SWANA
Pennsylvania Keystone Chapter
SOLID WASTE ASSOCIATION OF NORTH AMERICA

The Keystone Keystone

2020 WINTER EDITION

Written For the Solid Waste Professionals of the Keystone Chapter SWANA

Inside this issue

A Message from the Keystone Chapter President: Michele Nestor

As we participated in the holiday festivities bringing 2019 to a close, none of us could have predicted how significantly our life and our very being were about to change forever. 2020 has been the test of a lifetime. The pandemic challenged our physical and mental health. Quarantines presented roadblocks that interfered with our traditional ways of working, communicating and socializing. Masks hid the facial characteristics that distinguish us from one another. None of that, however, compares to the loss, which most of us have experienced directly, or indirectly via our colleagues and acquaintances. We've seen lost opportunities, lost livelihoods, and tragically lost lives.

Keystone SWANA was not left untouched by the circumstances in 2020. We had the early foresight to cancel our annual conference in 2020. It wasn't an easy decision, but the well being of our members took priority over our finances and desire to network with industry contacts. We're already planning the 2021 event with hopes that you will rejoin us in this longstanding effort to advance the technical proficiency and professionalism of the solid waste industry in Pennsylvania. Stay tuned for more details as we develop the content and agenda. We learned a lot during this pandemic, and I am confident that we will have important trends and findings to share.

To our members who have lost loved ones or who have family members dealing with long term consequences of the virus, as the newly elected President and on behalf of the Officers and Board of Directors, I extend our condolences and encouragement. Thank you to the essential workers who continued to service Pennsylvania's municipalities and businesses. For all of our members, I wish you solace in knowing that there is real promise for this ordeal to end sometime in the next year. Just like our symbolic keystone, our cooperation with public health and safety guidelines continue to be the foundation of bringing this to closure. Until then I urge you to be safe so that you may stay healthy.

Here's to a Happy New Year and a return to normalcy.

Michele Nestor
President, Keystone Chapter SWANA

"Hope smiles from the threshold of the year to come, whispering 'it will be happier'"
-Alfred Tennyson

Covid Cleaning and A Reflection on SWM Publications

Alas, 2020 will be remembered for COVID and the impacts to our lives. While this author cannot minimize the pain and suffering from the many deaths related to COVID, let me focus on an impact to the waste industry. In March and April of 2020, people were confined to their abodes doing whatever they were able to do from their location. Some were able to work from home and some tackled the house itself. With the home alone time, there was a surge in home cleaning manifesting itself in some additional curbside waste. Reports to this author indicated that many rooms and home cleaning projects abounded along with painting and room rejuvenation. My focus is on one cleaning project at my house in early fall 2020.

Various industry focused magazines previously received in the mail. - *Photo Credit: Robert Hasemeier*

Many of us save something that we desire to return to at a later date. During my COVID time at the house, I encountered several journals stashed that I wanted to return to later for reading in a more relaxed moment which the photo indicates never came. What is amazing during this cleaning activity is the variety of waste management journals that proliferated in the days prior to the internet. The journals in the photo have 1990s dates and the paper bound up in this regular barrage of information and advertisement is staggering; this is one waste reduction benefit from the internet. Let me list those journals appearing in the photo.

- Waste Age: By far the thickest journal and mailed monthly to everyone in the SWM business
- Public Works: A reminder that municipal workers performed several SWM functions back in the 1990s
- MSW Management: Detailed SWM activities to SWANA's membership
- SWT Solid Waste Technology: A journal to share case histories of SWM actions attempting to solving problems having little history in SWM
- World Waste: A voice for those who had solid waste ideas or products to showcase
- Solid Waste Management: Proof that there is money to be made in the field of SWM with yet another journal
- Solid Waste & Power: Those were the days when WTE facilities were serious contenders to landfills
- Environmental Technology: Bringing together a variety of vendors able to solve the new SWM issues being encountered
- GFR Geotechnical Fabric Report: Educating the industry about the latest in the new world of synthetic materials used in landfills
- C&D Debris Recycling: There are ways to recycle almost anything

- CE News: A journal from civil engineers featuring many articles about E&S controls, including landfills
- BioCycle: Focused upon composting and recycling and still a great resource
- Resource Recycling: Not in the photo, but a constant reminder about the many ways to implement recycling and share the woes of the recycling business
- Air & Waste Management Association: Not in the photo, but not to be ignored due to the membership being involved with SWM

The 1990s were a great time to be in the SWM business due to new regulations, new technologies to deal with waste management issues and in some ways more generous budgets to find new and better ways of SWM. The collection of journals in the photo is a collage of the history of that time which was replaced with the internet. Sure, some of the journals have survived to today but have changed their appearance and relevance. Receipt of the monthly Waste Age in the mail was a highlight for me and several peers. The mail box was full many days of the week. This author is glad SWM has grown up and no longer a source of so much journal waste.

Photo Credit: Shutterstock.com

Written by: Robert Hasemeier, PE

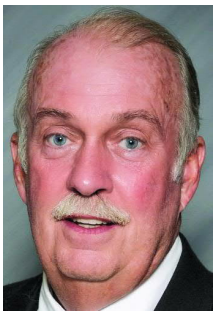
Sean Sweeney Receives Chapter Appreciation Award

During the Keystone SWANA Annual Board of Directors Meeting held via Zoom on September 18, 2020, Chanda Martino of the SWANA Keystone Chapter presented the Chapter's Appreciation Award to Outgoing President Sean Sweeney of Barton and Loguidice. Mr. Sweeney served as the Chapter's president for two years.

Sean C. Sweeney receiving the SWANA Keystone Chapter Appreciation Award.
(Featured Members, *from upper left to lower right*, Bob Watts, Dayle Anderson, Elizabeth Osborne, Denise Wessels, Jill Hamill, Charles Raudenbush Jr., Chanda Martino, Sean Sweeney, and Carolyn Witwer)

Photo Credit: Denise Wessels

William “Bill” Lee Loses Battle with Covid-19 at Age 75



On Friday, December 18, 2020, William "Bill" Lee lost his fierce battle with the evils of COVID-19 at the age of 75. By his side were the Medical ICU warriors at Presbyterian Hospital in Pittsburgh. His family held his hands until his Army of Angels came to take him home to heaven.

Bill was a lifetime resident of his beloved Charleroi, living for the last 43 years on Davidson Drive in Speers. Bill is survived by his loving wife of 53 years Mary Lou Pascoe Lee; his children, Billy (Tara) Lee, Michele (Joe) Schwerha, and Michael (Stacey) Lee, his Pascoe children Lee, Shanon, and Katie; seven beloved grandchildren; brother, Tim (Carol) Lee; nieces and nephews, great nieces and nephews, many cousins; great friends and his Cabin Crew Geoff, and Davie. He was preceded in death by his parents Frank and Francis "Quinnie" Lee; his sister, Peggy Casey; and his in-laws, Warren and Ruthann Pascoe.

He graduated from Charleroi High School in 1963, playing football, baseball, and running track, being named an All-Conference Quarterback in 1962. Bill graduated from Harvard on the Mon, California State College in 1967 where he was the starting quarterback all four years. He set a school record with 367 passing yards in 1965 which earned him PSAC player of the week honors. His football career continued as a referee for midget league and high school football.

