



ENVIRONMENTAL SYSTEMS DIVISION NEWSLETTER

ENVIRONMENTAL
SYSTEMS DIVISION

JULY 2022

The ESD Newsletter is a monthly newsletter involving ALL members of ESD. Members are encouraged to forward materials, authored papers on Environmental and Environmental Systems topics, and comments on newsletter topics or current events to the Editor. Your participation is greatly appreciated.

The ESD newsletter features **Five** Sections:
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1. ESD DIVISION NEWS

Message from the Chair



Welcome to FY2023. First let me introduce myself as the incoming Chair to the Environmental Systems Division. My name is Steve Unikewicz. I've been a member of the ESD Executive Committee for about 10 years serving on the Dixy Lee Ray Committee, the Education Committee and as the Chair of the Liaison Committee. My professional background is 40 years in the commercial nuclear power industry, and I have been involved in ASME Nuclear Codes and Standards for over 20 years.

As ESD moves forward, I have some ideas that I will share and hope to get ideas from you on how to make this a vibrant and active Division.

First from a practical point of view. The Executive Committee needs Members-at-Large. What that is, is people who have an interest in environmental systems (i.e. air, water, soils and nuclear) and want to help us plan activities, events, Conference tracks and Poster Sessions that inform and educate. We are a cross-cutting Division. Our intent is to support and work with the other technical divisions (e.g., Power, Nuclear Power, Wind, Solar, Petroleum, Gas Turbine etc.) and ASME Sectors in the development of these events. We need your help and input.

Second, the Executive Committee meets approximately 9 times a year virtually for a couple of hours. The plan is to have an in-person 1 ½ day planning and strategy meeting this fall. The exact date and location are still to be determined. We need your ideas. Tell us the good, the bad, the ugly. What it is you want to see happen and ways we can improve. Be it communication, events, programs or the direction the Division needs to head Third (and last). The TEC (our governing body) meets monthly with an Assembly of Divisions Meetings. The Next meeting is July 28, 2022, and then August 25, 2022. Going forward, this newsletter will provide a summary of the meeting and will include activities of interest to our members.

In future "Messages from the Chair", I'll introduce the other members of the Exec Committee, what we're working on, share ideas and hope to get feedback from you. Thank you for the opportunity to serve you. Please reach out using the emails at the bottom of this newsletter. It should be exciting year.

Sincerely,

Steven Unikewicz
ESD Chair

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If you want to volunteer to be Chair or Co-Chair or have ideas for specific sessions, please



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contact Arnie Feldman (jjdsenv@att.net).

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ESD's Waste Information Exchange (WIE) 2023 Call for Technical Chairs

ESD, the Research Committee on Energy, Environment and Waste (RCEEW) and the Materials Energy Recovery Division (MER), in conjunction with the Air and Waste Management Association (A&WMA) are planning a Waste information Exchange (WIE) in 2023 in the DC Metropolitan Area. The WIE is being modeled after the [Air] Information Exchange, which has been held annually since 1975 in Research Triangle Park (RTP), NC, in which USEPA (QAQPS and ORD) are key participants. The WIE will not require a written paper and any graphics used will be made available to attendees at the discretion of speaker. The purpose of the Information Exchange is to make participation as a speaker as easy and simple as possible. The idea is to invite experts to come talk about research or regulations on which they are working without having to spend a lot of time in preparation. The WIE will cover policy updates, regulatory changes, and research on the latest waste topics.

ESD, RCEEW and MER are looking for individuals who want to participate in the planning including Track Chairs, Session Chairs, and Panel Chairs. In addition, ESD is looking for a Technical Chair to represent them on the planning Committee.

If you are interested in volunteering or want further information, please contact Arnold Feldman at jjdsenv@att.net.

Look for more information on WIE in future ESD Newsletters. [Back to Newsletter's Page 1](#)

ICEM 2023 Call for Abstracts and Session Chairs

Nuclear Engineering and ESD, are pleased to announce Call for Abstracts. ICEM promotes a broad global exchange of information on technologies, operations, management, economics, and public policies in environmental remediation and radioactive waste management. This is a unique opportunity to foster cooperation among specialists from mature environmental management programs and those with emerging programs. The program Tracks and Topics are on the ICEM website (<https://event.asme.org/ICEM/Program>).

