

Building Resilient Communities...ain Management with Forerunner

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SPEAKERS

Seamus Riley, Michael Thulen, Del Schwalls, Mathew Langley, Maggie Talley, Doug Parsons, Susanna Pho



Doug Parsons 00:00

Hi everyone this is America adapts the climate change podcast Hey adapters welcome back to another exciting episode. I'm partnering with foreigner, a software company that works with local governments to help them with disaster management, flood risk and adapting to future impacts of climate change. We'll hear from floodplain managers working in both riverine flooding areas and coastal flood zones. These guys are on the ground finding ways to help their communities with extreme flooding and changes expected with a changing climate. You'll hear how technology increasingly plays a role in the work they do and how communication and outreach are critical to getting their communities support and establishing effective flood prevention programs. Susanna pho co founder Forerunner shares with us how climate analytics and technology are helping some of these frontline adopters. In this case, floodplain managers do their jobs more effectively. It was fantastic to learn what's actually happening out there with these floodplain managers, and what tools they find useful for better flood and disaster risk management. It's a mixed group and you will learn a ton. Okay, before we get started, I want to give you a heads up on the next Patel innovations and climate resilience conference or ICR 24 Dells presenting their third annual innovations and climate resilience conference with the theme solutions for scaling change that captures the urgency and the growing need for innovations at scale to meet the monumental task of addressing climate change. The conference will take place on April 22, to April 24 2024. This year in Washington, DC ICR 24 will gather innovators from across industry, academia and government. This is the second ICR that I'll be covering for Battelle. We partnered on an episode for ICR 23 in Columbus, Ohio, and I'm excited to announce a continuation of that partnership, the themes of this conference, our mitigation, sustainability, and yes adaptation. ICAO 24 is your opportunity to join scientists and researchers from academia, industry and government working at the forefront of climate innovation visit patel.org Ford slash adapt to learn more. That's Patel Ford slash adapt. Links are in my show notes. Support for American apps comes from Mattel where science and technology are applied to help create a safer, healthier, more resilient world. Okay, let's learn how local communities are dealing with flood risks with foreigner. Hey, adapters joining me this Susanna fo Susanna is the co founder and CEO of foreigner Hosanna. Welcome to the podcast.

S

Susanna Pho 02:28

Hey, Doc, it's great to be with you.

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Doug Parsons 02:30

We've got a great episode here. We got a lot of interesting people coming up. But let's ground everyone. First. What is foreigner

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Susanna Pho 02:37

is a software company. We operate around a mission and that mission is to enable climate adaptation for communities throughout the country. So we work with government agencies, we work with governments of all sizes throughout the country, ranging from super small coastal New Jersey communities to state agencies. And we create software that helps them with everything from regulating compliance and their floodplains to communicating in a more nuanced way to their public around flood risks and opportunities for mitigation to responding in a more informed way post disaster. But in the world of floodplain management, which is a world in which we work is really complex. And so a lot of our work is centered on distilling down that complexity in a way that empowers the work of floodplain managers on a day to day basis.

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Doug Parsons 03:24

Let's talk about your role at foreigner. You're the co founder and the Chief Operating Officer. What does that mean?

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Susanna Pho 03:31

Yeah, it means a lot of different things. So I founded the company with my co founder, JT white in 2019. And we started, it's just a two person company that we've scaled to be about 30 people now, which is really exciting. And my role entails a lot of things, you know, I work basically across the board anywhere from talking to some of our partners who are interested in utilizing foreigner to see if it's a good fit for them, to helping them onboard to making sure that the word is out about what we do

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Doug Parsons 04:00

want to learn a little bit more background about us specifically. So how did you I mean, you've co founded this company, but what's your background? How did you get into this space? You're doing software? Or were you were you a software developer, just tell us a bit about your history.

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Susanna Pho 04:13

I was actually probably the furthest from being a software developer that you couldn't be, I was actually an architecture. And so my formal training is an architecture and so is that of my co founder, JT, so we both had an architectural background, which is really has been really beneficial in this space, just because we have a lot of knowledge about the built environment. But at the time that we found it forerunner, I was at Harvard, studying risk and resilience. So really on the kind of policy and planning side of things, trying to understand some of the implications of how we plan around disasters. And my co founder, JT he was leading product teams at some really great startups in New York. And we got together around a shared personal interest in the resilience space, and in flooding and founded the company.

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Doug Parsons 04:54

Very cool. Let's talk a little technical stuff here too, because when I interviewed these folks, and I've already interviewed Everybody, just so my listeners know that let's ground, folks, because we did. And technology isn't part of this episode. And so let's talk about how for renters supports disaster recovery efforts, because that's gonna be a common theme throughout the episode.

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Susanna Pho 05:13

So I think when people talk about disaster recovery, a lot of people don't really think about how important blue sky compliance to sort of day to day floodplain ordinances and sort of how important it is to post disaster recovery. But it's really important to sort of make sure that everything is built up to code, and that everyone knows their risk before disaster happens. So you have a well informed public, and you have a community that is sort of prepared, both from a structural standpoint, but then also from a community knowledge standpoint, to respond to disasters. So I think that that's what you'll hear from some of your speakers today, they'll talk a little bit about how those things are intertwined. But as it pertains to foreigner, you know, we, a lot of the software is structured to help them with day to day compliance. So helping our partners, government agencies make sure that everything that's built in their communities is up to code and that it is resilient against flood risk. And then after that, we help them with providing data to residents, making sure that they keep their residents informed of what their flood risk is, and what potential mitigation opportunities exist. And then also, one of the biggest challenges in disasters is sort of having your ducks in a row before disaster happens, right. So making sure that you have all the data in place that you need, and all the processes in place that you need to collect data really quickly after disaster happens to be able to respond quickly. And to be able to mobilize resources quickly. And so some of the things that foreign er does to sort of help on this front is we help to consolidate data sort of across the board as it pertains to flood risk. So bringing all of the information that might inform post disaster response into one place, including sort of some of the compliance data, but then also things like future sea level rise maps, and sort of post disaster inspection, maps, things like that. And then we also make it easy to collect data post disaster. And we have a feature that does preliminary damage assessments. So that's a really important thing that government agencies need to do after disasters, they need to go out and collect information about who was hardest hit, that's really important so that they can mobilize post disaster funding, but also so that they can mobilize their own resources to send people out to help you

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Doug Parsons 07:21

guys cover a lot of ground with this software. But I don't think I heard in there that how the software allows residents to access information on their individual property.

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Susanna Pho 07:30

So the software has sort of two sides, there's an internal facing dashboard, where our users will use it to sort of understand what the flood risk is for individual properties internally track data internally. And then for most of our partners, we also spin up a public website for them to make available to the public so that anybody in any jurisdiction that we work in, I think we work in over 80, governments now can go to that website and look up their individual flood risk for their property. And if they have questions for their floodplain manager or for their local governments, they can use a form on that website to submit an information request. So it really helps us streamline that communication. So

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Doug Parsons 08:10

these floodplain managers that I'm interviewing this episode, they use a lot of language. And there's a lot of assumptions that I think they're so used to being in this space, but so the software actually helps government agencies in fulfilling requirements for the National Flood and parent insurance program, and the community rating system and I had never heard of the community rating system before. Right.

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Susanna Pho 08:27

Most communities in the US are NFIP participating communities. And as NFIP participating communities, they do have to sort of do things like enforce minimum floodplain regulations do a certain amount of record keeping, one of the big things is collect information about lowest for elevations. All of that can be fairly difficult from a record keeping standpoint, but it's important to maintain compliance to that federal program. So we help with a lot of that sort of data gathering and data consolidation. And then with the CRS, the CRS is really interesting program. The community rating system is a federal program that is voluntary, and a lot of our partners participate in it because it offers discounts on flood insurance in exchange for community level mitigation activities. A lot of those mitigation activities require documentation and sort of annual reporting. And we help with the reporting, but then also the data collection. So a good example of that is for these documents called elevation certificates. Communities participating in the CRS have to make sure that their elevation certificates are correct. In order to stay in the program. We have a feature that helps them check those elevation certificates for compliance. It has two fold benefits, the one of which is to help them stay in the program, but also it helps them make sure that they're enforcing compliance in their floodplains.

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Doug Parsons 09:44

So gosh, this is just all the sausage making when it comes to adaptation planning. Alright, let's get started with these guys. They have some amazing stories. Just give us a very broad

overview who's coming on?

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Susanna Pho 09:54

Yeah, so we have a bunch of great people today. So we have Dell Schwaz Matthew Langley from Cedar Rapids Iowa, Seamus Riley and Maggie Talley from Jefferson Parish, Louisiana and then Mike to lean from Point Pleasant beach so a great mix of people from coastal communities as well as riverine communities.

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Doug Parsons 10:11

Susanna, you're going to come back on at the end of the episode we're going to talk a bit more about the work that you're doing and just a little discussion on some ground that we covered, but I'll see at the end of the episode. Great looking forward. Hey, adapters joining me is Maggie Talley and Seamus Riley from Jefferson Parish, Louisiana. Hi, Megan Simis welcome to the podcast.

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Seamus Riley 10:32

Thank you.

M

Maggie Talley 10:33

Hi, it's great to be here.

