

Audio Clip ([00:01](#)):

Hi, I'm Woodsy Owl and I want to thank you for doing a great job in trying to stop pollution, but we need more help. We can't do it all. (Singing).

Jerusha Klemperer ([00:35](#)):

Each grocery item you use is usually wrapped in something, maybe more than one thing. There's cans of beans, plastic jars of peanut butter, cardboard boxes full of cereal. You've got plastic clamshells holding strawberries or tomatoes, a shelf-stable pack containing almond milk. There's your cardboard egg carton, your plastic bag full of pre-washed salad greens, a gallon jug of milk, a six-pack of aluminum beer cans. Then there's everything you use to prepare and serve the food or take it to go. Plastic water bottles, compostable to-go bowls, paper coffee cups lined with something or other, plastic iced coffee cups, plastic cutlery, plastic cling wrap. My god, there's a lot of it. In today's episode, we look at food packaging with a focus on plastic since there's so much of it and it's the one with the most problems. More on that later. We talk to experts about how food packaging is problematic, not just for the environment, but also for our health. We find out how plastic is made and talk about where it goes when we're done with it.

Martin Mulvihill ([01:31](#)):

Food packaging is one of these wicked problems, right? Where, in order for our supply chains to exist, in order to get fresh food and vegetables to our tables, it needs to be taken from where it's grown and brought to where we're going to consume it. Often in order to keep it fresh, in order to keep it uncontaminated. There's packaging involved so that packaging is playing a role, but it's a short term role and it's a very intimate role with the food that's coming to our tables, right? It's touching that food we're going to eat. It's protecting that food we're going to eat. It does play an important role, but it's fairly short-lived.

Jerusha Klemperer ([02:07](#)):

I'm Jerusha Klemperer, and this is What You're Eating, a project of foodprint.org. We aim to help you understand how your food gets to your plate and see the full impact of the food system on animals, planet and people. We uncover the problems with the industrial food system and offer examples of more sustainable practices, as well as practical advice for how you can help support a better system through the food that you buy and the system changes you push forward.

Martin Mulvihill ([02:30](#)):

So nature has some great packaging options, things like banana peels and orange skins that protect that fruit while it's in transit, but a lot of things, especially more processed foods, need a lot of additional protection in order to get them to us. What people often don't recognize is that protection comes with a cost and that cost is both to the environment and the fact that it takes materials and those materials which are short-lived often end up going back into the environment somewhere, they have to be dealt with at their end of life. My name's Marty Mulvihill and I'm one of the founders and general partners at Safer Made. We're a small venture capital fund that invests in companies that eliminate hazardous chemicals from consumer products. I'm also a chemist by train and fascinated by all of the ways that we interact with chemistry in our daily lives.

Jerusha Klemperer ([03:19](#)):

Single use packaging has become ubiquitous, not just in the grocery store in your takeout bag, but in the environment. The worst offender is plastic. A small portion is recycled or incinerated, but most of it ends up in landfills and elsewhere in the environment as litter and it doesn't biodegrade. Instead, it breaks down into smaller and smaller pieces called micro-plastics that are then carried by the wind and the water and deposited in the environment. Microplastics have been found everywhere from the tippy-top of the French Pyrenees to the stomachs of whales, to soil on the farms where our food is grown. You might have seen that footage of a turtle with a straw stuck in its nose or pictures of the infamous Great Pacific Garbage Patch floating out in the ocean, but that's just at the end of plastic's life. In reality, plastic is an environmental problem from the very beginning of its life, whether it comes from petroleum production or more recently from natural gas.

Jim Walsh ([04:14](#)):

So plastics don't just start in your grocery store or your retail outlet stores, right? Right now, what we're seeing is that plastics are being created from a byproduct that is largely coming from fracking. The fossil fuel industry will actually pump literally millions of gallons of water and toxic chemicals into wells that they've drilled thousands of feet below the surface, they are sometimes miles deep as a way to extract gas from tightly held shale deposits where the gas won't flow easily. This gas comes up to the surface, but it also has other things with it besides the gas, and when I say gas, it's methane largely, generically referred to as natural gas.

[\(04:59\)](#):

This methane is really what the fracking industry is going after, but when that methane comes up to the surface, it also has other hydrocarbons, other fossil fuels that are associated with that, and these are largely considered natural gas liquids and these natural gas liquids aren't being used for energy production at all, but they can be refined into plastics or other petrochemicals. When we talk about the petrochemical industry, it's really this industry that is taking the various hydrocarbons, various fossil fuels, altering the chemical makeup of that to turn it into something else. And this is largely becoming now that with all the fracking going on, what we're seeing is that the excess byproducts from fracking are now a feed stock for the plastic industry to create new plastic products and pushing for more plastic production.

[\(05:59\)](#):

My name is Jim Walsh. I'm the policy director at Food and Water Watch, and we are an organization that mobilizes communities to be a counterbalance to large corporate interests that exploit our food and water resources for profit and private gain. And we are seeing the petrochemical industry impacting our ability to have access to safe clean drinking water from start to finish. The petrochemical industry is a major threat to water resources, including the major sources of petrochemicals which are really fossil fuels and the extraction process, the pipelines, the emissions that come with all of those things, the industrial development that comes along with the building of these petrochemical and plastic making facilities and all of the downstream impacts where we're finding plastics in our drinking water that everyone needs to live. So that's why we're engaged in this effort in working to put a stop to the plastic industry and its real assault on public health, the environment and our essential resource of clean, safe drinking water.

