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Honoring the river

how hardrock mining impacts tribal communities

a report by the
National Wildlife Federation
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Alaska Inter-Tribal Council

Bad River Band of Lake Superior Tribe of Chippewa Indians

Lac du Flambeau Band of Lake Superior Chippewa Indians

Sokaogon Chippewa Community

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"We call upon
the waters
that rim the earth,
horizon to horizon,
that flow
in our rivers
and streams,
that fall upon
our gardens and fields,
and we ask
that they teach us
and show us the way."

-Chinook Indian Blessing

exeCutive SummAry

For more than a century, American Indian tribes and Alaska Natives have borne many of the burdens of hardrock mining and few of the benefits. Outdated federal land-use policies originally designed to spur western development make mining a priority on large tracts of public lands at rock-bottom prices to mining companies. Tribes are particularly vulnerable to mining pollution, in large part because reservations are often located in remote areas near or adjacent to public lands where hardrock mines are developed. Many tribal members depend on the land—its fish, game, and vegetation—to survive. Laws intended to protect tribes' interests and sovereignty have frequently been inadequate or ignored, resulting in little or no input from the people most affected, inadequate environmental and public health safeguards, and vast amounts of money bypassing the tribes.

Even as tribes continue to suffer from poisoned rivers, contaminated sacred sites, and other devastation caused by old and abandoned mines, they face a new round of threats. Mines are being proposed from Alaska's Bristol Bay, a watershed that supports the greatest remaining runs of wild sockeye salmon on earth, to the Great Lakes basin, which contains 84 percent of North America's supply of fresh surface water.

It is time to protect our waters by closing two mining loopholes in the federal Clean Water Act (CWA).

The shameful legacy of the Zortman and Landusky gold mines in Montana's Little Rocky Mountains serves as a warning that pure water and industrial mining waste don't mix. The Gros Ventre and Assiniboine tribes have felt the effects of years of cyanide, arsenic, and lead contamination caused by the mines. In the years since the mines' owners filed bankruptcy, public agencies have spent millions of dollars on cleanup and water treatment.

To help prevent the mining disasters of the past from being repeated, two loopholes in the CWA regulations must be closed. These loopholes allow mining companies to dump untreated tailings and other waste directly into wetlands, streams, and lakes. More specifically, agency regulations currently allow mines to treat waters as "waste treatment systems," which are not protected by the CWA, and to treat mining waste as "fill material," which is not subject to normal pollution standards.

These loopholes undermine the landmark law passed to protect our country's waters, fish, wildlife, and human health. The Environmental Protection Agency and Army Corps of Engineers can enforce the Clean Water Act law as intended by making two simple regulatory changes. Water is the lifeblood of all living things. It must be protected.

foreword

DMITRY AZOVTSEV

"I can't remember who told us it would happen. I think a kid at school mentioned it. I looked at my cousins, Derek and Tim, and then down to the Mason jar stuffed full of leeches. We gathered close to that Mason jar. The leeches were a cross-section of sizes and colors. All had once called the rocks and water of Denomie Creek home. That was until the day we invaded their world, overturned everything and plucked them from their rightful place -:-

Those rocks. Those rocks they are on a journey. All rocks are on a journey to big water. They have a spirit, a power, a mystery. Everything does. When you pick up those rocks make sure you put them back again. If you take those round ones, those grandfather stones, understand that you won't be able to keep them. Sooner or later the little people that made them will come and get them back from you. Watch, you'll see -:-

My cousins looked at me and I could tell by their eyes they were ready for our dark experiment to begin. I brought forward the shaker of Morton's salt and opened it up. Tim opened the jar of leeches and set the cap aside. I took the Morton's salt and emptied it into the jar. We put the cap back on, gave everything a shake and set the jar down on the table. Like a churning, writhing thing, the black mass started moving and whirling. Soon blood started to come forth -:-

Those red cliffs open up during the storms when the thunderbirds are in the sky. The little people come out and make those grandfather stones. They make those stones right here on the shore of Gitchigumi. They are sacred. All stones are sacred. Look at them in the water. They are different when they are under that clear water. If you grab one that you like because of the color, watch what happens when you pick it up and watch it dry. After it dries and in your hand it loses its luster. It belongs on that bed of rocks under the lake. It calls that bed home. Under that water, with those other rocks, is where it's supposed to be. Even in your hand, the spirit looks to leave, to go home. All rocks are on a journey to big water -:-

Soon lots of blood filled the jar. It became clear that the salt was burning and eating away at every leech in the jar. Blood filled the jar. Soon it was just a jar full of red with twinges of black here and there. I remember being fascinated and horrified at the same time. I remember wanting to make it stop -:-

There are rocks in the ground that will bleed. There are rocks in the ground that bleed. There are rocks in the ground that should never be moved. There are rocks that are home and all the things that they need to protect their spirit are provided for them -:-

I looked at the Mason jar and at the faces of Derek and Tim. Rezboys know when the laws of mother nature are broken. It was evident. We put on brave faces but in our eyes the wrongness of what we did was evident. The leeches were living beings and they had a spirit. I could see it in the jar. My cousins and I didn't know any better, we were just kids. That salt forced the spirit out of our waterborne captives. That salt was an agent of change upon exposure with the spirit in those leeches -:-

There are rocks underground that can never come into contact with air and water. Their time in the light of day has either passed or is not meant to be. There are rocks in the ground that are home. Air and water are agents of change upon exposure with the spirit of some rocks. There are rocks in the ground that will bleed. The blood from an ancient spirit is powerful. So powerful that it will destroy just about everything that air and water love. The rock sends a message that the laws of mother nature were broken -:-

I took the jar full of leeches and salt and dumped it in the weeds back behind my house. When I dumped it on the ground I realized that the mass was still, after all, a bunch of leeches. Misplaced, dead, leeches. We were just kids we didn't know any better -:-

When these rocks come up, are dug up, are ripped out of the ground, they will bleed sulfuric acid upon exposure to air and water. Their pulverized remains will be dumped in some wet weedy area near their original home. There they will continue to bleed. The mass will still be, after all, a pulverized mass of rocks. Misplaced, dead, rocks. All rocks are on a journey to big water. Even rezboys know that."

Mike Wiggins, Jr.
Chairman of the Bad River Band of Lake Superior Chippewa Tribe

introduction

American Indian tribes across the United States have been severely impacted by the tailings and other toxic waste dumped into America's waterways by the metals mining industry. Tribes own and manage over 95 million acres of land, much of it containing large intact habitats, abundant wildlife, clean water and air, and unique cultural and historic resources. Nearly two million acres of Indian land are subject to mineral leases administered by the U.S. Department of the Interior.

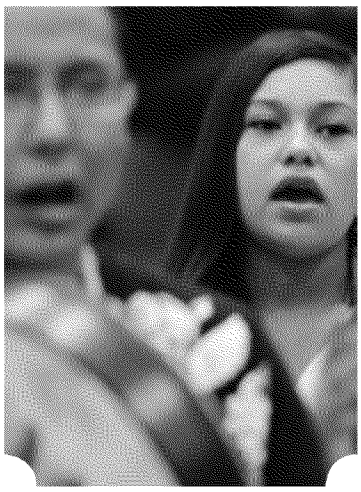
Historically, mining on or near tribal and traditional use lands occurred with minimal input from tribes. Beginning in 1891, Congress passed a hodgepodge of federal laws allowing mining companies to lease minerals on tribal lands—often without tribal consent. Until the early 1970s, Indian mineral owners were passive leaseholders with little authority over mining operations, waste disposal, the location of roads and other infrastructure, or the use of timber, water, and gravel. Tribal communities bore the impacts to air, water, and sacred sites while government agencies and corporations made the decisions about leasing and mining practices.

America's desire for gold and other valuable metals also led to tribes being divested of traditional lands with the potential for mineral development. Bowing to public pressure for access to deposits found on tribal lands, the federal government sometimes forcefully renegotiated treaties, adjusted reservation boundaries, and pressured tribes into selling mineral-rich land. As a result, hardrock mines were—and continue to be—developed in close proximity to Native communities.

Hardrock mining has devastated tribal communities. Many mines, such as the Zortman-Landusky mine, south of the Fort Belknap Indian Reservation in north central Montana, and the silver, lead, and zinc mines of Idaho's Silver Valley,adjacent to the Coeur d'Alene Reservation, polluted public water systems, poisoned fish and wildlife populations, and contaminated sacred sites before becoming federal Superfund sites. Other mines, such as the Midnite uranium mine in eastern Washington, created serious health risks.

These impacts are not relics of the past or limited to mines in the western U.S. A wave of exploration and mining is sweeping the country, including the landscape of the upper Great Lakes region where Indian tribes have ceded vast territories that are still used to support subsistence and spiritual practices. One new hardrock mine is under construction, two more are obtaining permits, and at least a dozen more mines are being considered in the area.