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Doug Parsons 10:35

Maggie, I'm gonna start with you. I'm gonna let you introduce yourself position title, what you do there.

M

Maggie Talley 10:40

I'm the director of floodplain management hazard mitigation department here at Jefferson Parish, and mostly focused on the elevation and mitigation reconstruction of residential structures, those that are more at risk or repetitive flooded properties. And we also help to help people or do our best to help people understand flood insurance, why it's different for them from themselves and their neighbors. And and try to make sense of that for people and do a bunch of other things that are related to flood risk education and outreach and mitigation in general.

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Doug Parsons 11:13

Great. Now, Seamus, tell me your role and responsibilities.

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Seamus Riley 11:15

Sure, I'm the floodplain manager and CRS specialist, and CRS stands for the community rating system, which is a FEMA NFIP program and really the sort of the gist of that program is that the more you do to go above and beyond the expectations of the NFIP, as far as community awareness and outreach and multiple other things, the more you are sort of rewarded with it with a point system that we have. So I run the CRS program and also the floodplain manager for Jefferson beer

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Doug Parsons 11:43

gym. So I'm going to stick with you and I want to just ground people in Jefferson Parish I've been doing is Louisiana a bunch of times but tell me a bit about Jefferson tell me like geographically where it's at Is it a big population center just give people grounded on where you're coming from?

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Seamus Riley 11:58

Sure. We are located we actually are adjacent to the to Orleans Parish, which is obviously where the city of New Orleans is located. We are right on the south shore of Lake Pontchartrain. Really, we stretch for about 55 miles geographically from the north to the south. We start right there at the south shore of Lake Pontchartrain. And we stretch all the way down to the Gulf of Mexico. But 55 miles down, and we have a population right around I believe it's around 450,000 people, we are the second most populous parish in Louisiana. And yeah, it's a wonderful place to be it's full of culture. It's a mecca for a lot of different activities. And it's just a neat place to reside.

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Doug Parsons 12:34

Great. So Maggie, let's talk about flooding. And give us some context there. And it's probably one of the few areas in United States where a lot of us actually probably have somewhat idea of what you guys deal with. But tell us on the ground, what are some of the flood management issues that you have to deal with?

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Maggie Talley 12:50

How much time do we have, I would say some of the the major ones is we're very flat where we are. And so interior drainage is a big proponent of how we manage our flooding issues here. After Hurricane Katrina, we were fortunate to get a lot of mitigation dollars to help us with our infrastructure, mainly great infrastructure, so that would include the drainage system as well as the levee system. But the flooding that we get, it's not really so much riverine flooding because we are levied off from the Mississippi River as well as Lake Pontchartrain. It's more about interior drainage where our pumps do an amazing job. But sometimes the rainfall just it's too overwhelming for the system. And so people who do flood here, it's because they're on low

ground. And the more development that happens, it becomes that bathtub effect where there's just not anywhere for water to go other than up we we're sanely concreted throughout Jefferson Parish, and that's something that we're putting a lot of effort into right now is looking at Green Infrastructure features that can help to kind of take out some of that concrete and replace it with things that allow water to actually penetrate into the ground and into the soil. When because of the concrete and kind of the infrastructure we we've had in place for the last few decades. We are seeing at an insane rate of subsidence happening in our area where structures are literally sinking. And in many cases, we're starting to see cracks and some fundamental issues with foundations and that kind of thing. So rain, I think it's true. And then if I put this out there, which is anywhere it rains, it can flood, and with the fact that we get a an average of 64 inches of rain a year, we're kind of at risk on any given day. So we've been working hard to address that risk. And yeah, and I will say that what we've been seeing now that we're getting more intense events as far as hurricanes are concerned and extreme heat and other things, I mean, the rain events and the weather events that are bringing in this crazy amount of rainfall. The properties that have actually been elevated through our program are not the ones that are getting water inside their homes, and so mitigate mitigation on the ground we can see for sure is helping. It's making a difference. And it's helping to protect families and their biggest asset.

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Doug Parsons 15:09

Okay, Seamus, I want you to build on that. So I'm from Florida originally, I'm here in Arizona now. But Florida Hurricanes were always something that we had to worry about. So you have your own issues dealing with flood management, because you're a rainy place. What happens when these hurricane events? I mean, how does your day job change in respect to that? Because it's just it's these very unusual things that happen?

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Seamus Riley 15:29

Sure, yeah, it's really before the hurricane, it seems like we have less and less warning now with the way that these systems are rapidly intensifying. So before the hurricane, it's pretty much we just, we all work and we watch and wait, we see what's going to happen. But after the storm, it's really all dependent on the impact and how much damage has occurred. We've had plenty of storms, some very recently that have gone through that really didn't have much of a negative impact. And so didn't really change our day to day that much. And then we have storms like Hurricane Ida that absolutely flipped our sort of world upside down for quite a bit of time. And we are still, we're getting back to normal. But we are still working on just a tremendous amount of stuff that has to do with items. So it really is just impact dependent. Once the storm hits. We go out and we do damage assessments. And that kind of starts the whole process with what we do after a big storm comes through.

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Doug Parsons 16:18

And Maggie, do you have anything to add to that? Right,

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Maggie Talley 16:20

so once the damage assessments are underway, it helps us to triage the areas that we're going

so once the damage assessments are underway, it helps us to target the areas that we're going to go and do more extensive substantial damage estimates, which is an NFIP requirement that participating communities must do after a storm. And we do that kind of a step by step process where we will gather our team internally, and we have these sort of ready to go bags that have a lot of great information to keep for people who have just recently gone through a storm as far as resources on how to start moving forward, because in most cases, you can't just start rebuilding, you need to get a permit. If you're substantially damaged, then that requires you to meet the height requirements from FEMA, let's say you don't currently meet the elevation standard in your current ordinance or your local communities ordinance. And that house needs to be elevated before it can be repaired. There are a lot of kind of pieces to that process of understanding. Number one, where did the major damage happen? Number two, who is substantially damaged based off of individual assessments and individual assessments rather, and then I think the third option is allowing people to get told, Hey, you're substantially damaged, please come into our office before you begin any repairs. And they have that opportunity at that point in time to either to make an appeal, if they don't agree with the assessment, they can submit documentation that will allow them to kind of contest the decision. And depending on how that comes out, they can either then get a permit and go ahead and start the repairs or they need to wait. And we work with them to try to get them into an elevation grant or reconstruction grant so that they can get mitigated and therefore have an elevated home moving forward that will protect them from flooding in again in the future.

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Doug Parsons 18:07

Okay, great. I want to talk about data and technology. And I want you both to take a crack at this. How does the use of data I'm thinking of flooding software in such and we're just as a foreigner episode, but how are you guys using that information, what you do, and maybe start with Maggie?

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Maggie Talley 18:21

I mean, so data is critical. And being able to assess the amount of structures that we have in Jefferson Parish, we have roughly 160,000. And so after Hurricane Ida, because of its sort of breadth geographically of where it hit, we had to assess the entire parish. And so we had a lot of teams deployed. And luckily, we're able to get a custom made tool created that allowed us to sort of track all of that within essentially an app on our phone, it had all of our addresses, pre populated teams could go out, click on a dot essentially add in a few comments, take a photo of and then all lived on that app that then we were able to do our assessments from and make those determinations. Then moving forward. I mean, when it comes to foreigner, and I think Seamus will have more to add to this. But for runners site's been incredible for us because it houses our elevation certificates that we have on file that have information regarding first floor elevations, so we can kind of get a sense of how high what were the water depths in different areas. And then we can look at that elevation certificate data, and kind of compare the two to understand where we might have some of the worst damage just from an analytical viewpoint. And that could be a person or a team kind of looking analytically while the got the actual teams that are on the ground in the field, capturing the real life data. So technology is everything for us. And it's what allowed us to get our assessments done as quickly as we were able to and it also we've been able to kind of build in additional components as we've gone through the process because the substantial damage determination is kind of the first in the in the early steps of that process, but then, if people did go to pull a permit to do repairs, because maybe

they can test it there, I see their substantial damage status and we're able to, to actually I'm not substantially damaged, or I already meet famous elevation criteria, then they can get a permit, go ahead and do the repairs. And we can track that permit in the system. So everything's in one place, that allows us to then pull a report and print out like a one pager per property, which actually came in very handy because at the, there's something that FEMA calls an 89 day letter after an event. And so when we got that letter, we were not expecting it. But we were able to fulfill the request within just a matter of a few days, because we'd already been capturing the data in a way that we can easily export, filter and share. So it's been absolutely critical for us.

D Doug Parsons 20:45

And Seamus, I want you to maybe give your own perspective, but maybe factor in to is are these tools useful when you're communicating to the public or I guess, elected officials or county leaders? I mean, has technology played a role in that?

