



UP Environment

UPEC: THE UP'S OLDEST GRASSROOTS ENVIRONMENTAL GROUP



Winter 2017

Could This Be Your LAST Newsletter???

In recent months, UPEC has sent around 2200 newsletters to those on our mailing list. Unfortunately, only about 300 people are actually members or have donated in the past year to UPEC or the Mining Action Group in some way. This has caused us to reassess the publication and distribution of our print newsletter. Beginning with the Spring 2018 newsletter, only those who financially support UPEC and its Mining Action Group will receive a paper copy of the newsletter in the mail. For those still wishing to read the newsletter, it will continue to be available on our website. We look forward to your membership or donation.

The Sound of Silence: Highland quietly advancing plans for mining under the Porkies and next to Lake Superior

by Steve Garske



Three weeks after drilling ended, muddy water was still flowing from the site. April 26, 2017.

Relative quiet returned to the western end of the Porcupine Mountains Wilderness State Park ("The Porkies"), after exploratory drilling by Highland Copper Company Inc. (Highland) last spring. The noise of drilling rigs and other heavy equipment gave way to the raucous calls of ravens and the sound of the wind through the trees, broken occasionally by a passing car or a camper carrying visitors to the park.

Highland's contractor, Idea Drilling, had been drilling inside the Park until late February, when unseasonably warm weather and thawing ground caused them to suspend their operations, as required by an agreement with the Michigan DNR. This agreement limited the company



Silt and mud from the drill site was deposited at the bottom of the ravine, on the Presque Isle River floodplain. September 3, 2017.

to using old logging roads whenever possible, didn't allow grading or spreading of gravel, avoided wetland and stream crossings, and included several other provisions intended to limit damage to the environment. Highland completed four of twelve planned holes within the park, before suspending operations for the year.

Most of us thought drilling would be done until this coming winter. To everyone's dismay, Highland and their contractor resumed drilling on Gogebic County land along County Road 519 in mid-March. Spring breakup had begun, but the company forged ahead with more drilling. The County-issued permit was significantly less protective than the DNR agreement, stating simply: "Restore all disturbed

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Most of the site has now been stabilized and seeded with ryegrass. September 3, 2017.

areas back to existing conditions”. The company continued drilling until early April, when photos by UPEC activists documenting the severe damage to the snowmobile trail and adjacent land along CR-519, reached media outlets and regulators. The Michigan DEQ shut the drilling down the next day.

On April 20th, the DEQ issued a “Violation Notice and Order to Restore” for five different violations relating to uncontrolled discharge of sediment and runoff to a tributary of Gypsy Creek and unpermitted damage to wetlands (see: bit.ly/DEQ-cites-Highland). The “Order to Restore” states that “Due to the severity of the noncompliance, the matter is being evaluated for escalated enforcement” but it remains unclear whether there will be a significant fine.

As of late April muddy water still flowed from the site, running north along the road ditch and emptying into a steep ravine leading down to the Presque Isle River floodplain. Sand and silt from the site were deposited at the bottom of the ravine, inside the Park. By late summer though, the site had been regraded and mostly stabilized. Around 80% of the site had been seeded with English ryegrass, and (mostly native) plants had begun to recolonize the recently bare ground.

A media event was held at the site in August, featuring Highland representative’s claims that they had no idea things had gone terribly wrong during their spring drilling. In response, UPEC’s Mining Action Group issued a press release entitled, “Setting the Record Straight on Highland’s Drilling in the Porkies, Environmental Damages” (see: savethewildup.org), presenting new information on the status of the site, and refuting a number of Highland’s claims (claims apparently embellished by one of the TV stations reporting the story).

After the Porkies drilling story broke, many were outraged, asking why mineral exploration was being allowed in the crown jewel of Michigan’s state parks. It is important to remember that the mineral rights under much of the west end of the park are owned by Keweenaw Land Association LTD (KLA). KLA leased the mineral rights under this part of the park (Section 5) to Orvana Minerals. Orvana subsequently sold the Copperwood Project to Highland. Unfortunately, mineral rights take precedence over surface rights in Michigan, which leaves landowners — even State Parks — with little leverage to stop corporations that control the so-called “underground estate” from accessing these minerals.