Bill was a professional salesman. He started his career in pharmaceutical sales. In 1980 he proudly joined his cousins Mike and Dave Lee at Lee Supply Co. as the environmental sales manager, fondly known as Land Fill Bill. He officially retired in 2013 but continued to be active with tradeshows and mentoring. He proudly served his community and his church, St Andrew of the Apostle Parish (St Jerome's). He was a longtime lecturer, grass cutter, and happiness facilitator as a Meals & Wheels delivery man. As a faithful servant to his Lord, you could hear his booming voice from any pew in the church. He also held many positions in the local communities, including Mon Valley Progress Council, Charleroi Area School Board of Education, Water Authority Board of Charleroi, and most notably The Mayor of Speers Borough for over 20 years. As Chairman of the Charleroi Regional Police Department, he was very proud of the contributions he made to join the communities with the regional police force. As the President of the Mon Valley Ancient Order of Hibernians he and his singing Hibernians sang their way through 40 years at the Pittsburgh St. Patrick Days parades, proudly receiving many awards for singing Molly Malone.

Bill was a pillar in his community and was inducted into the Solid Waste of North America Hall of Fame in 2000, California University of Pennsylvania Sports Hall of Fame in 2011, Mid Mon Valley Hall of Fame in 2013, the Shining Star Mon Valley Chamber of Commerce in 2013, and the Charleroi All Sports Hall of Fame in 2019. He was an avid outdoorsman, hunting, fishing, shooting, which he enjoyed at his cabin at Whipkey Dam with his grandchildren and beloved Cabin Crew. He loved college and NFL sports, especially Notre Dame and his Tom Brady. Bill never met a stranger. He was a great friend to everyone that crossed his path each day. He will always be remembered for his famous renditions of God Bless America! Our world was a better place to have had him in it.

In lieu of flowers, the family requests that donations be made in memory of Bill Lee to Cal U Football Scholarships. Checks can be made payable to the Foundation for Cal-U and mailed to Foundation at: P.O. Box 668, California, PA 15419. The great life of Bill Lee will be celebrated at a later date when our family, friends and community will be safe from the coronavirus. Online condolences may be sent to the family at www.schrock-hogan.com

Falls Twp. Hears Proposal for New Waste Conversion Facility

Falls Township

Photo Credit: Wikicommons

If all goes as planned, Falls Township will be the first of five sites across the United States to house a post-consumer and post-industrial waste separation facility.

Representatives from Continuus Materials discussed with the board the company's plan to construct a plant in Falls Township that would employ 100 people once operational, tentatively in October 2022. The project would also add approximately 340 construction jobs during buildout, which is projected to begin in May 2021 and continue through October 2022.

The facility is planned for a roughly 10-acre property owned by Waste Management on New Ford Mill Road. Continuus Materials would use the latest technology "*to pull plastic and paper out of the waste stream*" and transform it into high-performance cover boards for commercial roofing applications, according to Continuus Materials Senior Vice President Allan Bradshaw. "*It literally is the garbage bag that you put in the trash can,*" he said. "*The vast majority of that paper and plastic is recoverable, completely without a human hand touching it.*"

The process in place at Continuus Materials' plant in Des Moines, Iowa, recovers 25 percent of waste for use in Everboards. The rest will be conveyed into trucks and transported to the landfill. The company's Everboard roof cover has a 20-year life, Bradshaw said, noting that boards can then be brought back to the plant, ground up and reused to make new boards.

Waste Management sees 25 to 55 trucks per hour at its landfill, Bradshaw said. Once the Continuus Materials facility is operational, the company would "*divert*" four to six trucks per hour for a total of 19 to 22 trucks per day during a 12-hour shipping window. "*Just diverting trucks that are already on their way to the landfill makes sense,*" Supervisor Chairman Jeff Dence said.

Continuus Materials attorney Tom Jennings said the facility would not impact landfill tipping or host fees paid to the township. For 2021, Waste Management's host fees are estimated at $18 million.

Since the processing results in "*very low*" emissions, emission control technology is not needed, Bradshaw said. The company uses heating and cooling only in the process and does not use water, or chemicals, he said. The supervisors took no action on Monday. Once Continuus Materials submits a land development application, the board can undertake a formal review and consider granting approval to construct the facility.

Written By: Theresa Katalinas
November 19, 2020
Source: https://buckscountyherald.com/falls-township-reviews-plan-for-waste-conversion-facility

Everboard™

Photo Credit: Continuus Materials Website

Pittsburgh Partners with Allegheny CleanWays to Clean Up

Pittsburgh officials and local nonprofit CleanWays are working together to aggressively tackle illegal dumping in the city. In September, a Pittsburgh City Council green-lighted a pact to allow Allegheny CleanWays to remove debris from chronic dumping sites that plague city neighborhoods. Under the new measure, the group would be allowed to access city public works sites.

Since 2000, Allegheny CleanWays has organized 14,124 volunteers for the removal of 30,569 tires and 1,727.3 tons of debris in Pittsburgh alone. Now the group is setting its sights on 973 dumping sites, give or take a few, in city limits. NaTisha Washington does environmental work for the community group Operation Better Block in Homewood, where Allegheny CleanWays is planning to laser focus some of its clean-up efforts. She says that Homewood has 673 vacant, city-owned lots, according to online tracking software the organization uses to fight dumping and blight.

"*Allegheny CleanWays has done a really good job of cleaning up many dump sites but people keep dumping,*" Washington says. "*It's a vicious cycle.*" Washington's group has a battalion of 15 to 20 youth volunteers who help remove debris on various Homewood lots. Even that group has limitations, though, and needs to stay off land littered with hypodermic needles and broken glass or dangerous debris. "*It takes them every other summer day, to get as many lots done as they can,*" Washington says.

The group has had success. A couple years ago, they transformed an overgrown and debris-strewn lot on Rosedale Street near a Wilkinsburg Park and Ride into a community rain garden. All of the work was led by residents, and photos attest to the dramatic transformation undertaken at the site. Newman says she is more concerned with chronic dump sites, such as abandoned garages or empty buildings, where developers leave behind construction materials as frequently as residents dump televisions and tires, or absentee landlords toss out people's belongings during forced evictions.

Two North Side neighborhoods, Perry North and Perry South (sometimes referred to as Perry Hilltop) were prime targets for dumping due to their empty hillsides and the abandoned properties that pockmark their streets. City Councilman Bobby Wilson, whose North Side district includes Perry North, says addressing issues with abandoned properties is one of his office's top priorities; and that includes properties being used for illegal dumping. "*To have a tool like [the Allegheny CleanWays agreement] in our chest is going to get us one step closer to having the neighborhoods everyone wants, where you can walk down the streets and not see these dumping sites. It's an ongoing problem.*"

Sally Stadelman, Wilson's chief of staff, is also tackling the issue with the Clean Pittsburgh Commission and as a member of a Perry Hilltop group. She worked alongside Allegheny CleanWays when it focused its efforts about four years ago on Perry North and Perry South. "*It really gave us a good platform to reach the status quo,*" Stadelman says. "*There's definitely a lot less dumping; there's a big difference*."