S Seamus Riley 20:58

Sure, absolutely. I've kind of feel like we've been under like a little bit of a or gone through a little bit of a technological sort of Renaissance. Over the last couple of years, we've really invested a lot of time and energy in programs that we have signed up for. And they've really resulted in quite a bit of benefit. We do have on our website on the floodplain website for Jefferson Parish, we do have an online portal section. And in the portal section, we have everything from you can get your own flood zone determination, you can apply for coastal permits and stuff like that. But another thing we have is elevation certificate database, it's a search and that is through for runner. And so by using this software by uploading all of our elevation certificates, and then putting it on our website, not only are we providing that access to the public, but we're also checking one of those boxes that through the community rating system, it's a requirement that you do make all the elevation certificates available for the public. So we absolutely are using them to benefit the public. With foreigners specifically, I work a lot with it. And we've I think right now we've uploaded just about 26,000 elevation certificates into the program. So that's an interface that is right there for the public to view. It contains numerous layers of data all on this one interface. And a lot of that data is extremely large in size, which is typically hard to work with for anybody internally and externally. So to have all of that in a system that is smooth and just consistently functional is very rewarding for us and for our residents.

D Doug Parsons 22:33

Maggie. So I've learned a lot about floodplain management just from my conversations for this episode. And one things I didn't realize is that sometimes people that don't even have background in it, because it might be a rural county or small county, you might be the tax collector, but you're doing some floodplain management work. But then you have highly sourced how they resource how like technical experts and any advice you could give to floodplain managers. If you think of that spectrum out there. And I'm sure in Louisiana itself, you probably have very rural counties where floodplain managers really don't have many resources. What kind of advice would you give them kind of what they're doing? Oh,

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Maggie Talley 23:08

yeah, I mean, we kind of see that on a day to day basis, even within Jefferson Parish in the incorporated municipalities. Within it, we do a regular meeting on a monthly basis that we call the Jefferson United mitigation professionals group, which basically is the floodplain manager for each of those communities within Jefferson Parish, that come together to work through that community rating system program James mentioned at the beginning, and just thinking about the roles that those people those individuals play, some are building officials. Some are actually town clerks who do payroll and taxes and run floodplain management and see or that CRS program, they kind of do it all and wear a ton of different hats. And so oftentimes, we were kind of caught up in that situation where we unincorporated Jefferson Parish are in a position and have access to resources rather easily that we can, for instance, I mean, and Seamus is title. He is a dual position of floodplain manager and CRS coordinator, and there's not another community within Jefferson Parish that has kind of a person designated as that dual role or just the CRS coordinator. It's often something that gets added on top of a lot of other job duties. And so my advice to people who are in that situation where they may be floodplain management, it's not their number one everyday main job or they just don't have, like you said, the resources at their fingertips. My advice is to try to understand the others in your area or your region. If there is a local or a state floodplain management association, become part of that group so that you can kind of build in that network for when you are coming across specific issues or need direction you have then a working group of people that you can reach out to and know that you're getting kind of some expertise on some anything that may be that individual might not feel 100% confident in because they just don't deal with it every day. There are a lot of resources. Luckily, there are a ton of online resources. But I don't know about how you guys feel. I know, I feel pretty inundated with information overload on an everyday basis. So I think just saying, Oh, you got this resource and that and just kind of doling out website after website that can be more daunting, I think, than helpful. So I always firstly like to talk to people and kind of talk through issues that I'm that I'm coming across. And so I think, for me, that would be the the best way to go about it is just building those connections with other professionals in the system. Okay,

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Doug Parsons 25:37

so last question. And I'll be honest, it's probably what my listeners want to hear the most, that we know where you guys are located. Do you have a favorite Cajun restaurant? And what's your favorite Cajun dish there? And Seamus, we're gonna start with you. And boy, I hope you say you do?

S

Seamus Riley 25:51

Well, so I do. And I'm a little bit different because I moved down here. I'm from the DC area, and I moved here eight years ago. And I'm still very, very new to the culture as it would be considered down here. But I immediately fell in the hole crawfish craze, and I guess really, honestly probably eat crawfish crawfish meet, probably about twice a week was, especially during peak seasons. That is my crutch and something that I just I very much enjoy. When

D Doug Parsons 26:17

I go through Louisiana. If I'm through some country town, it's just going to a restaurant and do a crawfish boil. They just dump it on the table. It truly is one of my favorite meals of all time. So Maggie would take a crack at this. Yeah, so

M Maggie Talley 26:28

I'm actually from Houma, which is just an hour southwest from here and so I've been in that Cajun cuisine my whole life. And and there's so many options to love but my go to is actually red beans and rice. I like to try a lot of different places just to compare, because there's some that I really love and others I'm not so far no, but I'm constantly on the lookout for like, what's my absolute favorite place to get red beans and rice? They're great contenders here, so no complaints at all.

D Doug Parsons 26:57

All right, fantastic. I appreciate both of you coming on and sharing what you're doing there and Jefferson Parish and thanks for coming on the podcast.

M Maggie Talley 27:04

Thanks so much. Thanks for having us.

S Seamus Riley 27:07

Of course they do.

D Doug Parsons 27:10

Pay adapters Joining me is Michael to lien Michael is a construction official and floodplain administrator. Hi, Michael, welcome to the podcast.

M Michael Thulen 27:18

Thank you very much. Thank you for inviting me.

D Doug Parsons 27:20

So let's just give some people some context of who you are and where you're at. So where are you based out of?

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Michael Thulen 27:25

So I live in work in Point Pleasant, New Jersey, the middle of the coast here in the Jersey Shore. And I'm a construction official in the building department here and one of the local towns.

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Doug Parsons 27:34

This is obviously a highly populated region, right? Yeah,

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Michael Thulen 27:39

the town I live in and the town I work in here are for the county were the most populated towns in the county. And then obviously New Jersey as a whole being one of the more densely populated states.

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Doug Parsons 27:49

Can you give us some background about flooding issues in this region.

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Michael Thulen 27:54

So on the Jersey Shore, one being an ocean front and to New Jersey has a lot of water that goes out to the ocean through a barrier island system. There's a history of flooding going back long before Europeans ever hit the shores here. So a lot of our areas are floodways, natural floodways and big marshes and big estuaries that feed into the ocean in different natural canals and manmade canals. And then depending on the day of the week, we might get a lot of rain too, that floods that system and then it goes through the bays. Normally the bay would handle the overflow of water and then eventually it makes it out to the ocean. And then on occasion, we've had many nor'easters on a more of a regular basis. But occasionally hurricanes that come in hit the Jersey Shore. And then we get flooding fear the way of the ocean coming in into the base from the ocean and just overwhelming the whole system generally, because you have now Tidal Surge coming in and rainwater trying to go out at the same time. So we have a lot of development on waterfront that's goes up and down our coasts, because it's a beautiful place to live when it's a nice day. However, when those two surges meet between the ocean and the rain, everyone's house gets flooded a lot.

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Doug Parsons 29:01

I imagine Hurricane Sandy impacted you guys in a big way.

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Michael Thulen 29:06

It did, especially in the area where I lived the big picture where everybody sees the one of the ocean broke through right where a bridge was and Mantoloking New Jersey connects to brick New Jersey, you literally go a mile and a half down that road. That's the house I grew up in

new jersey, you literally go a mile and a half down that road. That's the house I grew up in. Were the first people to actually walk over that bridge and see the other side was my little brother going into there over there. And announced to me I would have told him to stop but that all affected us. I've still affects me to this day in the job that I do. As an elected official and the town I live in Point Pleasant borough. I was elected after the storm actually. But the whole five years I served there as counsel we were still reeling and dealing with a multitude of issues that came from that storm. And then I actually worked for a nonprofit or worked with a nonprofit board member of getting a lot of money in the door to help 1000s and 1000s of families recover from that all across Ocean County, Monmouth County and different parts of New Jersey. You told me about

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Doug Parsons 29:59

A model floodplain ordinance and I think, walk us through that because it's it. It'll hopefully explain a lot of the work that you're doing there. But what was that process? And I think it was the first of its kind, right.

M

Michael Thulen 30:10

As far as I understand, I don't pretend to be an expert in every flood law out there. It's a big country. So from what I understand, FEMA was pushing the state of New Jersey, which is the as far as the hierarchy goes, you got FEMA, because the state state, pick some division of the state to make sure we're doing the flood rules that FEMA comes up with, and then the state level there decides where we're going to push it down the more local stuff like county organizations or municipal organization. So as I understand it, FEMA came up with Hey, state, New Jersey, we don't feel you're doing enough need to come up with something so that we understand and we know, and we can create data to show that you are following all the flood rules that we as a federal government are making state New Jersey through the department environmental protection came up with a thing called a model floodplain ordinance. So it's not necessarily a law on the state level. But it's a law that the requiring all the local municipalities that are in charge of flood control or flood enforcement, flood rule enforcement to adopt and utilize. So the state of New Jersey, put it down on multiple municipalities to force these rules, the one where I work in the one where I live in, and several other man here. So the town I work in where we were in the very first towns to adopt this model ordinance. It's a big ordinance written by state of New Jersey has all kinds of rules in it, pointing all kinds of directions between Construction Code rules, FEMA rules, state rules, our local Department of Environmental Protection rules that must be filed whenever you're doing anything in a floodplain area. So town I work in a large majority of the town isn't a floodplain area, most of the work that gets accomplished in this town, whether you're building a dog house, or a nuclear power plant, you have to go through this process of a floodplain development permit. And that's where it comes on the municipality to do the whole process from nuts to bolts. So physical applications, you hand over to a developer or some building their dog is walking them through the application walking through the information you need to down to make sure they're complying with the flood rules. And then inspecting the work that's done to make sure it meets the flood rules, and then post that collecting and keeping all the data forever, to see what happened or be able to go back and prove to FEMA or the state of New Jersey, that you are indeed enforcing those rules, inspecting the rules that you're enforcing, and maintaining the data so that in the hopes that the town that you're in is becoming more resilient every day to flood issues. Okay,