Clearly, the Porkies will be impacted by mining. According to Highland’s October press release (see: highlandcopper.com/news), Highland expects to finish drilling in the Porkies this winter. Highland also states that “Every drill hole intersected copper-silver mineralization, as expected.” Highland’s plans include underground mining on land just west of the Park, hauling out some 6000 tons of material a day. Mining under park-owned land would be done from Highland’s land immediately adjacent to the Park, using an underground room-and-tunnel system. The company plans



The Presque Isle River on its centuries-old journey to Lake Superior. September 3, 2017.

on receiving a grant from the state to upgrade CR-519 into a mining haul road, and is considering extending a gas pipeline from Wakefield to the mine for on-site electrical generation. Highland’s Copperwood Mine is projected to operate for 12-15 years, but the tailings disposal facility and a 150-ft high waste rock pile will remain near the shore of Lake Superior forever.

The fact is that Michigan’s laws and agencies protecting air, water and the environment have been systematically weakened to the point where any mining company with

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THE HOLIDAY ASK by Horst Schmidt

Ho! Ho! Ho! The holidays are upon us, as well as the hunting season. Deer, turkeys, and not that far in the future, perhaps sandhill cranes. The legislator who introduced new hunting legislation calls the birds 'ribeye of the sky'. It seems nothing is sacred. With Michigan being a huge hunting and fishing preserve run by our politicians and the DNR, the emphasis is on stocking our land and waters with species they want. A consequence is disease issues with too many deer and a constant cry to extirpate the wolf, who is seen as a competitor to humans rather a natural balance between predator and prey.

As we head toward the end of this catastrophic year, environmental groups such as ours need your help. UPEC has the lead on the major proposed mines: Aquila Back 40, Eagle East, Copperwood and Graymont, as well as Lundin's Humboldt Mill. If these mines are constructed, each will affect a different watershed. Menominee River, Salmon Trout and Yellow Dog River, Escanaba River. Graymont and Highland each have small streams leading into Lake Michigan and Lake Superior, respectively. Reflecting the anti-environmental bias of the legislature, the DEQ's myopic rules lead to headlong approval of mines regardless of dangers brought to its attention by our Mining Action Group. In effect, the DEQ struggles to protect us from the environmental abuses of the past, while leaving the door open for the abuses of a future mining legacy. What are those? Huge ore piles, acid mine drainage, cumulative effects of 'treated water' into our streams, wetlands and lakes, and opaque financial responsibility rules are all pretty much guaranteed outcomes.

Our board offers grants to schools for environmental education where elementary and high school teachers have resources to bring our children and grandchildren closer

to nature. We offer grants for organizations that support conservation activities, be it museums that offer exhibits or helping land trusts obtain parcels that are frequently open to the public. The board members support these efforts by state, regional and national organizations. It expands our reach.



The big driver is climate change. Our ceaseless exploitation of the environment puts us on an unsustainable collision course. There are no easy solutions. Technology often creates as many problems as it solves.

We hope you will consider making a present during this holiday season to the environment that sustains us. It creates a future for you, us and generations to come. Native Americans talk about leaving the seventh generation with a sustainable environment. What effect will today's activities have more than a century later?

A sustainable future. Is it your goal? Please support UPEC.

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Sustaining Lake Superior by Nancy Langston



While I'm sitting on the cliff over Lake Superior drinking my morning coffee, a pileated woodpecker comes for a visit. The bald eagles nesting nearby perch on an iceberg drifting down from the winter's ice pack. One eagle lifts off and dives for a lake trout, and a swarm of ring-billed gulls shrieks and mobs her, trying to drive her away from a gull colony that's expanding along the cliffs. Eight young loons paddle by, practicing their calls. Last spring, my neighbors were arguing over whether that was really a mountain lion they saw the other night (doubtful). Sometimes I'm lucky enough to hear the howls of the wolves that are now denning in the county forest across the road. Bears are so abundant that they have become a pest.

