

The Conch- TajaSimsHarper_FINAL.mp3

Julie Kuchepatov [00:00:04] Hello, my name is Julie Kuchepatov, and I'm the host of this podcast, The Conch. We are chugging along on our journey with this podcast talking about seafood and the ocean. And most importantly, we're showcasing some of the incredible people working in the seafood sector, sharing their journeys, examining the challenges they face and the triumphs they've achieved. Today, we are excited to have an amazing guest joining us. Taja Sims-Harper. Taja is a doctoral student in the marine biology department at University of New Hampshire, whose research focuses on microplastics in oysters and other marine life. Welcome, and thank you Taja for joining me today on The Conch. Let's go.

Taja Sims-Harper [00:00:46] Hey, Julie, thanks for inviting me. I'm happy to be here and talk to you today.

Julie Kuchepatov [00:00:51] Of course. I'm so happy to have you here, too. And, you know, you and I, we've been chatting a lot and we've also interviewed you before for another special podcast series. So welcome back and welcome to, uh, hopefully similar experience.

Taja Sims-Harper [00:01:06] Yeah, I'm excited. Thank you.

Julie Kuchepatov [00:01:08] Awesome. So, I want to know more about your research. So, you're conducting research, as I said, on microplastics in oysters and other marine life. So, could you tell us about what that entails and what do you do exactly?

Taja Sims-Harper [00:01:20] Yeah. So, I kind of started back in 20- I guess I started in 2020 during the pandemic. And one of the undergraduates that's in my lab, actually was looking at microplastics in sediments in Great Bay, New Hampshire. And I started asking questions about the water, the marine life there, and if anyone had ever looked into microplastics. It was starting to become like this big deal. And they hadn't yet. So I was curious to see if microplastics had gotten into Great Bay, New Hampshire, and from there, if it was affecting living resources, the non-living resources. So basically, what I do is I go out and I collect animals and water samples and I take them back to the lab and I digest the sample. So, I get rid of all the biological materials, and then all that's left is microplastics. And microplastics are less than five millimeters in size. So it's just a breakdown of larger plastics like milk jugs or plastic bags and things like that. So that stuff gets into the water systems and animals. And so, the digestion process is kind of just like taking all of that biological material out and leaving the plastic so that I can kind of quantify like how much plastic is in the sample. So in like a single oyster, I can see how much plastic they might have ingested.

Julie Kuchepatov [00:02:56] How do they ingest it? Oysters specifically.

Taja Sims-Harper [00:02:59] They're filter feeders. So, when they're filtering like their food in the water, because microplastics are so tiny, they can actually also filter those into their systems.

Julie Kuchepatov [00:03:10] So what other animals are you looking at when you're out there collecting animals?

Taja Sims-Harper [00:03:14] So I've looked at oysters, crab species and fish so far.

Julie Kuchepatov [00:03:23] So anything bigger than that, like, I mean.

Taja Sims-Harper [00:03:26] Nothing bigger.

Julie Kuchepatov [00:03:27] Like a deer? No. Anything like that?

Taja Sims-Harper [00:03:30] No. I'm keeping an eye on the water right now. Just to keep to what I know.

Julie Kuchepatov [00:03:35] And you do this, you take these samples every day or what's the schedule there?

Taja Sims-Harper [00:03:39] So I'm kind of done with that ongoing part. But we would go out every week, twice a week to collect water samples. The oyster samples I collected just a month in the summer. And then the fish samples I was getting from Fish and Game, and that was throughout the summer. So that was, I think, from June all the way up until August.

Julie Kuchepatov [00:04:03] So what's the digestion process? What is that? Is that chemicals or how do you do that?

Taja Sims-Harper [00:04:09] Yeah. So basically, I'll take a mixture of bleach and potassium hydroxide. And I'll basically take an amount from both for an oyster for example. I'll take the whole oyster out, shuck it, take all the meat and put it into a beaker. And then I'll pour like a 1-1 kind of diluted potassium hydroxide and bleach mixture. And I'll put it in an oven, a 60-degree oven for about upwards of 48 hours or more if need be. Those take a long time to kind of break down all the tissues.

Julie Kuchepatov [00:04:49] And it smells good?

Taja Sims-Harper [00:04:52] So bad, so bad. Oh my God. Bleach is already a strong scent. And so it's a bleach and then you're breaking down tissues of an animal.

Julie Kuchepatov [00:05:02] So the bleach doesn't break down the microplastics. But they're not visible. Right. Or they are visible?