D Doug Parsons 32:36

so on paper, that sounds like a really good idea model ordinance. It's helping with water quality and such. But how's the from a practical standpoint? Is it something that you find a really useful framework for you to have these conversations and processes? Or are they there things that need to change,

M Michael Thulen 32:50

it's very useful. I'm seeing the benefit of it today. And I'm seeing things move better. And because we're almost forcing people to get educated, so you're forcing homeowners and businesses were much more stringent on how we're doing it and kind of go sideways real quick, there's a uniform Construction Code for the state of New Jersey. So when you build a house in New Jersey, these are certain business codes that should be the same whether or not I'm building a house in Bergen County or Cape May County, however, they're all enforced by different people. And they're individuals, the same guy that does not work in Bergen County that works in OSHA in Cape May County, so he might enforce the code slightly different. And then if you don't have that level of uniform code, which we really didn't have at the time, for flood, it was even more confusing. So now we're getting more of a uniform code. There's a lag time between us being the first people to adopt it. And then obviously, the last couple of towns in New Jersey to adopt that, which probably won't happen for another two or three years. So once it's all uniform, it's helpful because it's the benefit is education to everybody, even though you're kind of forcing it down their throat, but it's it's for the better. And on the other side of that we have this big clumsy process that's pushed up by the state of New Jersey via FEMA. And there's not a lot of instruction on how to do it. That's where I kind of came in, I got dropped on my head, and they're like, Alright, do this. And they're like, this is a 40 page application, do what we talking about? Were all the reference pieces for this. We don't know you got to figure that out. That's where I feel it's gotten too clunky. Because when the uniform Construction Code came out, there was a whole team of people. There's background, there's code places, like I'm not saying was perfect when it came out. And it was like 7475, but there was more preparation to hand it over to towns to do it. This seems to be way less prepared, but rolled out faster. Now. I'm literally the guy Half the time I have municipalities calling me a couple, two, three times a week, we've adopted the ordinance. What do we do, Mike, how do we do this? And we're like, Sure, give me 60 hours to explain to you how I do this. Let me show you how the software's the notifications the customers, how you teach your inspectors How do you track the data somewhere? How do you you know, be peaceful and kind to people explain to them that you're only Trying to keep their house from flooding. You're not there to make the cost of the project increased threefold. This

D Doug Parsons 35:06

is the sausage making a flood plain management's exactly what percent? Well, and I'm curious you'd mentioned that the ordinance kicks in within the floodplain. Now I think every state and maybe even cities are different what is their you use the language like okay is the floodplain though a one in 100 year event one and a five and you guys use those terminologies?



M Michael Thulen 35:28

Yes, we do. So we are very lucky as a municipality to where I live in where I work, FEMA has completely mapped our area. So it's very easy for me to go back to FEMA and look at the flood map that came out in 2018. And go, your house is in the flood zone or your lots in the flood zone or not. So we're smaller towns, densely populated, but smaller towns, but that FEMA has gone ahead and done that significant research for us. And now that I've been doing this flood stuff for a while and seeing more and more of it. I realize across the country, a lot of municipalities, even Southern New Jersey, don't have detailed flood maps. So you might buy a house and try and go to a FEMA flood map and go, am I in the flood zone? You just don't know. No one's gonna tell you. So then you have to go to someone like myself, who's the certified floodplain manager for the town and they'll help figure it out. And even then they could get it wrong and get it right. You don't know.

D Doug Parsons 36:16

But what is it there? I mean, is it is a one in a 500 year event, what is the floodplain? How do you guys

M Michael Thulen 36:21

categorize so we categorize as the 100 year event. So 100 of anything in the 500 year event is the X Zone, which having stood here in the floodwaters, and Sandy, some of the stuff in the 500 year did get wet. So but we utilize the 100 year and then we call it a special flood hazard zone. And then in the town, I work and we actually extend it, there's parts of the coastal areas. So going up and down the coast, not only where we are up in point, but Oh, going all the way down the Cape May, if you look at some flood maps, you can be a house on the beach. And I'll say that you're not in a flood zone, because the beach dunes go up and they're bigger, and they're higher than, you know, 100 feet in or the road behind you. So we've we've gotten to establish and several other towns have established, you know, technically FEMA doesn't think you're in the flood zone, because you're on top of a dune for some strange reason. But at the municipality, we go ahead and say, Hey, you're in a flood zone, if a hurricane comes through, you're getting flooded, you're on the dune, on the ocean.

D Doug Parsons 37:17

I was living in Maryland not too long ago, like seven, eight years ago, in this tiny little town. I'm blanking on the name, but it had to one in 500 year flood events within three years of each other. So it's just it's kind of blowing up the notion of what that really means when you tell a community it's one in a 500 year event. So I'm

M Michael Thulen 37:37

sorry, it's horrible terminology. And we try and correct it. I explained it to everybody, because it is another name for you're in a special flood hazard zone that seems to get people understanding a little bit more on that special flood hazard. And then I'm like, Well, how's that

going to happen? I'll go, well, it could happen from rain, it could happen from a hurricane. But really, what's going to happen is a water is pushed into the town. Because the town was a natural swamp at one point in time, then we went ahead and built everything.

D

Doug Parsons 38:02

Right? Can you tell me how data and technology have played a role in your work

M

Michael Thulen 38:08

without technology implementing the model flow planner. And so we were talking about what would be in Monster undertaking between the time that we adopted it. And the time that I got my first application in was just short of four months. Because you have to come up with a process to receive applications or come up with a process to review applications come up with a process to inspect that work and come up with a process to maintain that data going forward. And then all of that has to be able to be publicly available. So that would be several binders and a big shelf that we would generate probably monthly in a town like mine. So without technology, you know all that stuff, is just a monster to deal with. So we utilize two different software programs to get the application process and the information out to our residents in town so that not only can they find out how what of the application is, what their status is or what they're putting in, but also the data that we've collected or the data on the house as we've collected. So whatever way we make that as easy as possible. We use those two pieces of software to do that without it. Is it possible Sure. other towns up and down the New Jersey Shore still do this a paper version? I've literally had people come back to me, it's so much easier in your town. It's right there at your fingertips. Yes.

D

Doug Parsons 39:24

What is this software?

M

Michael Thulen 39:25

So here's the main software we use as a municipality is called Gulf pilot. They do multiple different layers of would just be local required software from applications for building permits. You know, your dog license is parking permits, all that type of stuff. And the other one that we use is for runner. And they're they're primarily information for flood information. So flood data that we we maintain there so maintain heights, you know, you can go out and as a resident go, hey, when we plug in 123 Main Street, that's where my house is. It'll tell you hey, you're in the flood zone or not? And if you're in the flood zone, if we've already collected data, is your house compliant? Or is your house not compliant? And then we track a bunch of other data points in there as well. They're both pretty useful for the whole system. So one is more educational for the resident, the other one's physical, for the permitting process that we need to do.

D

Doug Parsons 40:16

Okay, so last question. You are unique in a lot of the people that I talk to you that you're not

Okay, so last question. You are unique in a lot of the people that I talk to you that you're not currently an elected official, but you were like you said earlier, when elected official for five years, tell me a bit about how that informed the work that you're doing as a floodplain manager, like you have to think about things in a much different way, right?

M

Michael Thulen 40:33

Yeah, I'm able to put different hats on and empathy. I don't think it's the right word, but I have different views I can see it from. So, you know, as a working professional, you're like, Oh, this is black and white. Because I deal with it every day. You know, I'm fully aware and versed of everything, as a resident or an elected official, or someone who comes and touches it, maybe once a month or once every other year, as a homeowner, you got to re educate them. There's there's changes that happen every day in this stuff, I try and take that look, in that perspective, as I talk to my own staff, they might deal with a resident come in who's upset about the whole process, or whatever it is. And they're like, Well, why don't they just understand? Well, we deal with this every day, they've dealt this the first time they've ever dealt with it, and they're, you know, 56 years old. I've gotten 50 years through life and not having to deal with floods. So that's why we need to help be kind and educate them. I'm going to a birthday party later of somebody that I met as an elected official who was sitting on my doorstep screaming at me that we were enforcing the flood rules wrong when they're rebuilt their Sandy house are very friendly. Now we've gotten past that. I have a literally, I mean, I had to sit there in the position I'm in now as a construction official, I was an elected official. And that construction official reported to me back then. And he goes, like, just I've explained everything, I've been nice as possible, these people are just really pissed off. And I go, I got it. So as an elected official, and sometimes elected officials here, do the same thing for me, he'd get the brunt of the emotion. And at the end of the day, go, Listen, I know, we're just the local enforcing body. This, the federal government told the state to do this. And now the state's telling us to do this. So I wish I can get the head of FEMA on the line and tell you why this rule was made this way. And, you know, I generally understand why the rule is made that way. But there is no reprieve. You know, we're doing this to make your house safer. And we're doing this because if you don't do that, and you come back to us as the local federal state government for money to fix your house that should have been made safe when you had the opportunity to it's every tax dollar in the countries helping you rebuild your house. So you know, if your neighbor did the same situation, do you want to go give them \$20, they'll fix your house when they knew they should have fixed it to begin with. And that's kind of how I've looked at it as a politician of yours. And I look at it now, as administrators, you got to wherever you have people coming in, they have no idea what you're talking about. But sometimes it takes you 25 minutes to explain the whole process to them. But I only have about 3000 homeowners in town that I have to deal with at the end of the day. And occasionally, you know, you get turnover from people buying houses. But my hope is over the next five years, I've educated enough of the people that it's not a daily 25 minute conversation anymore with the homeowner. You know, once a month, once a week, I get to have that 25 minute education that I give out. So

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Doug Parsons 43:12

Michael, I want to thank you for coming on the podcast and this has been a pleasure talking with you. Absolutely.