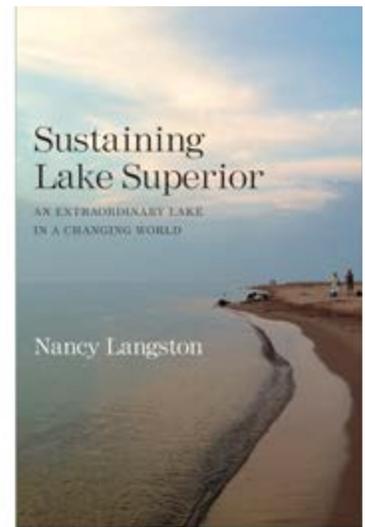
Forty years ago, few people figured any of these critters had a chance up here. Deforestation and failed farming had destroyed the habitat of many birds and mammals, while the erosion that followed had clogged tributaries and estuaries with pollutants and sediments, devastating fisheries. Following World War II, industrial production had boomed across the globe. Mines and pulp mills along the shore of Lake Superior had dumped their toxic waste into local waters. Distant industries had released toxic chemicals that had moved from their sites of production and consumption into Lake Superior, making their way into fish and then human bodies. By the 1960s, the lake was at a tipping point, with the possibility of irreversible pollution.

Much to everyone's surprise, Lake Superior has witnessed significant recoveries in my generation. Forests and many of their inhabitants have returned after the devastation of the lumber era. The toxic waste sites left after the paper and mining booms have partially been cleaned up. Lake trout—once nearly extinct—spawn abundantly in the lake once more, one of conservation's great success stories.

None of these recoveries are complete, to be sure. The

new forests are very different than the forests that were logged so quickly, while invasive species threaten aquatic ecosystems. Local women still wrestle with concerns over how much lake trout it's safe eat when they're pregnant. New mining developments threaten to slice off entire mountain sides. Above all, global warming is now changing Lake Superior more rapidly than almost anywhere else on earth, re-mobilizing contaminants that communities thought had vanished.

What can we learn from the conservation recoveries of Lake Superior over the past century, as we face new challenges of persistent pollutants that are mobilizing with climate change? Communities around Lake Superior have long struggled to address pollution concerns, and local, regional, and international efforts met with significant successes in the twentieth century. The nature of pollutants has changed since World War II, but nevertheless, exploring the success—and failures—of pollution control in the past can help us devise resilient strategies for facing the challenges of pollution in a globalized, warming world.



The largest lake in the world (by surface area), Lake Superior contains 12 percent of the world's freshwater, a resource of enormous importance for a world where the supply of clean, drinkable is increasingly vulnerable. Lake Superior's particular geographic context—it is huge, northern, extremely cold, and distant from industrial developments—means that it is still the least degraded of all the Great Lakes. Yet the very characteristics that have made Lake Superior less dirty from conventional pollutants such as sewage and industrial waste actually make it more

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Nature surrounds us, from parks and backyards to streets and alleyways. Next time you go out for a walk, tread gently and remember that we are both inhabitants and stewards of nature in our neighbourhoods.

David Suzuki



Wild Mushroom Foraging Field Trip Fundraiser by Sara Basso

My husband and I and 20 other foragers gathered on the morning of Friday, September 15, 2017, at the Michigan Tech Ford Forest Center parking lot with Dana Richter, forest pathologist at Michigan Tech, School of Forestry and esteemed mycologist and mushroom enthusiast. After a brief discussion of the rules for the day (minimal) and the planned itinerary, Dana explained the essentials and risks associated with foraging and/or consumption of wild mushrooms.

The group moved westward onto the Baraga Plains where we ventured into the jack pine forests searching for anything of interest but keeping a keen eye out for prized chanterelles. Some of us were lucky enough to stumble upon not only chanterelles but boletes and numerous other specimens. Back on the roadside we displayed our finds on two large white drop cloths and gathered around for inspection and identification. Dana deftly had us rearranging our finds into similar groups and then, group by group, began explaining the various characteristics of each mushroom. Some dreaded Amanita were found and their distinguishing characters pointed out – a must for all mushroom foragers to learn.

Did I mention we were blessed with a beautiful day? Some of us had encountered a very light sprinkling on our drive to Alberta but nary a drop dampened our day after beginning our excursion onto the Plains.

Our first stop was followed by a rest stop at the DNR ATV parking lot that boasts one portable toilet. While waiting our turns we wandered off continuing our search and marveling at the various lichens and flora in the jack pine sand plains. More mushrooms were found and identified prior to resuming our travels to Bears Den Overlook where the group was treated to lunches and beverages and yes, several minutes of rest and relaxation!

Dana Richter had one big final treat – a guided trek down to the Sturgeon River Falls. We lost a few people prior to this last hike – not literally but rather there were a few who were compelled to leave due to prior commitments. Those of us who made the challenging hike down the switchback trail to the falls not only made it back up but had additional identifications along the way. A highlight was the honey mushroom (*Armillaria*) which was abundant along the trail.

