

Lorri Trehella

Hi. I'm speaking to **Sara Grady**. Yep. Would you like to introduce yourself?

Sara Grady

Hello, I'm **Sara Grady**. I am the watershed ecologist for the north and south rivers Watershed Association in Norwell, Massachusetts and also the South Shore, Regional Coordinator for the Massachusetts Bay's national estuary partnership. And I work on coastal and estuarine ecology.

Lorri Trehella

That sounds really, really interesting. So what sort of things do you actually do all day.

Sara Grady

Um, I do a mix of things. I help bring together stakeholders to accomplish monitoring and restoration projects. And I work in all sorts of different parts of the coast and the estuary. So I do everything from a restoration of river herring, eelgrass, salt marshes, water quality, water quantity. And, you know, on any given day, I might be out doing monitoring, I might be out. Meeting people coming up with ways to fund projects, or I might be in my office writing grant proposals or writing articles, you know, for a newsletter to educate people about different coastal topics.

Lorri Trehella

That I mean, that sounds like you just have an absolutely jam packed full schedule. You doing a bit of everything Really?

Sara Grady

Yeah, so, yes, I'm very busy. And, you know, it's been interesting with the pandemic, because I never really had the kind of job where people would come into my office to see me my job mostly going out, either to meetings or going out and doing research and monitoring. So it was actually really easy to adapt to the pandemic. I just work from home and go to meetings, you know, either online or from my house, or go to wherever I'm monitoring from my house. So yeah, so it's been pretty good. I still go into my office a couple of days a week now, because I have interns and I have to see them in person. So but yeah, it's interesting also, because my job sort of follows a predictable seasonal cycle. There are different projects that I'm working on at a given time of each year because I'm in the spring is when the river herring are migrating in. And then I transitioned to studying horseshoe crabs and then I transitioned water quality, and marine feces, and eelgrass in the salt marshes. In the wintertime, I'm usually catching up on all the data and trying to find whatever's going to happen the next year.

Lorri Trehella

So has like has a has a COVID kind of made an impact on anything with just fewer people being out and about or

Sara Grady

It in affected things last year because I work with a lot of citizen scientists and a lot of volunteers and I had to adapt both the way that they were going to be working in the same spaces together, if at all. And also adapt, you know, things like shared equipment. Because, you know, initially, no one was sure what was going to happen. So things like a thermometer that would stay at a site and different people would be reading it and touching it. You know, they weren't sure if that was going to be. Okay. So now it's been now it's okay.

Lorri Trehella

Yeah, I mean, I think everything seems so opened up a lot quicker in America anyway.

Sara Grady

Yes. Yeah. I think it's gonna be maybe shutting down. More again, I expect him to see what happens after Fourth of July.

Lorri Trehella

Yeah. Yeah. Well, they we've just had, the Prime Minister has just announced that we're definitely definitely lifting restrictions on the 19th of July, we're not pushing it back again. So we'll see what happens. And I think it's interesting because I'm supposed to be talking about inner city pollution. But it's one of the things and I think it is, it's, it's interesting that because of lockdowns, like the pollution levels dropped by huge amount here, just in the cities, just because people weren't driving, they weren't, you know, just staying inside more. And so I'm just wondering if that had any kind of an effect like that on what you study as well,

Sara Grady

People were really well, there, people were out quite a bit, because they just needed to get out of their houses. So that was interesting. You know, there were a lot more people on trails. And in outdoor spaces, like kayaking, and things like that. Um, I think, though, the people were, were kind of keeping to themselves, too. You know, I think there was less sort of less commerce. I guess. So. I mean, I don't know exactly how it affected things like litter, and pollution. But certainly, I know, I mean, certainly it was less air pollution, right. People not driving as much.

Lorri Trehella

Yeah, that seems to be the biggest thing that I've like, from just the research that I've done, and that's like the obvious thing, that if you're going to stop sort of pollution, air pollution is just to ban vehicles, and and to get rid of industrial pollution, because that just seems to be so much more than any individual could do by themselves.