Chronic dumping, though, is not a Homewood or North Side problem alone. Michael Carlin, a semi-retired U.S. Census Bureau worker, has lived in Mt. Washington for about 25 years and has participated in various clean-up efforts through the Neighbors on the Mount group. "*One day, I just got tired of seeing all these tires,*" Carlin says. "*They were mostly in alleys but also in front of houses, strewn here, strewn there.*" Carlin and Neighbors on the Mount started a tire collection effort and bird-dogged the neighborhood for chronic dumping hotspots. Carlin spotted Rubicon Street, a small, little-known dead-end that sits on top of the Wabash Tunnel, where he saw about seven tires. When Carlin went back to pick up the tires, he and his nephew were shocked at the "*archaeological site of garbage*" they found: layers upon layers of debris, used

bottles dating back 50 years from area bars, construction debris, and tons of household trash. "*I guess word got out in the neighborhood, 'This is a spot to dump your trash, no questions asked,'*" Carlin says.

Working with Allegheny CleanWays, Carlin and his group removed 260 tires and about 20 tons of debris, from embossed Mountain Dew and whiskey bottles from the 1960s to old concrete and busted pipes. Carlin says, "*We put a major dent in it and we're gonna come back and finish it up.*"

City officials echo the need to finish the job. Earlier this year, Pittsburgh participated in a Keep Pennsylvania Beautiful study to calculate the cost of cleaning up illegal dumping in nine Pennsylvania cities. Collectively, those cities spend more than $68 million annually on cleanup, education, enforcement, and prevention. "*In our work on the seemingly unending problems of litter and illegal dumping, we know that Pittsburgh is uniquely reliant on volunteer efforts to keep our streets, alleys, lots and waterways clean,"* says the city's Environmental Enforcement Coordinator Missy Rosenfeld. "*All together these tasks can be such a huge undertaking that we are extremely grateful to have organizations like Allegheny CleanWays getting out there and doing the hard, necessary work that the city can struggle to keep up with.*"

People who illegally dump also don't discriminate between privately owned or publicly owned property. "*When privately owned, getting the owner's permission to clean the site can be challenging,*" says Chris Mitchell, the city's Anti-Litter Specialist. "*Allowing Allegheny CleanWay's sweeping access to all city-owned properties. instead of seeking permission parcel by parcel, will speed up the cleaning process.*"

By: Justin Vellucci
September 9, 2022
Source: https://nextpittsburgh.com/features/city-of-pittsburgh-working-with-allegheny-cleanways-to-clean-up-illegal-dumping-sites

How to Waste Less By...Consuming More?

In May 2020, [Turner Wyatt] wrote an article for Waste360 that called for the waste industry to redefine "*waste*," literally. He argued in favor of the circular economy, which states "*waste*" is actually a misnomer; rather, the real problem is a design flaw in the food (and other goods) production system. It's an argument that leads to an adage heard around the virtual office (probably too much): "*the wasters of today are the suppliers of tomorrow*." But if that's true, then perhaps one of the best ways to reduce waste is to increase consumption–albeit consumption of the right stuff.

First, we have to recognize that any waste stream is just the feedstock for some other product or process. Then by increasing consumption of things which include these otherwise-wasted ingredients, we make the waste disappear in its tracks, like shining a flashlight on a shadow. In other words, it's only when we consume products made from non-waste streams that waste exists in the first place. Waste is not a disposal problem, it's a consumption problem.

Thankfully, a shift is occurring in our consumer goods supply chain; an ingredient revolution led by cavalier upcyclers who demand that there's value in the byproducts currently slipping through the cracks. Upcycled Food Association includes more than 20 of these zero-waste ingredient suppliers, a sizable portion of our 100 business-strong membership. But many more upcycled ingredient suppliers are on the horizon.

The logic behind the transformation of manufacturers into ingredient suppliers is simple: instead of paying some waste hauler to come pick up my waste streams (net loss), why don't I commercialize those waste streams and get paid for them (net gain)? (Side note: does this mean the waste haulers of today will be the distributors of tomorrow? We'll see.) Yes, there are some initial investments needed to process, prepare, and ship the new product, but as I'll explain, this investment can produce a significant return on investment, and social/environmental return on investment.

Here's an example

Hemp oil. I've heard that the most popular product from the booming hemp industry, hemp oil, produces a massive amount of "press cake" as a byproduct. A large machine squeezes out the hemp oil and leaves a whole heap of this fibrous, leftover material, high in nutrients but without a market. For the most part it just piles up at the factory. These companies are desperate for something to do with this substance they know has so much value.

Here's the kicker; the volume of press cake is so high that if there was a market, even a relatively low-value market, for hemp seed press cake, it would bring down the cost of the hemp oil itself, possibly enough (I'm told by industry insiders) to make hemp oil cost competitive globally with something like palm oil! What?! Amazing! Where is the rainforest alliance to make an investment in a press cake upcycler?! Whoever figures out how to make a little money from hemp press cake will make a lot of money for the hemp industry, and hopefully save some orangutans, too. This type of benefit can be replicated without venturing into a new industry, as well. Instead of selling your upcycled ingredients to someone else, why don't you put it to use in house, improving your own current products?

Look at the chocolate industry. This is an industry that buys a ton of cane sugar to sweeten its chocolate bars. Meanwhile, the industry is throwing away a huge amount of high quality sugar that comes from the same plant as the chocolate's main ingredient. Each cacao seed is enveloped in a super sweet, bright white fruit, cacao fruit, which is discarded as part of the modern chocolate manufacturing process. That's changing. Instead of throwing this fruit out, and buying expensive sugar from elsewhere, chocolate companies are wising up, and sweetening their chocolate with the cacao fruit sugar they

are already growing. Aside from saving money, it makes the chocolate healthier and taste better, too.

More than just monetary gains

As if saving money wasn't reason enough to make the switch from waster to ingredient supplier, there's another: sustainability. Food waste, in particular, is a major environmental problem, with 40% of food going to waste. A significant chunk of that percentage comes from manufacturing and agricultural byproducts. Reducing food waste is the single greatest solution to climate change, according to Project Drawdown.

Here's the paradigm shift that needs to occur: out of the 100% of energy it takes to create a food product, 40% is going to waste, so we are stuck spending 100% of our energy to only get 60% back, right? Wrong. That remaining 40% of energy is actually being used to create a byproduct, i.e. a new ingredient. By commercializing these upcycled ingredients, we are reducing the energy-in per energy-out, increasing efficiency and improving the environment.

Take WholeFruit Chocolate, which was recently introduced by one of the largest cacao suppliers, Barry Callebaut. It is made with only one ingredient: cacao fruit. And it uses the whole fruit, in comparison with traditional chocolate, which only uses the cacao seeds (30% of the fruit), and discards the rest. In the old ingredient supply paradigm, 30% of the resources needed to produce chocolate are used, and 70% is wasted. In the new paradigm, the 30% of resources needed to produce chocolate goes to producing the cacao seeds, and the remaining 70% goes to produce the fruit. The resources are being spent in either case. What's the better investment?