Abstracts for articles, papers and presentations are due Feb 01, 2023. Abstracts should be submitted on-line at <https://icem.secure-platform.com/a/organizations/main/home>. For additional information on submitting Abstracts please send an email to ASME at toolboxhelp@asme.org.

The ICEM Program Chairs, Martin Edelson and Jovica Riznic, request your help as Session Chairs or Co-Chairs. You can either volunteer for a specific Session/Topic or just in general. "Roles of the Session Chairs" is available to review duties.



CONFERENCE
Oct 3 – 6, 2023

#ICEM2023

ICEM® 2023
International Conference on Environmental
Remediation and Radioactive Waste Management®

International Conference Centre Stuttgart
Stuttgart, Germany

CALL FOR ABSTRACTS

SUBMIT BY FEBRUARY 1, 2023

ASME
SETTING THE STANDARD

For additional information please contact either Martin Edelson (mcedelson@gmail.com) or Jovica Riznic (Jovica.Riznic@cnsccsn.gc.ca).

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2. ENVIRONMENTAL TECHNOLOGIES

Genetically modified corn does not damage non-target organisms

The largest, highest quality analysis of data ever conducted reveals that genetically modified Bt corn has little impact on nontarget insects and other organisms, especially compared to growing conventional corn. This study was published today in Environmental Evidence by a USDA Agricultural Research Service scientist and his Swiss colleagues. Bt corn is corn that has been genetically modified so that it produces proteins from the bacterium *Bacillus thuringiensis* to control corn borers, corn rootworms and other major pests of corn. The first



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Bt corn was approved in 1996 and critics have been suggesting that it also can destroy beneficial insects or other non-targeted organisms.

One of the issues with assessments of possible nontarget organism damage by Bt corn has been that each study was limited in scope, environment or size. The paper's three authors have made up for these shortfalls by systematically pulling together data from studies in 12 bibliographic databases, 17 specialized webpages, and the reference sections of 78 review articles that all met the highest standards for research quality. The quality standards for which studies would be included in the meta-analysis and which would be cut were outlined and vetted by stakeholders, scientists not involved in the meta-analysis project and even members of the journal's review board, none of whom knew if any study's data showed a negative impact on non-target organisms or not. The result is the largest pool of high-quality data anyone has ever analyzed for this purpose consisting of 7279 individual invertebrate records from 233 experiments in 120 articles, 75 percent of which were from peer-reviewed journals.

In summary, this major meta-analysis largely proved out previous individual studies. Bt corn represents a highly selective pest control technology with relatively few negative consequences for non-target invertebrates, especially when compared with the use of broad-spectrum insecticides for managing Bt-targeted pests, according to the scientists. (Ref. 1)

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Solar Recovery Corp' launches world-leading solar panel recovery technology to spearhead circular economy

With Australia powering ahead as a solar powered nation, a major environmental problem is looming as millions of solar panels near their end of life requiring disposal and replacement. In response, the Solar Recovery Corporation is rolling out processing centres and cutting edge end-of-life solar panel recovery technology across regional Australia to extract more than 99 percent of panel materials so they can be repurposed for use in other manufacturing streams. Solar Recovery Corporation is spearheading the growth of the circular economy for solar panels in Australia - an industry which will help to ensure solar panels are retired safely and reduce the impact of panels on the environment. Each facility recovering end-of-life solar panels will save over 4000 metric tonnes of virgin material having to be mined, reducing energy usage and saving on CO₂ emissions. Solar Recovery Corporation is firmly focused on making clean energy clean.