I feel confident that everyone in this group shares my appreciation for not only this beautiful land we live in but for having Dana Richter willing to share his vast knowledge and experience with us. Thank you Dana!

ENDNOTE: Voluntary contributions to UPEC from participants totaled \$630.



*Nature alone is antique, and the oldest art
a mushroom...*

Thomas Carlyle

Aquila Back Forth UPDATE: Delayed Wetland Permit Has Arrived

by Kathleen Heideman

Aquila Resources first submitted an application for a mining permit in 2015. Despite the informed and vocal opposition of local residents, the Menominee Indian Tribe of Wisconsin, and numerous environmental organizations from both Wisconsin and Michigan, the Michigan Department of Environmental Quality (DEQ) issued the Back Forty mining permit in late December of 2016. The permit authorizes construction of the Back Forty “open pit mine”, haul roads, onsite milling and processing facilities, and waste rock tailings basins. Aquila received an air quality permit the same day, allowing them to release specified amounts of air pollutants to the environment. On April 5, 2017, Aquila was issued a wastewater discharge (NPDES) permit by the DEQ, authorizing treatment and the discharge of industrial wastewater to the Menominee River. Before Aquila can begin to start constructing a mine, however, they will need a wetlands permit, authorizing the draining, excavating and filling of wetlands on the proposed mine site, and wetland losses due to the draw-down of groundwater.



Photo courtesy of noback40

Another unresolved fundamental issue relates to the land itself: Aquila has proposed a Land Swap with the State of Michigan, as key portions of the Back Forty design plan – including wetlands, a large portion of the open pit mine, and tailings basins – will fall on State-owned land. The Michigan Department of Natural Resources handles land transactions, but previously stated that the Aquila land swap proposal will not receive further review (no public input) until the Back Forty wetland permit is resolved. This is frustrating, since the Back Forty wetland permit includes a remediation plan which can only happen if the land swap is approved. Once again, we see that Michigan’s regulatory process cuts environmental impacts into discrete chunks — each considered as if the other impacts don’t exist. Also, Aquila’s press releases and investor presentations state that the Back Forty will be a 16 year mine, with an open pit followed by underground mining. In their mine permit application, however, the company falsely stated to the DEQ that underground mining methods were not appropriate for the Back Forty orebody and that no underground mining was planned.

Aquila submitted a wetland permit application to the Michigan DEQ in January 2017, but the application contained numerous errors and omissions, and was not deemed “administratively complete”. The DEQ requested additional information; in response, Aquila requested and received several extensions to their deadline for responding. On Monday October 2 – after months of delays and extensions – Aquila Resources finally submitted MDEQ/US-Army Corps of Engineers Joint Permit Application No. 2NN-5PE0-MT3W. The DEQ is currently reviewing the material. Once it is deemed “administratively complete” the permit will be Public Noticed. A Wetland Permit will allow Aquila to proceed with construction at the Back Forty mine site, resulting in the destruction and impairment of wetlands, many of which are located on land currently owned by the State of Michigan.

ACTION ALERT: Expect a short Public Comment period — only 20 days! — and a Public Hearing. Interested in reviewing the Wetland Permit materials, and participating in the public comment process, or speaking out at the hearing? Here’s a link to all current Aquila Resources Back Forty Wetland Permit application files, located in the DEQ’s MiWaters site. Click Documents tab... sort by the Document Date column to view the most recent files. Select documents, and click the “Download Selected” button: <http://bit.ly/MiWaters-AquilaBackForty>

Learn more about the Michigan DEQ Wetlands Program:

<http://www.michigan.gov/statelicensesearch/0,4671,7-180-24786-244642--,00.html>

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New Environmental Group: SAVE THE MENOMINEE RIVER!

Important news from our allies in the effort to protect Menominee River from sulfide mining: “The Coalition to SAVE the Menominee River, Inc. was formed April 7, 2017, in an effort to organize many environmental grassroots organizations under one umbrella. It is made up of concerned citizens and property owners who cannot stand on the sidelines any longer and let our air, land and water be subjected to cyanide and sulfuric acid contamination. The organization was also formed to provide corporate protection and non-profit status in order to accept tax-exempt donations. Our mission statement is to educate people, preserve the environment, and protect our water.