The food industry isn't the only one with this tremendous opportunity sleeping in its lap. Upcycled ingredient suppliers are not just creating ingredients for food products, but also for cosmetics, personal care, home care, and pet food. The opportunities for innovation and new value creation are endless, if, of course, this new upcycled ingredient supply can be met with commensurate demand. That's where consumers come in. Luckily, more than half of consumers want to try more upcycled products, according to two studies from the University of Otago, and Mattson. At Upcycled Food Association, we're working to increase demand through consumer education, research, and policy.

So, let's make the wasters of today into the (profitable) ingredient suppliers of tomorrow, creating value and accomplishing sustainability goals at the same time. If you're a supplier of ingredients, you can accomplish your sustainability goals through what you sell, rather than what you don't throw away. And if you're a manufacturer, retailer, or consumer, you can achieve your sustainability goals via what you buy.

By: Turner Wyatt
Published: September 10, 2020
Source: https://www.waste360.com/food-waste/how-waste-less-consuming-more

Wait! What?! - Archaeologists Delve into Medieval Cesspits

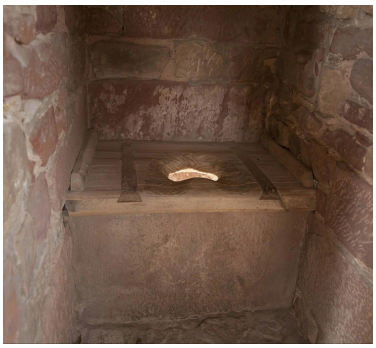
Coprolite Fossil

Photo Credit: Wiki Commons

One of the things archaeology consistently teaches us is that humanity is remarkably resilient in the face of crisis. Another is that poop is forever. Archaeologists have already explored the contents of coprolites and the chemicals left behind by a city's worth of human waste. And according to a recent study, DNA from your gut microbes can stick around for centuries under the right conditions.

Archaeogeneticist Susanna Sabin and her colleagues found DNA from human gut-dwelling microbes in samples from a 600-year-old household cesspit in Jerusalem and a 700-year-old public toilet in Riga, Latvia. Eventually, that data will help researchers plumb the depths of medieval microbiomes to understand how the microscopic populations of our intestines have evolved over the centuries. For now, the study offers a few small hints about medieval life and suggests that ancient toilets have more to tell us.

Medieval vs. modern microbiomes



Medieval *Garderobe* from a European Castle

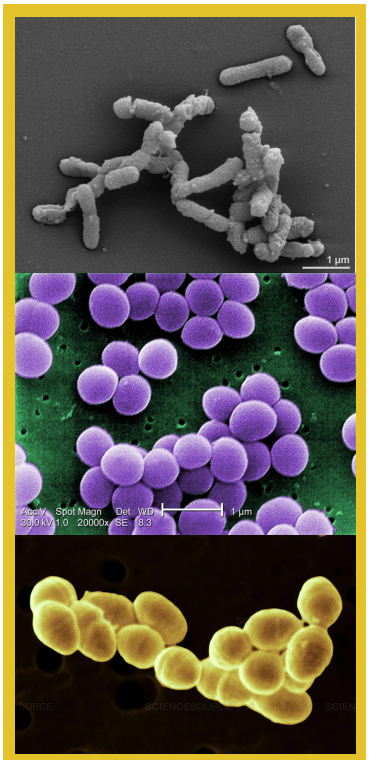
Photo Credit: jmibathrooms.co.uk

We already know that the microbiomes of modern hunter-gatherers and modern urban dwellers look quite different from each other. Figuring out how those differences evolved could offer some insights about health problems in modern urban dwellers. Sabin and her colleagues thought medieval latrines might be a good place to start looking for clues since medieval cities were urban but not yet industrialized. They sequenced DNA in sediment samples from a 15th-century cesspit in Jerusalem and a 14th-century public latrine in Riga.

"We felt the medieval period was sufficiently old for us to detect change compared with modern populations, but not so old that the DNA would not survive well enough to undertake the study," Cambridge University archaeologist Piers Mitchell, a co-author of the study, told Ars. "*We chose the two sites in Jerusalem and Riga as they were both from the same time period but from different geographic regions, which might lead to different microbiomes in those populations*."

It turned out that the microbiomes in medieval sewage had some species in common with modern hunter-gatherers' guts and other species in common with modern urban dwellers. That combination meant that the gut microbe censuses from medieval Jerusalem and Riga look more like each other than like any modern gut microbiome.

For example, bacteria called Alistipes putredinis and Eubacterium rectale show up in the guts of most modern people, but those two species were "notable absences" from the medieval latrines. On the



Alistipes putredinis (top) Eubacterium rectale (center) Ruminococcus bromii (bottom)

Photo Credits: microbiomology.org and Sciencesource.com

other hand, both medieval latrines contained another common modern gut bacterium, Ruminococcus bromii.

But the two medieval cities also had their own distinct microbial signatures. "*We also found different parasite species in the two sites. For example, fish tapeworm was extremely common in Riga but only occasionally found in Jerusalem,*" Mitchell told Ars. "*This reflects the abundant lakes and rivers full of fresh water fish in Latvia and the fewer sources of fresh water in Israel and Palestine.*"

A tale of two cities

"*Both latrines harbored diverse microbial taxa, some of which were found in the industrial gut datasets we used for comparison," molecular paleoanthropologist Kirsten Bos, of the Max* Planck Institute for the Science of Human History, told Ars. For example, both medieval cesspits were teeming with DNA from bacteria in the genus Bifidobacterium, which also live in the guts of most people in industrialized countries today.

Modern hunter-gatherers don't tend to have populations of Bifidobacterium, though. But they do tend to host other bacteria called Treponema, which "*seem to have been lost in industrialized populations,*" Sabin and her colleagues wrote. And the medieval cesspits of Jerusalem and Riga were chock-full of Treponema species, too.

"*This indicates that the medieval gut contents seemed to contain characteristics of both [industrialized societies and hunter-gatherers]*", Bos told Ars. If you were looking at a census of a single modern person's microbiome, finding

Researchers led from Germany analyzed historic latrines from Riga, Latvia and Jerusalem, Israel.

Photo Credit: Dailymail.co.uk (MailOnline, Anna D-assaro)

Treponema and Bifidobacterium in the same digestive tract would look like a massive contradiction. As the study puts it, they're "*often seen as trade-offs between more industrialized and more hunter-gatherer-based dietary habits.*"

Of course, the thing about cesspits and public latrines is that they collect fecal samples from lots of people. In Riga, the latrine Sabin and her colleagues sampled had been a public facility near a busy street.

What's it mean?

"*It is thought that the general population of the town used this latrine,*" Mitchell told Ars. "*We presume it was used by the poor who had no latrine of their own and those of any social class who needed the toilet while out in the town for their daily work*." Tree rings from a wooden structure around the remains of the latrine dated to 1356 CE.