We can't undo the inequities of the past, but we can do something to ensure more responsible mining in the future. We can close two loopholes in the regulations implementing the Clean Water Act (CWA) that currently allow hardrock mines to treat the nearest river, lake, or wetland as a waste dump for massive quantities of toxic, acid-producing tailings. Closing the two loopholes will not stop hardrock mining, but it will help protect fish, wildlife, and tribal communities from the chemicals, heavy metals, and acid drainage that are the by-products of modern mining.



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HiStory of triBeS & HArdroCk mining

"There is nothing more dangerous to an Indian Reservation than a rich mine." [1] - Interior Secretary Carl Schurz, 1871

Establishment of Reservations & the General Allotment Act

In the 19th and early 20th centuries, the federal government established Indian reservations through treaties with tribes, executive orders, and acts of Congress. Establishment of reservations shrunk ancestral tribal territories by tens of millions of acres and fixed political boundaries for Indian lands that confined tribes to specified places. Federal officials often delineated tribal reservation boundaries to exclude nearby mineral deposits (particularly gold), thus making those valuable resources available to non-Indians.

The Dawes Act of 1887 created a "checkerboard" of ownership interests on reservation land by granting individual allotments. The goal was to replace the historical tradition of communal property with private property rights. Officials saw property as the means to civilization, assimilation, creation of Indian farmers, and self-support. The federal government made lands not allotted, often called "surplus" lands, available for homesteading by non-Indians. Land status on reservations thus fell into several categories: trust lands managed by the federal government for tribes, allotted lands, and lands owned by non-Indians.

Allotment divided reservations among Indian and non-Indian owners, making the protection of Indian natural resources extremely difficult. Most tribes retained subsurface rights to minerals on trust lands but the status of minerals on fee lands was unclear and led to disputes about whether mineral rights belonged to individuals or the tribes.[2]

Alaska Native Claims Settlement Act

In 1967, North America's largest oil field was discovered on Alaska's Arctic coastal plain. The Prudhoe Bay discovery created intense pressure to eliminate potential obstacles to oil field and pipeline development, such as Native land claims. In 1971, Richard Nixon signed the Alaska Native Claims Settlement Act (ANCSA) extinguishing Alaska Native title to lands and creating more than 200 local villages. ANCSA authorized Native groups to select tracts of public land in or near Native villages and individual Natives to claim home sites of up to 160 acres. The act established twelve regional corporations in which individual Natives would

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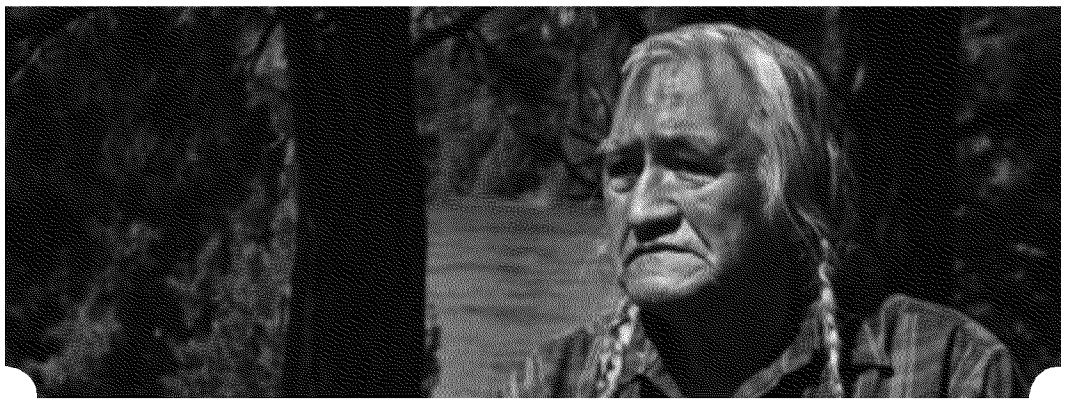
[1] Marjane Ambler, *Breaking the Iron Bonds: Indian Control of Energy Development* (Lawrence: University Press of Kansas, 1990), 32.

[2] Garrit Voggesser, "Of Woods, Wilderness, and Water: Negotiating Natural Resources on the Blackfeet, Flathead, and Fort Peck Reservations, 1885-1945" (Ph.D. Dissertation, University of Oklahoma, 2004), 31, 260. For more details on trust and fee lands, see Maura Grogan, "Native American Lands and Natural Resource Development," Revenue Watch Institute, New York, New York, 2011, 11-12.



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receive corporate stock. A thirteenth regional corporation was later created for Alaska Natives who no longer resided in the state. Native villages within each region formed village corporations with title to surface lands, while the regional corporations acquired the mineral rights.[3]

Although ANCSA allowed Alaska Natives to avoid the land and resource policies that significantly diminished the tribal estate in the lower 48 states, it was, and still is, controversial. The act was passed quickly without an opportunity for full debate at the community level and was never voted upon by individual Alaska Natives. It also created potential conflicts between the newly-established Native corporations and traditional tribal governments.

Tribal Sovereignty, Self-Determination, and the Trust Responsibility

Indian tribes are sovereign governments. However, they are not independent of the U.S. because the federal government serves as a trustee for tribes. Nonetheless, over time, the concept of tribal sovereignty has progressed towards the fuller expression of tribal self-government and self-determination with the federal government taking a lesser role in tribal decision-making (see discussion on the Indian Reorganization Act). The primary role of the federal trust responsibility to Indian tribes involves the management and protection of Indian lands and resources. The federal government has a legal responsibility to act "in the best interests of tribes"; however, what is deemed the best interest of tribes has been complicated by the multiple motives of federal managers and their judgments about what tribes should do or should be.[4]

History of Mineral Development on Tribal Lands

Mineral development on Indian reservations has proven a mixed blessing for tribes. Federal decision-makers have not always fulfilled their Indian trust responsibilities and have brokered deals that made non-Indian developers rich at the expense of tribes. While some tribes have received considerable income from hardrock mining, the economic benefits have often been outweighed by the impacts to tribal health, natural resources, and culture.

In 1891, Congress enacted the first legislation for leasing minerals on tribal lands, authorizing ten-year mineral leases of "bought and paid for" land (reservation lands

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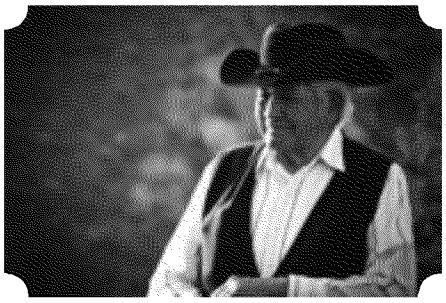
[3] Robert McCarthy, "The Bureau of Indian Affairs and the Federal Trust Obligation to American Indians," *BYU Journal of Public Law* 19:1 (Fall 2004), 78-79; 43 U.S.C. §§ 1601-1628 (2004).

[4] Grogan identifies three components of the federal trust responsibility: "the protection of Indian trust lands and Indian rights to use those lands; the protection of tribal sovereignty and rights of self-governance; and the provision of basic social, medical and educational service for tribal members." Grogan, 3, 6, 10.



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set aside by treaty or agreement) not needed for agriculture or allotments. The leases required the approval of the Secretary of the Interior and the consent of the tribe. Unfortunately, the stipulation for tribal consent meant very little because tribes frequently did not have the knowledge and experience to make informed decisions about leasing, while economic hardship and external forces put significant pressure on tribes to develop.[5]

In 1934, Congress passed the Indian Reorganization Act (IRA) to "promote" tribal sovereignty and self-governance, returning to the tribes more control over their natural resources. Despite provisions for tribal consent in Indian mining law, mineral leasing on tribal lands had been largely, if not wholly, directed by the Bureau of Indian Affairs (BIA). While tribes organized under the IRA gained new authority over mineral development, some tribes did not organize under the act, creating inconsistencies in mineral leasing.[6]

In 1938, Congress passed the Omnibus Indian Mineral Leasing Act (IMLA) regulating the management of Indian minerals for the next forty-four years. Congress anticipated that the IMLA would bring consistency to mineral leasing on tribal lands by providing a "repealer clause" for the contradictions in past legislation. Congress intended the IMLA to encourage tribes to take full advantage of their economic development opportunities and increase mineral leasing profits.[7]

The IMLA streamlined Indian mineral leasing. Leases required competitive bidding, tribal consent, and Interior Secretary approval, and set the lease term at ten years so long as minerals "produced in paying quantities."[8] However, despite the IMLA's advances, it left out many important considerations. Tribes had limited authority to cancel leases or to seek redress if lessees did not live up to lease terms, and the IMLA did not address such issues as cultural and natural resource preservation. In a period of general economic depression coupled with long-term poverty in Indian communities, the environmental impacts of mineral development simply were not a priority.