Host ([07:12](#)):

Recent estimates put total emissions from the U.S. plastics industry at more than 232 million metric tons of carbon dioxide equivalence, so that's more than 50 million cars worth of emissions every year, and

because so much of U.S. plastic production comes from fracking, these emissions are methane heavy, so that means they have an even worse short term warming effect than carbon dioxide emissions alone.

Jim Walsh ([07:35](#)):

And the reality is a fossil fuel industry can't take these natural gas liquids and just give them to consumers and say, well, this is your problem now because they created it, but they can turn it into something else and then sell it in consumer products, and then it's no longer their problem. They wash their hands with that responsibility at that point, and the rest of us have to bear the burden of that pollution.

Jerusha Klemperer ([07:59](#)):

Plastics are an environmental issue during production and then also at the end of their life, and it's a pretty short life sometimes given how much single use packaging we use, and that's not just a pollution problem in terms of micro-plastics showing up in water and soil and food and all that. As plastic products degrade, they also emit greenhouse gases like methane and ethylene. They also contain chemicals like phthalates and BPA and PFAS that were added to give qualities like strength and softness and flexibility to plastic products.

Martin Mulvihill ([08:30](#)):

And those are sometimes small molecules that end up leaching into our food. Those can be things that we end up consuming and that is something that can be a concern for human health. So I think a lot of people are aware of kind of nameplate chemicals like phthalates or Bisphenol A and maybe even be looking for alternatives to canned vegetables to avoid BPA, but there are a number of other additives and it doesn't matter whether it's plastic or metal or glass. Actually all of those packaging materials come with additives that may be of concern to human health or the environment.

Jerusha Klemperer ([09:09](#)):

I asked Marty why if all packaging materials have issues, plastic is considered the worst offender.

Martin Mulvihill ([09:15](#)):

I think plastic's a concern and tends to be the focus for two reasons. The first is that it's just so ubiquitous, it means that we're going to have be exposed to those types of materials a lot. The second is, plastic is an idea is really this combination of polymers, so that's chains of molecules stuck together with additives that give the performance that you're looking for. So what you get is a large volume of these materials with additives to make them perform, and then they're showing up right in contact with sometimes hot food, oily food. Sometimes they're sitting on a shelf in water or some other solution for days or weeks or some things up to a year. So it gives a lot of time. People like to think of materials as static, right? By touch it's not changing, but the reality of the world of molecules is this is always moving, always changing.

([10:13](#)):

Everything's in equilibrium. And so, one of the things that environmental health scientists and scientists have really come to realize, say in the last 20 years that they didn't realize when a lot of the original FDA regulations and everything else were being made is this idea that chemicals aren't staying put. It was originally thought that if you were using packaging that you didn't have to hold the packaging material to the same standard that you held the food material. People assumed the packaging was inert and

therefore the threshold for safety and impact for packaging was much different than the threshold for the actual food stuff.

[\(10:57\)](#):

Our much more modern understanding is that packaging and food are really kind of much more intimately related and we need to think about and hold the bar for packaging much higher, much more similar to the bar we have for food because those chemicals and molecules are going to get into our body either through consuming the food or just the fact that when they're disposed of, they're going to break down and end up in the environment and get back to us in another way so we can no longer pretend like that packaging is a nerd. We have to recognize that that packaging is a part of the food system and if it's a part of the food system, we really should hold it to similar safety and sustainability goals or thresholds. It's time to update some of those standards from when they were originally written so that they reflect the newest science.

Jerusha Klemperer [\(11:54\)](#):

Can you talk through some of what that movement is or looks like, what some leaching concerns are?

Martin Mulvihill [\(12:00\)](#):

Yeah. We'll revisit Bisphenol A and the bisphenols generally for a second here. Even though they're in steel cans, the reality is that's a plastic lining and you find this a lot. So plastic isn't just the plastic that's like a plastic bag in a supermarket. Plastic is also used in association with many of the other materials we use. So the bisphenols, Bisphenol A in particular has been well characterized as leaching out of the plastic liners for these cans. So we know for a fact that not only does the Bisphenol A leave the can liner and get into the food stuff, but then it goes from the food stuff to our bodies. And you can see that in studies of human blood that we are being exposed to that Bisphenol A from the can line. Interestingly, we also get exposed to Bisphenol A from other places like thermal receipts, so receipts you might get at the grocery store.

[\(13:00\)](#):

Also, we're putting bisphenol A through our skin into our blood, so it's not just one source, but we do know that it's leaching from the places that it's used, and because of the type of molecule it is, it actually gets into our body relatively easily. Bisphenol A is such a fun molecule because it was originally made by chemists as a synthetic estrogen. So the original studying of Bisphenol A was because it has a structure that has a couple of rings in it that's similar to the structure of estrogen. It was made to bind the estrogen receptor. Now it's not as good as natural estrogen, so it was never used as a hormone, but when it's leaching into food, when it's getting into our food supply, we're actually exposed to a lot more of it. So the big concern with bisphenol A in particular is as something that we call an endocrine disruptor.

[\(13:52\)](#):

Endocrine disruptors are non-natural molecules that act like hormones in our body. So, hormones are our body's way of talking to each other, so when we have something coming from the outside triggering that system, it can lead to a number of adverse health outcomes. It's been attached to obesity, it's been attached to increased rates of cancer. It's been attached to changes in puberty and development. So when you start messing with hormone levels in people's bodies, it tends to lead to these adverse outcomes, especially people where hormones are playing a larger role, right? So growing kids, hormones are doing a lot to regulate growth and development. Around times of trying to get pregnant, both men and women, their fertility is impacted by endocrine disruptors, and that's one of the reasons why there

is such a concern and outcry around endocrine disruption and one of the reasons why we should have a concerted effort to remove endocrine disruptors from our food system.