That's a great place to get information about the whole population of a community, but it also makes the mix of microbial DNA buried in the mud hard to interpret centuries later. Maybe people in Riga had diverse dietary habits and microbiomes, and that's why their public latrine contains evidence of microbes that usually don't share an intestinal tract. But it could also be that medieval cities like Riga were halfway between industrial and hunter-gatherer gut flora, and the latrine is a snapshot of that transition.

In Jerusalem, the samples came from the bottom of a cesspit that had once drained the toilets of at least two households in the Christian Quarter of the Old City. Material from the cesspit radiocarbon dated to the 1400s, but Sabin and her colleagues aren't sure how many people used it. "*We do not know how many people lived in the houses that shared the Jerusalem latrine, as those houses no longer survive,*" Mitchell told Ars.

We need to look at more toilets

"*At the outset, we weren't sure if molecular signatures of gut contents would survive in the latrines over*

Giving Back This Season!

With everyone spending time at home and taking on multiple cleanouts and renovations, *The Keystone* would like to remind you that there are many great local alternatives for your unwanted items as opposed to your nearby garbage can.

While most people know about those big metal clothing drop-off bins scattered in public parking lots or the numerous donation drop-off centers at your neighborhood thrift store, many people overlook the ability to donate salvageable materials from that recent kitchen makeover. So before ordering a roll-off dumpster or loading a trailer for the landfill, consider salvaging those architectural items and donating them to your local Habitat for Humanity ReStore.

Founded in 1976, Habitat for Humanity has been devoted to building simple, decent, and affordable housing, all over the world. Habitat for Humanity ReStores are non-profit home improvement stores and donation centers that sell new and gently used furniture, appliances, home accessories, building materials, and more at a fraction of the retail price. ReStores are independently owned and operated by local Habitat for Humanity organizations with proceeds going directly to help build strength, stability, self-reliance and shelter in local communities and around the world.

So if you have some of the following items leftover from a project, consider making the trip to your local Habitat ReStore instead of the landfill. If you cannot drop off items, you can also contact your local store to discuss pick-up options. To find a local store visit www.habitat.org/restores.

Some of the items they accept include:

- Appliances
- Architectural items
- Brick
- Cabinets/countertops
- Doors
- Flooring (new only)
- Furniture
- Hardware
- Home Decor
- Insulation (new only)
- Lighting
- Masonry
- Plumbing
- Tools
- Windows
- Wood (minimum of 4 ft.)

hundreds of years," said Bos in a press release. "*Many of our successes in ancient bacterial retrieval thus far have come from calcified tissues like bones and dental calculus, which offer very different preservation conditions*."

To make their research work, Sabin and her colleagues had to sort out the gene sequences of the myriad bacteria, archaea, fungi, protozoans, and other microbes that live in human guts from the other myriad microbes that live in the soil at each site. They also had to weed out all the human DNA sequences mixed in.

The next step will be to collect metagenomic data from other medieval latrines in other cities. "*Replicating similar studies with material from different locations and time periods may reveal key characteristics of how the microbial communities in our guts have changed over time,"* Bos told Ars.

By: Kiona N. Smith
Published: October 6, 2020
Source: https://arstechnica.com/science/2020/10/archaeologists-delved-into-medieval-cesspits-to-study-old-gut-microbiomes/

Approximate 500 year old cesspit studied in Riga, Lativa

Photo Credit:Uldis Kaljis

EPA's Recycling Strategy to Reach 50% by 2030

America's recycling rate was "*well below*" 10% in 1970 at the inception of the Environmental Protection Agency (EPA), EPA Administrator Andrew Wheeler told attendees of the third annual America Recycles Summit. The establishment of the agency allowed Americans and the U.S. government to better focus on issues affecting the environment, leading to an upsurge in recycling rates in the 1990s that plateaued in the mid-30% range. However, the rate has since hovered there, last measured at 35% in 2019.

"*Recycling is key to maintaining domestic supply chains, while conserving our natural resources and it's a vital source of jobs,*" Wheeler said. "*EPA has led a revival of the U.S. recycling system, which faces significant challenges, ranging from consumer confusion to reduced international markets and old recycling infrastructure that has not kept pace with modern materials streams.*"

Aiming to end decades of stagnation, Wheeler announced the EPA's goal to bolster the nation's recycling rate to 50% by 2030. He explained, "*As a nation, we are blessed with abundant resources. And we all want to protect the value of those resources, so future generations can enjoy and benefit from them. We know that recycling is one of the most widely available ways to have a positive impact on the environment, from children in schools to families in the suburbs.*"

To achieve this goal, collaboration at all levels of government and across the value chain is paramount to success. And the National Recycling Strategy, set to be finalized in early 2021, is the proposed mechanism that will progress the nation forward. The EPA released a draft providing a high-level overview in October. Wheeler provided details of the draft strategy's three key objectives:

- Reducing Contamination in the Recycling String
- Increasing Processing Efficiency
- Strengthen Markets for Recycled Materials

Reducing Contamination in the Recycling String – This ensures that clean recyclable materials can be processed and made into new products. "The *idea is to go back to the basics, recycle empty and dry cans, paper and clean cardboard and keep food and liquids out of the recycling bins*," Wheeler said. "No *plastic bags are wrapped should be in recycling bins. They should instead have separate recycling bins at participating grocery and retail stores*."

Increasing Processing Efficiency - This will be achieved through improvements and updates at MRFs and at the collection level. "*We need to invest in new equipment upgrades and expand access to curbside recycling for more Americans,*" he stated.

Strengthen Markets for Recycled Materials - "*This will help ensure manufacturers make more products using recycled materials in bolster public demand*," he indicated.

With a focus on those three areas and an overarching goal, Wheeler anticipates a shift in the nation's recycling ecosystem should a collective effort be made.

A Global Effort

Following his remarks about the National Recycling Strategy, Wheeler introduced Shinsuke Sugiyama, Japanese ambassador to the United States, who applauded the countries' relationship on environmental issues.

Sugiyama recalled the G20 held in 2019 in Osaka, Japan, which focused on the intersection of sustainability and competitiveness. He also described recycling in Japan and drew parallels to the proposed National Recycling Strategy.

"*In Japan, each municipality has its own rules for waste disposal, and people separate waste and recyclables into many divided categories*," he explained. "*Indeed, people are highly aware of the importance of separating waste, and recycling. And then separation is commonplace in our lives."*

The country is ramping up efforts to reduce plastic waste, targeting Southeast Asia as a primary source of marine pollution. "*In a recent policy speech, newly the Prime Minister [Yoshihide] Suga spoke about the virtuous cycle of the economy and the environment and he spoke about how it will be a pillar of Japan's strategy for economic growth*," Sugiyama said. "*I believe that today's gathering is based on the same spirit*."

He continued speaking about how recycling is a required component of economic growth and environmental health. "*Without recycling, materials are wasted, energies are wasted, and indeed, labor is wasted. To waste is a drag on economic growth; it is a drag on efficiency; and it is destructive to the environment,*" Sugiyama concluded.

New York State of Mind

Pete Lopez, U.S. EPA Region 2 administrator then zeroed in on America's regional efforts to improve the recycling ecosystem. His narrative drew references back to his work in New York, likening the EPA's different regions into state counties that report upward.