As development intensified in the post-World War II years, tribes fought for control of their resources. In the 1950s, the federal government sought to terminate tribal land rights, trust rights to mineral resources, and mineral rights on allotted lands. The "termination era" was sold as an effort to allow Indians to enjoy equal rights to other American citizens. In fact, it was a direct attempt to seize the natural resource wealth controlled by tribes. The attacks on Indian ownership generated tribal factionalism and weakened the authority of tribal councils. While the threat

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[5] Felix S. Cohen, *Cohen's Handbook of Federal Indian Law* (Newark, NJ: Lexis Nexis, 2005), §17.03; Maggie Fox, "An Historical, Statutory and Regulatory Review of Oil and Gas Leasing on Indian Lands and the Proposed Changes: 'Better Late Than Never,'" unpublished manuscript (Boulder, CO.: Native American Rights Fund, National Indian Law Library, June, 1982) (hereafter NARF), 35; Ambler, 37.

[6] Rebecca Tsosie, "Tribal Environmental Policy in An Era of Self-Determination: The Role of Ethics, Economics, and Traditional Ecological Knowledge," *Vermont Law Review* 21 (1996-1997), 301; *Breaking the Iron Bonds*, 52; Cohen, §17.03.

[7] Fox, 41; Cohen, §17.03.

[8] Ibid.

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of termination diminished after the 1950s, it left an indelible mark on tribal leaders seeking greater control for their people.[9]

In the aftermath of termination, the federal government's trust responsibility to tribes became central to federal mineral policy on tribal lands. The passage of the National Environmental Policy Act (NEPA) in 1969 was a response to the public's demand for greater protection of the nation's natural resources and interest in participating in major federal actions, such as mineral development, which may impact the quality of the environment, human health, and cultural sites. While NEPA does not explicitly address tribes and tribal resources, courts found that the federal government's trust responsibility established obligations under NEPA unless there is legislative language to the contrary. In the context of Indian mineral development, the Interior Secretary's approval authority is subject to NEPA and requires the Secretary to consider the environmental impacts of mineral development when approving leases.[10]

In the late 1960s and 1970s, a significant shift occurred in Indian attitudes about mineral and energy resource development. The 1938 IMLA aimed to bring consistency to Indian leasing, foster tribal sovereignty and self-government, and bolster Indian economies. However, the act's failures, not its successes, catalyzed the escalation of tribal self-government and sovereignty and the exposure of financial mismanagement. Numerous government studies from the late 1950s to the early 1980s highlighted the inefficiency and inadequacy of federal policy regarding tribal lands, the paltry income generated for many tribes, and the significant cultural, environmental, and other community impacts of mineral and energy development.

Federal Indian policy, particularly with respect to mineral development, wrote Arizona Congressman Morris K. Udall, could be termed nothing more than a "general failure."[11] Indian mineral resources had certainly generated significant

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[9] Charles Lipton, "Indian Energy Resource Development: The Legal and Economic Considerations," Speech presented at the Conference on Energy Resource Development and Indian Lands, Billings, Montana, September 28-29, 1977 (NARF); Ambler, 53-4.

[10] Andrea S. Miles, "Tribal Energy Resource Agreements: Tools for Achieving Energy Development and Tribal Self-Sufficiency or An Abdication of Federal Environmental and Trust Responsibilities?" *American Indian Law Review* 30:3 (2005/2006), 466; Fox, 54; *Davis v. Morton*, 10 CIR 378 (1972); *Federal Power Commission v. Tuscarora Indian Nation*, 362 U.S. 99 (1960).

[11] Fox, 57; U.S. Senate, "Department of the Interior and Related Agencies Appropriations for Fiscal Year 1980," Hearings before a Subcommittee of the Committee on Appropriations, 96th Cong. 1st Sess. (Washington, D.C.: GPO, 1980), 957.

[12] Peter MacDonald, "An Indian View of Minerals Development on Indian Lands," *Institute on Indian Land Development – Oil, Gas, Coal and Other Minerals*, Rocky Mountain Mineral Law Foundation, Tucson, Arizona, April 1-2, 1976, 1-5.

economic returns, but the lion's share had not flowed to tribes. "If we have benefited from mineral development," Navajo Chairman Peter MacDonald pointed out, "the rest of the United States has certainly benefited much more."[12]

The record profits for companies and minimal returns for tribes became the predominant theme of conflict over Indian mineral development in the 1970s. Federal policy for tribal lands sanctioned substandard leases that restricted tribes' ability to get fair returns for their resources. The Interior Department approved mineral leases that essentially wrote off most of the profit for tribes. Charles Lipton, a renowned advisor on energy negotiations, charged that the standard lease "passed control over to the lessee, the company—a total surrender of any control whatsoever—and in return the Tribe got the absolute, bare rock-bottom price."[13]

Underpayments and inequitable royalties highlighted the shortcomings of federal agency oversight of Indian mineral development.[14] A 1976 study by the General Accounting Office found that the majority of BIA agencies on reservations did not have adequate mineral expertise. In fact, the report's authors noted, "minerals management is . . . carried out by staff without formal minerals training."[15] "Information is power in mineral development," one federal commission argued, and multinational corporations had larger pocketbooks to access it than tribes.[16]

Years of conflict culminated in a push to rewrite federal policy governing tribal mineral development for the previous forty years. The 1982 passage of the Indian Mineral Development Act (IMDA) offered great hope that tribes would finally control their mineral resources and determine the future well-being of their people and homelands.[17] To counteract the poor revenues from low offers in the competitive bidding process under the standard lease procedure, the IMDA authorized tribes to develop joint ventures, service contracts, and other alternative

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[13] Fox, 1; Lipton.

[14] Margaret Swimmer, "Indian Tribes: Self-Determination Through Effective Management of Natural Resources," *Tulsa Law Journal* 17 (1981-1982), 525; Ambler, 118-20.

[15] U.S. General Accounting Office, "Indian Natural Resources—Part II: Coal, Oil, and Gas, Better Management Can Improve Development and Increase Indian Income and Employment," Report to the Senate Select Committee on Interior and Insular Affairs (Washington, D.C.: General Accounting Office, 1976), 11.

[16] Ibid., 32; U.S. American Indian Policy Review Commission, *Final Report Submitted to Congress*, May 7, 1977 (Washington, D.C.: GPO, 1977) (hereafter AIPRC), 341; U.S. American Indian Policy Review Commission, Task Force Seven, Reservation and Resource Development and Protection, *Report On Reservation And Resource Development And Protection* (Washington, D.C.: GPO, 1976) (hereafter Task Force Seven), 22, 47, 49-50, 139.

[17] Task Force Seven, 47; Swimmer, 511, 521-22.

[18] Cohen, §17.03; Swimmer, 510-511; Fixico, 149; Thomas H. Shipps, "Oil and Gas Lease Operations and Royalty Valuation on Indian Lands: What is the Difference in Federal and Indian Leases?" *Indian Law Support Center Reporter* 15:10-12 (1992), 5.

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agreements for mineral and energy development. The IMDA required the Interior Secretary to ensure that the agreements were in the best interest of the tribes and to consider the full range of potential cultural, environmental, social, and other impacts to the tribes and their resources. In short, the act extended much greater control to tribes and represented a significant change to the status quo.[18]

Despite the progress represented by the IMDA, mineral leasing continues to pose threats to tribes and tribal resources. One major shortcoming of the act is that it does not affect mining on lands adjacent to reservations, which in some cases were removed from the reservations specifically to allow mineral development, or to traditional use lands which often contain cultural and subsistence resources that are impacted by mining. Moreover, while substantial advancements have been made in tribal sovereignty, self-determination, and management of mineral resources, greater tribal control has also meant new responsibilities and risks. Tribes are free to assume agreements that involve significant financial risk and must acquire internal expertise or outside assistance to make the complex financial, geological, and environmental decisions related to mineral development. In addition, they must deal with the threats posed by modern hardrock mining—desecration of cultural sites, scarring of the land, impacts to fish, wildlife, and other natural resources, and pollution of waterways—in an era in which the government exercises its trust responsibilities circumspectly.

1872 Mining Law

No discussion of hardrock mining is complete without at least mentioning the archaic 1872 Mining Law. Signed by Ulysses S. Grant to encourage development of the frontier, the act makes more than 270 million acres of federal land available for mining and gives the industry priority over other uses. The 140-year-old law is still on the books even though there have been dramatic changes in America's demographics, economy, cultures, and values. Because the law gives mining precedence over all other uses for public lands, it is difficult to balance mining with other priorities such as wildlife conservation.[19] Tribes are affected by the 1872 Mining Law because reservations are often adjacent to or near public lands and traditional use areas sometimes include public lands. For example, the Zortman-Landusky gold mine, located on federal land in Montana, is just south of the Fort Belknap Reservation. The mine's acid runoff polluted streams and groundwater, poisoning community water supplies (see case study on the Zortman-Landusky gold mine).