We do not have members; however, we do have many volunteers who are involved in media placement, fundraising, parades, peaceful demonstrations, and especially in providing information to the public about the issues surrounding metallic sulfide mining. Volunteers, as individual citizens, have worked tirelessly to attend County, City, and Town meetings to inform, educate, and testify to our leaders about the dangers and high risk associated with metallic sulfide mining. As a result, five counties in Wisconsin that

border the Menominee River have passed resolutions to stand in opposition to any sulfide mining. In addition, Menominee County, Michigan (home of the Aquila proposed mining project) passed a resolution 5-4 to oppose the mine.

The Coalition has retained renown environmental attorney Ted Warpinski, of Frieber, Finerty & St. John, S.C., Milwaukee, for legal representation. After seven months of progress, there is still much work to do. Our challenge is to unite even more existing environmental groups, in order to build strength in protecting the resources and health of everyone in this region. If we allow the mining companies to destroy our resources, life as we know it will cease to exist for us and our descendants.” To learn more about this new group, or to get involved, contact: Dale Burie, President of Coalition to SAVE the Menominee River, Inc. jointherivercoalition.org jointherivercoalition@gmail.com

SULFIDE MINING THREAT: SEEPING INTO WISCONSIN

Update from Raj Shuka, Executive Director of the River Alliance of Wisconsin — “Mining interests have redoubled their efforts to make it easier to pollute while they profit in Wisconsin. River Alliance of Wisconsin is one of many organizations and passionate individuals working to protect our waters, our economy and our way of life from dangerous acid mines.

Thanks to leadership of the Menominee Indian Tribe, regional chapters of WISDOM and whip-smart local activists, we’ve seen seven counties, and four municipalities — virtually all of northeastern Wisconsin — pass resolutions in opposition to the proposed Back Forty project. River Alliance has tried to support this tremendous work in a few ways: we commissioned polls in key legislative districts that further highlight the almost non-existent public support for acid mining in Wisconsin; and our digital video, email and organizing campaigns around the Back Forty and the dangers of acid mines have generated tens of thousands of viewers and hundreds of concerned phone calls and letters to legislators.

Our collective effort is paying off! Wisconsin Senator Tammy Baldwin has responded to the energy we’ve brought to this issue and has asked the U.S. Army Corps of Engineers to reconsider Michigan’s authority to act alone on the proposed Back Forty project (located on the state border, and impacting the Menominee River). Local elected officials, business owners, and constituents are speaking out against bills making their way through the Wisconsin legislature that aim to gut long-standing, bipartisan protections from acid mine pollution. It’s no surprise that state legislators are wavering. There is real hope that Wisconsin will choose a path that protects our environment and local economy. Our work is not yet done but we are continually inspired by the tireless activism of local residents and organizations like the UPEC Mining Action Group.” For more information, contact the River Alliance of Wisconsin: wisconsinrivers.org



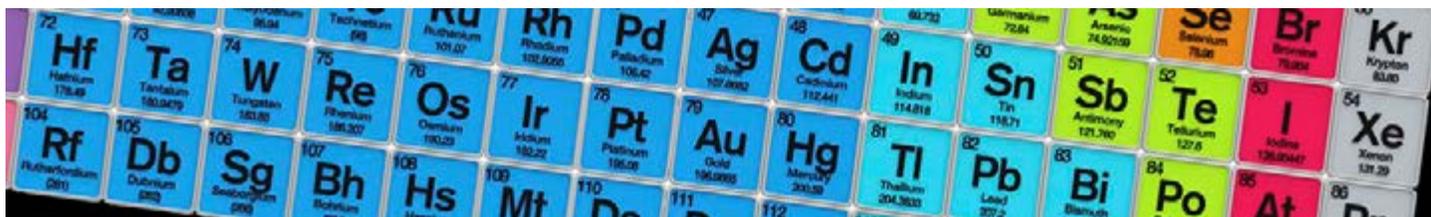
MINING ACTION GROUP REQUESTS ADDITIONAL MONITORING OF ESCANABA RIVER



Students sketching on the Escanaba River

“wetland mitigation bank.” The wetland mitigation bank appears not to be self-sustaining, as it is hydrologically dependent upon industrial water discharges (or water diverted from the river).