Sara Grady

Yeah. Yeah, I mean, the thing, the thing there is, like, a lot of a lot of the big impacts should really be coming from larger corporations and not so I mean, everyone, certainly people should be doing their best as individuals to try to decrease the impact on their environment. But I think there has to be major changes at much larger scales to that have a serious impact. It's a, it's, you know, putting putting the burden on on, for example, putting the

burden on people to not use, say, you know, Styrofoam cups, right. like to use like a refillable cup when you go and get your coffee or something like that. But still to like be manufacturing those cups and to have like the coffee places still using them, for example. And we just had the babies Oh, you're you. You're from the US. I don't know which part of the US were you from?

Lorri Trehella

All over the place. I grew up moving around quite a bit. So like I was born in Oregon, but I lived most of my kind of childhood in Illinois. And then I've lived in Utah to California.

Sara Grady

So anyway, so I'm on the East Coast, Massachusetts, the biggest, you know, doughnut, and coffee chain is dunkin donuts. And only i would say i think it was within the past year, maybe two years. Did dunkin donuts. Get rid of Styrofoam? Really? Yeah.

Lorri Trehella

Yeah, I think everyone here really transitioned to paper cups ages ago. Yeah, I'm not a big coffee drinker. But I go occasionally stop and get my kids a hot chocolate or something. And, and the insulated paper cups are just as good. Right?

Sara Grady

Yeah, I mean, and also like things like plastic straws like you're really starting to see paper straws by degradable straws, things like that. Finally, you know, and that that is a big that is a big part of, you know, ocean pollution and things like that. The biggest the biggest kind of coastal trash that we have here is actually well is actually a cigarette butts.

Lorri Trehella

Really?

Sara Grady

Yeah. Because they're plastic. They don't break down people just people throw them, you know, people just flick them out their window or leave them in the sand. And there's it's not like there's that many people smoking. But so

Lorri Trehella

Yeah, that would have never crossed my mind. I just I don't think I would have thought that cigarettes were plastic.

Sara Grady

Yeah, those filters are plastic.

Lorri Trehella

Yeah, that's interesting. Well, I'm also not a smoker. So don't have first hand knowledge. But I do know. I do know that. There's a real cultural divide that in America, everybody just buys cigarettes. And it seems like most of the smokers I've known here, you buy your tobacco and you roll your own. It's significantly cheaper and there's less of I don't know, it's just like more. It's just you can still buy like a carton of cigarettes. But I think most people just just

rolled their own. And I don't I don't know what the filters are to be honest. I see those. We've got loads of those, they end up all over because they're so tiny. I guess it's easy to drop them. And they come in a little plastic tube and those get washed up and littered all over the place. But I live in I live about a 15 minute walk away from the beach. And so Cornwall is is a holiday destination so people come from upcountry like we'll come down for vacations because it's it's beach resorts and surfing and watersports and hear everything. And so we we noticed such a huge difference last year when we were locked down. And basically the only people allowed to be on the beach was us and our neighbors. You know only people who live within walking distance and we've got big. I don't know how to describe them like I've lived for so long. I've lost some words. I'll try to think of which was the American way which is English and I like a can't sort it out but they will call them holiday parks and we would like vacation. Yeah, yeah, like vacation places where you've got like, they call them caravans here, but they're like, static, like mobile home kind of things.

Sara Grady

Yeah, yeah, their trailer.

Lorri Trehwella

Yeah, so so they'll so they've got loads of those where you've got like they've got chalets beat chalets, and trailers, and camping space, all up in the dunes. around where I live, there's like three or four of them, like stretched out. And so when those opened back up, just the amount of beach litter increased exponentially. And I think most people don't want particularly to leave like garbage on the beach. But you get like bits of things that fly away from you or your kids wander away with something. But you still you do also get just people that are just just don't care at all. And one of the big problems we have is disposable barbecues.

Sara Grady

Hmm, disposable barbecues, like metal. Yeah, so crazy.

Lorri Trehwella

Yeah, I don't think I ever saw those in America. But they're really common here, you can just pick them up at like a gas station, you can pick them at the grocery store. So you take this disposal barbecue, put it in the sand, light it on fire, you know, really poorly cook some sausage and give everybody food poisoning. And then it's just really hot when you want to go. And so people just don't bother. So they'll just leave them in the sand. Or they'll sometimes put like a few bits of sand over it. So that that way you can walk on top of it completely unsuspecting, and burn the hell out of the bottom of your feet. Like, so we get lots of stuff like that. And I did a project from the last module about cheap bodyboards as well. Because

Sara Grady

I saw you I saw you wrote about that.