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[19] Sportsmen United for Sensible Mining, http://www.sensiblemining.org/. Roger Di Silvestro, "A Legalized Assault on Public Lands," http://www.nwf.org/News-and-Magazines/National-Wildlife/News-and-Views/Archives/2008/A-Legalized-Assault-on-Public-Lands.aspx.

HArdroCk mining & wAter PoLLution

tailiNGs disposal aNd acid miNe draiNaGe

Hardrock mining pollution has devastated streams, lakes, wetlands, and groundwater around the world. In particular, mining activities pollute waterways by increasing concentrations of heavy metals and creating acid mine drainage. Common heavy metals generated at mine sites include arsenic, mercury, and lead, all of which are toxic to wildlife, fish, and people. Native peoples are especially at risk from mining pollution due to their lifestyle and culture.

In 2000, the global mining industry extracted some 900 million tons of metal—and left behind 6 billion tons of waste ore. This figure does not include the overburden earth moved to reach the ores.[20] Mining companies dump more than 180 million tons of hazardous mine waste each year into rivers, lakes, and oceans worldwide, threatening vital bodies of water with toxic heavy metals and other chemicals poisonous to humans and wildlife. Every year there is more mine waste discharged into the planet's waterways than municipal waste dumped in U.S. landfills in 2009.[21]

One of the most harmful mining practices, and a common source of mining pollution, is the discharging of mine tailings into natural waterways as a form of "disposal." Tailings are the waste materials left after the target minerals have been removed from the mined rock and can contain as many as three dozen dangerous chemicals including arsenic, lead, and mercury, as well as processing chemicals such as petroleum byproducts, acids, and cyanide.[22] Tailings are often high in metals and frequently generate acid mine drainage (AMD).

Tailings have smothered and flooded vast areas of wetlands and forests.[23] They contaminate downstream waters and river beds with sediment, toxins, and AMD that can persist for many decades after dumping ends.[24] Tailings destroy aquatic habitat, poison fish with toxins such as cadmium, lead, and copper, and kill fish and other wildlife, including waterfowl.[25] Contamination can also spread from rivers to floodplains. In the Coeur d'Alene basin of Idaho, over 3,800 square kilometers of floodplain were contaminated and toxins from tailings killed grazing livestock.[26] Mine wastes originally dumped into rivers have contaminated private drinking water wells and forced people to relocate their homes.[27]

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[20] Payal Sampat, "Chapter 6. Scrapping Mining Dependence," *State of the World 2003*, The Worldwatch Institute (New York: W.W. Norton and Company, 2003).

[21] Earthworks and MiningWatch Canada, *Troubled Waters: How Mine Wastes Is Poisoning our Oceans, Rivers and Lakes* (February 2012).

[22] Robert E. Moran, "Mining Submarine Tailings Disposal [STD] – Summary Concepts," Presented to the International Maritime Organization, Scientific Group of the London Protocol, May 2008.

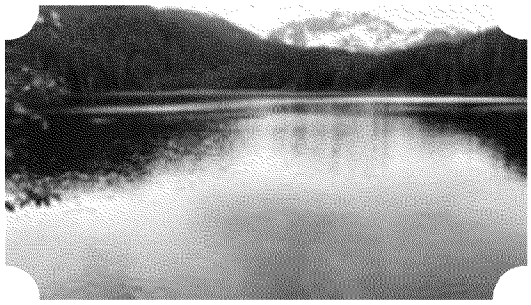
[23] Ibid., 9-10.

[24] Ibid., footnote 16.

[25] Ibid., footnote 17.

[26] Ibid., footnote 18.

[27] Ibid., footnote 19.



irene alexakos
lower slate lake before and after kensington mine operations

alaska DeparTmenT of environmenTal ConservaTion

Acid mine drainage is a particularly dangerous byproduct of hardrock mining. Of the estimated 500,000 abandoned mines in the western United States, some dating back to the late 19th century, many continue to pollute today. According to the U.S. Environmental Protection Agency (EPA), stream reaches in the headwaters of more than 40% of western watersheds are contaminated by mining, much of it related to AMD.[28] AMD still seeps from mines in Europe that were worked by the Romans before A.D. 476 [29] and modern mines, such as the proposed Phoenix gold mine in Nevada, are predicted to produce AMD for as long as 10,000 years.[30]

Advances in technology do not change the basic physical reaction that occurs when sulfide-bearing rock is exposed to air and water: the sulfides oxidize and create sulfuric acid, which moves through and over the rock, mobilizing heavy metals. AMD can originate from many sources, including:

- tailings dumped into natural or man-made water bodies,
- open pit mines,
- underground mines,
- haul roads and access roads,
- ore stockpiles,
- exploration areas,
- reclamation areas after a mine is closed, and
- waste rock and tailings piles.

AMD can be 20 to 300 times more acidic than acid rain and can burn human skin and kill fish and other aquatic organisms.[31] The extreme acidity of AMD can increase the amounts of heavy metals, including cadmium, zinc, lead, arsenic, selenium, and mercury in impacted waterways. When the acidic water moves over and through ore, waste rock, and tailings containing these metals, the metals become more mobile, leach out, and dissolve into the AMD. In dissolved form, heavy metals become more dangerous because they are more readily absorbed by plants and animals, which store them in fatty tissues. While many of these metals are not harmful in trace amounts, in higher concentrations they can be toxic and even fatal. Wildlife generally has lower tolerance to metals than do humans.[32]

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[28] U.S. Environmental Protection Agency, *Liquid Assets 2000: America's Water Resources at a Turning Point* (May 2000).

[29] University of Washington, Center for Streamside Studies, College of Forest Resources and Fishery Sciences, *Environmental Impacts of Hardrock Mining in Eastern Washington* (2000).

[30] Felicity Barringer, "Mine's Pollution is Focus of Federal Agencies' Duel," *The New York Times* (March 8, 2004).

[31] Proceedings of the First Midwestern Region Conference, Southern Illinois University, Carbondale, Illinois, July 18-19, 1990. See also Carlos D. Da Rosa and James S. Lyons, *Golden Dreams, Poisoned Streams: How Reckless Mining Pollutes America's Waters, and How We Can Stop It* (Washington, D.C.: Mineral Policy Center, 1997), 56.

[32] See *Golden Dreams, Poisoned Streams*, 64.

Dan king

earThworks

Once the process begins, AMD is difficult and expensive to slow and virtually impossible to stop. It must simply run its course. Alkaline or basic materials like limestone can help neutralize runoff, but they do not stop the creation of AMD. To significantly remediate AMD, water must be treated for years, sometimes in perpetuity. Containing waste rock and tailings piles by covering them and installing liner systems can reduce the rate of reactions by minimizing exposure to oxygen, but these measures do not stop the development of AMD. Whatever treatment and containment systems are used, decades of monitoring and maintenance are required to have even modest success in limiting damage from AMD.

Impacts to Surface Water

Surface water contaminated by hardrock mining harms plants, fish and other aquatic organisms, birds, terrestrial wildlife, and humans. Exposure can occur as a result of ingestion, swimming in contaminated waters, or eating food that has been tainted by toxins from mine-polluted waters.

Severe impacts to surface water often occur when mining companies use natural waterways for tailings disposal. While dumping untreated tailings into natural waterways poses obvious risks, this method is still used by the industry all over the world and new mines are planning to perpetuate this archaic practice. In June 2010, after 20 years of legal and administrative battles that ended in the U.S. Supreme Court, Coeur d'Alene Mines Corporation of Idaho began extracting ore from the Kensington gold mine in the Tongass National Forest in southeast Alaska. The mine is expected to generate an estimated 7 million tons of process waste. To hold that waste, the company has drained Lower Slate Lake and is dumping the tailings into the lake basin, killing all aquatic life.[33]

In addition to contamination from process chemicals and AMD, mine-related erosion and sedimentation can create short-term and long-term impacts to surface water. Elevated concentrations of particulate matter can produce both chronic and acute toxic effects in fish. The buildup of sediment in stream beds also destroys habitat by filling pore spaces between cobbles and reducing suitable fish spawning areas. Over the long-term, bio-geochemical reactions in deposited contaminated sediments may result in re-suspension of dissolved forms of heavy metals in the water column.[34] Contaminated sediments in soils can also lower the pH to the extent that vegetation and suitable habitat are lost.[35]

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[33] See *Troubled Waters*, 7.

[34] U.S. Environmental Protection Agency, *Potential Environmental Impacts of Hardrock Mining*, Appendix B (September 1997), 10.

[35] Ibid.