Taja Sims-Harper [00:05:08] You can't see the microplastics with your naked eye most of the time, depending on how big they are, because they kind of range. So that's why I need to use um, the filtration process. So, they go on to a filter, and then I'll take that filter and put it under a confocal microscope, which is just a fancy microscope that takes images, and it can go all the way down to their size. So, I'm getting ones that are about like that same size so point like five millimeters in size. And so, it'll look it up and it'll see it and it'll take an image of the sample.

Julie Kuchepatov [00:05:49] Can you tell what it came from? You mentioned like milk jug or plastic bag. Can you tell?

Taja Sims-Harper [00:05:54] So when I send the sample out, I've been sending it to UMass Amherst because they have a machine down there that is called an LDAR machine. And that's just like a more fancier machine, microscope. And basically, that machine will tell you specifically what type of plastic it found in the sample. And from there

I can kind of like piece together like where it may have come from, or at least a couple of places it could have come from, but it kind of just tells me like what kind of plastic it is.

Julie Kuchepatov [00:06:27] You mentioned that you're done with the collection portion of your research. So now you're writing this up into a paper for your dissertation or what's next?

Taja Sims-Harper [00:06:37] That is the goal. So yeah. So basically, now that I've collected that portion right now, I'm just analyzing. I finished the oyster samples and I have a couple crabs I have to dissect, but it's mostly water samples I am focusing on right now, just like analyzing them because there's so many of them. So right now, I'm just analyzing. I've written like, you know, the introduction and kind of like my methods are all finished, but I can't really hit the results or the discussion until I kind of finish all this analysis part of it. So that's where I'm at right now.

Julie Kuchepatov [00:07:11] But are there going to be some recommendations coming out of this paper, or is it purely like this is what's happening here at this time?

Taja Sims-Harper [00:07:19] That's basically what it is. It's like I kind of look at it as a baseline. So, I'm kind of just coming out like we don't really know what's happening. So here's what's happening and this is what I found. And then from this I'm hoping that we can kind of say like okay, so better regulations that could come out because of this. Is their policy changes we can put it into place now that we know and people can actually read and see numbers because I feel like people react a lot to numbers? You know, if you just kind of like talk to people, they're just kind of like, okay, and then kind of move on. But if people can actually like see numbers and understand what's happening, then I feel like it's a little bit easier. So that's kind of where I'm at with that. It's just like telling people what's happening and putting numbers to like what we're actually talking about.

Julie Kuchepatov [00:08:05] What are a couple of the most important things that we need to know about microplastics in marine life and how they affect it?

Taja Sims-Harper [00:08:12] So I think the biggest thing is we're noticing that marine life it's affecting their biology, their reproduction. Like with the fish. I was looking in two different areas so like their liver and their tissues. So, it kind of affects their overall function. And because of that, if they don't reproduce, we don't get more fish in, you know, less than that. And so it's like we'll lose our fish supply. And I'm not saying that the amount that I found is, you know, gonna do that much damage, but we also don't know. So that's kind of what I'm doing. So yeah, it's in their organs it damages their organs.

Julie Kuchepatov [00:08:49] Right.

Taja Sims-Harper [00:08:50] May cause some diseases because it is a toxin.

Julie Kuchepatov [00:08:53] Are there other similar types of research happening in other water bodies around the U.S. that you know of, or people are just getting started, kind of like you?

Taja Sims-Harper [00:09:01] I think that since I've started it, there have been a lot more papers. So, when I was first researching, I got a lot of papers out of China. So, there's a lot going on over there. And then the Chesapeake, there's like a couple of papers that have come out. So, I know that they've been doing research down the Chesapeake. But more

than that, I have not seen personally but I know there's probably a ton of papers that, you know, have not released or I haven't seen.

Julie Kuchepatov [00:09:29] You're leading the way for sure in this research. Do you have any recommendations for what we can do to prevent microplastics from ending up in our ocean as individuals? And I get it like, don't throw your, you know, bottles or your waste into the water. That's probably a good recommendation. But is there anything else that you can suggest?

Taja Sims-Harper [00:09:48] I think the biggest thing is plastic bags, and just being more aware of how you throw away your plastic and making sure you do recycle. And I guess paying attention to yourself because I feel like a lot of people will be like, oh, well, it's just one plastic bag, but a billion people say that. So, then there's more plastic ending up in the sewers and in the ocean. So., I think just being more self-aware of how like when you go grocery shopping and maybe buying more glass instead of plastic, I know that there's a place actually that just opened here that is, I forgot what they are called, they are like the refillable. You can get toothpaste, tablets, and reusable bags, and you go there with actual containers, and you can fill up dishwashing liquid and hair shampoos and conditioners. And it's like reusable stuff. So they're really green. So, I love that. And so doing more of that I think is probably what's in the future. People should start doing a lot more.

