TAMARACK WATER ALLIANCE

Tamarack Water Alliance Community Zoom Meeting
Wednesday, June 3, 2026 10am CT

TOPIC: Battery Life in Minnesota
PRESENTED BY: Dr. Roopali Phadke

This presentation describes CollectED, a Minnesota-based education and outreach initiative that helps people understand how–and why–to collect and recycle batteries safely. CollectED provides tools, resources, and practical guidance for individuals, schools, and communities to take simple, informed steps to prevent battery-related hazards, protect the environment, and recover valuable materials. Roopali will share the results of their Minnesota survey data and State Fair exhibit, and what's coming up next for this project.

Roopali Phadke is Professor of Environmental Policy at Macalester College. Her teaching and research over the last twenty five years has focused on water, energy and climate policy, with a focus on public engagement. She received a PhD from the Univ. of California Santa Cruz in Environmental Studies, as well as a Masters degree from Cornell University and a Bachelor of Arts from Wellesley College. She also served as a National Science Foundation postdoctoral fellow in the Science, Technology and Society Program at the Kennedy School of Government at Harvard University.

She recently completed a multiyear National Science Foundation study titled "Mining Futures" examining social acceptance and siting politics of critical minerals mines. Her research also examines the circular economy of metals through remining and e-waste collection. She founded the CollectED project in 2024 with support from the U.S. Department of Energy. She is also a member of the Future Mississippi Collaborative, a research collective focused on the potential for dam removal on the Upper Mississippi.

Dr. Phadke serves on many local and national boards including: World Learning, Native Sun, and Recycling Electronics for Climate Action (RECA). She was appointed by the MPCA Commissioner as a member of the Minnesota Critical Minerals Recovery Task Force.

Get Involved

- **You can donate on our website anytime at tamarackwateralliance.org/donate.html**.
- **OR make tax deductible contributions by donating through our 501c3 Fiscal Sponsor** at the **Grand Rapids Area Community Foundation.** For Qualified Charitable Distributions (QCDs) from an IRA, the EIN for the Grand Rapids Area Commuity Foundation is 41-1761590, Tamarack Water Alliance Fund.

We invite your donations now and throughout the year. Tamarack Water Alliance is all volunteer Minnesota non-profit with no paid staff. Every penny you donate goes to support our hard work educating the public about the risks of sulfide mining to our water, environment, fish, wild rice, and ecosystems.

Your donation goes to support our community educational activities which include tabling at community festivals and parades, participation in other community events, targeted speaking engagements with interested local organizations, monthly informational public zoom calls and an associated email newsletter, website and social media, letter writing campaigns and articles in local news outlets, interviews with media, and other community outreach and canvasing.

Our current focus is on providing education about the risks of sulfide mining, narratives to counter the greenwashing and divisiveness that some mining companies promote, as well as forging connections to other communities concerned about sulfide mines in Minnesota, across the Midwest, and around the world. Thank you for your contributions to our work.

REQUEST Presentation On Risks of Sulfide Mining for your group, Rotary Club, church or community club. Send us an email at waters@tamarackwateralliance.org.

DOWNLOAD Tamarack Water Alliance fact sheets/flyers **here** (https://tamarackwateralliance.org/resources.html#flyers).

SIGN-UP To Receive Updates from the DNR on Talon Metals Environmental Impact Statement here **here** (https://www.dnr.state.mn.us/input/environmentalreview/tamarack-nickel-project.html).

VOLUNTEER with the Tamarack Water Alliance. Send us an email at waters@tamarackwateralliance.org.

SIGN-UP FOR THIS NEWSLETTER: Encourage your friends, family and neighbors to sign up for the monthly Tamarack Water Alliance email newsletter at **tamarackwateralliance.org/php/articlereg.php**.

Battery Recycling Protects the Environment and Creates a Circular Economy of Metals

Summary of the CollectED Battery Recycling Initiative - Minnesota State Fair Survey Data Report

Used Batteries-Peter Fiskerstrand, CC BY-SA 4.0 , via Wikimedia Commons

CollectED Battery Recycling Initiative

Batteries have revolutionized society. They increasingly power the small and large devices integral to our everyday lives, from cell phones to EVs. However, the correct process for disposal is not well known by general society, and improper disposal both harms our human and natural environments and robs our ability to create a curricular metals economy.