Solar panels at the end of their useful life have the potential to become a hazardous waste management issue if disposed of in landfill where materials in the panels can leach into soil and groundwater. According to Solar Recovery Corporation, many solar panels are currently ending up in landfill. Similar to all electronic waste from retired technology, solar panels contain hazardous materials and when disposed of incorrectly are dangerous to the



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environment and human health. Solar panels are expected to operate usefully for two or three decades, however, evidence suggests that damage from storms, reduced performance and other issues typically reduce their lifespan requiring them to be replaced sooner than expected. “Humidity in Australia seems to be a particular problem. The optimum running lifespan of a solar panel is approximately around 10 to 15 years and installation of solar panels on rooftops and in large solar farms has been rising in Australia since 2010. Nearly three million households have rooftop solar. In 2020 there were 378,451 residential installations alone, the most in the industry’s history. “This means that the number of solar panels nearing their end of life is about to significantly rise resulting in a serious e-waste problem for our country and the planet.”

“Dumping solar panels is not the answer, there is a solution available now. This is why the Solar Recovery Corporation has launched - to ethically and sustainably retire solar panels,”. “Using our European designed technology, we are able to recover more than 99 percent of materials from end-of-life solar panels. “The high quality raw materials can then be used in other manufacturing streams participating in the circular economy model and breaking the traditional, unsustainable linear economic model of take, make, consume, and waste. “The computerised mechanical processing separates and prepares the materials instantly ready to be used in other manufacturing streams. The recovered glass, plastic, silicon, copper and aluminium are all valuable resources.” Solar Recovery Corporation is now accepting end-of-life solar panels in Townsville and Biloela, Queensland. The first processing centre with the European cutting-edge extraction technology will be located in Central Queensland and will commence processing by end of August this year. Further sites are earmarked for regional locations Australia-wide. Solar Recovery Corporation has formed a partnership with European company, La Mia Energia (LME), which manufactures clean technology built to process end-of-life solar PV panels. (Ref. 2)

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3. ENVIRONMENTAL REGULATIONS

U.S. Department of Transportation Federal Highway Administration Issues Notice of Proposed Rulemaking Setting Minimum Standards for Projects Funded Under the National Electric Vehicle Infrastructure Program

The National Electric Vehicle Infrastructure (NEVI) Formula Program (\$5 billion) was enacted under the Infrastructure Investment and Jobs Act (IIJA), also known as the Bipartisan Infrastructure Law (BIL).¹ On June 9, 2022, the U.S. Department of Transportation’s (USDOT) Federal Highway Administration (FHWA) announced a Notice of Proposed Rulemaking setting minimum standards for State programs funding projects under the NEVI Formula Program



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and all projects that install electric vehicle (EV) charging infrastructure under title 23 of the United States Code.² Each State must file an EV Infrastructure Deployment Plan implementing these minimum standards by August 1, 2022. FHWA will approve eligible plans by September 30, 2022 and allocate funds to States for fiscal years 2022 through 2026.

NEVI Formula Program funds must be used to deploy EV charging infrastructure along Alternative Fuel Corridors until FHWA certifies that they are fully built out, meaning that the State's corridors have publicly available EV charging sites deployed every fifty miles and within one mile of the interstate, and that the sites have at least four Direct Current Fast Charger (DCFC) Combined Charging System (CCS) ports capable of charging four EVs simultaneously at 150 kW each. Once FHWA certifies that the State's Alternative Fuel Corridors are fully built out, the State may use NEVI Formula Program funds for EV charging infrastructure on any public road or publicly accessible location. The program is a cost-sharing program, with NEVI Formula Program funds covering 80 percent of a project and State or private funds covering the remainder. States need not own the installed EV charging infrastructure, and FHWA anticipates that States will contract with private entities to install, operate, and maintain the EV charging infrastructure. To implement the NEVI Formula Program, FHWA is required to establish minimum standards and requirements related to:

(1) the installation, operation, or maintenance by qualified technicians of electric vehicle charging infrastructure under this paragraph in this Act; (2) the interoperability of electric vehicle charging infrastructure under this paragraph in this Act; (3) any traffic control device or on-premises sign acquired, installed, or operated under this paragraph in this Act; (4) any data requested by the Secretary related to a project funded under this paragraph in this Act, including the format and schedule for the submission of such data; (5) network connectivity of electric vehicle charging infrastructure; and (6) information on publicly available electric vehicle charging infrastructure locations, pricing, real-time availability, and accessibility through mapping applications. (Ref. 3)