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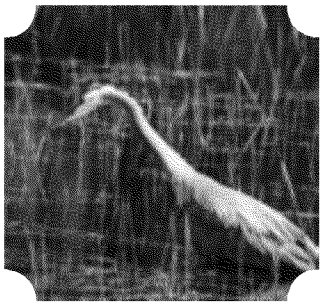

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One of the most harmful and widespread impacts of hardrock mining is the destruction of wetlands. Wetlands perform a wide range of important functions including moderation of flood flows, groundwater recharge, and nutrient recycling. They also provide essential habitat for many species of fish, wildlife, and waterfowl. Wetlands are considered special aquatic sites under the Clean Water Act: "From a national perspective, the degradation or destruction of special aquatic sites, such as filling operations in wetlands, is considered to be among the most severe environmental impacts." [36] Despite their importance, more than half of the wetlands in the conterminous United States have been destroyed since European settlement. [37]

Although most industries have found ways to avoid the extensive wetlands destruction of the past, hardrock mines continue to dump massive piles of tailings or waste rock directly on top of productive wetlands. For instance, in northern Minnesota, the proposed PolyMet mine would destroy or degrade more than 1,500 acres of wetlands and United Taconite's expansion of its tailings facility would destroy 1,300 acres of wetlands.

Impacts to GrouNdWater aNd hydroloGy

Mining operations can affect groundwater quality in dramatic ways. When mining occurs below the water table, a direct conduit to aquifers can be created. Groundwater quality is also affected when waters (atmospheric, process waters, or wastewaters) infiltrate through surface materials (including overlying wastes, ore, or other materials) into groundwater. In addition, there may be direct hydraulic connections between surface and groundwater. Any of these circumstances can result in elevated groundwater pollution. Contaminated groundwater may subsequently recharge surface waters near the mine by adding to base flow in a stream channel or springs, thereby polluting those surface waters.

EARTHWORKS

[36] 40 C.F.R. § 230.1(d)

[37] U.S. Department of Interior, Fish and Wildlife Service, *Wetlands Status and Trends in the Conterminous United States*, Mid-1970's to Mid-1980's, (1991), 3.

joan saba

imPACtS to triBeS & triBAL LAndS

Native Americans are especially vulnerable to the effects of hardrock mining pollution. This is largely due to the fact that most reservation and trust lands are located in remote areas of the West, precisely where many hardrock mines are found. It is a simple fact of geography that mining pollution has a more direct impact upon rural communities in the vicinity of mines than it does upon the residents of far-flung San Francisco or New York.

Mining impacts on air, water, and fish and wildlife also affect Native Americans more than other groups of people because many Native Americans continue to practice traditional and subsistence lifestyles. The fish, game, and vegetation contaminated by mine pollution can be a critical and irreplaceable source of food for tribal members and communities. They may also play an important role in religious ceremonies and cultural traditions.

The problem is exacerbated by the fact that many people on Indian reservations live at or below the poverty level and have limited access to legal, scientific, and political resources. Poorer communities are at a distinct disadvantage in decision-making processes dominated by wealthy corporations and government agencies. Moreover, many reservation residents are unable or unwilling to sever tribal, family, or land ties in order to relocate to unpolluted areas.

importaNce of Water to tribes

The indigenous peoples who have occupied North America for millennia have a deep-rooted respect for water as a critical component of the ecosystem and are particularly sensitive to the threats posed by water pollution.[38] The following quotes illustrate the important role water plays in the cultures and everyday lives of many Native Americans.

"We give thanks to all the Waters of the world for quenching our thirst and providing us with strength. Water is life. We know its power in many forms--waterfalls and rain, mists and streams, rivers and oceans. With one mind, we send greetings and thanks to the spirit of Water. Now our minds are one." [39]

"We call upon the waters that rim the earth, horizon to horizon, that flow in our rivers and

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[38] Rachel Paschal Osborn, "Native American Winters Doctrine and Stevens Treat Water Rights: Recognition, Quantification, Management," *Journal of Water Law* 20:5 (2010).

[39] Janice Whitney Annunziata, *Haudenosaunee Environmental Restoration: An Indigenous Strategy for Human Sustainability* (Cambridge, England: Indigenous Development International, 1995), vii; Joyce Tekahnawiiaks King, "The Value of Water and the Meaning of Water Law for the Native Americans Known as the Haudenosaunee," *Cornell Journal of Law and Public Policy* 16 (2006-2007), 449-472. "Haudenosaunee" is the Seneca word to denote the "People of the Longhouse" and is sanctioned by the Confederacy of Six Nations to be the word used when referring to the Confederacy. The Mohawk word is "Rotinohnsonni."

streams, that fall upon our gardens and fields, and we ask that they teach us and show us the way." [40]

Chinook Indian Blessing

"*One hundred and fifty years ago we had a resource in the Great Lakes region that was considered inexhaustible. It lasted barely two generations. This was the White Pine forest. The White Pine of this century is water.*"

Frank Ettawageshik, United Tribes of Michigan

"*The indigenous view on water is that it is a sacred and spiritual entity.*"

Jessica Koski, Keweenaw Bay Ojibwa

DECLARATION OF WATER

Pai Yee Siw Ni

As children of water, we raise our voices in solidarity to speak for all waters.

Water, the breadth of all life, water the sustainer of all life, water the voice of our ancestors, water pristine and powerful.

Today we join hands, determined to honor, trust and follow the ancient wisdom of our ancestors whose teachings and messages continue to live through us.

The message is clear: Honor and respect water as a sacred and life-giving gift from the Creator of Life. Water, the first living spirit on Earth.

All living beings come from water, all is sustained by water, all will return to water to begin life anew.

We are of water, and the water is of us. When water is threatened, all living things are threatened.

What we do to water, We do to ourselves. [41]

Adopted at the Hopi Hisotnavoti Gathering,
October 23, 2003, Second Mesa, Arizona

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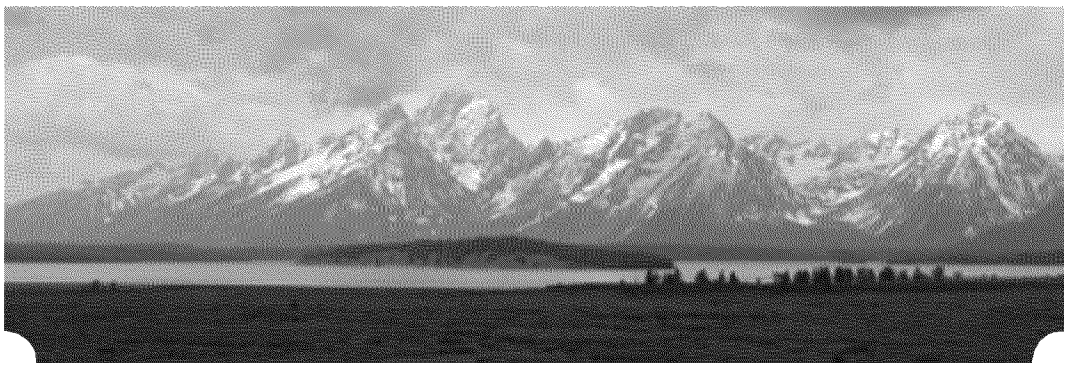
[40] National Wild and Scenic River Systems, *River and Environmental Quotations*. Web. 10 Dec. 2012. <http://www.rivers.gov/rivers/quotations.php>.

[41] Black Mesa Trust. *Declaration of Water:Black Mesa Trust*. Web. 10 Dec. 2012. <http://www.blackmesatrust.org/declaration+of+water.htm>.



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false promises:
the NeGative eCoNomic Impacts of eXtractive INdustries oN tribal laNds

Because energy extraction and mining can provide some of the highest paying jobs in the rural regions where extraction usually occurs, it is often assumed that this development will benefit tribes and local economies. A majority of tribes that have been promised economic prosperity from mining on or near reservation lands have learned the hard way that these claims can be deceptive. Often, mining actually has an adverse impact on tribal communities causing declines in median income and employment rates and an increase in poverty rates.

When studying local economic effects, it is important to focus on actual local impacts rather than on the dollar value of the minerals extracted or electricity produced since much of this value does not remain in the local area. National or international corporations may generate billions of dollars of energy or mineral wealth but that does not necessarily translate into the accumulation of wealth by reservation residents.[42]

For instance, there are 12 extractive industries operating within the Navajo Nation, including extensive mining operations, yet over half of the Navajo population lives below the U.S. poverty line. Currently, the unemployment rate is 43 percent and the annual per capita income is $5,759 according to the Navajo Division of Economic Development. It is clear that the abundance of natural resources and mining activity is no guarantee of employment or a livable income.[43]

There are three main reasons for the lack of economic benefits flowing to tribal communities. First, tribal members have limited access to the high paying jobs associated with mining. The primary local economic benefit of mineral development is the creation of jobs and the payment of wages. Many local tribal members do not have the training or the education necessary to fill the high-paying managerial and skilled jobs that come with mining. Outside labor is generally brought in to fill these jobs.