Battery recycling rates across the world are low. The EPA has estimated that North Americans throw away three billion batteries each year instead of recycling them. The lack of consumer battery recycling is in part driven by a lack of awareness. One 2024 study by the battery recycling firm, Cirba Solutions, surveyed 600 people from across the U.S. They found that half of respondents (53%) were unaware of how to properly recycle lithium batteries, while 55% didn't know where to recycle lithium batteries.[1] A 2019 survey of 1,600 residents in California, Oregon, and Washington conducted for The Recycling Partnership found that 45% of those surveyed said they put batteries in their recycling or trash carts.[2]

Other studies have shown that awareness is not enough given the extensive barriers to behavioral change. A 2022 report by the Commonwealth Scientific and Industrial Research Organization argued that low battery recycling rates can be overcome through better understanding of the importance of recycling, improved collection processes, and by implementing ways to efficiently recycle materials.[3] The barriers to proper battery recycling also include the costs charged to consumers at collection sites.[4] These findings are echoed by the U.S. Department of Energy. They cite that the barriers to consumer participation in battery recycling programs include: a lack of awareness of drop off locations, a lack of understanding of the value in spent batteries, concerns about privacy and security, and a lack of incentives to recycle.[5]

To add to the above empirical data, in 2024 we surveyed 1,000 people on their consumer battery recycling knowledge and behaviors. We were keen to examine whether battery recycling rates are higher in a state that is considered a leader on climate and e-waste policy, with an active critical minerals mining industry. Minnesota's statewide recycling rate is consistently above the national average, demonstrating a commitment to waste reduction.

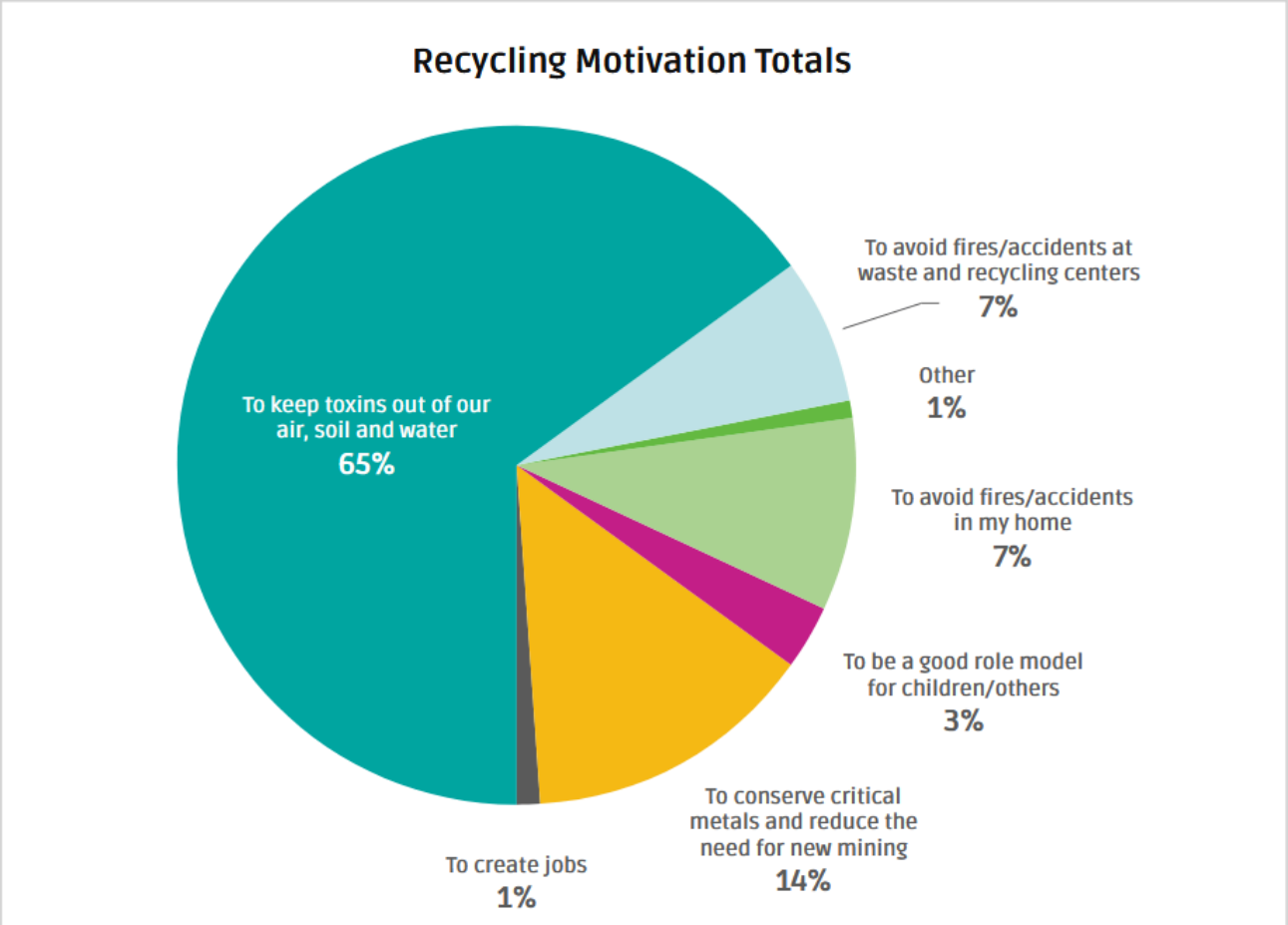
Minnesota is also home to Fortune 500 companies Best Buy and Target, who are trend setters in recycling, product design and extended producer responsibility. Given all of this, we expected battery knowledge and recycling rates to be higher than national averages.