M Michael Thulen 43:17

Thanks you for having me. And I look forward to listen to the rest of your podcasts. I got two or three under the belt. They were all great so far.

D Doug Parsons 43:27

Hey, adapters joining me is Dell squalls Dell is the president of swells consulting in engineering and floodplain management company. Hi, Dell, welcome to the podcast.

D Del Schwalls 43:35

Doug. Thanks for having me.

D Doug Parsons 43:36

All right, let's talk about floodplain management. So where are you based though?

D Del Schwalls 43:40

I'm here in Orlando, Florida,

D Doug Parsons 43:42

Florida, there's a lot of flooding. But that's not necessarily where you focus on can you tell us the geographic region of where you do work.

D Del Schwalls 43:48

So I do work across the state of Florida all the way from the Far East to the northwest, down to the keys. So I'm talking about I'm in Florida, but also across the nation. So I'm working in Louisiana and Missouri and Maine and Massachusetts and Tennessee to pretty much all over the place.

D Doug Parsons 44:06

It gets you around a bit. Let's talk a bit about the flooding issues that you deal with. And I know you are working all over the place. But maybe there's just a couple examples. If people are imagining floodplain management, what does that really mean? Give us some examples? Well,

D Del Schwalls 44:19

it's a really wide spectrum of both industries and problems and scenarios. So I serve on the Board of Directors for the Florida floodplain Managers Association, which is a group of over 1000 community officials, surveyors, engineers, technical professionals, profit consultants across the state of Florida. And these are as varied as you get you'll have a community official who is the an engineer who runs the public works department, or you'll have a committee official who's the floodplain manager who's the tax official. And so you have a wide range of technical background and expertise, all trying to accomplish the same thing which is managing the floodplain in the flood risk for their communities. And I'm the past chair of FEMA. And so sitting on the board of directors for them, the focus is to help all these different aspects of floodplain management. The focus here is to take all these different backgrounds of floodplain managers and help them accomplish their goals, which is serving the residents. And I'm also the past Regional Director for the National Association of State floodplain managers. So I represented the eight states in the southeast us for them. And so going from floodplain management in Key West to floodplain management and Nashville, Tennessee, water flows very differently in those two locations, right? It's a wide variety of scenarios here looking at what does it mean for a community that's had to 500 year floods in three years in the mountains, to update the regulations and look at different ways to handle foot risk, versus a barrier island that just got washed away by a hurricane?

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Doug Parsons 46:00

Okay, so that's actually news to me, I didn't realize that there is such diversity in being a floodplain manager. And why do you think what's the history there that I mean, you have such diverse backgrounds, but you're here you're dealing with it, you just described that it can be a little bit different and each little bit a lot different. But why such different groups ultimately take on those responsibilities or I guess, different backgrounds? Well,

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Del Schwalls 46:21

it's very resource dependent in a lot of areas. And there's no uniform approach other than the nature of the industry as it's developed organically of what a floodplain manager means, you know, in a lot of areas, floodplain manager is not really a defined role. The ASF PM, the National Association, I mentioned, they've got a designation of a certified floodplain Manager, which is a minimum level of expertise and experience, you need to pass that exam and receive that certification. But so many of these communities, they don't have the resources to hire an engineer to run their public works department, or they don't have a public works department, or they have two and a half staff running the entire community. And it's either the mayor or the road crew, or the receptionist. So which one gets the hat? Wow. And I've had everything from a 911 operator, who would like to make maps who became the floodplain manager or tax officials very common. Get City Clerk's, especially when you get out west in areas that are very rural. A lot of the floodplain managers are often the city clerk or they're just the receptionist.

D

Doug Parsons 47:32

Let me see if I have this right, though. I was digging around and I found a quote that you gave during a presentation, please correct me if I'm wrong, but you said floods are going to happen. It is only a disaster when humans get in the way. And so what did you mean by that?

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Del Schwalls 47:44

Well, I wish I could take credit for that quote, okay. But that's a Gilbert white quote. And he's recognized as the father of floodplain management. But what it means is, if a hurricane happens, and a flood happens, and there's nobody in the way to get damaged, we don't call it a disaster. We call it an event, a hurricane in the middle of the ocean, is just there. But when you get human infrastructure, when you get humans in the way houses in the way roads in the way that can be damaged, then it becomes a disaster. There's the story that I heard several years ago, Alabama has done a really good job of mitigating flood risk in some areas. And there's a river in southern Alabama, there was a major flood that occurred, and the floodplain when the flood happened, and the river jumped in spikes. The floodplain was three miles wide. And I mean, land underwater, three miles wide. But it wasn't a declared disaster. Because nothing but a couple of homes got flooded because they had removed everything. So that was a flooding event, not a flooding disaster. Talk

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Doug Parsons 48:52

about and now that you've given me this background, I like floodplain managers could be from all walks of life. But how has data and technology informed your work? Because I'm sure it's it probably varies on what people are using, depending on the resources they have. Right? What are you using out there? Well,

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Del Schwalls 49:08

the data driven analysis question and issue is a really big issue in our industry that can move the needle or not. So you've got a lot of communities that have tons of resources that are using your latest ArcGIS mapping or QGIS mapping software, where they've got this mega computing system that can process tons of data, whether it be topography, rainfall land use, or and they can do the calculations and analysis to develop these really robust detailed floodplain models. And they have other areas where their floodplains have been drawn in basically, it looks like a five year old, took a crayon and just drew in everywhere, there's a tree and so when you've got that wide range of datasets that are out there to manage foot risk with but you've also got communities that don't have access to the data or the technology. So for me, I use a lot of different modeling software's I use HEC Graz, I use icpr, XP swim swim. There's so many different tools to both quantify how much water is running off when it rains. And then how fast it's going how deep it's getting when it gets in the river, and the lakes, and then the coastal analysis and analyzing waves running up the ocean, or running out the beach, and how far they get. So there's all these different tools to analyze this data. And then all these tools to visualize it. So produce maps produce datasets that show you how deep the water is going to get versus just giving you an arbitrary elevation, that may not mean anything. So there's, there's so many different approaches to this technology in this analysis. And now you have 2d modeling, which is changing the way analysis is done, that can really take complicated areas, and better estimate the flood risk. But the data is only as good as the tool you're using. And it's only as good as the way you're communicating it, I can make you 1000 Pretty maps. And if the data is 80 years old, it's just a pretty map. So

D Doug Parsons 51:13
have you you've used some of the outputs through the foreigner software, though, right? I,

D Del Schwalls 51:18
I've got some exposure to a lot of their datasets and their work. I haven't used the software and the tools specifically to develop datasets. But I have a lot of clients who are communities who have used it. So I've got some as mostly adjacent experience with it. I guess. That's

D Doug Parsons 51:37
all right. And so the these other communities that are using it, do you find that with the kind of modeling software tools now at the stage where people can really use them effectively, because sometimes even there's just not that expertise to use basic software? Well,

D Del Schwalls 51:49
a lot of the Forerunner software is very user friendly, but there's a wide variety of skill sets needed. So I've got got a community now who's talking about jumping in with both feet, but I'm not sure they have the expertise to use it effectively. And so we're looking at the options and kind of trimming down the buffet because their eyes are bigger than their stomach right now.

D Doug Parsons 52:13
Interesting. You've been doing floodplain management for a while. How would you say just I mean, flooding is in the news a lot lately, probably because there's a lot more people, but how has it changed over the course of your career? Just can you give us that 30,000 foot view of how it's changed? Well,

D Del Schwalls 52:28
so I started my career in DC, working on a FEMA contract and making the maps and learning the regulations from that side. And in the last 23 years, I've switched to being on the other side of the table supporting communities and doing analysis and helping communities navigate the federal regulations and how they interconnect with those state and local regulations. And in that time, the framework for regulating the flood risk at the federal level has changed very little. There's been some tweaks here and there a few adjustments to some of the policies. It's basically the same approach in a lot of ways or regulatory framework 25 years later, and flood risk has definitely changed, technology has changed. But it takes in an act of Congress, that phrase is not just a euphemism. It pretty apropos in a lot of this. So the the floodplain management, I guess, the main ways it's changed is that the local level ownership of flood risk and floodplain management has, I think, significantly increased due to necessity, in a lot of ways. And this is really the approach FEMA has been saying community should take for decades anyway. But when Big Brother gives you a map and gives you a set of rules, and you

can just follow that it's easy to get lackadaisical on kind of coast. But I think a lot of communities are taking ownership of this. And with the changes in rainfall patterns and sea level rise coming into play, regardless of where people fall on the acceptance of that risk. And those changes happening, they still see the results of it as you might have somebody who refuses to acknowledge climate change, yet, they're really trying to figure out why their streets are flooding all the time now. And so you don't have to convince somebody in the keys that the sea level is rising because it's in their yard, where it wasn't 40 years ago, you've got a community in southwest Florida, that they have no wake zone signs on their streets, because four or five times a year their streets are submerged in seawater. And so you'd have to convince those folks that it's happening. So I think that change is that local ownership. And I think that's a success. I think that local ownership is a measure of success of the floodplain management program over the last 40 and 50 years, and that it started at the federal level than the State's got involved. And now we've given our locals, the feet to carry this, you know, the tools and the expertise to carry this in a lot of ways. Unfortunately, a lot of times it's a ground up battle, because the federal one size fits all breaks down very quickly. Even a state one size fits all. Approach kind of breaks down quickly.