Second, tribal communities receive insufficient revenues from mineral extraction. A major economic consequence of mining is the generation of taxes by state and local governments. Local counties, cities, states, and even the federal government are all able to raise a significant amount of energy-related revenue through mineral taxation and shared royalties. Tribes are able to levy taxes and royalties on mines

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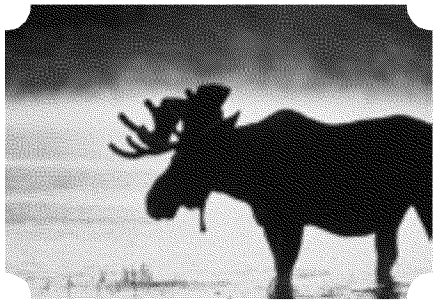
[42] David L. Vinje, "Native American Economic Development on Selected Reservations: A Comparative Analysis," *American Journal of Economics and Sociology* 55:4 (October 1996).

[43] Kimberly Smith, "Black Mesa Water Coalition, Pollution of the Navajo Nation Lands," Presentation to the International Expert Group Meeting on Indigenous Peoples and Protection of the Environment, Khabarovsk, Russian Federation, August 27-28, 2007.



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that are located on reservations but, due in part to historic mismanagement of tribal resources by the federal government, these funds are often insufficient to compensate the communities for the mines' environmental and health impacts. Moreover, since there are seldom any long-term community plans or programs for using mine revenues, these funds are frequently used to develop more mining infrastructure. The problem of insufficient revenues is even worse when extraction occurs near--but not on--reservation lands. Then, tribes have no access to mineral taxes yet suffer many of the negative impacts of mineral development.

Third, tribal and other rural communities have relatively small local economies that provide limited goods and services, leaving many residents and mine workers to purchase products and services from regional hubs. As a result, small towns are not able to take full advantage of the opportunities presented by increased economic activity. The problem is exacerbated by the fact that many employees of mines are not permanent residents of the communities in which they are working, meaning that much of the payroll associated with mining activities simply does not circulate within the local economy.

ties to the lands affected by mining

Tribes are not impacted only by mines that occur on reservation lands. Frequently, mines are developed on non-reservation lands to which tribes have other deep historical, cultural, and treaty connections. For instance, the Zortman-Landusky gold mine, which devastated the Fort Belknap Indian Reservation in north central Montana, was developed on land that was sacred to the Gros Ventre, Assiniboine, and, Sioux tribes[44] and removed from the reservation over their opposition.

> "*A lot of our ancestors in the past used this mountain for vision quests and prayers. That was a very sacred mountain to our people. Now, you go up there and it is just a little pile of rubble. It really affects the old people; a lot of our burial sites were destroyed. There were people buried all over that mountain. They were just digging up the dead.*"
>
> - Catherine Halver, 74, tribal member of the Gros Ventre in Lodge Pole, Montana

On hundreds of thousands of acres throughout the United States, tribes have retained the right to hunt, fish, and gather on off-reservation ceded land. Embedded within the treaties are environmental protections to sustain sustenance resources for tribal well-being.

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44 Jonathan Windy Boy, "We've Seen Enough Destruction from Mining," *High Country News* (October 25, 2004).

COLIN RUGGIERO

To tribes, their lands are not just a convenient location temporarily chosen because of the economic opportunities in the area, but a permanent homeland. Tribal members over many generations have contributed substantial resources to the protection and integrity of their homeland. This commitment to place stands in stark contrast to the large, mobile workforce that comes along with mineral extraction booms.

Impacts from mining affect the traditional economic and subsistence activities that continue to be important to many tribes. Ongoing participation in tribal traditions is a fundamental part of tribal cultural identity. Hunting, fishing, and gathering provide food and medicine and allow tribal members to meet traditional social and ceremonial obligations within their communities. These activities also reflect a deep and abiding respect for the natural beauty and resources of tribal lands. Mining activities throughout the nation have affected the ability of tribal members to exercise their rights to hunt, fish, gather, and practice cultural ceremonies.

For example, the Leviathan mine, an abandoned open-pit sulfur, sulfate, and copper mine high on the eastern slope of the Sierra Nevada mountains in California, operated on and off between the mid-1800s and the mid-1900s and continues to affect tribal resources of the Washoe Tribe of California and Nevada. Acid mine drainage from the mine has seeped into Leviathan Creek, Aspen Creek, Bryant Creek, and the East Fork of the Carson River, contaminating traditional fishing resources and gathering grounds.[45]

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[45] Tanya Lee, "Withdrawing Lands From Mining," *Indian Country Today* (March 16, 2009).

THOMAS QUINN

CASe StudieS

bristol bay, alaska: pebble mine

Alaska's remote Bristol Bay watershed supports the greatest runs of wild sockeye salmon on earth. Every year, millions of bright red salmon return to Bristol Bay to spawn and die. This ageless cycle pumps nutrients into the ecosystem and sustains a rich and varied community of fish and wildlife, including rainbow trout, Dolly Varden, Arctic grayling, brown bears, wolves, caribou, moose, and waterfowl.

Bristol Bay is renowned for its wilderness character, beautiful scenery, and outstanding recreation opportunities, but what makes it unique is its water. The vast Bristol Bay watershed is a mosaic of pristine rivers, streams, lakes, and wetlands. These diverse aquatic ecosystems are virtually untouched by dams, levees, and other structures and provide extremely high-quality habitat. Lake Iliamna, on the eastern side of the watershed, is the largest undeveloped lake in the United States. The waters throughout the watershed are exceptionally pure.

Bristol Bay's remarkable water resources sustain human inhabitants as well as fish and wildlife. More than two dozen Alaska Native communities have practiced a salmon-based culture here for millennia. Salmon are integral to the communities' subsistence lifestyle, spiritual practices, and language. In a place where the nearest Safeway may be 200 miles away and reachable only by plane, people rely on the subsistence harvest of foods such as salmon and moose for 80% of their protein. Bristol Bay's pristine waters and healthy habitat also support a thriving cash economy driven largely by sport and commercial fishing and a growing nature-based tourism industry.

Bristol Bay is an ecological treasure, but it also contains extensive deposits of copper, gold, and other minerals which have attracted the interest of mining corporations. The Pebble Limited Partnership (PLP) has proposed to develop the controversial Pebble copper and gold mine in the headwaters of the Nushagak and Kvichak rivers, two of the most productive rivers in the Bristol Bay watershed. The Pebble mine would be the largest open pit mine in North America. Although PLP has not submitted final permit applications, conservative estimates based on its preliminary plans indicate that the mine would include the following features:

- a two-mile wide pit, deep enough to bury the Empire State Building, from which at least 2 billion metric tons of acid-producing ore would be extracted,
- two vast tailings reservoirs, the largest of which would be contained by three earthen dams, each taller than the world's largest concrete dam, the Three Gorges dam in China,
- a 3,286-acre waste rock pile, and
- an 86-mile service road with pipelines, processing facilities, power plants, and other industrial infrastructure.

NWF

According to the Environmental Protection Agency, which has been studying the effects of large-scale mining in Bristol Bay, the Pebble mine would harm the area's wild salmon fishery even if there were no human or engineering failure. Construction and routine operation of the Pebble mine would destroy important aquatic habitats including between 55 and 87 miles of streams and between 2,512 and 5,386 acres of wetlands. These figures essentially represent the inevitable cost of developing a large mine in a region laced by wetlands, streams, and lakes.[46] The actual cost of developing the Pebble mine could be much greater.

Because of the two Clean Water Act mining loopholes, PLP would be able to build its massive tailings reservoirs directly on top of the streams, ponds, and wetlands that sustain Bristol Bay's world-class salmon fishery. The company could then discharge billions of tons of untreated toxic mining waste into the unlined impoundment. The result would be a vast lake of toxic slurry hundreds of feet deep that would bury the underlying waters and have to be contained forever.

The proposed Pebble mine site is located in the "Ring of Fire," a seismically-active region that experiences frequent violent earthquakes. A dam failure, the contamination of groundwater, or chronic leakage as the dam ages would be devastating, funneling mine pollution directly into the rivers that have been the life blood of Bristol Bay for centuries. Salmon are highly sensitive to certain by-products of modern mining, such as copper, which interferes with the fishes' sense of smell and direction and ability to evade predators. Although PLP asserts that it can safely contain the waste from the proposed mine, studies indicate that over 80 percent of hardrock mines in the U.S. built in wet climates have contaminated surface and groundwater.[47]

The Pebble mine has been a source of intense controversy in Bristol Bay and throughout the state. The debate boils down to a single question: Is it worth degrading the sustainable salmon fishery, rich wildlife, and Native cultures of Bristol Bay in order to develop a mine that will play out in decades? The large majority of the Bristol Bay's Native people have said "no," believing that the unavoidable and potential destruction of aquatic ecosystems in this unique region is too great to justify.

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46 U.S. Environmental Protection Agency, *An Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska*, External Review Draft (May 2012), ES-14 – ES-15.

47 Kuipers et al., Comparison of Predicted and Actual Water Quality at Hardrock Mines, 2006.

the Great Lakes MiNiNG boom

GREG PETERSON

The Great Lakes are the largest system of fresh surface water on earth, containing roughly 21 percent of the world supply and 84 percent of North America's supply. The Great Lakes basin is home to 25 million people in the United States and 8.5 million in Canada; approximately 10 percent of the U.S. population and 31 percent of the Canadian population live in the Great Lakes basin.