Lorri Trehwella

Yeah, yeah, that's a real problem. Because it's, it's these horrible, really cheap bodyboards that are made, you know, in China, so they're shipped over the first place. So that's like that

increases green footprint by crazy. But they're so they're just not fit for purpose. So people will buy them just from the grocery store or something on their way down. Take them out one time they snap. They just release styrofoam into the sea.

Sara Grady

Oh, I totally Yeah. Yeah.

Lorri Trehwella

And it's just yeah, they're so big you can't even put them in, if beach that has, like any kind of garbage facilities, these things are too big to fit in them. So they're just getting dumped in the side of the road or end up in the dunes. And then animals drag them off, and it's just this really horrible.

Sara Grady

Like, it's like the same styrofoam that goes into those cheap coolers.

Lorri Trehwella

Yeah, exactly.

Sara Grady

Well, then, thinking about sort of your general topic about urban pollution.

You know, I think when I first sent you sort of my, my greeting, my willingness to talk to you, that I mentioned that, you know, I think when people and I'm sure that this may be part of what the assignment, you know, was thinking about, you know, people immediately think about air pollution. But cities are hosts to not just, you know, localized air pollution, they are their heat islands, so there's thermal pollution. They have, you know, all those lights, so there's light pollution, there's noise pollution, which is, you know, a valid honking horns and sounds. And then, you know, near and dear to my heart is of course, water pollution, the more pavement you have more urbanized an area is, the greater amount of stormwater you get. So when it rains, there's a lot of runoff off of the hard surfaces. And then it goes, you know, untreated into storm drains, and then out to whatever the local water body might be. So, and that's bringing along with it, again, there's there's thermal pollution of the water because the pavement is hot, and then that water is heating up, brings bacteria with it, because you know, you have people maybe not cleaning up after their dogs Plus, you have just like nothing's living in the city, you know, pigeons and geese and stuff like that, um, and then, you know, you've got heavy metals, from cars, car breaks, and nutrients, people's like fertilizers and things like that. So there's a lot of things that, that were that were that water doesn't get absorbed, and go back into the groundwater too. So, um, water, you know, often cities will have sewer systems, you know, so if you're thinking about the water cycle of a city, you know, say your water comes from. Maybe it comes from a reservoir, maybe it comes from groundwater wells. It's all you know, distributed to everybody. And then centralized through the wastewater system, and released somewhere. So you're, you're not recharging the aquifer in the way that you would naturally, you know, you're really artificially diverting, where, where that water is moving. But by storing you're kind of protecting the water from other forms of pollution.

Lorri Trehella

Yeah, that is really interesting. I had not even really considered any of those things. So that's a great, that's a lot of stuff I could research. I think, like, especially like, why didn't I think most big cities are kind of built around rivers? You know, definitely London is.

Sara Grady

Oh Yeah

Lorri Trehella

And that's, I think there's like, they've lost so much biodiversity and so many things that used to live in the river. I know that I think the trying to reestablish oyster beds to try to kind of clean some of that as well. I don't think I would want to eat a Thames oyster.

Sara Grady

Yeah, I read about those, you know.

Lorri Trehella

Yeah.

Sara Grady

The Thames has, you know, a long and storied history of pollution, huh? Yeah. You know, I mean, most prominent of that of which, you know, was the, you know, cholera. But yeah, I've heard it's pretty, it's pretty gross kind of still. But, you know, the mean Boston Harbor Massachusetts. Um, also, I mean, I had a huge reputation for being extremely polluted. And it was, I mean, it was really, really terrible. Charles River and and Boston Harbor, and you know, it managed to get cleaned up. There's a new wastewater systems that are separating the stormwater and the wastewater. Having, again, sort of that better control of where the water goes when it rains, and that, you know, it's not flushing as much into the river and into the harbor, and there's, you know, sort of our massive recovery that's come back, you know, it used to be just like this black gunk on the bottom. And now there's, you know, things living and, and, you know, real ecosystem.

Lorri Trehella

So, yeah, that's really, that's really exciting. I just think like, we've just, humans have just screwed up the planet so badly. But with effort, and people actually engaging in these subjects and doing stuff about it, you can change that and you can help it.