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EPA Proposes Changes (Again) to CWA Water Quality Certification Rule

Recently, the Environmental Protection Agency (EPA) issued a proposed rule to replace existing regulatory requirements for water quality certifications under Section 401 of the Clean Water Act (CWA). As with many other recent changes in environmental regulations, these proposed changes were prompted by President Biden's January 2021 Executive Order 13990, which directed EPA to review agency actions taken by the Trump administration. As noted in our July 13, 2020 alert, under the Trump administration EPA replaced prior water quality certification regulations that had been in place for nearly 50 years, effective September 2020 (the 2020 Rule). Under the Biden administration, EPA reviewed the 2020 Rule and concluded that its provisions were inconsistent with the CWA's statutory text, the legislative history of Section 401, and the water quality protection goals of the CWA. Key proposed changes include:



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Scope of certification. The proposed rule broadens the scope of certification to include evaluation of all potential water quality impacts to any water body, including waters beyond the navigable water into which the triggering discharge occurs, resulting from the proposed project. This means that the certifying authority may consider the broadest possible range of water quality effects of the “activity as a whole.”

Contents of a certification request. The proposed rule defines only limited requirements for certification requests, including that the request must contain a copy of the draft federal license. According to EPA, this will facilitate more targeted certification conditions by ensuring that the certifying authority knows which water-quality-related conditions the licensing agency has preliminarily decided to impose. Aside from these requirements, states and tribes may determine by regulation their own requirements for a certification request.

Neighboring jurisdictions. The proposed rule expands the definition of the term “neighboring jurisdiction” but clarifies that the scope of Section 401(a)(2) is limited to considerations of potential effects only from a “discharge” from an activity, and requires EPA to determine within 30 days whether a discharge “may affect” a neighboring jurisdiction.

Reasonable period of time to determine a certification request. Under the proposed rule, the licensing agency and certifying authority negotiate the reasonable period of time for the certification decision, provided that it does not exceed one year from the certifying authority’s receipt of the certification request. If the certifying authority fails to grant, grant with conditions, deny, or expressly waive certification within the reasonable period of time, the failure to act may be treated as a constructive waiver and the licensing agency may proceed to issue the license. (Ref. 4)

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4. EDITORIAL BOARD SELECTIONS

Pesticides Are Spreading Toxic ‘Forever Chemicals’

Forever chemicals—scientifically known as perfluoroalkyl and polyfluoroalkyl substances, or PFASs—are a subset of so-called fluorinated chemicals, which possess strong carbon-fluorine bonds. That means such chemicals are both highly stable and useful in products designed to repel grease and water. But it also means they do not readily biodegrade. Though governments have been working to limit the use of PFASs, those efforts are complicated by differing technical definitions of which fluorinated chemicals are technically PFASs—and as such pose a risk to people and the environment. Many chemicals considered PFASs in much of the rest of the world are not classified this way in the U.S. This situation could leave communities exposed to harmful chemicals, including pesticides that contain fluorinated compounds and are sprayed on many different crops around the world every year. Pesticides made from fluorinated chemicals, commonly referred to as fluorinated pesticides, “can be incredible molecules that meet a lot of the challenges that exist in agriculture.” “But they should be



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properly vetted, and we should be aware that they can have a very huge impact on the environment, on biodiversity and eventually on our own health.”