Jerusha Klemperer ([14:54](#)):

About 15 years ago, alarm bells were sounded about Bisphenol A also known as BPA, and there was a big push to get it out of products. Retailers started looking for new formulations even before it was officially banned by law in 2012 for baby products, in 2013 for food packaging. Manufacturers started using other bisphenols and it turns out all bisphenols have the same endocrine disrupting properties.

Martin Mulvihill ([15:19](#)):

One of the things that we always talk about when it comes to chemicals of concern is that you should take a class approach rather than just banning or vilifying one chemical like Bisphenol A or one phthalate, you really need to look at all the bisphenols and all of the phthalates and all the perfluorinated chemicals because one of the things that again, we've historically done is choose one bad actor, go after it, ban it, and then we get all of the chemical cousins coming a year later.

Jerusha Klemperer ([15:48](#)):

There's a connection there between heat and leaching, right? Is there anything that people should know about something like microwaves, reheating your food in a plastic container and/or with plastic film, reheating your food in a plastic bowl?

Martin Mulvihill ([16:03](#)):

Back when I taught chemistry, the rule of thumb is that for every 10 degrees celsius, you doubled the rate of whatever reaction or thing is occurring. This is certainly true in leaching as well. For every amount that you heat plastic, it's going to move around more. The additives are going to come out much easier. And if you add to that, the fact that when you heat food, it's releasing oils and other things that are also going to help those additives come out more easily. Everything about heating in plastic is a bad idea, whether it's in a microwave or anything else. You really don't want to heat foods, especially oily foods in plastic containers. That's something that should be avoided because it is going to exacerbate any of the problems that we've just talked about.

Jerusha Klemperer ([16:52](#)):

One of the chemical classes for which leaching is a very big concern is a class of chemicals called PFAS or perfluorinated chemicals. They're used primarily on fiber-based food packaging like paper plates, bowls, cardboard clamshells to make them water and oil resistant.

Martin Mulvihill ([17:09](#)):

Perfluorinated chemicals are also your kind of Teflon like class of chemicals, so your non-stick, oil-resistant chemicals. They're also sometimes referred to as the forever chemicals because they don't break down in the environment on any appreciable time scale. So, talking hundreds of thousands of years to break down. This class of chemistry, the perfluorinated chemistry, while it was first developed as stain resistance, it's actually found its way into our kitchen in a number of places. So non-stick pans are the most common place you find perfluorinated chemistry in your kitchen. The concern there, and the thing I'd like to point out is there is no non-stick pan that doesn't have it. So because it's a big class, you do find lots of claims where it might be a brand of high-end non-stick wear that'll tell you it doesn't

have PFOS in it, just perfluorooctanesulfonic, which is one of these perfluorinated chemicals, but all of them have some perfluorinated chemical.

[\(18:18\)](#):

It might be a perfluorinated ceramic or silicones. You see claims like that a lot of times on the higher end bands. It might be a perfluorinated polymer rather than a small molecule, but all of your non-stick has some sort of PFAS. The other place that you find PFAS in your kitchen is in paper, paper packaging. So we are talking about some of the problems with plastic, PFAS is a great example of an additive to paper that makes the paper more water resistant and oil resistant. You can imagine a lot of places where paper is used as food packaging. Those two characteristics are important.

[\(18:54\)](#):

So we find in molded fiber products, so molded fiber is like your bowls or plates. Those often have PFAS added to them. Unfortunately, paper straws, kind of make sense. You want them to survive while you're drinking water through them. The way to get that to work is often with PFAS. There are some alternatives out there and sometimes people use plastic as a barrier in between the paper and the food, which then you go back to the plastic challenges, but you might avoid the PFAS challenge. It's one of these things where paper, while it feels better to us because it's not plastic, it has this challenge of perfluorinated chemistry that we really need to address because the perfluorinated chemistry, like the bisphenol chemistry and the other endocrine disruptors we talked about, it's been associated with adverse outcomes like cancer that we don't really want to be part of our food system.

[\(20:01\)](#):

PFAS has been the new Bisphenol A and what's great is that the advocacy community has gotten a lot smarter since Bisphenol A. So unlike Bisphenol A that they went after as a single chemical, people have been looking at PFAS as a class and that makes me so happy. And this is true in the state of California, it's true in the state of Washington. It's true even to a certain extent at the federal level and internationally. The second is that there has been legislation in states and municipalities saying that you can't have it in food contact items. Usually what that means is kind of to-go food service items, and recently anything that carries the BPI compostability label, they actually test to make sure there isn't any PFAS in there.

Jerusha Klempner [\(20:54\)](#):

Can you just tease out for our listeners why compostable bowls and packaging really, really should not have PFAS on them and why BPI would go ahead and do that certification only for packaging that did not have PFAS lining?

Martin Mulvihill [\(21:11\)](#):

So this is really important because the whole idea of compostability is to keep some of this carbon in the food system, right? So take your leftover food and in this case your paper products and turn them back into compost that can be put on the field. And the problem with the perfluorinated chemistry is that in that composting process, it doesn't break down at all. So you still have the perfluorinated chemical that you had beforehand, now you've made it available to the plants. So if you think about compost as being a more sustainable way to bring that carbon and nutrients back to the field, if it's contaminated with a chemical that doesn't break down, it's really an unfortunate situation. This is why we do the work that we do at Safer Made it's by raising the bar on the bad actor chemicals, we actually provide an opportunity for safer alternatives to make their way to market.