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Doug Parsons 55:21

You have experience in southwest Florida, and I think Fort Myers, specifically when Hurricane Ian hit last year. Can you tell me a bit about that? I think there were some issues there, right? Well, yes,

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Del Schwalls 55:33

yeah. So when Hurricane Ian hit, and it hit Fort Myers Beach and the Fort Myers area and getting through it causes significant devastation. But it's not the first time this has happened. I did a presentation at the Australian floodplain conference this year that was on Mexico Beach, which is up in the panhandle, and Mexico beach got hit by Hurricane Michael in 2018. And so you've got this major hurricane that hit an area that had not been hit in over 100 150 years as badly and just wiped out the community. And the initial response was, we need to do better. So the community paused, permitting for 90 days, so they could figure out, we don't know what to do. So let's figure it out. First, they got a new set of maps, they figured out that they needed to raise the regulations, the FEMA minimum that building code minimum was not enough. So they actually went in as a really wise City Commission, instead of doing a foot above Themis, elevation, which is the bare minimum, they went a foot and a half above the 500 year, everywhere. And so they recognize that hurricane Michael came through, and the wave was 14 feet deep, and my parents placed there. And then this higher regulation, the city enforced was only six feet deep. So still drastically under hurricane Michael. But they recognize we need to do better, we may not be able to protect everything to 14 foot wave coming through, if that ever happens again. But we wanted to do something better. Fast forward two and a half years later, and because of local pressure and political pressure, they caved dropped the regulations back to just a half a foot above the bare minimum. And so really forgot, quote, unquote, how bad it was, if not in reality than in practice. So fast forward to hurricane Ian coming through. And you got a barrier island, Fort Myers Beach in that coastal area that just got demolished. And a lot of the conversations that I've heard that have been part of have been, how do we build back exactly like it was before? I was interviewed on a local radio station there. And that was the conversation. Well, here are the rules. But how do we the phrase get around them

wasn't used, but it sure felt like that was the approach? How can we build them back on the ground? Well, you had a very large wave come through and wash everything away? Well, yeah, but that will happen again. And so this idea that Adam, it's behind us, let's move forward, the build back better phrase was never part of the conversation. It was built back cheaper. And so I actually have had to step away from my working relationship with some of these communities, because we've talked about what they need to do, and the refusal to do anything. But what they did before is heartbreaking. But at some point, I can't be a part of you refusing to change. And the quote even was said, what if we built up all these houses on piles, it won't be the community we had? And I said, you don't have the community you had to begin with? It's gone. What are you trying to recreate this perfect scenario to lose it all once again. So it's very frustrating, it is really difficult for me as a consultant, and being on the board of directors for these nonprofit organizations to walk away from a community like that, because I know the residents are the ones who are gonna be left holding the bag when the next storm comes through. But there's a lot of people who want help. And so at some point, there's only so many resources in time. So I have to focus on those who want help, and I can I can help and just hope the others learn before it's too late.

M

Mathew Langley 59:08

Well, that was

D

Doug Parsons 59:10

great. explanation was sort of happened. My in laws live in Fort Myers and half the year so they weren't there when hurricane in hit but they were when those tall condos near downtown on the south side of the river. And yeah, they had giant boats washed up on the base of these condos. It was truly a dramatic event. And I was following it a little bit afterwards. And I was curious, because this notion of like, we are just going to restore everything. And it sounds like they're taking a lot of the wrong steps. So that's certainly discouraging.

D

Del Schwalls 59:39

It really is. And it's to the point of where I know certain consultants in some of these communities have been told to you can still do the work but you can't speak. You can't come to a City Commission meeting and say anything, because we don't want to hear what you have to say. And these are the technical experts they've hired to do. I work, I feel really bad for the staff because the staff in these communities are caught between a rock and a really, really hard place and they want to do the right thing. But the political will the political pressure and the pitchforks marching down the street kind of mob mentality has been really hard to push back against. And I think that's one of the values of organizations like FEMA and ASF pm and corporate consultants like for runner who are helping drive this conversation and lead this conversation for those whose voices are being silenced. Well, Dell,

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Doug Parsons 1:00:32

I want to thank you for coming on the podcast. You're doing some really interesting work there. And thanks for sharing your story. Appreciate you having me on duck. Hate after joining me is

and thanks for sharing your story. Appreciate you having me on deck. Nice after joining me is Matthew Langley. Matthew is the floodplain administrator of development services for the city of Cedar Rapids, Iowa. Hi, Matthew, welcome to the podcast.

M Mathew Langley 1:00:52

Hi, Doug. It's a pleasure to be here.

D Doug Parsons 1:00:54

I think you're the first person I've ever had on from Iowa. But tell us a bit about Cedar Rapids. What's that city like?

M Mathew Langley 1:01:00

Yeah, Cedar Rapids were the second largest city in the state of Iowa, we have about 134,000 people, we've got a fair amount of industry and mixed development. And it's really starting to grow and take off. We've had a couple of big disasters in about the last 1214 years that one massive flood in 2008. And then a Deray CIO event in 2020. Both were major disaster events. So it's interesting time for our city.

D Doug Parsons 1:01:30

Okay, so you're relatively new in your position, right? Yeah,

M Mathew Langley 1:01:34

I've been here just a little over two years now myself, I'm originally from Oregon. So I've come all the way out here to be able to work with a city that's really interested in floodplain development and management practices.

D Doug Parsons 1:01:47

We're gonna get into some of the specifics of what's going on there. But tell us your responsibilities of floodplain administrator, what did they expect you to do in that position?

M Mathew Langley 1:01:58

For my position that includes day to day permitting management of the floodplain program development of the community rating system, a program developed by FEMA that incentivizes communities to go above and beyond standards for development practices, outreach,

messaging, and preparedness. And the farther up you go in program, the greater the discount your residents get on flood insurance. And so that's all automatic based on your rating. So it's something that is a big priority for our community.

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Doug Parsons 1:02:33

And can you give us some background about the flooding in your region, I mean, is flooding a major issue for the city.

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Mathew Langley 1:02:40

Flooding has been an on and off again, situation here for the city based on kind of what I've looked up and talk to you and looked into history of one of the biggest ones was, like I said, that flood of 2008, it exceeded the 500 year floodplain estimates, it ended up being a massive disaster event that wiped out whole neighborhoods really devastated put our downtown, something like 12 feet underwater, it ended up being an absolutely devastating city. And it's taken a long time, able to recover from that. And the city has been working diligently to incentivize regrowth and new development come into the areas where we can and build out longer paths. We have had some more recent flooding events as well in 2016. But those were pretty minor. And the city's response from what I could see was very, very fast. And they kept it in check and kept an eye on it throughout the events.

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Doug Parsons 1:03:42

And you just described some of the flooding challenges. But what are some of the other challenges that you faced there in that community? I guess that makes maybe your job difficult. I mean, are there a lot of resources available to do what you're doing? I mean, what are the broader challenges? I mean, it's the population supportive of what you do.

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Mathew Langley 1:03:58

So far, from my experience, the population has been fairly supportive. Having multiple disaster events in a lifetime really helps a lot people remember these events and because of how devastating they were. So there's a lot of community support and a lot of political support and city support as a whole for managing these. One of the biggest things is just keeping people familiar with the practices for these development projects as well. So when you're building the floodplain, there's special rules, especially if you're a homeowner, you may not always deal with these until you go to get a permit. And then you get a shock of well, you need these other things as well. We need these standards met. And so there's a lot of outreach and education that I'm really trying to do to help people understand and give them a friendly face a friendly point of contact come to for guidance on these and help them navigate that path so that we can make sure everything is built to a higher standard and better protected. Have you

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Doug Parsons 1:05:01

just alluded to that, but I'm going to ask you this specifically, maybe there's some examples. So

just alluded to that, but I'm going to ask you this specifically, maybe there's some examples. So what are your biggest flood related concerns? And you talked about flood history and such. But now that you're on the job, what are the different things that come up that you get, you're really concerned about what you have to do. Some

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Mathew Langley 1:05:15

of the biggest things is always going to be helping people understand that the FEMA maps that we use, they account for riverine flooding, that's our very specific type of flooding that we experience. So we get some consistent type flood events. And then we have some flash flood prone areas. But helping people understand that the lines on those maps are where at one point, the government had to call it for where those lines need to be they needed a baseline measurement. But that's not inclusive of the whole risk factor. So even if you're outside of that 100 year floodplain, that 1% annual chance, getting people to understand that you're still at risk, if you're outside of those areas, it doesn't account for rainfall, it doesn't account for these other factors that still have you facing a flood risk. And the fact that a lot of these maps are very, very out of date, flood maps are updated, either when a community initiates the process, which is a labor intensive process, or when FEMA is able to do a new detailed study of different waterways in your area, which they're trying to do that for the whole country. So it takes a while for them to get around to certain communities. We've got some new maps coming down that are updating maps that were last studied in either 91 or 82. And so there's a huge time gap. And we're seeing the floodplain increase to reflect the changes in development patterns, reflect the new analysis methods that are used that are better able to model the waterways, all these different things that people who were historically out, quote unquote, of the floodplain by the maps at the time, are now being shown as in which is to be expected, unfortunately, because it better models the risk for them.