GEOCHEMICAL CHANGES – The risks for compromised water quality in this area (MBER) are greatly magnified by water chemistry changes taking place within the Humboldt Pit, which necessitate the direct discharge. Eagle Mine recently requested a revision to the Humboldt Mill Mining Permit, which would allow the placement of *all* of the waste/tailings from a new orebody, Eagle East. If approved, the elevation of tailings would grow from from 1420 to 1515 ft MSL, nearly filling the pit lake with tailings, and greatly reducing the freshwater cap which was intended to minimize the geochemical reactivity of material in the pit. According to Eagle Mine’s 2016 report on the Humboldt Mill, the “total dissolved solids (TDS) loads within the HTDF continue to rise and approach limits” of the current NPDES permit. This problem is increasing, as the ore coming from “Eagle East” will contain higher quantities of copper and nickel. Eagle East orebody is located in the brine aquifer; both ore and waste rock will be entrained with salts. Eagle Mine LLC has conducted water sampling of the Humboldt Pit (geochemistry changes), but the data has not been provided to environmental stakeholders that requested access (including the Superior Watershed Partnership’s CEMP program, the Upper Peninsula Environmental Coalition, Keweenaw Bay Indian Community, etc.).



TOXIC METALS AND SALTS INCREASING – According to the Humboldt Mill’s 2016 Annual Report: <http://bit.ly/HumboldtMill2016report> “The primary HTDF water quality parameter that is expected to change is the concentration of total dissolved solids (TDS). Increases in TDS are primarily due to saline inputs from pore water in the ore body, but can also be attributed to minor additions from the mill reagents such as soda ash and lime. Ore at Eagle and Eagle East are located within bedrock of the Canadian Shield (Frape and Fritz, 1987; Dominion, 2014), which has been characterized as having elevated TDS concentrations increasing with depth... As a result, elevated sodium and chloride concentrations in pore water originating from the formation will be entrained as moisture in the ore and muck residues, which is expected to enter the tailings water circuit during the crushing, milling, and flotation processes, eventually entering the tailings slurry stream.” Eagle Mine monitors water quality at three sites on the river: MBER 1 or MER-001 is upstream of the mill/

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impacts, MBER 2 (MER-002) is located downstream of milling operations, and MBER 3 (MER-003) is located a *significant* distance downstream. Eagle's annual fisheries and macro-invertebrate studies are conducted by Advanced Ecological Management (AEM). Historically, water quality in this area has been degraded by iron mining and milling, and the milling of gold ore. Degradations of water quality may increase, if direct discharges are authorized under the Humboldt Mill's next NPDES permit.

HISTORIC MONITORING — The State of Michigan conducted past sampling in this area, at a site identified as “MDNR Station 2” in the HMA006 Environmental Impact Assessment map (12-01-2008) page 99; and MDNR 1990 survey locations (from Callahan, 1995). Additional baseline data was gathered during Humboldt Mill's Environmental Impact Assessment process: surface water sampling (conducted August 27, 2007) at the confluence point (46.4981, -87.88465) where a drainage ditch containing discharges from Humboldt pit entered the river “exceeded the Final Chronic Value” for both cyanide and nickel. While Eagle Mine's Humboldt Mill 2016 annual report states “surveys conducted to date have determined that the segments of stream associated with these locations are not productive fisheries”, this statement contradicts recent watershed restoration efforts by the River Stewards of Michigan Trout Unlimited, in cooperation with the Michigan DNR's Escanaba Watershed Project. See: http://www.michigan.gov/dnr/0,4570,7-153-10366_46403_63473-310601--,00.html

NEW WATER QUALITY MONITORING SITE – We request that the State of Michigan establish a new water quality sampling point, independent of the company's monitoring or compliance sampling regime, immediately downstream of Eagle Mine's planned discharge pipe to the Middle Branch of the Escanaba River. Specifically, we ask that water quality be sampled in all seasons, at a location immediately downstream of, or adjacent to, a new “mixing zone” boundary, for direct discharges that will take place upstream from site 46.49768, -87.88326). This new monitoring site will fill a critical gap in current water monitoring data. Compare with existing surface water and sediment monitoring locations MER-001, MER-002 and MER-003 (see map in <http://bit.ly/HumboldtMill2016report> p. 89 of 146). Additional monitoring is urgently needed between MER-002 and MER-003.

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vulnerable to the persistent toxic contaminants that have mobilized across the globe since World War Two.