Fluorinated chemicals, including PFASs, have been widely used in consumer products since the 1940s. But in the following decades scientists began realizing that these chemicals persisted in drinking water and human bodies, and in the 1990s the Environmental Protection Agency began investigating PFASs. Nearly every U.S. resident now carries low levels of PFASs in their blood. These chemicals have been linked to testicular and kidney cancers, reproductive disorders, thyroid disease, high cholesterol levels, reduced immune response and even increased susceptibility to COVID-19. Based on these concerns, the U.S. Congress is weighing several bipartisan bills to restrict their use in food containers and cookware and to require the EPA to take comprehensive action to prevent PFAS pollution—including setting national limits on levels in drinking water. Under the Biden administration, the EPA has published a PFAS Strategic Roadmap for addressing the crisis. Eight states have already adopted laws to ban PFASs in certain products, especially food packaging—but not in pesticides. (Ref. 5)

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The AMGTA Announces New Process to Transport and Recycle Metal Powder Condensate Waste

A new report has been released by the Additive Manufacturer Green Trade Association (AMGTA) outlining a new process to make it possible to passivate metal condensate waste for transport and recycling. The AMGTA, originally founded to promote the environmental benefits of additive manufacturing, stated that the new procedure, created by Sintavia, a member of the organization and KBM Advanced Materials, essentially includes mixing powder condensate waste with a removable resin, which makes the waste non-hazardous and thus safe to be transported to a recycling plant. Given the concerns many have around the issue of recycling powder, this could be a significant step forward for the industry in terms of sustainability.

You are probably aware that Powder Bed Fusion (PBF) is an additive manufacturing process especially popular with industries seeking a manufacturing method that allows them to design more complex parts. The aerospace, automotive, and medical sectors are especially fond of this technology, which gives them opportunities no other technologies can provide. However, despite its many benefits, it does have several downsides, including issues related to disposal of condensate created during the process. By looking at it from both environmental and commercial standpoints, the disposal of that hazardous waste has been a challenging question, to which an innovative answer was desperately needed. This special kind of powder condensate is a unique waste stream, that is composed of the splatter sieved out of a reused batch of metal powder.

After researching a solution to overcome the obstacles faced by the hazardous waste, Sintavia

developed a new promising process. Instead of mixing it with silicon oil and sand, as it did before, the new procedure involves mixing the powder condensate waste with a removable resin instead. During the testing of the new method, no hazardous situations were reported, and the air quality remained within acceptable limits. "Today's report is a must-read for any company involved in laser powder bed fusion metal additive manufacturing. Not only does this new process reduce transportation costs, but it is also reversible, meaning that metal recycling companies can have unsoiled access to the underlying powder once it is received—thus allowing for the potential to recycle waste material that previously had to be put in a hazardous waste landfill." (Ref. 6) [Back to Newsletter's Page 1](#)

Study finds microplastic pollution in Flathead Lake

They're in our oceans and rivers. They're in the food we eat and the water we drink. They've even been detected inside the human body. They're called microplastics—particles of plastic so small they can't be seen by the naked eye. While researchers have known for years that these microplastics exist in Flathead Lake, the concentrations and origins of the microplastic pollution have remained a mystery. Now, thanks to a study conducted at the University of Montana's Flathead Lake Biological Station, scientists have a greater understanding of the amount of microplastics polluting Flathead Lake, the likely sources of these microplastics and what can be done to prevent more from finding their way into the lake's world-renowned pristine water. To conduct this study, the team took to sample surface waters at 12 different locations around Flathead Lake over a one-year period. They then examined the samples for the occurrence, distribution and types of microplastics.

After analyzing the samples, the team discovered that, while levels of microplastic pollution measured in Flathead Lake were lower than in lakes in densely populated areas, Flathead had microplastic levels similar to or higher than lakes studied in other less-densely populated areas of the world. In other words, Flathead Lake is now home to microplastics and new microplastic particles are arriving every day. "Microplastics in lakes can interfere with food webs because animals like zooplankton and fish can ingest them,". "They can carry toxins into the animal, displace real foods and physically damage digestive tissues." There are three main ways that microplastics reach Flathead Lake, according to the study. One way is atmospheric microplastic deposition. This occurs when microplastics are transported to Montana from other more populated areas by the atmosphere (e.g., wind and clouds) and then fall into Flathead Lake—either directly from the air (known as dry deposition) or through snow and rainfall (wet deposition). Microplastics in dry deposition were highest in the fall season, while wet deposition was highest in the winter season.