[\(22:06\)](#):

And we have seen in the past three years since people became aware of the PFAS issue in molded fiber, there have been a number of new companies and even some of the incumbent chemical companies have come out with PFAS free solutions for molded fiber products or for other paper products. So I have a ranking that I'm happy to share with you, of the polymers and petroleum-based plastics that I would really, really like to get rid of, and then the ones that I'll accept for a few more years and we can phase out more slowly. So polystyrene is up there on the, come on people, let's just not use it anymore. And it's not just styrofoam, it's like everyone knows styrofoam, and most people even get the sense that styrofoams probably not the best. What's scary is that number six plastics of polystyrene is used far beyond just that foamed clamshell or insulated coffee cup that people are familiar with. For example, all of your red solo cups, those are polystyrene, a lot of clear plastic clamshells, until three years ago, very large coffee chains used polystyrene lids on top of their paper cups,

Jerusha Klemperer ([23:19](#)):

But those are gone now.

Martin Mulvihill ([23:20](#)):

Not all of them. You just look, there's usually a little, the chasing arrows, the triangle, there's still number six is out there. The other thing I want to get rid of immediately is all polyvinyl chloride in food packaging. There's much better alternatives, what are called the polyolefins, which is a mixture of your HDPE, your LDPE and your PPE. So two, four, and five, they contain fewer additives, which is great. They're still hard to reprocess and recycle and they persist in the environment for a long time and they are petroleum-based, but at least from a health standpoint, they're less concerning than polystyrene and polyvinyl chloride. The other thing that we see a lot of is PET or PETE, and that's usually number one, your clear drink bottles and other things.

([24:24](#)):

It's polyester, it's also in your clothes. So all of your recycled clothes are coming from those number one bottles. It is probably one of the most recycled polymers, which there's something to be said for that, at least minimizing some of the impact. Basically, the polyolefins and PET are the types of petroleum plastics that I think we're going to live with for the next few years. And yes, let's try to phase them out with papers and with compostable plastics eventually, but they at least aren't immediate human health concerns the way the other two are.

Annie Leonard ([25:05](#)):

Have you ever wondered where all this stuff we buy comes from and where it goes when we throw it out? I couldn't stop wondering about that. So I looked it up and what the textbook said is that stuff moves through a system from extraction to production to distribution to consumption to disposal. All together, it's called the materials economy.

Michael O'Heaney ([25:24](#)):

I'm Michael O'Heaney and I'm the executive director of the Story of Stuff project. The Story of Stuff originally was a 20-minute animated short about where our stuff comes from and where it goes when we throw it away. And our founder, Annie Leonard narrates basically the story of stuff, it's the story of the materials economy.

Annie Leonard ([25:48](#)):

In fact, I spent 10 years traveling the world, tracking where our stuff comes from and where it goes.

Michael O'Heaney ([25:54](#)):

This was 2007, YouTube was two years old. Facebook wasn't the predominant social network. Twitter didn't exist. And so this was sort of early days of internet sort of education and advocacy.

Annie Leonard ([26:06](#)):

This system looks like it's fine, no problem. But the truth is, it's a system in crisis.

Michael O'Heaney ([26:12](#)):

Story of Stuff blew up, became one of the first cause-related viral videos, and we created the organization basically to leverage that wave of attention that the video was receiving. I think plastic is in many ways sort of the iconic material of the modern economy. I think it's probably hard for people, young people in particular to imagine. But this is a relatively new material. This is a material that the production and use of which really took off in the fifties and sixties. And we've ramped up to a point now where both the sort of production of plastic and ultimately the end of life, which gets a lot of attention because a lot of it ends up in the oceans and in the environment. And I think because it is so present in our everyday lives, it's sort of available to people as a way to understand some of the kind of downsides of the consumer economy.

([27:08](#)):

And so in a way that maybe climate is kind of more of an abstract, or at least until recently felt like more of an abstract problem for folks. Plastic is the... We open a package on Christmas morning and there's all this massive plastic packaging around it. We go to the grocery store and two apples are wrapped in a plastic package. It's everywhere. It's pervasive. And increasingly because of the exposure we and many other advocates have brought to the issue, people understand that it is ending up in places that it shouldn't be ending up. Yes, the environment, yes, in sea turtles and dolphins, but also increasingly in our bodies. These companies are maybe a lot of things, but they are not stupid about consumer behavior. They know these things, which is why they have spent so much money trying to convince us that we are the problems.

([28:03](#)):

That we are the litterbugs, that we are the ones who aren't properly sorting our recycling. The chasing arrow symbols, this wasn't like environmentalists who came up with the idea of chasing arrows. It was the companies. So you put these numbers, you put these chasing arrows, it gives the consumer the impression that these are recyclable. And then who does the consumer get ticked at? The consumer gets ticked at their recycler because they're not taking the stuff that the company has already told them should be recyclable. So the company kind of goes, huh, I've stepped out of my responsibility. I've made you feel like you're the jerk because you're not recycling properly. And then who do I go and argue with? I argue with the nonprofit or the municipal recycler who is stuck in the position of having to tell people, actually, you've been lied to.

Jerusha Klemperer ([28:51](#)):

According to a recent report from Beyond Plastics, the U.S. plastic recycling rate in 2021 was around five to 6%. China, which used to recycle most of what we actually correctly put into our recycling bins, will no longer accept our plastic waste and we don't have the infrastructure to do it ourselves. And even when they were accepting our plastic, we never managed to get above a 10% recycling rate.