Sara Grady

Yeah.

Lorri Trehella

I know where I live, there's Cornwall was a mining area. So, traditionally, the two industries in Cornwall were fishing and mining. And so a lot of the mines have shut down and things but there's, one of my local beaches, there's a river that comes down, that's called the Red River, and it's called the Red River because it would be completely red just due to mining runoff. But we would definitely get this we have a lot of issues with kind of runoff and just really nasty things in the water. So one of the there's a big charity here called Surfers

Against Sewage. Yeah, so they they operate of like St. Agnes, I think, and tried to do a lot of kind of like outreach and beach cleanup, and just education and things. So it sounds like your job does quite a lot of that as well. Yeah, so do you spend like a lot of time on outreach projects? Do you do like community events? Or?

Sara Grady

Well, yeah, so I mean, I'm based at a Watershed Association, and I'm the, I'm the scientist there. So um, you know, my role is to find out the information and engage people in collecting data, and the kind of a voice of authority on on scientific principles and concepts. Within the watershed, we have an education coordinator whose focus is on outreach primarily to, to youth, to schools and camps and things like that. And also, you know, getting people engaged and going outdoors, and doing things, you know, because when people experience their environment, they're more likely to care for it. We have an outreach person whose job is to do things like our newsletter, and while our email newsletter that goes out every other week, and then also engage people in different campaigns, like, you know, water conservation stuff, and then we have a director who really focuses on advocacy. So that's, you know, from a sort of a governmental level, trying to to get people to adopt, you know, better principles, get legislation passed, that kind of thing. So, I do outreach, and, but I would say the outreach that I do is through either sort of presenting information that I've gathered to people or giving people kind of a primer on the scientific concepts of different things, or just through people being engaged as citizen science volunteers, educating them on what's going on.

Lorri Trehella

So you you collaborate with a lot of people down on the ground, collecting information and

Sara Grady

yeah, yeah, and I work with a lot of different partners to I mean, I work with, you know, federal, and state and local partners. So Especially on like big restoration projects, you have to have funding from all sorts of different people. So yeah, it's, part of the, title of the organization, MassBays National Estuary Partnership. So you know, we are a partnership, is it we are a partnership ourselves, because it's a partnership between EPA, and the state Coastal Zone Management, and the organizations that hosts the regional coordinators, but then also each of us are forging partnerships to accomplish our different work. So then a lot of it is ground up, there's a lot of things where people have a concern, or people have projects, and they, they need somebody to kind of rally around that and bring resources and a process to that.

Lorri Trehella

Yeah, I think like, we're kind of focusing a lot on collaboration, like how you collaborate with somebody from a completely different sort of sphere.

Sara Grady

Yeah. And so I know that, that your focus is a lot on graphic design. Right. So our organization MassBays, just recently completed a big project called the science walk. And what we did was create posters that go along the sort of like a weight walk along the harbor. And as you go along this sidewalk, or like, across this bridge, and stuff, our posters

are up along that along that walk. And so each of the regional coordinators did one and then anyone who had been funded by mass phase also had the opportunity to to make a poster. And so here we all were these various scientists, and we had someone who needed to help us, you know, we collaborated with someone who was a, a graphic designer, who sent everybody a template and said, You know, this is what you're This is what your poster should look like. And like deciding, like, okay, you know, this is there's a particular color scheme that we're going to use and like different colors pertains to different kinds of projects. And like, this is, you know, put a picture in this box, like, you know, one sentence in this box, you know, that summarizes your stuff. And it was funny, because I've had, I had a really tough but fantastic PhD advisor, who was really great at helping us distill our work down into things that would be easily communicated, and also, from an aesthetic perspective, taught us a lot about, you know, which kinds of data displays are easier to understand, you know, making sure that you're using, you know, large enough fonts and things like that. And there's a whole field, of course, scientific interpretation, which is not, which is sort of a combination of two things. It's taking the concepts and distilling them down. But then it's also, you know, the aesthetic side of how, how are you communicating these things? How are you making them easy for someone walking down the street Understand?

Lorri Trehwella

Yeah. And that's, I mean, that's a really important subject as well within graphic design, because you have to be so careful because it's so easy to produce and publish misleading infographics.

Sara Grady

Yes, yeah.