When it comes to reducing atmospheric microplastic deposition, researchers said extensive solutions are needed. The total production of plastic waste in the United States is 42 million tons per year, which is much higher than other countries per capita. This suggests that, even

in an area of relatively low population, Flathead Lake will remain at risk from microplastics arriving by air until nationwide measures can be taken. The research team said more studies are needed to better understand and address our microplastic problem, not only in the Flathead Watershed but also throughout the world. The good news is that, because human activities are indisputably the only source of microplastics, this is a problem that we have the power to solve. (Ref. 7) [Back to Newsletter's Page 1](#)

China to adopt genetically modified maize and soy: Why it matters for South Africa

Something important for global agriculture happened this past week but received minimal media coverage. The Chinese National Crop Variety Approval Committee released two standards that clear the path for cultivating genetically modified (GM) crops in the country. This has been the missing piece in the regulations for the commercial growing of genetically modified maize and soybeans in China. The government has two steps in these regulations. These are a “safety certificate” and a “variety approval” before crops can be commercially cultivated. Various genetically modified maize and soybean varieties have received the safety certificate since 2019. What’s been missing has been the “variety approval”. Now that hurdle has been cleared and commercialisation of genetically modified crops in China is a real possibility. This message was also echoed by the Chinese Agriculture Ministry. It noted that “China plans to approve more genetically modified (GM) maize varieties.” Currently, China imports genetically modified maize and soybean but prohibits domestic cultivation of the crops.

The change in regulations would potentially lead to an improvement in yields. This is aligned with China’s ambition of becoming self-sufficient in essential grains and oilseeds in the coming years. There are specific targets in products like pork, where the country wants to produce 95% of its consumption by 2025. South African farmers and agribusinesses need to pay close attention to these developments because it will have an impact on the long-term growth of the domestic agricultural sector. The increase in production in other parts of the world, specifically in maize, where South Africa is a net exporter, could bring increased competition and downward pressure on prices in the medium term. Some of South Africa’s key maize export markets are South Korea, Japan, Taiwan and Vietnam. All have proximity to China. If China progressively increases production and becomes a consistent net exporter of maize, South Africa would have to explore markets elsewhere. These are realities that policymakers in the African countries should manage in terms of reaching agreements with seed breeders and technology developers but not close off innovation. The technology developers also need to be mindful of these concerns when engaging various governments in the African countries. Geopolitical and climate change risks present the urgency to explore the technological solutions to increase each country’s agricultural production. The Chinese regulators are

following that path. (Ref. 8) [_top](#)

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Glyphosate Weed Killer Disrupts Bumblebees' Nest Temperature, Leading to Colony Failure

Bumblebee colonies exposed to low levels of the weed killer glyphosate are unable to adequately regulate nest temperature, imperiling the next generation of bumblebees and long-term colony growth and survival. This latest finding, published this month in the journal *Science*, is a stark reminder that a pesticide does not have to kill an animal outright in order to create effects that ultimately result in death and population declines. "Sublethal effects, i.e. effects on organisms that are not lethal but can be seen, for example, in the animals' physiology or behaviour, can have a significant negative impact and should be taken into account when pesticides are approved in future,". With regulators at the U.S. Environmental Protection Agency (EPA) refusing to adequately account for sublethal impacts, and myopically focused on the acute effects of pesticide exposure, bumblebee populations in the United States are in free fall and require urgent protective action. To better understand how glyphosate exposure affects bumblebee colony growth and brood (young larval bee) development, researchers first split colonies in two. One side of the colony was fed sugar water containing 5mg/liter of glyphosate, while the other side was fed pure, unadulterated sugar water. This practice accounts for natural variation in strength that can occur between different bumblebee colonies. Although the colonies were separated by a mesh screen, each day the scientists switched the queens between the two sides. Glyphosate is far from the only chemical stressor harming bumblebees. Systemic neonicotinoid insecticides represent an even more potent threat, posing both acute and chronic hazards to a range of pollinators. In fact, there is evidence that neonicotinoids pose a threat to bumblebees at every single step in their life stage.