"*They work in support of the leadership at the Capitol. They're capable of interacting with the groups and the individuals where they work intensively and where they live, very critical factors*," Lopez explained. "*So they are uniquely positioned to work intensive intensively and collaboratively with stakeholders to increase recycling rates and establish national markets even as they bring information and ideas back to headquarters to inform the national perspective.*"

The EPA's national goal will be "*amplified*" and "*accelerated*," through the establishment of coalitions between entities in the local, regional, government, for profit, educational and nonprofit sectors, he added.

Diving Deeper

With both global and local efforts explored, Peter Wright, U.S. EPA assistant administrator for the Office of Land and Emergency Management, elucidated on the four issues that will be addressed with the implementation of a National Recycling Strategy:

- Confusion exists as to what's recyclable and how to minimize contamination.
- Recycling infrastructure is old and investments are needed to improve processing capacity.
- Action is needed to strengthen domestic markets for recycled materials and to better integrate recycled materials and end-of-life management into product and packaging designs.
- The patchwork of state and local approaches as to what's recyclable and how recycling is defined makes it very difficult to measure and track national progress.

Wright cited the work of the EPA career employees in identifiing the problems in the U.S. recycling system, which led to the launch of the Americas Recycle Summit and other efforts to find solutions to a broken value chain.

At its most basic understanding, the National Recycling Strategy addresses municipal solid waste (MSW). "*This refers to the various items that consumers throw away after their use,*" he said. "*The National Recycling Strategy identifies short- and long-term actions to improve the recycling system that can be taken by anybody, and not just by EPA or the federal government*."

First is the issue of addressing contamination at the residential level. Because it affects the quality of recycling materials, contamination makes the bale less desirable in the marketplace. The EPA plans to improve and increase public education and outreach to alleviate the issue.

"*As it's been said, people want to recycle, but they continue to be confused about what to put in the bin, and it depends on where they live*," Wright said. "*We need to*

SWANA Mini-Tech Watch

The Keystone wants you to know that there is still a Mini-Tech on the horizon. For the most up-to-date information be sure to check out the Keystone SWANA website!

Metals Recovery from MSW Ash Mini-Technical Seminar

POSTPONED

The Mini-Tech will begin with a presentation followed by a walking tour of the facility. A networking lunch will follow the tour. In April 2016, LCSWMA entered into a long-term contract with Inashco North America, Inc. to site a metals recovery facility (MRF) next to the Frey Farm Landfill. While LCSWMA's WTE facilities currently use in-line metal recovery systems, only larger metals are removed. Inashco offers an advanced metals recovery system to remove pebble-sized metals present in the ash. This includes both ferrous (iron) and non-ferrous (aluminum, copper, brass, zinc, gold, silver, etc.) metals.

In 2018, Inashco constructed the MRG, which processes around 650 tons of ash each day (165,000 annually) and recovers about 22 tons of metals (8,300 tons annually). Not only does this innovative project remove and recycle metals that would have otherwise been landfilled, but it's helping to extend the life of the Frey Farm Landfill.

Where:
Frey Farm Landfill
3049 River Road
Conestoga, PA 17516

When:
TBD - Event is being rescheduled

Additional Information:
Registration is $15 for SWANA members and $25 for non-members. Space is limited and participants are required to bring safety toe boots.

increase access to information about recycling, for example, by sharing best practices, and analyzing different recycling policies, so that we shape the path forward for consumers and make it easier for them to follow."

The second objective addresses the aging infrastructure of MRFs, which have not evolved along with the different materials used in consumer products.

"*Unfortunately, new products are not always designed to be well matched to the ability of existing infrastructure to recycle them,*" he said. "*We need to look at the infrastructure as it exists today and figure out the gaps and needs. We need investments to make improvements to the existing infrastructure funding is available, but it's not always easy to find. We recognize that innovative technology can improve sorting efficiency at MRFs, and more research and development on technologies is needed*."

Product design also is a priority. "*We also need to take a step back and see how we design products in the first place to see whether they're designed to be easily recycled at MRFs*," Wright said.

Lastly, standardized definitions, measures, targets and performance indicators are needed to allow for a common recycling language to be adopted.

When it comes to the National Recycling Strategy's third objective, strengthening the market for recycling, sparking demand is key. Wright called for interested parties to publicly comment on the draft document before December 4, 2020. He said, "*we want to make sure that it covers all the right things. Specifically, we're interested to know what actions people think are the most important*."

Following the comment period, the EPA's next steps are to develop a roadmap for implementing the strategy.

By: Stefania Valentic
Published: November 19, 2020
Source: https://www.waste360.com/recycling/depth-look-epas-national-recycling-strategy

Save Our Seas 2.0 Could Bring Millions to Recycling Industry

The Senate passed marine debris prevention legislation known as the Save Our Seas 2.0 Act on December first. The bill was amended and approved by the U.S. House of Representatives in October. The legislation awaits signature from President Donald Trump.

Save Our Seas 2.0 provides states with $55 million annually through 2025 to support improvements in local postconsumer materials management, including recycling programs. An additional $10 million annually will be provided to local governments and nonprofit organizations to support projects, such as anti-litter initiatives, enforcement of local materials management ordinances and education and outreach, among other projects.

A number of recycling and plastics industry associations have voiced their support for the legislation. The Solid Waste Association of North America (SWANA), Silver Spring, Maryland, says it urges Trump to sign the legislation and thanks U.S. Sens. Dan Sullivan, Sheldon Whitehouse and Bob Menendez for their leadership.

In a news release about the legislation's passage, SWANA says it "*strongly supported the Save Our Seas 2.0 Act, which improves the domestic response to marine debris, incentivizes international engagement to address marine debris and helps strengthen infrastructure to prevent the creation of new marine debris.*" The association adds, "*With China set to ban imported recyclables and scrap completely in less than a month, and an amendment to the Basel Convention taking effect in 2021 that will limit export options for discarded plastics, Congress' action was both timely and necessary.*"

The Plastics Industry Association (Plastics), Washington, also supports the legislation, which it says will improve domestic infrastructure to reduce marine debris, further research into detection and cleanup and enhance international cooperation to solve the problem.

"*Our industry is proud to work with federal legislators to protect the environment,*" Tony Radoszewski, president and CEO of Plastics, says. "*We've worked years to help pass the original Save Our Seas Act, including this latest improvement, and we look forward to more cooperation.*" The association says it supports a variety of federal legislation to educate consumers about the value of plastic, including legislation that promotes reusing, repurposing and recycling this valuable material.