Julie Kuchepatov [00:10:53] Yeah, that's great advice and I hope to see those stores popping up more and more. I know exactly what you're talking about, and I also don't know their name, but we can try to find a name and put it in the show notes. I think we also had on here the show in season four, Dr. Tracy Ferrara from NOAA, who was talking about red tides and algal blooms, harmful ones. And she was talking about there's like no local problems, really. So this is a real universal recommendation, I think, for everyone. Right? Like everybody pay attention to your waste. Everybody pay attention to how you're shopping and how you're discarding the things that you use. And if we all did that, there might be a lot less microplastics in the ocean and in our waterways.

Taja Sims-Harper [00:11:34] Right.

Julie Kuchepatov [00:11:34] Right. So, what do you hope to do when you graduate? When are you graduating?

Taja Sims-Harper [00:11:39] Great question, Julie.

Julie Kuchepatov [00:11:41] That sounded very pointed, and I didn't mean it that way. I meant; I hope you're on track to graduate. I'm sure there's some sort of light at the end of the tunnel. So, what do you hope to do after you graduate?

Taja Sims-Harper [00:11:52] I'm having a committee meeting after Thanksgiving, so we're kind of figuring out my exam process. And once I take that, then I just need to do my experimental design this coming summer 2024. And then I'm officially done collecting everything. So, it's a lot of analysis and writing. So, I'm hoping to graduate. Okay, I'm going to say two years, but I'm just putting that as like my goal. And then if it goes another semester, that's okay with me.

Julie Kuchepatov [00:12:21] That's okay. It's okay.

Taja Sims-Harper [00:12:23] So hopefully two years.

Julie Kuchepatov [00:12:26] Sounds like you're kind of midway and really on track, and that's a real big accomplishment. So, congratulations on that. And I really look forward to reading your paper when it comes out. Is that what the goal is also is to be a published paper or how does that work?

Taja Sims-Harper [00:12:42] I have different chapters of my dissertation or thesis, and so each one is like its own separate paper. So, I'll have one coming out that's just about like the living and non-living resources. And then another one about the experiment that I conduct. Then there should be I think I have like four different chapters that I plan on doing. So therefore, technically separate papers that I should be writing that that'll make up my entire thesis. So they're all in the works. Just everything hasn't been analyzed. So, they're all kind of like on a pause until I finish analyzing everything.

Julie Kuchepatov [00:13:19] That sounds like a lot of work. I know you can do it. You have the tenacity. So, what drew you to this area of study? Was there a particular life changing moment or sudden realization? I mean, you mentioned that you were with a colleague that was doing something similar, an analysis about microplastics. And what was your journey to get to where you are now?

Taja Sims-Harper [00:13:39] It was a long journey, but basically. Originally, I'm from Oakland, California, and this kind of career is not something that is discussed or even I feel like known about. So, growing up is not something I thought I could do. I just knew that I really loved being next to the ocean, and I loved animals. And I almost became a vet, but just decided not to. And then I applied to the University of Maine because they had sent me a brochure about getting straight into the career. And like my first like semester, I'd already be taking marine biology classes. So that is kind of what drew me to that. And I also just wanted to get out of California for a little bit. So, I got on the plane and went to Maine, and did four and a half years, sounds like a jail sentence, I completed four and a half years.

Julie Kuchepatov [00:14:33] You completed it, yes congratulations.

Taja Sims-Harper [00:14:35] Of my undergrad up there. And I had a mentor there, Dr. Paul Rawson, who is an ecologist, and he's the one who got me into oyster work. And so he brought me one summer. I stayed up there and he brought me to a couple of oyster farms and kind of just, like, introduced me to the world of oysters. Before that, I was not sure what I wanted to do. I was super into nudibranchs because they were super pretty, and that was the only reason that I loved them. I also love manta rays, so I was like, I could do something with them. But it was very much like, I just love being on a boat, and I love being near the ocean. So, it was kind of like, I don't really know what I want to do. So, he's kind of the one that introduced me to where I'm kind of at now. And then after I graduated a few months later, I applied to The Nature Conservancy in New Hampshire kind of on a whim, and I got this internship where I did a conservation restoration project in Great Bay with oysters, where we were trying to find the recruitment of the oysters and the oyster beds that are out there that they had been putting out there for a couple of years when I was there. So, I did a project there and I was like, I love this, and this is what I want to do. And just being out on the water and using my hands and building something and getting results is like super awesome. So that's kind of what led me to that world. And then I decided to go back to school, and I moved back from Oregon because I was living there at the time. And so, I started school and I just decided to do microplastics and kind of where all that led, I guess.