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Doug Parsons 1:07:10

Okay, so you talked about it just briefly earlier. But tell us a bit more about this community rating system? What is that for? How do you work with that?

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Mathew Langley 1:07:18

It is a program that FEMA developed and works with communities on. It's a 600 Plus page manual that sits at my desk at all times. It tackles a number of things, it's female's way to encourage the community increases how much they are communicating risk and awareness and flood insurance to their communities. It encourages proper management practices of development in the floodplain. So making sure things like elevation certificates are properly maintained. It encourages having higher standards above and beyond what FEMA will requires as part of the National Flood Insurance Program. So things like communities who go above Themis requirement of the lowest floor of a building going to the base flood elevation, a lot of communities go above that, and we get credit for that. So here in Cedar Rapids, we require that the lowest floor be elevated to one foot above base flood elevation, and that includes utilities, mechanical, electrical, all that kind of stuff, too. But then there's also credit that you can get for developing these long range planning tools, planning for substantial damage. So when a disaster event hits, the city has a coordinated plan in responding to how do we assess these buildings? How do we move through the process of what FEMA calls substantial damage, and

what our ordinance calls as well. And so by having these planning tools for different things, different components of floodplain management practices, whether it's our warning systems or our, like I said the substantial damage plans, different things like that, and our hazard mitigation plans, linking all of these pieces together and then connecting to other risk factors like the stormwater programs and the drainage programs. FEMA recognizes communities that go above and beyond. And by doing that, we move up in the rankings, which is a 10 to one is how they do it. 10 being the lowest one being the highest. We're currently what's called a CRS six community, which is a 20% discount for our residents, that is automatically removed from their flood insurance premiums. So it saves our residents quite a lot on flood insurance costs because everyone knows flood insurance is not exactly the cheapest thing out there.

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Doug Parsons 1:09:46

I know this is an important part of what you do there. Explain your role, and I guess even your office's role in outreach and community engagement.

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Mathew Langley 1:09:53

So from our department is the department that administers the program, but This is also the first time that the city has had a dedicated, full time position for floodplain management. It's something that in a lot of communities is typically a hat on the hat or the third hat that someone might be wearing. And so a lot of what my role is really focused on developing that program, refining our outreach, really trying to ramp up what we're doing to raise awareness, develop these different tools and juggling the permitting as well. And some of that's internal discussions on getting a standardized process together and helping people internally know what it is that we need for floodplain management practices. And then also conveying that to the development community and to the residents. And then as far as the community rating system program, a big part of what I'm doing right now is developing different ways to communicate and talk to our residents and our developers to help them understand these risks and encourage them to take additional precautions to be aware of these things and to give them easier tools to look at what are the string gauges out? What are the flood risks that? Where can I find information on my property, if I have these documents, like an elevation certificate already, we're working on ways to be able to expand ease of access. And that's probably one of the biggest things that I'm really working on right now.

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Doug Parsons 1:11:27

Tell me a bit about how data and technology play a role in the work that you do.

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Mathew Langley 1:11:31

So a huge part of what I do big part of what the community rating system requires is, annually and every five years there's inspections of your program. And so we have to document things very, very carefully. And as part of that, there's been a number of different ways that we've handled that there's obviously internal file management systems permitting systems, use of the tool, the tool for render in particular has been something that's really helped streamline a

lot of what I've been doing, we have to be able to manage elevation certificates. It's something that's required of the CRS program itself. And as part of that, we have to maintain accuracy of those FEMA expects a 90% accuracy at every annual inspection to maintain participation with Yeah, it's a little bit of a high standard. And you get only one attempt to correct that if there are errors. So if you only have three elevation certificates in a yearly cycle, then it only takes one of those to drop you below that threshold. So it can be a little tight. But tools like Foreman are really kind of helped us manage and track and keep an eye on all that information, and then also making it publicly available to our residents as well. Whether it's through public facing map tools, where you can look at the documents, or we revamped our floodplain website to really try and increase the accessibility and understanding of the information. And we're constantly trying to figure out what our residents want and need. Typically, in terms of floodplain type materials, floodplain

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Doug Parsons 1:13:15

managers are in the thick of adaptation planning these days, it's what you're doing. So what advice would you give other floodplain managers out there or maybe in a different part of their journey and

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Mathew Langley 1:13:24

all this? One of the biggest things since I started in floodplain management, what really surprised me is it's a fairly tight community, fairly close community. You're not alone in this. We may be in different jurisdictions, we may be in different states, but we're all dealing with the same sets of rules and the same sets of challenges. And we lean on each other is probably one of the biggest things. I've got a few other floodplain administrators that I'll bounce questions, ideas off of, and they'll do the same with me. And it's such a strong thing to have different levels of expertise to be able to sometimes go paid. You know, the NFIP says this, how are you guys interpreting that it really helps strengthen and bounce off of ideas for how to interpret these and make sure that we're not going to trip on these federal rules. And ultimately, that's one of the biggest challenges. You know, communities are trying to make sure that we're meeting these federal requirements. And FEMA will sometimes come back at you and say, No, you're doing that wrong, you need to fix that. And so we're really trying to make sure we're doing that well, keeping our development practices moving forward. And being able to have a supportive community, whether that's at the conferences that AS certified floodplain managers were always interested in talking and going over these details and the challenges and kind of picking each other's brains so don't be afraid to reach out to another floodplain administrator You're, we're all in the same boat together. And so

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Doug Parsons 1:15:02

what do you hope to achieve in the next few years? You are, how are you going to prep and for the, I guess, the mid to long term, mid

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Mathew Langley 1:15:09

to long term one of the things that we're working on is and isn't a priority for me is getting to

in the long term, one of the things that we're working on is and isn't a priority for me is getting to the next CRS rating game, because CRS five for our community, and then getting us to a four. So it's a fairly big jump. But the benefits and improved resiliency and protection for our residents combined with the decrease in flood insurance is a huge benefit for our community. One of the things I should have mentioned earlier as well is that, you know, Cedar Rapids out of all of the communities in the state of Iowa has the highest number of flood insurance policies, and the highest total premiums of every other community within the state. And so for us being able to help protect our residents who have these flood insurance policies who some do or don't have the choice, whether they have a mortgage or not, the reducing that cost burden on them, while making sure that all future development is built to a better standard, so that we can bounce back from a disaster, so that we're handling that upfront mitigation and adaptation components to be able to adjust our behaviors. You know, there's a number of projects in the city going on that are working on adaptation, after the 2008 flood. But you know, we're also looking to how do we make sure that future development practices on the private side are built to a good quality, and the CRS program is a great incentive to help build towards that as well.

D Doug Parsons 1:16:47

Last question. cedarapids bills itself as the city of five seasons, what the heck does

M Mathew Langley 1:16:52

that mean? Oh, it has been a while since I've looked up the city of five seasons.

D Doug Parsons 1:17:01

Obviously, they don't force you to learn as working for the city.

M Mathew Langley 1:17:05

I'm a little bit out of info on

D Doug Parsons 1:17:09

luck and keep looking because your manager if they listen to this, they're gonna dock your bonus. You know, that's what

M Mathew Langley 1:17:15

Oh, that's right. It's based on a Bible verse, actually. Okay. And I've got the quote right here to everything, there's a season and a time to every purpose under heaven. So they added explanation to go with that saying that life is the sum of all seasons with wickets filled life. If we

have time to enjoy the things most important to us, life is rich and full indeed, in cedarapids, there's time enough time to enjoy the season as they pass extra time, precious time, a fifth season.

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Doug Parsons 1:17:48

I think it's my first Bible verse on the podcast. I was hoping it'd be just something goofy. I'm not here, like promoting one religion over the other but okay, there you go. I just saw it's on a logo there on your website. So I was just like what that all about Matthew, this has been great. You guys are doing some great work there. And thanks for coming on the podcast. Happy

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Mathew Langley 1:18:07

to and thank you so much for having me as well done.

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Doug Parsons 1:18:13

Okay, guys, we are back with Susanna FOA. Welcome back, Susanna.

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Susanna Pho 1:18:17

Hi, thanks for having me. Again.

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Doug Parsons 1:18:18

We just heard from some of your partners, they are doing some amazing work out there all over the place. We heard some interesting things around the places that they live. It was really cool to get to know these people. I just want to bring up too. And I brought that up with some of them is that I really didn't understand who floodplain managers are. And I guess you needed to sort of understand this when you were developing your software. But that could be like the tax person that now is also the floodplain manager.