Michael O'Heaney ([29:14](#)):

So yeah, this idea that like, oh, it's my responsibility. I'm not the head of Proctor & Gamble. I mean I didn't make that decision about how to package things. The companies who put these plastics into the economy, everyone from the sort of big vertically integrated petrochemical bigs, your Shells and your BPs and your Exxons, the companies that actually both take the oil and gas out of the ground and ultimately manufacture the plastics, and then the fast moving consumer goods companies, your Nestles, your Proctor & Gambles, your Cokes, your Pepsis, the folks who actually then utilize the plastics as packaging. Again, so much of the sort of focus has been on what you and I can do in our everyday lives to reduce our plastic consumption. And it's sort of like there's this tidal wave of plastic coming at us and then we're being told individual people, actually the onus is on you to figure out how to not utilize this much plastic when the companies are just sort of pushing this stuff on you incessantly.

Jerusha Klempere ([30:14](#)):

Companies putting the onus on individuals is just one of many ways that injustice is just baked into the way the plastic industry works.

Michael O'Heaney ([30:22](#)):

You see this boom of fracking and other kinds of extractive processes around the United States and the impacts that has on local water supplies, those kinds of things. You've got the production process, which again happens primarily in poor Black and brown communities in Houston, in Southern Louisiana, in Appalachia, Western Pennsylvania. Those are the places that we are choosing to create these massive ethane crackers that basically create the inputs for plastic production. So they have huge impacts upstream. And then you turn around and you go downstream. Where do you think incinerators are cited? They're not cited in on the Upper East Side of Manhattan. They're cited in places like Long Beach. They're cited places like Modesto, California.

([31:10](#)):

So the health impacts both upstream and downstream disproportionately impact poor working people of color in our country. And that's not just and particularly not just when it's for something that we can really do without. I think one of the big surprises that I discovered, and particularly through the production of the Story of Plastic, the documentary that we made, was what's driving this growth in plastic is not really consumer demand. I mean, I've yet to meet someone who's like, I really need more plastic packaging in my life. What's driving it is supply.

Jim Walsh ([31:44](#)):

We don't need plastic forks, we don't need plastic straws, we don't need plastic bags, we don't need plastic water bottles. What we need is safe clean drinking water. And the plastic industry is threatening that in every way. Recycling is not going to bring about the changes that we need to have a more sustainable world. And in order to do that, we need to move forward policies that will actually put a stop to the perpetuation of all of these plastic products that we find in our grocery stores and our retail outlets and elsewhere.

Michael O'Heaney ([32:17](#)):

This is where you see the sort of growth of extended producer responsibility laws and other kinds of attempts to hold them legally responsible for both the upstream impacts, the production impacts of plastics, the sort of health and environmental impacts you see in Louisiana and Cancer Alley and along

the Texas Gulf Coast and increasingly in what they're calling Cancer Valley, the Ohio River Valley, sort of Pittsburgh south through Appalachia. So one, you've got to make those companies take responsibility for that stuff through laws. And then finally to really look at, okay, what are the kinds of shifts in the way that we organize our economy that are necessary to get us away from this sort of flood of single use packaging? And so, you see a sort of move away from the idea that recycling is going to save us towards concepts like reuse, towards concepts like refill.

Jim Walsh ([33:09](#)):

Responsible corporations are not the solution to the crisis that we have and what we need are policies that are going to ban fracking and put a stop to new fossil fuel development and phase out existing fossil fuel infrastructure. I don't think this is something where we can or should be relying on corporations to come up with a solution because the solutions that these industries have come up with are really ways that just perpetuate the industry while trying to give consumers a warm, fuzzy feeling about recycling while they continue to wreak havoc on our communities and public health and the environment.

Audio Clip ([33:57](#)):

Some people have a deep abiding respect for the natural beauty that was once this country and some people don't. People start pollution, people can stop it.

Alex Gordon ([34:15](#)):

Everyone, regardless of political ideology should want and usually does want, clean air to breathe and clean water to drink and a place to live. So to us that means climate change affects and impacts everyone, not equally, but in a way that everyone should care about regardless of where you live or what political party you identify with. And we find working with young people, that it is an issue that most young folks across the political spectrum agree on. My name is Alex Gordon. I'm a campus organizer with the student PIRGs, specifically at NJ PIRGs Students based in New Brunswick, New Jersey, working with student organizers at Rutgers University.

Jerusha Klempere ([34:57](#)):

PIRG stands for Public Interest Research Group. Student PIRGs are a national network of student run nonprofits working to train the next generation of activists to work on issues like reducing single use plastic, but also anything to do with protecting the environment and stopping the worst impacts of climate change.

Alex Gordon ([35:14](#)):

I'm originally from Houston, Texas and growing up there is really where I found my personal love for the environment. I grew up going to Galveston, which is the beach town closest to Houston, Texas all the time as a kid. And when I was 10, the BP oil spill happened. I was 10, so I didn't know what I could actually do about it, but I remember being angry and sad and wanting to do something. So from that point on, I was kind of just thinking of ways that I could work in the environment. And as a kid I always thought that meant being a scientist. So I went to Eckerd College thinking I would study environmental studies and marine science and become a scientist and do research on all of the issues and that would be so great. That did not happen. I got to Eckerd and the second day of freshman orientation, my professor said that we could get extra credit if we proved we were registered to vote.

([36:11](#)):

And I didn't know how to get my absentee ballot, had no idea, but I still wanted to vote in Texas. So she introduced me to who just happened to be her son, who also happened to be coordinating the Florida PIRG New Voters project at our campus to help me get my absentee ballot. And he helped me and was like, "You're so on top of it, you should help other people get their absentee ballots and register to vote because I bet a lot of other people are in the same boat as you." And it was my second day of orientation, I didn't know anyone, so I said yes to have new friends and to do something. So from there I started working on the New Voters Project. That fall, we were able to increase voter turnout at our precinct by 350%, that number just blew my mind.