Lake Superior, the largest and cleanest of the Great Lakes, is in the crosshairs of a new regional industry: hardrock or "sulfide" mining. In recent years, the region surrounding Lake Superior -- portions of Minnesota, Wisconsin, Michigan, and Ontario -- has increasingly drawn the interest of international mineral extraction companies seeking to mine, process, and sell nickel, copper, and other metals.[48] One new sulfide mine is under construction in Michigan, despite a resolution opposing the mine by the Keweenaw Bay Indian Community, and another has obtained the necessary state permits to begin construction. In Minnesota, numerous applications are pending for sulfide-bearing mines. In Wisconsin, the industry is poised to seek permits depending upon the outcome of its relentless effort to weaken Wisconsin's mining laws. There is a great deal of exploratory activity underway across the region, with thousands of exploration holes pockmarking the region.

The Lake Superior basin holds immense and unique natural resources. Due to its primarily rural nature, great swaths of hundreds of thousands of acres of undeveloped lands provide vast ranges for wolves, moose, bears, and mountain lions. Trout streams glisten and groundwater clean enough to drink percolates up through the soil. Lake Superior is so special that for over 20 years the Lake Superior Binational Program has worked to make it a Zero Discharge Zone for nine of the most dangerous contaminants. With a retention time of 191 years, preventing and minimizing new contaminant loads is critical to the lake's health.

Threatening the fragility and unique resources of the region and the treaty rights of tribes in Michigan and Wisconsin who depend on the fisheries of Lake Superior, Orvana Resources has obtained state permits for the Copperwood mine in Michigan that allow:

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[48] This region is the northern extension of the Mid-Continental Rift, a geologic formation marked by rich sources of iron, copper, and other metals. For more information, see United States Geological Survey, "Potential for New Nickel-Copper SulfideDeposits in the Lake Superior Region," http://pubs.usgs.gov/info/mwni_cu/.

EPA

- 14,000 feet of streams to be destroyed,
- 52 acres of wetlands to be filled,
- water to be withdrawn from Lake Superior,
- surface water and groundwater standards to be exceeded,
- groundwater levels to be permanently altered from pre-mining conditions, and
- surface waste storage that will permanently alter the landscape.

Ignoring comments from the public insisting that Orvana conduct a comprehensive alternatives analysis to consider backfilling their waste instead of filling streams with it, the state has issued permits for the project.

In Minnesota, PolyMet's proposed NorthMet mining project is seeking permits to destroy 854 acres of wetlands and impact another 668 acres, for a total of 1522 acres in what is now the Superior National Forest. EPA considers some of these wetlands to be "aquatic resources of national importance" due to the values they provide in the Lake Superior watershed and Great Lakes basin in terms of unique habitat, biodiversity, water filtration, and flood control. PolyMet plans to dispose of its tailings in an existing tailings basin which is already leaking polluted water into groundwater and tributaries of the Embarrass River.

In both cases, the Clean Water Act loopholes are allowing natural waterways to be transformed into mining waste pits, jeopardizing 84 percent of our country's fresh water. To make the problem worse, the Great Lakes states are ill-equipped to regulate sulfide mining in the region. (See Dangerous Mediocrity: A comparison of regulations in the Great Lakes region (March 2012), www.nwf.org/miningreport). The combination of inadequate state resources and lax state regulation begs for a strong federal Clean Water Act that protects the Great Lakes as it was intended to do.

Little Rocky Mountains, Montana: Zortman-Landusky Gold Mine

Stephen C. Torbit

The Little Rocky Mountains are heavily-timbered, isolated mountains rising abruptly from the surrounding plains in north central Montana. The Little Rockies provide habitat for a unique mix of mountain and prairie wildlife, from deer to pronghorns, wild turkeys to dusky grouse. Many species found infrequently in eastern Montana are found here, including bighorn sheep, mountain lions, and a huge variety of bird species. These snowy peaks also feed the region's streams and rivers, which are home to hundreds of aquatic species.

For centuries, the Little Rockies have been the homeland of the Gros Ventre and the Assiniboine tribes and today most of this mountain range is contained within the boundaries of the Fort Belknap Reservation, established in 1855. These mountains are sacred to the tribes. They are the source of game and fish, as well as red willows, sage, and the black root and white top from the Echinacea plant, which are used in medicine, prayer, and spiritual ceremonies.[49] The tribes still perform the traditional sun dance and vision quests in these mountains.

In 1884, Pike Landusky and Pete Zortman discovered gold in the Little Rockies while illegally prospecting on the Fort Belknap Reservation. To facilitate the mining of the gold, the federal government appointed a three-man commission, headed by George Bird Grinnell, which was tasked with negotiating with the Assiniboine and Gros Ventre for a tract of land overlying the gold deposits. The commission wrongly believed this 28 square-mile area was useless to the Indians, who did not have the capability to mine for gold. In 1895, the tribes, under duress, sold the land to the U.S. government for a paltry $360,000.

Throughout the first half of the 20th century, numerous mining companies tunneled into the Little Rockies for gold. Underground mining created piles of mining waste that tumbled down the mountainsides into small creeks. In 1979, Pegasus Gold Corporation and its subsidiary, Zortman Mining Inc. (ZMI), built two connected cyanide heap-leach mines, one of the first massive cyanide heap-leach operations to open in the U.S. The company drastically expanded the mines during the 1980s and

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[49] Shawn White Wolf, *Little Rockies still sacred lands - Despite mining damage, Fort Belknap tribes perform ceremonies*, National Association of Tribal Historic Preservation Officers, http://www.nathpo.org/News/Sacred_Sites/News-Sacred_Sites48.htm.

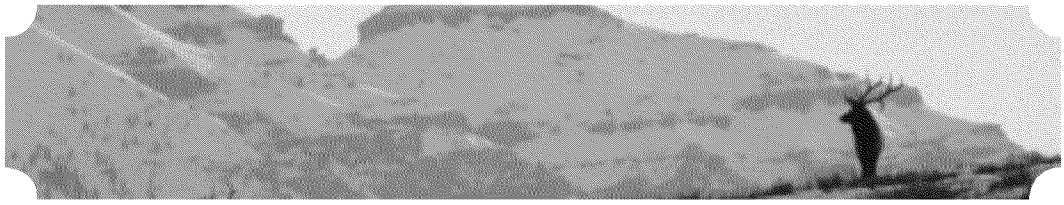
sTephen C. TorbiT

1990s, extracting nearly 140 million tons of ore and disturbing 1,200 acres. Both mines created massive tailings piles, collectively filling miles of stream drainages. Over the life of the Zortman and Landusky mines, the state health department and the Bureau of Land Management (BLM) approved 11 mine expansions without once asking for a full-scale environmental analysis, even though several state agencies reported cyanide spills and other violations of the company's operating permit.

In July 1993, a heavy storm sent a stream of acid mine drainage into the town of Zortman. An EPA investigation revealed that the mine was leaking acids, cyanide, arsenic, and lead from all of its seven drainages and issued a citation against the mine owner for illegally discharging pollution. Shortly thereafter, the State of Montana sued Pegasus and ZMI for violating state water quality laws. EPA and the tribes subsequently filed federal Clean Water Act suits against Pegasus. The litigation resulted in a settlement under which the companies agreed to follow a detailed plan for controlling pollution, buy a $32 million bond to ensure compliance, and pay $4.7 million to be split among the tribal council, State of Montana, and federal government. It was one of the largest Clean Water Act settlements in history.

In 1996, BLM and Montana's Department of Environmental Quality approved the 11th mine expansion, giving Pegasus and ZMI permits to triple the acreage disturbed. This decision was appealed by the Fort Belknap tribes, National Wildlife Federation, and Montana Environmental Information Center. As a result, the federal Interior Board of Land Appeals halted the expansion of the mine, pending an investigation.

In 1997, Pegasus and ZMI were fined $25,300 for violating the clean water settlement by polluting a stream in the Little Rockies. The next year, the company filed for bankruptcy, leaving the State of Montana, BLM, tribes, and taxpayers to clean up the toxic mess. The legacy of environmental devastation left by the Zortman and Landusky mines remains very much on the minds of Montanans and the Fort Belknap tribes who bear the brunt of the contamination. The $30 million reclamation bond and approximately $10 million in water treatment bonds posted by Pegasus were exhausted by 2008. BLM and the State of Montana have spent an additional $12 million at the site for reclamation and water treatment projects that exceeded the available bond. Annual site operating costs are approximately $1.5 million dollars, about double the amount of the water treatment bond that is available annually.