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Susanna Pho 1:18:42

Yeah, that's totally right. And I think that was really surprising to us when we got started to is that a lot of our partners were an incredible amount of hats. And it gives them kind of superpowers and that they have expertise in all sorts of things. But you're totally right, that it also means that you know, when we are building software to meet the needs of floodplain managers, it's a really diverse set of people whose needs were meeting. Yeah,

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Doug Parsons 1:19:04

they were interesting bunch. So let's talk a bit get so this is flooding that's happening. Is there

anything you guys are working on going beyond flooding? What's sort of next for you and development?

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Susanna Pho 1:19:13

It's very timely question, because I think something that I think has made us sort of successful, since we founded is that we really sort of follow the needs of our partners. And so all of the features that we've built so far have really been based on the feedback of our partners. We benefit greatly from their feedback and their partnership and in developing the software, looking into the future. You know, along that line, a lot of our partners are pulling us into sort of expanded use cases, which is really exciting for us. So we started in floodplain compliance. But as we talked about earlier, we have started building out features into the post disaster space disaster recovery space, we're going to be sort of expanding the software to meet more needs as it pertains to flooding and sort of equipping residents with the mitigation tools they need to be success. Last fall, and then beyond flooding as you asked before, and we are our vision for the software is that it is a sort of total climate resilient software. And so we will be expanding to additional hazards in the near future as well,

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Doug Parsons 1:20:11

I have to ask because everyone's asking this question, how is AI playing a role in what you do? Is that like something under the hood? What is it? are you incorporating it? Because I'm actually using AI? In my podcast production? So is it playing a role.

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Susanna Pho 1:20:25

So for sure, you know, everybody's talking about AI these days, and AI does play a role in our software. So we use computer vision to extract data from floodplain permits in order to sort of generate insights for our partner communities, it's really valuable just because a lot of the documentation that floodplain managers typically have access to might be really valuable information. For example, you know how high a property is in a flood zone is really important to know, but might not necessarily be that accessible at scale. So one of the big things that we do is we extract the data from elevation certificates to make that data structured, geospatial a lot more accessible to our partners so that they can use it for everything from compliance to planning. Great.

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Doug Parsons 1:21:08

And I have to ask this, because I've done some climate modeling episodes, and they are extremely popular. So here I am working with a software company that obviously climate modeling is part of this. And so a lot of these models aren't necessarily reliable. And then you have local government entities, like people that we interviewed in this episode, that don't necessarily even know how to use it, or what's under the hood, how do you communicate to these groups that might not necessarily have the sophistication to even understand what you're doing with your software, and I guess, to have confidence that your software is up to snuff to do what it's supposed to do? Yeah,

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Susanna Pho 1:21:41

I think that's a, that's a really good point. And I think I remember that talking a little bit about sort of like how much data there is available, but how some communities might not be able to sort of do anything with it. And that's really sort of the space that we operate in. And sort of why we are so driven towards our mission is because you do really believe that there is an incredible amount of data available both at the fingertips of our partners, but then also just sort of in the world. And we're sort of in the business of making that data more accessible for day to day use cases. And yeah, I think your question was around sort of like how we communicate, when sort of there's a lot of complex technical, when we do something that's like sort of complex or technical. And I think the the way that we do that is by making our software really easy to use. So the software is built to be used without technical expertise, so that anyone who even if you don't, aren't very confident with computers, you can utilize it. And that's really the sort of design and engineering ethos that we bring to the table for sure. Because we want to make it so that everyone can sort of leverage data and technology in a way that empowers their work in

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Doug Parsons 1:22:45

I guess it's a little bit easier to with your software that you can ground truth, some stuff, because a lot of these things that come in like 2015 2070, you're actually just dealing with even flooding events that they're experiencing now you can actually ground truth it.

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Susanna Pho 1:22:57

Yeah, you're totally right, that, you know, a really great way to use our software is to sort of use it to cross reference some of these projections that our communities have access to with the ground truth data that they're bringing into foreigner. I think another important use case of foreigner is that the software is to some extent, kind of model agnostic. So we will bring in whatever sort of modeling our partners utilized to enforce regulations in their floodplains into the software. And that allows them to both have the flexibility to use whatever data they have, and they want to use, but it also sort of opens up a world in which they can use more sort of innovative forward facing modeling, because they can use a software like ours to be able to mobilize that data in a way that allows everyone to be able to access it.

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Doug Parsons 1:23:43

I want to follow up on this is that you mentioned that you've grown so much you had like 30 people here. And in my previous episodes, when I talked about these things, part of it is like these are highly technical companies that are doing climate modeling. And part of the problems on is is just interfacing with the public and explaining to them what these things are even capable of doing is communication. Are you hiring people like that? Is that something you think about?

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Susanna Pho 1:24:01

S Susanna Pho 1:24:04

Yeah, it is a really big issue, I think across the board, both sort of flutters communication, and then also climate change communication. So we talk with our partners a lot about that. And so a lot of the sort of ways in which we help with communication is through the software itself, in terms of making it so that our partners can more easily communicate flood risk to their residents. So in the past year alone, we've made a few improvements to the public facing websites that we create for our partners in order to make sure that they are communicating as much nuance as possible. And so some things that we've added are we've added the ability to sort of customize information requests from residents so that when residents are confused about flood risk, or they're confused about jargon or they're confused about terminology, they can be very specific in how they sort of ask for help from their from their communities. slivers communication is really a central part of what we do at foreigner and will continue to be a

D Doug Parsons 1:24:58

lot of times people who Get into the climate adaptation space don't necessarily know that they're getting into adaptation. They're just doing maybe disaster management and such. And so is that something that's talked about with your staff? Do you does your staff feel like they're doing climate adaptation work?

S Susanna Pho 1:25:14

Yeah, we talk about that a lot. And I think, you know, the team is very energized and mobilized around our mission. And so we're really lucky to have a team that feels very passionately about the impact that we have, and also sort of how it's growing. So we talk about that a lot internally, both sort of like how some of the smaller finer grain work that we're doing contributes to a larger mission of enabling climate adaptation, and sort of how adaptation is tied to sort of on the ground, just disaster recovery and on the ground. Code Enforcement, right. And so you know, when you think about floodplain ordinance compliance, you're not necessarily thinking, Oh, that's the secret sauce to enabling adaptation, but we really believe that it is, and that's why we do what we do.

D Doug Parsons 1:25:55

So if people want to learn more about what you guys do, what do you recommend?

S Susanna Pho 1:25:58

So if you'd like to learn more about what we do, feel free to send us an email, you can email me at Suzanna at with foreigner.com or go to our website, which is www dot with foreigner.com. Alright,

D Doug Parsons 1:26:12

Susanna, it has been great partnering with you. Thanks for coming on the podcast.

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Susanna Pho 1:26:16

Thank you so much for having me.

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Doug Parsons 1:26:22

Hate actors, that is a wrap. Thanks to everyone who participated in this episode. I want to especially thank Suzanna FOA and her team at foreigner for partnering with America adapts. I love sharing these stories that people actually doing adaptation work on the ground climate modeling and data are increasingly becoming critical tools for people doing climate adaptation work. So not all floodplain managers might think they're doing adaptation work. But as the climate changes and extreme weather increases, they will be at the frontlines of adaptation at the local community level. Definitely check out my show notes for more information on foreigner and the great work they're doing and links to my other guests and the communities they live in. Thanks again for everyone participating and sharing their story. And thanks again to foreigner for partnering and sponsoring this episode. And don't forget to submit an abstract for ICR 24 innovations in climate resilience Conference in Washington DC and this April. Links to the conference are in my show notes. I say this every episode reach out send me an email Tell me a favorite episode recommend guests and definitely share how the podcast benefits what you do. That's incredibly important as I plan these podcasts. It is the highlight of my week and I love learning about all the different ways people are adapting. I'm at America dabs@gmail.com Okay, so what's your adaptation story? Do people that you engage with understand what is climate adaptation? Are you finding that webinars and white papers aren't really resonating in ways that promote your work, we'll consider telling your story in a podcast. If you're interested in highlighting your adaptation story, consider sponsoring a whole episode of American apps sponsoring a podcast allows you to focus on the work you're doing and sharing with climate professionals from around the world. I go and location for some of these sponsored podcasts which allows you a wider diversity of guests to participate, you will work with me to identify experts that represent the amazing work you're doing. Some of my partners in this process have been the Natural Resources Defense Council World Wildlife Fund Harvard UCLA, but tell for runner, it's a chance to share your story with all my listeners who represent the most influential people in the adaptation space. Most projects have communications written into them consider budgeting in a podcast podcasts have a long shelf life much more so than a white paper or conference presentation. Many groups work into their communication strategies. If you work in a foundation, maybe you want to highlight the adaptation resilient work of your foundation or the grantees your funding. There is no better platform than this podcast to get the word out on adaptation to some of the most influential and active adaptation professionals in the world. And if you're interested in having me keynote speak at your conference or corporate event reach out more and more sectors are realizing they need to start thinking about climate adaptation. And for many in those fields, they have very low exposure to resilience and adaptation planning. I can speak to this issue and help you create awareness in your sector. Reach out I'm at America dabs@gmail.com Okay, adapters Keep up the great work. I'll see you next time.