CollectED Battery Survey- Minnesota State Fair Survey - June 2025
In June 2025 CollectEd featured a Battery Survey of 1,000 people at the Minnesota State Fair with the goal of understanding current battery recycling habits, knowledge and barriers in Minnesota. Survey results concluded that:

- 70% of the respondents recycle at least one type of battery (alkaline, coin, lithium-ion)
- 90% of respondents report barriers to recycling batteries
- 41% of respondents say they received recycling information from a municipal mailer or website

Low-income and non-college educated individuals reported the lowest participation in battery recycling programs, yet they expressed a similar level of enthusiasm for battery recycling as their higher-income, college educated peers.

A desire to keep toxins out of the air, water and soil, and to reduce the need for new mining of critical materials were the two most common motivators for battery recycling.



Recycling Motivations Totals

Recycling Motivations
Keeping toxins out of the air, soil, and water was the most common reason respondents gave for why battery recycling is important, followed by a desire to conserve critical minerals and reduce the need for new mining. Given the abundant information Minnesota residents receive about the potential for battery fire hazards, on billboards, mailers and in product information, it was surprising that avoiding fires at home or at waste centers motivated only 14% of respondents.

CollectED also asked participants for their opinions on how a hypothetical state-funded battery recycling program might work. In the 2025 session, the MN legislature debated new e-waste collection and battery laws. The majority of respondents (55%) were in favor of manufacturers paying for the program, and building the cost into the price of products containing batteries.

Respondents also favored drop off points at supermarket/retail locations, over drop off at public buildings (e.g. libraries) or recycling/hazardous waste centers, for a hypothetical state-wide battery recycling program. This suggests that convenience and accessibility would be important considerations for any effort to increase battery recycling.

Recycling Information and Barriers
Confusion about what type of batteries are recyclable was a similarly common barrier among respondents in income groups $25,000 - $150,000, but reports of this barrier were much higher among respondents with a household income of under $25,000. This suggests that a social marketing campaign focused on which batteries are recyclable should more intentionally target lower-income Minnesotans.

Taken together, this data suggests that word-of-mouth communication about battery recycling is a significant source of confusion for Minnesotans. However, this data also makes the case for the potential effectiveness of a social messaging campaign. People trust friends and family as a source of information on battery recycling even if those networks are not currently providing reliable and accurate information. This data also suggests that mailers and websites are valuable places to share information about battery recycling, as these are by far the greatest existing source of information for Minnesotans.