Joshua Baca, vice president of the American Chemistry Council's Plastics Division, also based in Washington, says of the legislation: "*America's plastic makers welcome final passage of the Save our Seas 2.0 Act and the bipartisan approach taken by Sens. Sullivan, Whitehouse and Menendez. We strongly support the legislation being signed into law. The Save Our Seas 2.0 Act supports scientists and agencies in researching innovative ways to repurpose used plastics, including for infrastructure projects, such as roads and bridges, and development of a mass balance certification system for recycled content creating circular polymers.*"

Baca adds, "*Additionally, the legislation creates a revolving fund to strengthen our domestic recycling infrastructure. Earlier this year, ACC signed a Memorandum of Understanding with the Department of Energy to support innovations in plastics recycling and recovery technologies that strengthen domestic supply chains while improving economic and environmental outcomes. Across the U.S., there have been 64 announced projects in mechanical and advanced recycling valued at $5.3 billion. Together, these projects have the potential to divert more than 4 million metric tons (approximately 8.9 billion pounds) of waste from landfills each year.*"

Written By: DeAnna Toto
December 3, 2020
Source: https://www.wastetodaymagazine.com/article/save-our-seas-2-act-awaits-presidents-signature

2019 BLS Report Shows Collection Worker Fatalities Down

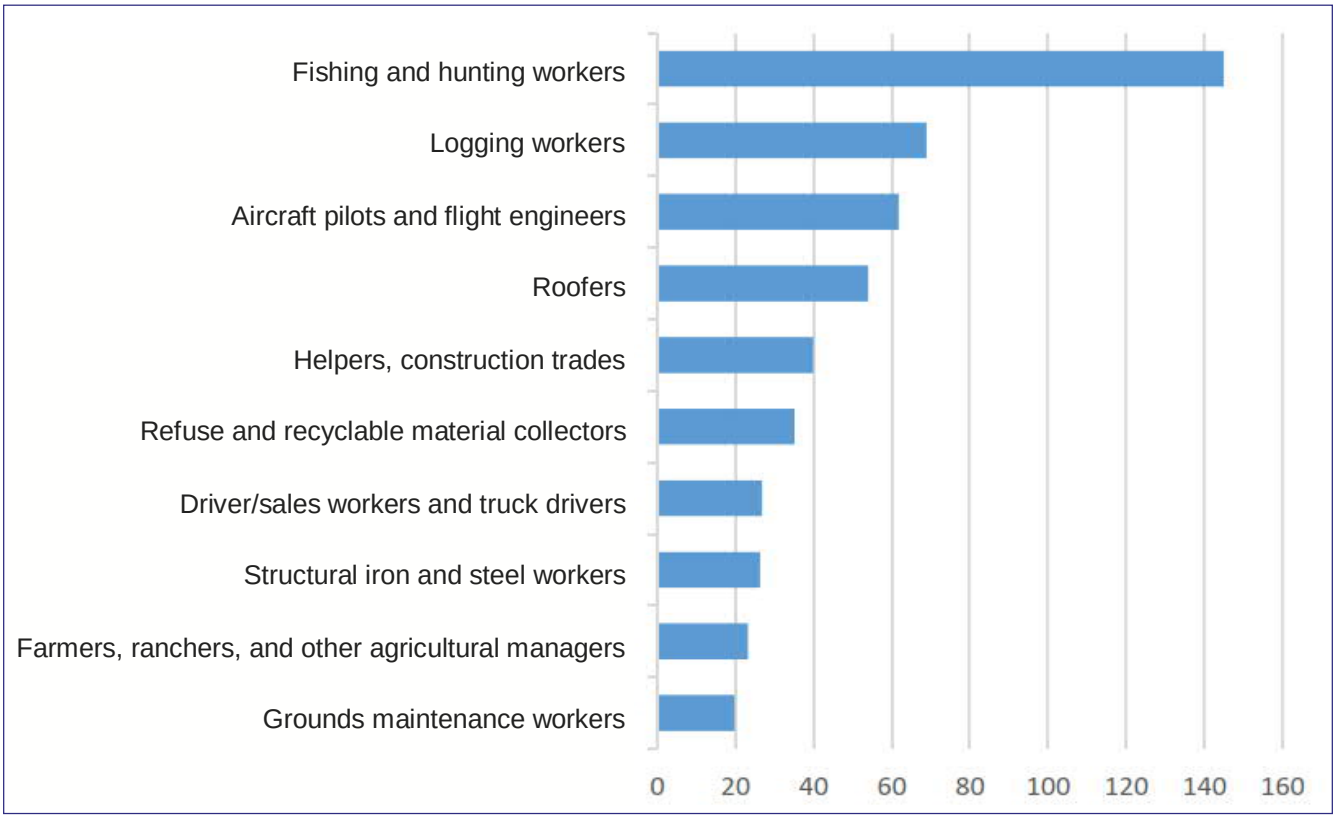
The lower number of collection worker fatalities in 2019, and an apparent drop in transportation incidents, is seen as welcome news for the industry. Construction trade worker fatality rates overtook those of waste collectors for the fifth spot on the BLS list.

Nonetheless, it was a mixed year for the safety records of various professions in the waste industry. BLS reported last month the injury and illness rate for collection workers was flat between 2018 and 2019, at 5.5 incidents per 100 full-time employees. Solid waste collection workers, specifically, were noted as among the most likely professionals to experience incidents resulting in "*days away from work, restricted work activity, or job transfer.*"

For solid waste landfill workers, the injury and illness rate rose from 3.9 to 4.9. Although BLS reported no landfill fatalities in 2019, SWANA, which covers both the U.S. and Canada, said in a press release Wednesday its internal data showed 11 landfill fatalities for the year. At MRFs, BLS-recorded fatalities held flat at three in both 2018 and 2019 and the rate of injury and illness fell from 4.9 to 3.6.

"*[W]e will never accept any loss of life,*" said National Waste and Recycling Association (NWRA) CEO Darrell Smith. "*We are pleased, however, that our industry has become safer.*"

Former U.S. OSHA head David Michaels, a professor at George Washington University's School of Public Health, noted in an email that while "*The rate of fatal injuries among workers in this industry is still very high...I know many in the industry have been working hard to prevent*



Fatal work injury rates per 100,000 full-time equivalent workers by selected occupations in 2019

Photo Credit: Bureau of Labor Statistics News Release (USDL-20-2265)

serious injuries; these numbers suggest their efforts are beginning to pay off."

NWRA highlighted some of those efforts in a press release Wednesday, including the proliferation of "*Slow Down to Get Around*" laws, stipulating motorists use caution when waste collection workers are working outside of their trucks. This year, some safety education efforts have been disrupted by the coronavirus pandemic, including many of SWANA's hauler outreach events. Biderman said the organization hopes for widespread resumption of such programs in 2021.

As for 2020 numbers, SWANA said it expects to report a further decline in fatalities when it shares its data in February. Around the midpoint of 2020, it appeared the pandemic's influence in decreasing traffic on the roads may be contributing to fewer vehicular incidents.

Across all the occupations BLS tracks, the rate of fatal work injuries in 2019 held steady at 3.5 per 100,000 full-time workers, but the actual number of fatalities reached 5,333, the highest count since 2007. Other notable increases included a 13% rise in fatalities among Hispanic or Latino workers to 1,088 total, a high since 1992.

Written By: Maria Rachal
December 17, 2020
Source: https://www.wastedive.com/news/bls-waste-recycling-collector-fatalities-fell-in-2019

New & Returning Members of the Keystone SWANA Family

The Keystone Chapter provides many benefits by fostering cooperation among solid waste professionals and by providing educational opportunities to enhance the knowledge and expertise in the solid waste management field. We would like to take a moment to thank everyone who has joined, or rejoined the Keystone SWANA family in recent months!