Lorri Trehwella

And that's like that ties into kind of the whole purpose of design. You know, the purpose of design is communication and problem solving, because it's not just about having something that looks nice, and you can have a beautiful, gorgeous piece of design work, but if it doesn't get your message across appropriately, that's completely useless. So, you know, obviously, we also want our things to be beautiful. But, but if they don't communicate and they don't communicate properly, then there's no point in doing them. Which is quite, it can be upsetting. Sometimes I think when you've spent so much time like working on something where I think this looks really good, and you show it to somebody, I go, what does this mean? And you're like, oh, I've got to go back to the beginning and tries again. Because without that communication, it's it's all about that kind of interplay between a designer and a client, but then also the end user, whoever's going to be seeing or interacting with it. And so one of the things I've been researching is user centered design. So the idea that you don't just think, Oh, I have this problem, I know how I'm going to fix it. And that you need to engage with the end users and understand what they need and what they want. And it is very much a process where you develop and there's, you know, iterations and you go back and you and you keep getting insight and collaborate with other people and broaden that up, which is quite difficult for me, because my career is very straightforward. I work for commercial printers. So they don't care about the design. They just want me to get something finished, so that it can be printed. And then the client will pay us, you know, and

I've got some, like, some of my jobs are very like, just like really quick, like somebody walked in, like, I need a business card made like, okay, here's a business card, the end. But I have a lot of other projects that are bigger and more open ended, and where you can have that kind of a relationship with the client and work out what you want to do. One of the things I was researching about was a group of people who were sent, they were researched, like, I think they're grad students from, I don't know, like UCLA or something. And they'd been sent to Nepal to work with. I think it was infant incubators. They were told you're gonna go over there, and you're gonna develop a low cost incubator. So they went over and they went, Okay, great. Like, they started talking to people, and they realized, there were lots of incubators. They didn't need more incubators, the whole problem was that people were having babies in really isolated areas, and they couldn't get the babies to the hospital with the incubators in time. So they've been sent to develop a specific thing. And what they got when they went out there, instead of, by actually engaging with people and figuring out what was actually needed. Instead, they developed a mobile sort of insulated blanket, and system that could keep the babies warm enough, long enough to get them to the hospitals where there were plenty of incubators. And it's just things like that where, you you start out thinking, you know, the way that a job should go. And when you kind of engage with a design process and develop it, it ends up being something completely different.

Sara Grady

Yeah, I had an interesting conversation with my nephew yesterday, actually. Because he's an architect, and most of what he's been working on lately have been scientific labs, for very, you know, high tech biotech labs. And there's often a communication gap between the actual architect and the actual end user, because there's some sort of project manager in the middle who's kind of acting as a as a go between. And so you know, that the architect or the even the builder will be told, you know, a certain thing, and they'll build this lab with the sinks in a certain place. It does something like that. And then the actual scientists go in, and they're like, this is useless, like, I guess, there was, he was telling me about a lab that they had built and that the scientists went in. And they were supposed to have a lot of benchtop equipment. And there were no outlets, you know, in the center on the benches, they were just on the outside. So, you know, I think, again, I mean, and I know, I have multiple friends who are graphic designers, too, you know, and I see them encounter the problems that you've mentioned, quite often where it's just like, it's hard to synthesize that concept that's coming from the client into exactly what they want. And it's also I mean, again, with, you know, science or anything else like architecture, that often it's a case of vocabulary, you know, so you know what you want, you just don't know how to express it properly in the language of The person that's going to be displaying it for you or interpreting it for you.

Lorri Trehella

Yeah, I think that's a great point I have, you know, I have a lot of problems Exactly. But a lot of clients don't know what they want, when they come to see me. And they try to get their best to get, you know, get across with what they're after. But a lot of times, they have no idea until they see something. And then once you have like, a first draft of something that you can show them that they can go, Oh, yes, I was thinking I should be more like this. And then you can get more and better feedback. And you can grow off from that. But a lot of people just don't, if they definitely don't have sort of, you know, the design buzzwords, which, like any industry, you know, you've got your own particular things, but it's just like

little things like explaining certain concepts to people that I have to do over and over again. But I suppose it's just like anything else. You just you have to work out what they want, but also what they actually need. Yeah, and you're trying to service what they need, rather than what they've asked for sometimes.