[\(36:57\)](#):

That's such a small group of passionate students who... Me, I didn't, had never done any sort of political organizing work before. So it was just really cool that I could do something like that so quickly. And from there I figured this would probably be a good avenue to make change on other issues that I care about like the environment. So I got asked to run a beach cleanup and do a brand audit. It's essentially a beach cleanup where instead of just tossing the trash, you also tally the brands that are producing the trash. So I ran one of those. We were able to find out what top brands were polluting our campus, which like most other places was Coca-Cola. And that was also just really cool because we were able to get some tangible data about how bad the plastic pollution crisis was. And after that semester of doing voter registration and running these beach cleanups and brand audits, I was introduced to the campus Break Free from Plastic pledge, which is a pledge that colleges can sign that completely banned single use plastic.

[\(37:54\)](#):

So I decided to launch that campaign to get Eckerd to sign, the rest is kind of history. And that's really what made me want to keep doing this for the long term and I graduated in May and now I get to do it as my full-time job. I really fell in love with organizing around the plastics movement because I just think it touches everything. It's a climate issue which you can't work on the environment and not think about. It's an issue of water rights, an issue of food and what we're consuming. And then it's also an issue of environmental justice and social justice. Coming from Houston, which has one of the largest petrochemical manufacturing facilities in the world and living in a cancer bubble with two members of my family getting cancer, blood cancer that is closely related to the fossil fuel industry. They actually have the same type of cancer, but it's non-genetic. There are a variety of environmental factors that could have contributed their...

[\(38:48\)](#):

They had Non-Hodgkin's lymphoma. So blood cancers lymphoma, leukemia are really common in Louisiana, Texas, areas where petrochemicals are. But also we live next to a cancer cluster where known chemicals were actually buried underneath that neighborhood. It's called Fifth Ward in Houston. So chemicals are buried there in decades, decades ago that are known carcinogen. So that area is a known cancer hotspot and we're very close. We're also about 20 minutes away from some of the largest plastics manufacturing facilities in the world. So the hard thing with these things, you can never pin down what it is. We're not quite there yet with our science, but you can assume based off where you live and the fact that it's a non-genetic type of cancer that hundreds of other people in the area have.

Jerusha Klemperer [\(39:39\)](#):

Reading about your work made me think about my own environmental activism such as it was in college 25-ish years ago. And I was like, okay, so I worked for the recycling program and I had a reusable water

bottle. That was pretty much it. And I think at this point, you and your generation, and hopefully all of us know that that's not enough.

Alex Gordon ([40:02](#)):

I think we all know companies will do this thing where they place blame on individuals for using a single-use bottle. It's your fault, you have to dispose of it correctly. But the issue with the single use plastic movement and the question that we're asking is, what if we didn't get that bottle in the first place? That responsibility should and is placed on the corporations and on the distributors. So what we're doing is getting institutions to completely phase out this material so that we don't even have to ask the individual question of what do I do with this bottle? Because we're not getting it in the first place and we should never have to ask ourselves that question in the first place. And our whole waste stream and the whole issue with single use materials can never be solved by individual action. And that's a technique that is used to make us feel guilty and powerless. So these campaigns really change the narrative and build up grassroots support. We're holding large corporations, that are the ones responsible for the crisis we're facing right now, responsible for their waste.

Matt Prindiville ([41:13](#)):

We hate to burst people's bubbles because for a lot of people they feel really good about recycling and composting and we don't want to diminish that enthusiasm. I think that it's important to note that it is important to recycle. It is important to compost, especially your food. The problem is that if we think that that is enough to solve all of these bigger picture environmental problems that are associated with consumption, that's where we're fooling ourselves. My name's Matt Prindiville and I'm the CEO and chief solutioneer at Upstream. We work to help nonprofit government and business leaders ideate and accelerate reuse and circular strategies.

([41:50](#)):

So the shorthand is we like to say that we work to make throwaway go away, and we do that through helping businesses innovate away from using single-use packaging towards developing reusable packaging systems. We work with policymakers and folks that are working on policy to create the enabling conditions for a thriving reuse economy. And we also work on social impact projects. So really working to make fun of single use stuff and how ridiculous it is that we're still consuming this way. And also to show what the world could look like without single use and to show what the world could look like in this new reuse economy, which is something that is emerging all over the world and something we're really excited to be a part of.

([42:33](#)):

The organization was founded by folks that helped to create the zero waste movement in the United States and Canada. And they had felt that that movement had become overly focused on the end of the pipe and they said, you know, we're never going to be able to recycle or compost our way to a sustainable future. We really have to work upstream to redesign the systems that are generating all the waste and all the pollution in the first place. The system was designed to create pollution and in the case of our consumer product economy, the system is designed to create massive amounts of waste. And so recognizing that we're never going to be able to solve that problem through trying to manage all the waste at the end, but that we really have to go to the source to redesign these systems so that they're not creating all this waste so we can get the things that we want to need without all the waste in the first place.

Jerusha Klemperer ([43:26](#)):

For a lot of us who are worried about single use packaging and serve-ware, we've seized upon personal changes that can reduce our personal footprint, we say no to plastic water bottles and carry our own reusable ones. We've rejected the throwaway coffee cup and bring our own. We find ways to live without plastic clinging wrap and Ziploc baggies using beeswax wrap and cloth sandwich bags. We shop at zero waste stores, but according to Matt and others, it's not enough.