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we CAn CLoSe tHe mining LooPHoLeS

One of the principal goals of the federal Clean Water Act is to prohibit the use of our nation's waters as dump sites for pollution. Regardless of what we may think about individual mines, everyone should agree that allowing mines to discharge untreated waste into natural waters is bad public policy. Moreover, while dumping waste directly into the nearest wetland, stream, or lake is often less expensive for the mining company, it is not a necessary way of doing business.

In 1975, the EPA began adopting "effluent limitations" under the CWA that require mines to treat their waste and meet strict water quality standards. In some cases, such as discharges from many gold and copper mines, the effluent limitations prohibit the disposal of mining waste into waters altogether. As part of the regulatory process, EPA studied the mining industry nationwide and determined that the effluent limitations were feasible and actually already being met by many mines. These clean water standards, if applied consistently today, would prevent hardrock mines from "storing" their waste in our waters. Unfortunately, two loopholes in the CWA'sregulations have made it possible for industry to frequently ignore the effluent limitations.

The first loophole is found in EPA and Army Corps of Engineers (Corps) regulations which provide that "waste treatment systems" are not waters of the U.S. and therefore not protected by the CWA. This exclusion allows mining companies to build massive tailings reservoirs by damming nearby valleys or other low-lying areas. The wetlands, streams, and lakes that are impounded are then considered part of a waste treatment system rather than protected waters. Although the original EPA regulation limited the exclusion to manmade waters, that limitation was suspended and never reinstated. The regulatory fiction that waters impounded by mining companies are no longer waters has resulted in the destruction of these ecosystems and harmed the people, fish, and wildlife that depend on them.

The second loophole is the result of the 2002 revision of the CWA regulations defining "fill material." Under the current definition, EPA and the Corps treat the discharge of tailings from hardrock mines as fill material subject to Section 404, a program originally created to govern dredging and construction-related activities, rather than to regulate the disposal of industrial wastes. The practical implication of this change is that toxic mining wastes discharged into waters are no longer governed by the CWA program designed to regulate those discharges and are not subject to the strict pollution standards adopted by EPA decades ago.

The good news for people who care about pure water, community health, and abundant wildlife is that EPA and the Corps can close the mining loopholes with two simple changes to the CWA regulations. Closing the loopholes would not require an act of Congress or new or excessive regulation but would help ensure that mining is done responsibly and prevent the environmental disasters that have been the legacy of hardrock mining in the past.

Here'S wHAt you CAn do

As a nation, we decided years ago that industries should not be able to profit from polluting the waters that sustain America's communities, fish, and wildlife. This commitment is reflected in the federal Clean Water Act. Unfortunately, that landmark legislation is now being undermined by the two regulatory loopholes that encourage irresponsible mining practices and destructive mines such as the Pebble mine in Alaska. Here's what you can do.

First,
write a letter to the White House, Environmental Protection Agency, and Army Corps of Engineers. Tell them how hardrock mining has personally affected your family, community, and environment and ask them to close the CWA loopholes. More specifically, request that they limit the "waste treatment system exclusion" to manmade waters and revise the definition of "fill material" to exclude discharges subject to effluent limitations. A model letter written by the Confederated Salish and Kootenai Tribes of northwest Montana is found in Appendix A.

second,
if you are a tribe, pass a resolution urging the White House, EPA, and the Corps to close the CWA loopholes.

third,
if you are a tribe, encourage your members (send an action alert) to write letters to the White House, EPA, and the Corps.

Fourth,
go to www.nwf.org/miningloopholes.

For more inFormation

Please contact:

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APPendix A

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THE CONFEDERATED SALISH AND KOOTENAI TRIBES
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A Confederation of the Salish,
Pend d' Oreilles
and Kootenai Tribes

A People of Vision

TRIBAL COUNCIL MEMBERS:
Joe Durglo - Chairman
Carole Lankford - Vice Chair
Reuben A. Mathias - Secretary
Ron Trahan - Treasurer
Leonard W. Gray
Lloyd D. Irvine
Steve Lozar
Jim Malatare
James Bing Matt
Terry Pitts

October 29, 2012

The Honorable Nancy Sutley, Chair
White House Council on Environmental Quality
722 Jackson Place
Washington, DC 20503

The Honorable Lisa Jackson,
Administrator
Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Ave., NW Washington, DC 20460

The Honorable Joe-Ellen Darcy
Assistant Secretary of the Army (Civil Works)
United States Army Corps of Engineers
108 Army Pentagon
Room 3E446
Washington, DC 20310

Re: Protecting Waters from Mining Waste

Dear Ms. Sutley, Ms.Jackson, and Ms. Darcy:

I am writing on behalf of the Confederated Salish and Kootenai Tribes (CSKT) to urge you to close two loopholes in the Clean Water Act (CWA) that allow hardrock mines to discharge untreated tailings and other wastes directly into, and thereby degrade, the nation's rivers, lakes, and wetlands. The Tribes are the aboriginal land managers of the Flathead Indian Reservation in northwestern Montana which encompasses 1.3 million acres and is home to the Salish, Pend d'Oreille, and Kootenai Tribes.

The Tribes have suffered the effects of hardrock mining for over a century. The Atlantic Richfield Company (ARCO) and its predecessors released hazardous materials into the Upper Clark Fork River Basin from mining and smelting operations beginning in 1876. These releases

severely impacted, and continue to impact, the Tribes' treaty-guaranteed rights to hunt, fish, gather, and graze stock in the Upper Clark Fork River Basin

The Tribes are once again facing threats to our resources from large hardrock mines. Foreign corporations are proposing to expand and/or develop the Montanore and Rock Creek mines adjacent to and underneath the Cabinet Mountains Wilderness Area. These mining activities are a short distance from the Flathead Indian Reservation, which may impact significant religious sites, and threaten water, fisheries, and other uses in the region. Further, these mines threaten our long-standing efforts to restore the endangered bull trout as well as our interest in preserving important cultural areas.

The Montanore and Rock Creek mines would be two of the largest underground copper and silver mines in North America. The Montanore mine would involve extensive dewatering due to underground excavation, depleting groundwater in the region and potentially decimating bull trout populations. The impacts of dewatering would be particularly severe along the East Fork of Bull River, the most productive bull trout fishery in the Lower Clark Fork River Bull Trout Recovery Area. The mine would also involve the construction of a massive tailings reservoir in the Upper Kootenai River watershed capable of containing 120 million tons of mining waste in perpetuity. Tailings and other waste would be dumped on top of the streams, wetlands, and springs located within the impoundment destroying those waters and threatening the ground and surface waters lower in the watershed.

Regrettably, Two CWA regulations exist that allow many large hardrock mines to treat the nearest river valley or lake as a waste dump for tailings and other waste. Hardrock mines produce millions, even billions of tons of industrial waste, frequently containing toxic chemicals such as arsenic, cadmium, and lead. The mines that have exploited these loopholes have adversely impacted local communities, fish, and wildlife populations-effects often felt for decades.

The first loophole allowing mining companies to circumvent the Clean Water Act is found in Environmental Protection Agency (EPA) and Army Corps of Engineers (Corps) regulations stating that "waste treatment systems" are not waters of the United States. Mine developers, relying upon the waste treatment system exclusion, have obtained Section 404 permits authorizing them to build dams across the mouths of valleys. The mining company is then allowed to dump its wastes into the rivers, lakes, and wetlands behind the dam because they are considered part of a "waste treatment system" rather than "waters of the United States."

The misrepresentation that waters impounded by mine developers are no longer waters has resulted in the destruction of these ecosystems and harmed the people, fish, and wildlife that depend upon them. It also defeats the very purpose of the Clean Water Act. EPA recognized as much when it expressly limited the exclusion to manmade bodies of water in 1980. The Tribes urge you to close this loophole by revising EPA and Corps regulations to clarify, once again, that the waste treatment system exclusion applies only to manmade waters.

The second loophole is the result of the 2002 revision of the CWA regulations defining "fill." Under the current definition, EPA and the Corps treat the discharge of tailings from hardrock

mines as fill material subject to Section 404,a program originally created primarily to govern dredging and construction-related activities that place dredged or fill materials in wetlands and other waters, rather than to regulate the disposal of industrial wastes. For hardrock mining, the practical implication of this regulatory change is that toxic mining wastes discharged into waters are no longer governed by the CWA program designed to regulate these discharges and are not subject to the strict pollution standards adopted by EPA decades ago. We request that you end these practices by revising the EPA and Corps regulatory definitions of fill to exclude waste disposal.

The Confederated Salish and Kootenai Tribes do not oppose all mining but we do take seriously our stewardship commitment.

Sincerely yours,

Carole Lankford

Joe Durglo,
Tribal Council Chairman
Confederated Salish and Kootenai Tribes

cc: Todd Tillinger, Army Corps of Engineers
James Winter, Army Corps of Engineers
Maggie Pierce, Environmental Protection Agency
Stephen Potts, Environmental Protection Agency
Paul Bradford, Kootenai National Forest
Kristi Panozzo, Montana Department of Environmental Quality

COLIN RUGGIERO