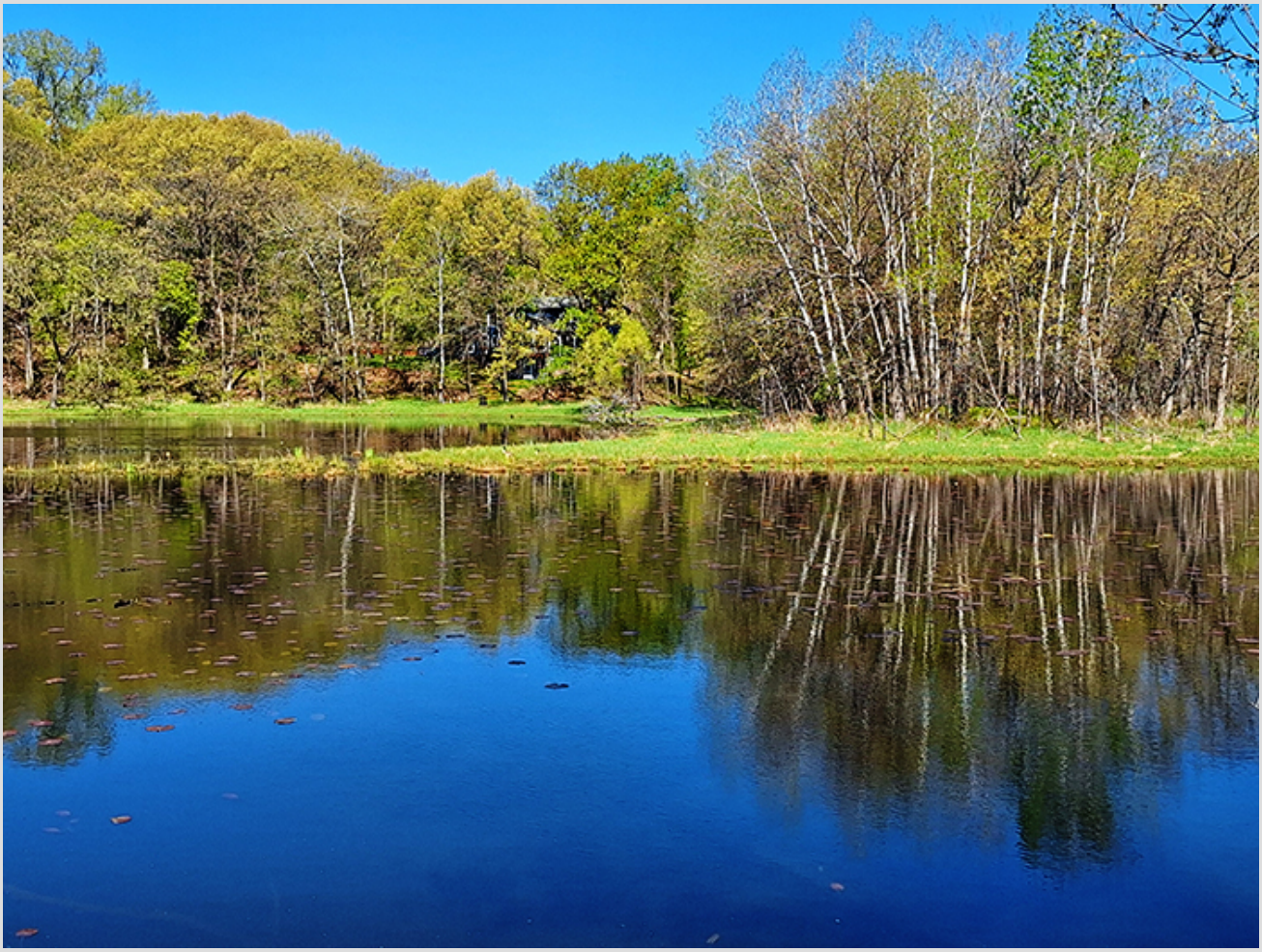
Conclusions
Minnesotans are eager to properly dispose of batteries, but there still remains general confusion around what kind of batteries can be recycled and where to recycle them. Of our 1,000 respondents, 70% currently recycle at least one type of battery, most commonly lithium-ion batteries, indicating a willingness to learn about, and take steps to participate in battery recycling programs. The lowest rate of participation in battery recycling programs is among low-income households, with the most common barrier reported as confusion about what type of battery can be recycled and where to recycle. All of that suggests that a social messaging and education campaign is both an important and effective strategy to increase battery recycling in Minnesota.

More information on CollectED can be found at **collectedproject.org**. The final report can be downloaded at **collectedproject.org/wp-content/uploads/2025/06/CollectED-Survey-Data-Report-FINAL-copy.pdf**.

REFERENCES

1. https://www.cirbasolutions.com/new-research-uncovers-gaps-in-consumer-battery-recycling-knowledge-for-america-recycles-day/
2. https://recyclingpartnership.org/wp-content/uploads/dlm_uploads/2020/04/West-Coast-Contamination-Initiative-Report-6.22.20.pdf

3. https://www.csiro.au/en/research/technology-space/energy/Decarbonising-Industry-Transport/Energy-in-the-circular-economy/Battery-recycling
4. Islam MT, Huda N, Baumber A, Hossain R, Sahajwalla V. Waste battery disposal and recycling behavior: a study on the Australian perspective. Environ Sci Pollut Res Int. 2022 Aug; 29(39): 58980-59001
5. DOE Funding Opportunity Announcement (FOA) Number: DE-FOA-0002897



Birch Reflection, LAnderson

Sulfide Mining Not Needed to Meet Our Mineral Needs

From the Duluth News Tribune column: "I wish the paper had turned to the world's leading experts rather than corporate mouthpieces in considering the issues." The author cites two Harvard economists who stated "introducing copper-nickel mining into the Superior National Forest is likely to have a negative impact on the regional economy" which includes the recreational industry and in-migration.