Fewer local sources of contaminants no longer mean better water quality when pollutants are increasingly mobile. Because Lake Superior is so huge and has only one outlet, it has a retention time of nearly two centuries. This means that a drop of water, on average, stays in the lake for 191 years—and contaminants can as well. Lake Superior is extremely cold, with an average annual temperature of 39°F. The cold water and the abundant winter ice cover lead to relatively low evaporation. So when toxics carried by atmospheric currents from Africa, Asia, and the lower Great Lakes find their way into Lake Superior, they tend to stick around. Lake Superior, like other cold northern lakes, has become a sink for the world's most distant and toxic contaminants. Toxics long banned in North America arrive windblown from distant places. Toxics from the past lie buried in sediments, stirred up into the water column by storms and bottom-feeding creatures. Pollutants in the lake blur the boundaries of space and time.

After World War II, new persistent, mobile, synthetic contaminants such as DDT, toxaphene, and PCBs were produced and released in extraordinary quantities, and Lake Superior, like other northern ecosystems, became a



sink for pollutants that had traveled thousands of miles. In the late 1950s, new understandings of mobility and global interconnections began to change the conversation about pollution and its spatial relations to centers of development. Unsettling research from nuclear testing showed that the north was no longer a pristine, remote place protected by its distance from industrialization. Northern communities most distant from Pacific nuclear testing showed some of the highest levels of contamination, suggesting two key ideas: first, that certain pollutants could rapidly mobilize

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into distant spaces, and second, that dilution offered little protection when certain contaminants could biomagnify in organisms at concentrations millions of times greater than their concentration in water.

When local citizens complained about pollution from growing industries such as logging, pulp and paper, and mining, they weren't ignored. Rather, governments eager for economic development partnered with scientists who believed pollutants essentially stayed in place, so they would remain local concerns that could be managed with local agreements. State and provincial experts could partner cooperatively with industry, encouraging the adoption of technologies that would contain pollution enough to allow jobs and communities to thrive.

But as the understanding of pollutant transport radically changed in the 1950s, community, industrial, and government responses to those pollutants had to change as well. Local concerns became global concerns, and global concerns became local concerns. Governance institutions struggled to adapt, and those challenges persist, particularly for the indigenous peoples around the basin who eat contaminated fish.

Lake Superior may seem remote, but its waters are intimately connected to the rest of the world. Atmospheric currents bring chemicals from China, and pressures to mine iron ore in the basin are driven not by local or national markets, but by a boom in China's steel industry. Yet, while the processes that shape contamination have global roots, the effects are profoundly local. Mountain-top removal mining for China's iron ore demands would devastate local wetlands that have sustained the Anishinaabeg for many generations. The toxaphene from Chinese, Russian, and African fields accumulates in the fish that swim under my cliff and makes its way onto my plate. What is global—financial markets, building booms, industrial farming practices in places with few environmental regulations—becomes local in the most intimate ways, as it accumulates within our watersheds and within our bodies.

Nancy Langston is professor of environmental history at Michigan Technological University and the author of four books.



Excerpted from Nancy Langston's new book *Sustaining Lake Superior: An Extraordinary Lake in a Changing World* (Yale University Press, Oct. 2017), available at Amazon or <https://yalebooks.yale.edu/book/9780300212983/sustaining-lake-superior> For a 25% discount, use the code YZ799 at checkout.

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UPEC is transitioning to a new database for greater functionality and one of our challenges is to reduce duplicate newsletter mailings and fine-tune summer/winter addresses. For the last newsletter we sent out around 2200 copies, but we received about 60 as returned. Each return costs us 49 cents. Let us know when you expect to return to the UP and when, sadly, you depart in the fall. Then label one winter address, the other summer.

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BEYOND MISINFORMATION: Understanding and coping with the post-truth era by Stephan Lewandowsky, Ullrich K. H. Ecker, John Cook

Abstract

The terms “post-truth” and “fake news” have become increasingly prevalent in public discourse over the last year. This article explores the growing abundance of disinformation, how it influences people and how to counter it. We examine the ways in which misinformation can have an adverse impact on society. We summarize how people respond to corrections of misinformation, and what kinds of corrections are most effective. We argue that to be effective, scientific research into misinformation must be considered within a larger political, technological, and societal context. The post-truth world emerged as a result of societal mega-trends such as a decline in social capital, growing economic inequality, increased polarization, declining trust in science, and an increasingly fractionated media landscape. We suggest that responses to this malaise must involve technological solutions incorporating psychological principles, an interdisciplinary approach that we describe as “technocognition”. We outline a number of recommendations to counter misinformation in a post-truth world.