- Nicholas Rannie
- Stan Haines, New Way Trucks
- Nicholas Cotter, Clemson University
- John Andel, Leck Waste Services
- Scott McGrath, City of Philadelphia
- Adam Hall, PetroMax Ltd.
- Bob Still, Johnny Jaws NA LLC
- Jonathan Beagle, Effluent Retrieval Services, Inc.
- Sandy Nicolo, Salisbury Township
- Judy Solomon, DLL
- Mike Halbfoerster, City of Bethlehem
- Gina Kunkel
- Shawn Coughlan, Applied Control Engineering, Inc.
- Edward Layton, BAI Group LLC
- Anthony Lizzi
- Kyle Mostik
- Kristy Loteckie
- Matthew Taylor, Loci Controls
- Kyle Snyder, DMT-Clear Gas Solutions

The Keystone Chapter strives to share pertinent information and provide continuing education that serves members' interests. The Chapter sponsors a variety of activities and programs including; academic scholarships, the annual regional landfill equipment and truck Road-E-O, certification training, mini-technical seminars, an Annual Conference, and more!

If you are or someone you know is interested in joining the Keystone Chapter SWANA, please visit our website at http://www.keystoneswana.org/ or contact Chanda Martino by e-mail at: admin@keystoneswana.org

SWANA Keystone Chapter Calendar of Events

For more Information, event registrations, and updated information please go to the Keystone Chapter's website: http://www.keystoneswana.org/

****NOTE Schedule is subject to change****

DECEMBER 2020

- Submit Chapter annual reports to SWANA International
- Distribute Winter Edition of *The Keystone*

JANUARY 2021

- Thursday 1/7, 10AM, **Board Meeting Conference Call**
- Accountant audits financial report and prepares 990 IRS Ta Filing

FEBRUARY 2021

- Thursday 2/4, 10AM, **Board Meeting Conference Call**
- Scholarship applications released from SWANA International
- Send Scholarship announcements to members

MARCH 2021

- Thursday 3/4, 10AM, **Board Meeting Conference Call**
- Monday 3/15, Article Deadline for Spring Edition of *The Keystone*

APRIL 2021

- Thursday 4/1, 10AM, **Board Meeting Conference Call**
- Distribute Spring Edition of *The Keystone*

MAY 2021

- Saturday 5/1, Chapter Scholarship Application Deadline
- Thursday 5/6, 10AM, **Board Meeting TBD**

JUNE 2021

- Tuesday 6/1, Deadline for submittal of Grant H. Flint Scholarship recommendations to SWANA
- Thursday 6/3, 10AM, **Board Meeting Conference Call**
- Nominating Committee presents Slate of Officers and Directors for election.

JULY 2021

- **No Board Meeting**
- Wednesday 7/15, Article Deadline for Summer Edition of The Keystone

AUGUST 2021

- Thursday 8/5, 10AM, **Board Meeting Conference Call**
- Distribute Summer Edition of *The Keystone*

SEPTEMBER 2021

- Wednesday and Thursday 9/8-9/9 **21st Annual Joint Fall Conference, Hilton Harrisburg**
- Thursday 9/9, **Chapter Annual Business Meeting and Election** Immediately following Fall Conference
- Chapter Fiscal Year Ends
- Distribute Spring Edition of *The Keystone*

To Be Determined

- **Metals Recovery from MSW Ash Mini-Tech Seminar** at Frey Farm Landfill

Chapter Officers and Board of Directors

▶ Officers

Michele Nestor ..... President
President
Nestor Resource, Inc.

Denise Wessels, P.E.....Vice President
Project Director
SCS Engineers

Tom Lock..... Secretary
Northeast Regional Manager
SCS Field Services

Matthew R. Foltz .....Treasurer
Project Manager
Civil & Environmental Consultants, Inc.

Sean C. Sweeney, P.E.....Immediate Past President
Vice President
Barton and Loguidice, DPC

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Environmental Services Director
Streets Department, Sanitation Div. City of Philadelphia

Scot C. Sample
Executive Director
Northern Tier Solid Waste Authority

Mike Engel
Assistant Operations Manager
Wayne Township Landfill

Jim Lambert
Executive Director
Monroe County Municipal Waste Management Authority

▶ Private Sector Directors

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Project Manager
Civil and Environmental Consultants

Carolyn Witwer
Director of Sales Development
Penn Waste

Charles Raudenbush, Jr.
Public Sector Services Manager
Waste Management

Denise Wessels, P.E.
Project Director
SCS Engineers

▶ International Board Member

Robert Watts
Executive Director
Chester County Solid Waste Authority

▶ Young Professional Director

Brandon Comer, P.E.
Principal Engineer
T&M Associates

Keystone SWANA Chapter Committee Members

Administrative & Marketing Subcommittee

Sean Sweeney

Articles and By Laws

Scott McGrath - Chair

Robert Watts

Audit / Budget / Financial Committee

Sean Sweeney

Communications & Newsletter Committee

Carolyn Witwer - Chair

Alison D'Airo - Newsletter Editor

Michele Nestor

Scott McGrath

Denise Wessels

Legislative / Policy Committee

Charles Raudenbush, Jr. - Chair

Membership & Marketing Committee

Carolyn Witwer - Chair

Jill Hamill

Michele Nestor

Personnel & Nominating Committee

Tom Lock - Chair

Mike Engel

Program & Training Committee

Michele Nestor - Fall Conference Chair

Denise Wessels - Mini Tech Chair

Tom Lock

Carolyn Witwer

Road-E-O Committee

Robert Watts - Chair

Mike Engel

Scot Sample

Safety Ambassadors

Elizabeth Osborne - Safety Ambassador

Jill Hamill

Scot Sample

Kevin Weaver

Scholarship Committee

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Strategic Planning

Sean Sweeney - Chair

Michele Nestor

Denise Wessels

Young Professionals Committee

Brandon Comer - Chair

Jill Hamill

Kathryn Sandoe

Thank you to all of our committee members for everything that you do to make the Keystone SWANA Chapter great!

This Publication is for the Solid Waste Professionals of the Keystone Chapter of SWANA

The Keystone is published three times per year (winter, summer, and fall). If you have ideas for future articles, updates, or general suggestions for *The Keystone*, or you would like to advertise with us, please contact us at : **admin@keystoneswana.org**.

Chapter members: please freely share this info with others that you work with or who have an interest in waste news in PA.

The SWANA Newsletter is published 3 times a year in **April, August, and December.**
If you would like to have an article included in *The Keystone,* please submit it by the 15th of the month prior to the scheduled release date.

We Want Your Articles!

As a reminder articles are accepted throughout the year and while we encourage original articles they do not have to be originally written as long as a proper source is cited.

If you did not receive your copy of this newsletter from SWANA, then you are not on our email list for news. **Please send us your current email address** as all future newsletters, as well as informational broadcasts and other communications, will only be sent via email.

Our email is: **admin@keystoneswana.org**

Barton&Loguidice

This publication was produced by Barton & Loguidice on behalf of the SWANA Keystone Chapter.