape could add to or synergize with climate change impacts, which could ultimately reduce the ability of the forest ecosystem to respond to both abrupt disturbances (such as wind, fire and disease) and long-term change.

At Risk: Clean Water^{xiii, xiv, xv}

- Acid mine drainage, which includes sulfuric acid, heavy metals and sulfates, results from chemical reactions upon the exposure of sulfide-bearing ore to air and water.
- The low quality of the ore means there would be massive amounts of toxic waste.

Contaminant spills would be devastating.

- The area's interconnected waters are of extremely high quality and have a poor capacity to buffer acid.
- Stopping the spread of pollution would be extremely difficult.
- Water usage by the mine could lower the surrounding water table, wreaking havoc on rivers, lakes and wetlands and drinking wells.

Acidification, heavy-metal leaching, and sulfate pollution would harm fish and their habitats.

- Increased methylmercury would travel up the food chain and harm fish, loons, eagles, ospreys and humans.

Sign the petition at SavetheBoundaryWaters.org

Learn more detailed information about the science behind the threats at

SavetheBoundaryWaters.org/Science

Share your concerns & love of the Boundary Waters:

Sources

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