Matt Prindiville ([43:52](#)):

We know when we appreciate the fact that a lot of people are willing to bring their reusable water bottle around, their reusable coffee cup, their forks and so on, but when you think about all of the things that you buy day in and day out, week in and week out, all the packaging that ends up in your garbage or your recycling or your composting bin, that can't be solved by individual consumer habits. It really has to be solved upstream with the producers. And for us, it's not about not being able to get the things that you want and need in life, it's really about designing the systems to deliver those products in ways that don't generate any waste, that don't create this problem of what we like to call unnecessary over-consumption. And so if we look at all of these environmental problems that we care about, whether that's climate change or toxic chemicals or the oceans or deforestation, the vast majority of that is driven by human consumption.

([44:47](#)):

And so there's necessary consumption we all need to eat and then there's unnecessary over-consumption, right? So the unnecessary over-consumption is this single use packaging paradigm whereby you're using this package that required all of these natural resources and inputs and energy and transportation and so on to get that product to you. You used that package for a couple of minutes and then throw it in the garbage. We want to convert more and more of those products in the way that they're packaged over to reuse systems because of the better environmental benefits and environmental profile, but also because you're going to start to build a regional service economy around those products. So we're actually changing the way that these supply chains are organized so that we're building more regional service models like the way that we used to do this 50, 60, 70 years ago.

([45:39](#)):

We're not trying to go back in time, but if we can take the best of what we've done in the past and couple that with what we have today, which are things like artificial intelligence, QR and bar coding, RFID tagging, modern logistics. If we take these reuse systems of the past and modernize them for the future, that's the way that we're going to start to be able to serve seven and a half billion people on growing on this planet in ways that are much more sustainable. There's a policy approach called extended producer responsibility where corporations actually have to pay for the collection and recycling or reusing of their packaging. So that's been a sea change in the last several years is that big global corporations are starting to embrace the fact that they need to do that, not just in Europe, but here in the United States and around the world.

Michael O'Heaney ([46:28](#)):

It basically means whereas right now the sort of downstream costs, the sort of when I throw a product away, I pay for my trash removal. Local communities pay for recycling programs. Usually they can get some of that money back based on the sort of material cost that they're generating from that recycled content. But basically the consumers end up footing the bill for the waste that is produced by this economy. What EPR means is that the companies that put the packaging onto the market are

responsible for paying for the end of life of that material. And the theory goes... And some of this depends on how you set the price and where the income that's generated goes. But the theory goes, if you make the polluter pay, the polluter is going to start to look for ways to reduce that cost to their bottom line. And so basically they will look for ways to reduce the packaging.

[\(47:23\)](#):

They will look for ways to be more efficient with the way that their products are delivered, that kind of thing. The idea is to drive innovations in the way that products are delivered by making the producers internalize rather than externalize the cost of that packaging. So you see the passage of laws like SB54 in California, which is at least in the United States, the most far-reaching circular economy law, let's call it, which basically says by set dates, plastic packaging that is put on the market has to be compostable or recyclable, and that's going to drive a whole shift in the way that consumer goods companies bring their product to market. So you're going to have to see not only changes in product delivery, but really sort of new innovations in materials designed, the kinds of what kinds of polymers, what kinds of plastics, what kind of materials are we utilizing to deliver products is going to drive a lot of innovation.

[\(48:19\)](#):

When you pass a law like that in California, that's just going to have sort of cascading effects around the country and you see interest in that in a whole bunch of other places. New York is debating an EPR law. Colorado just passed an EPR law. There's a series of these states and local communities that have passed laws both to sort of say there's just stuff we don't need that is a problem from start to finish and we shouldn't have.

Matt Prindiville [\(48:44\)](#):

Recycling by itself is not enough to get their goals. And so reuse has to be a part of the solutions mix for corporations. And so right now, the vast majority of them are either piloting or they have piloted reuse packaging systems for their products. Now we have to figure out how to scale, but in order to scale, we need infrastructure. The example that I like to give is that when I was a kid, there was one bin and it was the garbage bin and that's where everything went. And then we got the recycling bin and now we have the composting bin. And in the world of the future, we may or may not have a reuse bin. We need to build out that collection infrastructure as well as the processing infrastructure and the washing infrastructure to make reuse a reality. Once you've collected that reusable product from the consumer, it's the exact same process.

[\(49:33\)](#):

It doesn't matter if it's a Coke bottle or a to-go container or a takeout cup or a shampoo bottle, it's logistics. It's sorting. So sorting those reusable containers if they're in a recycling facility so they can be sorted out, it's washing and sanitizing and then it's refilling and restocking. And the difference is that instead of Coca-Cola shipping a truck full of containers from Atlanta to Maine, where I live, and having that sit in a warehouse that's floor ceiling with plastic bottles, you now have reusable bottles that are doing this circular loop in the region. So they're being filled at the warehouse with product. They're being sent out into the greater Portland area where I live. They're being collected, sorted back, washed and sanitized, and then refilled with product. And so that loop is happening 20 or 30 or 40 times for each one of those bottles.

[\(50:30\)](#):

Coca-Cola is one example, right? But we're thinking about beer, bottled water, takeout food, to-go coffee, personal care products. We could probably convert a third of the grocery store over to reusable packaging. If you're talking about doing all of that, you want to make the collection infrastructure as

simple as possible for consumers. Adapting existing recycling infrastructure, so you can do it at home, same thing when you're out at the office or on the go. For certain types of products like takeout containers and to-go cups that you might see throughout a city, having kiosks in street corners and in parks and in office buildings where you could have those to-go containers, you could get rid of your to-go containers for washing and restocking and refilling and so on. When it comes down to how do you actually do that, it absolutely requires corporations helping to design and fund the systems.