Sara Grady

Yeah, right.

Lorri Trehwella

But I suppose it's like it's the same, not the same, but I suppose as similar principles with science because you're finding out things based on data rather than what you want to be there.

Sara Grady

Yeah, yeah. Yeah. And that's, you know, the whole concept of Sciences is having a hypothesis but not having preconceived notions.

Sara Grady

And saying, you know, this is what I think is going to happen, but then not trying to massage things what you know, buy into what matches your concept of that and being willing to be surprised. I think it's a big part of it. And it's interesting, because I think often you I had an interesting experience the other day, because I was I was going out to train a bunch of high school students how to do some monitoring in the salt marsh. And I got out there, and there were particular things that we were trying to find out. And I had kind of come up come up with a concept of how I was going to design our monitoring protocol. When I got out to the place. It wasn't, it didn't fit, what I had come up with. And so I had to kind of manipulate things on the fly and say, okay, at first, I was like, oh, we're going to these things are going to be five feet apart. And then we got out there, and I was like, That makes no sense. So now. It's gonna be 15 feet apart. And there was this one girl was getting very upset, because I was changing things. You know, like, how can you not? Why are you changing things? Like I already wrote this down? And like, well, this is kind of how it goes, you know? You have to, you have to adapt to that situation. You know, it's it's pretty interesting. So

Lorri Trehwella

Yeah, I mean, I think every industry is the same, right? You have to adapt, you have to be adaptable. And I think Yeah, just coming back to the point you made about the vocabulary as well I think that is so important when you're doing any sort of interdisciplinary outreach, speaking to other people. Because it's very easy to go and just you know, throwing all the buzzwords out, especially when you're used to using them all the time.

Sara Grady

Yeah,

Lorri Trehwella

And it's a lot harder.

Sara Grady

Definitely.

Lorri Trehwella

Yeah. It's a lot harder to to take a step back. And be like, Oh, wait though, they won't know what that is. I need to describe that in a different way.

Sara Grady

Yeah. Yeah, definitely. I am. Yeah, I, I find that it's really important. You know, I mean, I, I have the advantage, I guess, of being in the kind of scientific position where I am dealing with the public and chilling with like, regular people, quote, unquote, on a pretty daily basis. But I know, I have colleagues that you know, managed, or chose to stay on a very academic track, and they have lost sort of that fluency, or they, if they even had it, they don't have that fluency of speaking to people about their work, other than other scientists. I think, you know, immediately, because, especially, and it's especially a problem if, you know, people are early in their career. And well, there's two things that can happen. Like you're maybe you're early in your career, and you are both trying to sound professional and trying to sound really scientific, but you also haven't quite learned how to express yourself as a scientist, and that's a problem. And then also you get people who have been ingrained in sort of this sort of a white, ivory tower effect where all you've done is talk to other scientists and then you also kind of get you know, and it is interesting to kind of to come back to that concept of vocabulary and language because if you think about it, you know, it is it is sort of almost a language or a linguistics, comparison or metaphor, whatever you want to call it, if you are speak if you're only around people who are speaking, you know, whatever foreign language you know, then, you know, you may have plenty of fluency among them, but then, you know, you kind of come out of that and you have to switch, you know, or even the concept of code switching?

Lorri Trehwella

Yeah,

Sara Grady

you know, where, depending on, you know, for people who have a cultural dialect of some sort, when they are in different environments, changing the way that they speak. So, you know, I think that that also applies to, to it applies to science. You know, I think it applies to any sort of technical field. But I think it's really important to learn and know how to do that. And to be able to bridge that gap.

Lorri Trehwella

Yeah, you need to be able to speak to your audience. I think as well, like with academics, because you spend so much time training yourself to, to speak in that way, and to write in that way, and to think about things in that way. That in itself is an accomplishment. So yeah, you know, I can see why people will be like, well, this is the way to do it, because I've spent so much time training myself to do it this way.

Sara Grady

Yeah. But there's a lot of there's a lot of, you know, excess fluff. But also, if it hasn't been trained out of you that there's almost like a false academic speak that sounds fancy, but it's

actually not correct. You never quite know what direction things are going to go in. But I think this and hopefully this helps you we've talked about collaboration, and, pollution.