Reinforcing the present study, research published in 2020 by researchers at University of California, Davis revealed that mason bees experiencing a combination of food scarcity and exposure to the neonicotinoid imidacloprid saw a 57% reduction in offspring, compared to unexposed bees. In addition to a wide range of chemical exposure, and the lack of floral resources from development and industrialized agriculture, are the effects of climate change. A 2015 study published in *Science* determined that North American and European bumble bees are unable to colonize new warmer habitats north of their historic range, while simultaneously disappearing from the southern portions of their range. Despite a profound body of independent, peer-reviewed literature associating various pesticides with a myriad of different lethal effects on pollinator populations, EPA regulators are permitting the continued use of these hazardous chemicals. Glyphosate and the neonicotinoids alone represent millions of pounds of pesticides applied throughout the United States. Although EPA has the power to



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order more comprehensive reviews that will result in actions that truly protect pollinators, it is repeatedly refused to do so. (Ref. 9) [top](#) [Back to Newsletter's Page 1](#)

5. ESD NEWSLETTER READER COMMENTS

None received this month.

NB: Readers may request for “name withheld from printing” while submitting their comments/suggestions.

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ESD NEWSLETTER BOARD

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Assoc: DR. JAMES ZUCCHETTO – (jimzuc@comcast.net)

NEWSLETTER ARTICLE SOURCES

- 1 <https://www.sciencedaily.com/releases/2022/06/220606134423.htm>
- 2 https://www.einnews.com/pr_news/578260082/solar-recovery-corp-launches-world-leading-solar-panel-recovery-technology-to-spearhead-circular-economy-in-australia
- 3 <https://www.natlawreview.com/article/us-department-transportation-federal-highway-administration-issues-notice-proposed/>
- 4 <https://www.natlawreview.com/article/epa-proposes-changes-again-to-cwa-water-quality-certification-rule>
- 5 <https://www.scientificamerican.com/article/pesticides-are-spreading-toxic-forever-chemicals-scientists-warn/>
- 6 <https://www.3dnatives.com/en/amgta-transport-recycle-metal-powder-waste-230620224/#!>
- 7 <https://phys.org/news/2022-06-um-microplastic-pollution-flathead-lake.html>
- 8 <https://www.downtoearth.org.in/blog/africa/china-to-adopt-genetically-modified-maize-and-soy-why-it-matters-for-south-africa-83346>
- 9 <https://beyondpesticides.org/dailynewsblog/2022/06/glyphosate-weed-killer-disrupts-bumblebees-nest-temperature-leading-to-colony-failure/>

ABOUT NEWSLETTER

ENVIRONMENTAL ENGINEERING features the application of environmental technologies to engineering systems to attain optimal performance according to established standards. The Newsletter of the Environmental Systems Division (ESD) will attempt to highlight a variety of environmental technology applications aimed at enhancing engineering systems performances in accordance with the latest standards by presenting excerpts of and links to selected articles from a variety of websites.



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DISCLAIMER

Disclaimer: This newsletter may contain articles that offer differing points of view. Any opinions expressed in this publication do not represent the positions of the ESD Executive Board members of the American Society of Mechanical Engineers (ASME).

Upcoming Webinars (Live or Recorded Access) / [Conferences](#)

[29th International Conference on Nuclear Engineering](#)

Shenzen, China and Virtual from August 8 – August 12, 2022

[International Design Engineering Technical Conferences & Computers and Information in Engineering Conference](#)

St. Louis Union Station Hotel, St. Louis, Missouri USA from August 14 – 17, 2022

[International Pipeline Conference](#)

Hyatt Regency - Telus Convention Centre, Calgary, Alberta, Canada from September 26–30, 2022

[International Combustion Engine *Forward* Conference](#)

Crown Plaza Indianapolis, Indianapolis, Indiana USA from October 16 – 19, 2022

[International Additive Manufacturing Conference](#)

Lisbon, Portugal from October 19 – 20, 2022

[International Mechanical Engineering Congress & Exposition®](#)

Greater Columbus Convention Center, Columbus, Ohio USA from October 30 – November 3, 2022