[\(51:21\)](#):

It requires city governments doing the permitting and helping to find out where the right facilities can go to build this kind of infrastructure. It requires activists helping to pass the policies at the city level. It requires all these different actors working together to build out this new infrastructure. It's very similar to what it took to build out the recycling infrastructure of the past and also what's happening right now, building out this new green energy infrastructure, right? It's activists, it's government officials, it's corporations, it's people coming together to figure out how do we do this? How do we do it at scale? What are the policies? What are the individual actions that businesses can take? What are the things that we need to be taking together, and what does the infrastructure look like?

Jerusha Klempere (52:05):

I asked Matt if he could describe a day in the life of the future that Upstream envisions.

Matt Prindiville (52:11):

We like to say that in the city of tomorrow, one of the things I ask people to do is to imagine that they're in their favorite city square, whether that's at home or someplace that they like to visit. As you look around, you start to notice some things. So first and foremost, nobody is eating off of throwaway plates with plastic forks and cutlery anymore, right? Everybody is dining on real plates with real cups and real cutlery, even at McDonald's. So all the fast food places have already done this, and there's a really significant value proposition for companies doing that as well. They can save money for shifting from single use to reuse for onsite dining. So the other thing you're going to notice is that everybody that's coming out of the coffee shop is coming out with reusable cups, but it's not the ones that they brought in.

[\(52:54\)](#):

They either rented or they borrowed a cup from the coffee shop and they can then deposit that cup at a kiosk anywhere in the city or in another coffee shop because all the coffee shops are using the same reusable cup system. Same thing for folks coming out with takeout food or getting food delivered to their home or office that's coming in reusable to go containers. There might be a kiosk in the park where you might have taken your salad in reusable container to go eat in the park with a friend. There'll be a kiosk right there where you can drop that container in for it to be collected and washed and sanitized and sent out to the restaurant the next day. The other thing that you're going to be able to do when you are at a ballpark or you're catching a concert, your beer's going to come in a reusable cup.

[\(53:36\)](#):

When you are getting your groceries, whether that's at the store or you're getting the groceries delivered to your house, a significant amount of the grocery store potentially upwards of 30 or 40% of the grocery store, those products are going to be in reusable containers that when you're at home and you're trying to figure out what do I do with all this reusable stuff, you'll be able to either put those containers into your recycling bin or there might even be a milkman model where the logistics companies, the Amazons and UPSs that are coming to your house a couple times a week are also going

to be picking up from your house or from your apartment complex. And so this is really an economy where human beings are getting the things that they want and need. We're getting all of these products, but we're getting it in ways that don't create waste.

Jerusha Klempere (54:23):

Matt Prindiville and Upstream are very optimistic about the possibilities ahead and what a future of food packaging could look like. I was curious if Jim Walsh was similarly optimistic, given all that he sees in the fracking industry.

Jim Walsh (54:36):

We are seeing more movement away from fossil fuels and towards the ideas that we can have solar and wind energy. The industry now is looking to pivot and capitalize on these new energy sources. I am very concerned about our ability to stop the onslaught of this issue, but that doesn't mean that it can't be put to rest. There are a number of champions in Congress who are taking steps to stand up strong to the fossil fuel industry and those numbers are growing. Literally dozens of lawmakers have signed on to various pieces of legislation that will put a stop to fossil fuel subsidies for these various petrochemicals, that will put a stop to the development of new power plants and pipelines and export facilities for fossil fuels.

(55:33):

But the action on this needs to happen much more quickly than Congress seems to be moving right now. And so as we move forward into the future, we need to make sure that we're sending people to Congress and we're sending people to state houses that will stand up to the fossil fuel industry in all their iterations because we can make this transition. These are not technological challenges that we have to come over. They're not financial challenges that we have to come over. They're political challenges. And we're seeing those political barriers starting to break down and move aside.

Alex Gordon (56:15):

The biggest reason why young people's voices matter so much here is because it's our future that we're going to have to live with. It's the next 20 years that are going to see the most intense impacts from climate change. And that's our mid adult life that we're going to have to figure out how to have a home to live in, how to function and have a job, how to potentially raise a family. So it's our future that we have to have a say in what it's going to look like. And to combat climate change, it's going to take a lot, I mean, it can seem really overwhelming and that's part of the reason why I got involved with plastic pollution because it's one chunk of the climate change conversation that I feel is really tangible. But we'll have to reimagine our society in a lot of different ways and we're going to do all this re-imagining we have to include voices that are going to be in the middle of creating this new system structure the way that our world looks.

(57:09):

And young people have always been at the forefront of movements for change, whether it's the Civil Rights Movements, the movement for peace protesting during the Vietnam War, the original environmental movement in the seventies, and then now the resurgence of the climate movement. Young voices have always been at the forefront of making change. So I felt like when I was graduating, it made the most sense for me to make sure that I could continue to support young people in our work to make a world that works for us.

(57:38):

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When I got involved with voter registration, it wasn't because I was like, oh, voting is so important. It was because I was thinking like, oh, this seems like I should probably do it. I wasn't really invested in it. But since then I've just realized that the foundation of our democracy is what will decide, or at least kind of guide what our policy looks like in the next 20 years. And if we don't have a foundation where everyone can participate and be part of the decision-making process, then we're never going to get to a point where we have a society that genuinely does work for everyone. And that right now starts with voting. But this is the largest and most diverse generation in the history of our country. But we consistently have the lowest voter turnout. But we know that if that many people show up to the polls, we can elect folks who care about the policies that we care about and start making a difference on these issues.

Jerusha Klemperer ([58:43](#)):

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