https://www.researchgate.net/publication/318699348_Beyond_Misinformation_Understanding_and_Coping_with_the_Post-Truth_Era

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107th District Rep. Lee Chatfield
517-373-2629; LeeChatfield@house.mi.gov
108th District Rep. Beau LaFave
517-373-0156; BeauLaFave@house.mi.gov
109th District Rep.
517-373-0498;
110th District Rep. Scott Dianda
517-373-0850; ScottDianda@house.mi.gov
For more info: www.legislature.mi.gov

UPEC's Mission

"As the longest serving environmental organization in Michigan's U.P., the Upper Peninsula Environmental Coalition (UPEC) strives to preserve the unique cultural and natural resources of the Upper Peninsula through public education, the promotion of sound land stewardship, and reasoned dialogue with communities, governments, industries and others with whom we share this land."

Continued from page 2

enough persistence and financing is able to dig a mine literally ANYWHERE in the state. As in Minnesota and Wisconsin, the mining companies are threatening our most remote, wild places. We need politicians who care about the environment, instead prioritizing short term jobs – projects that enrich global mining companies instead of building the U.P.'s sustainable future. We need laws that will effectively protect Michigan's natural resources and wild places, now and for generations to come. We need to stop relentlessly chipping away at our natural heritage. If we can't do this, some day in the not-too-distant future, people will look around and see that there's not much left to save. To paraphrase a famous 1852 speech by Chief Seattle, it will be "The end of living and the beginning of survival."

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**Upper Peninsula
Environmental Coalition**

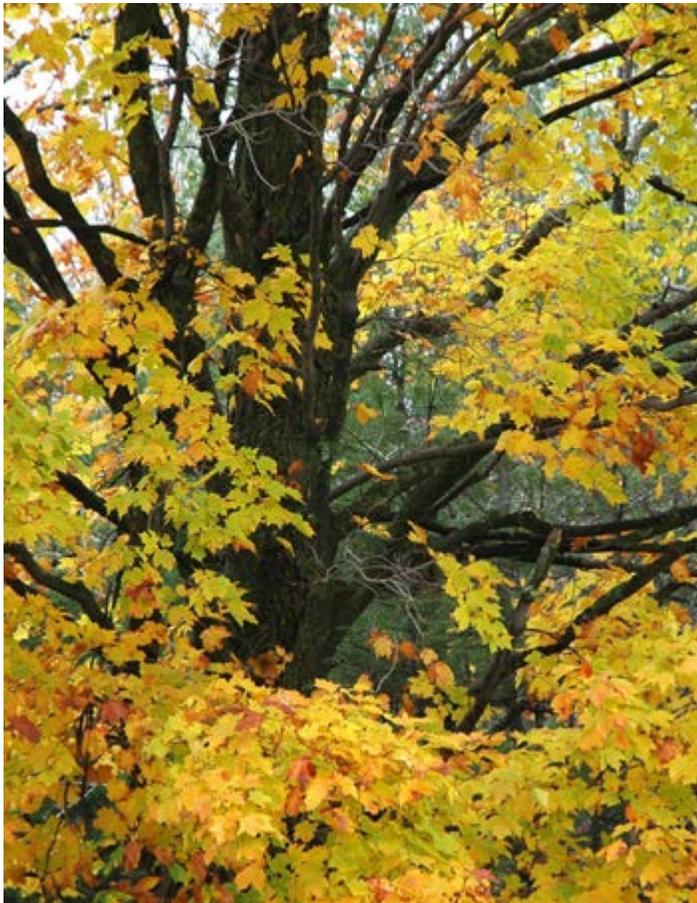
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About UPEC...

The Upper Peninsula Environmental Coalition and the recently formed Mining Action Group has a four-decade track record of protecting and seek to enhance the unique environmental qualities of the U.P. through public education and monitoring of industry and government. UPEC and the recently formed Mining Action Group, seeks common ground with diverse individuals and organizations to promote sound planning and management decisions for all the region's natural resources.

U.P. Environment is published quarterly and available online to share with family & friends. Send your comments or contributions to:

**UPEC - P.O. Box 673, Houghton, MI 49931
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