"...Greater distance from industry claims about the necessity of sulfide mining would have likewise benefited readers. Here, the News Tribune could have turned to the leading experts on the issue. A recent study in the journal Science by scholars from the Colorado School of Mines demonstrated we don't actually need new environmentally risky mines to meet our critical mineral needs. The minerals already exist. Even with our current excessive levels of consumption, recycling and recovery would be sufficient to meet the demands of 21st-century society. Or, as the Colorado scholars put it, “Ninety percent recovery of by-

products from existing domestic metal mining operations could meet nearly all U.S. critical mineral needs."

"Their findings have been echoed by Julie Klinger, a critical minerals supply chain specialist at the University of Wisconsin in Madison. Professor Klinger has dozens of scholarly studies to her name, but she laid out the most accessible roadmap for going forward in a February op-ed in the New York Times : “Major new investments should go not into opening more mines but into building the domestic capacity for processing critical minerals that was long ago ceded to China while blazing a trail in recycling rare earths and other critical minerals. This could lower prices for rare earths, ease environmental pressure, and help clean up metal-rich pollution in communities in the United States and abroad."

In Response:Sulfide Mining Not Needed to Meet Our Mineral Needs, Scott Laderman
May 13, 2026, Duluth News Tribune
https://www.duluthnewstribune.com/opinion/columns/in-response-sulfide-mining-not-needed-to-meet-our-mineral-needs

Aitkin County - The Land of 554+ Boreholes

"Minnesotans typically refer to Minnesota as the land of 10,000 lakes. In a recent discussion my friend used her witty humor to refer to her property near Savanna Portage State park as “the land of 554-plus boreholes.” Her property is 10 miles from where Talon Metals/Rio Tinto has been dumping exploratory drill waste in unlined sumps since 2002. The DNR and MPCA have refused to hold Talon Metals/Rio Tinto accountable, even with persistent formal complaints and a vigorous letter writing campaign to the DNR official in charge..."

"...Exploratory drilling in sulfide-bearing rock poses significant environmental risks for release of sulfates, which creates methyl-mercury in fish and kills wild rice. Talon Metals/Kennicott/Rio Tinto have been drilling in wetlands, peat bogs, open water, near residential wells, drilling at extreme depths, including using an oil rig with injection of water into groundwater, in some cases in violation of Minnesota rules." 2026-01-30_Petition _for_Talon_Exploratory_Drilling_EAW.pdf

Aitkin County - The Land of 554+ Boreholes
May 7, 2026, Aitkin Independent Age.
https://www.messagemedia.co/aitkin/opinion/letters/letters-from-readers---5-6-26/article_3c3481f5-97bf-4551-a4be-ae67a3ce3212.html

Who We Are

Tamarack Water Alliance is a group of local residents and landowners working together with others from across Minnesota to protect water and community health from the dangers of sulfide mining near our beloved lakes and wild rice beds, at the headwaters of the Kettle

River and in the Mississippi River watershed. Visit our website **here** (https://tamarackwateralliance.org/index.html).

A proposal by a foreign owned mining company, Talon Metals/Rio Tinto to mine nickel and other metals near Tamarack in Aitkin County threatens the health of our communities. This kind of sulfide mining, especially in water-rich environments, has never been done without severe impacts to water and the health of those downstream. Mining here is also a threat to environmental justice and the long-term economic security of nearby native and rural communities.

Review our **community slide presentation** (tamarackwateralliance.org/docs/TamarackMineConcerns-Consolidated.pdf) and download **informative flyers** (tamarackwateralliance.org/resources.html):

- Talon Mine Risks
- Geology of Aitkin County
- Talon Dumping Toxic Drilling Waste,
- Minnesota Declares Round Lake Impaired
- High Sulfide Mines Create Acid Mine Drainage
- Nickel Not Needed for Future EV Batteries
- Minnesota's Prime Wild Rice Lakes Under Threat,
- Difference Between High Sulfide Mining and Taconite Mining
- Minnesota Regulators Poor Record In Protecting The Environment
- Eagle Mine Environmental Report & Saving Our Meager Nickel Reserves
- Is There Really A Talon Tesla Supply Agreement? (no)
- Rio Tinto: A History of Corruption
- Green Bridge Metals -Canadian proposed sulfide mine near Duluth seeks to acquire battery rich mineral assets
- Copper and The Green Economy
- Prove It First!

We will send this monthly newsletter to keep you informed about this project, to share information and opportunities to act to protect clean water and community health.