Julie Kuchepatov [00:16:25] It sounds like you had kind of just a series of events and people along your way that influenced your path to get here.

Taja Sims-Harper [00:16:33] Yeah, for sure. I think a big part of just like finding your path and kind of figuring it out, and I just talked about this the other night is here in this career is like, I guess some of it's by chance and some of it's by really hard work. If it's something you really want to do, you can absolutely do it. And you just have to really find those people that are willing to, like, give you a chance and believe in you. So that's a big part of it. So, I thank all those people for helping me get to where I am now.

Julie Kuchepatov [00:17:00] You mentioned recruitment. Can you explain what that is really quick?

Taja Sims-Harper [00:17:04] That's just like when oysters have their kind of like mating season. So, the male oysters kind of shoot their sperm up and then the females have their eggs and they shoot it all up into the water column, and then they kind of join. So basically the project was they were building oyster beds throughout Great Bay, and they wanted to know if they were reproducing and if there were live oysters, if there were live oyster beds. So, my job and what recruitment is, is, is figuring out if there are babies that are being spawned. So that's basically what my job was. I was building these like cages that had tiles on them so hard surface for them to like stick onto and seeing if we were getting any recruitment. And I think that year, I think it was 2018, we actually got a lot, which was really awesome. So that means that we had healthy oyster beds. Oh, basically what that was.

Julie Kuchepatov [00:17:58] That's amazing! Good job. So, let's talk about Minorities in Aquaculture. And you are a member of Minorities in Aquaculture. And we've had the CEO Imani Black on the program, I think back in season 2 or 3, honestly, I can't remember now, but I'll definitely put it in the show notes. So, what drew you to become a member of Minorities in Aquaculture?

Taja Sims-Harper [00:18:20] I love Imani. So basically the year that she started it, which I think was 2020.

Julie Kuchepatov [00:18:28] Yes.

Taja Sims-Harper [00:18:28] So when she started it that whole year, I think I just moved down to New Hampshire from Portland, Maine, and I was talking to a friend of mine who works at the Nature Conservancy. And I was like, man, I said, it's great that I'm here, and I appreciate everyone who's like giving me this opportunity. And I was like, it just feels a little isolated because I'm kind of the only Black woman in my program, kind of the only Black woman I feel like around in, you know, Durham because I really hadn't found my group yet. And so, I was talking to her about it, and I was like, it'd be cool if I could meet other women of color who were in this, like, industry in some form or fashion, just to like, connect with who I feel like would understand me a little bit more. And then my friend found Imani's Instagram and she sent it to me. And I immediately went to the messages, and I messaged Imani and this warm message about how I was just talking about this and how this is amazing and like, when did she start? And are there members and like, how can I join? And I was just super excited. And then we had, uh, initial meeting, I think (unintelligible). And then I told her what I was interested in, what I wanted to do, and we ended up meeting down in Connecticut at Green Wave because I was super interested in kelp for a little while too, and that's kind of what started it. And from there it's just been like,

amazing. I've been given a lot of opportunity through MIA and Imani has been super, super supportive and like the whole group has been super supportive and meeting a lot of women of color all over the country has been amazing. Just like knowing you're not the only one and you can call on, you know, kind of like your tribe to, if you're having issues, it's like, okay, this is my problem and I know it's not just an academic problem. It's not something I can just like, go talk to someone in my lab about, like, I need to talk to someone who I feel like understands my background. So, it's been super, super helpful and awesome just to have that group. So, I'm so happy that Imani started it and it's still running and it's been amazing. So.

Julie Kuchepatov [00:20:41] Yeah. I mean, I can't emphasize how great, well, like you said, Imani is great and how great Minorities and Aquaculture is, and we tend to be at the same events in the same conferences. And so we've also even with you, right, we've even been able to hang out in real life. And I know just the incredible value and support that Minorities in Aquaculture provides to you and other women in aquaculture. It's really, really amazing. And we've also had Anoushka Concepcion on the program who is on the board of MIA, so.

Taja Sims-Harper [00:21:15] Yes, she is. And she's also amazing.

Julie Kuchepatov [00:21:18] Yeah. She's amazing. We're big fans of Minorities in Aquaculture and definitely support when and where we can. So, you mentioned, you know, the opportunities that you've received through being a part of MIA and you were not only a member, you were an intern last summer. So, what did that entail? Tell us a little bit about that.

Taja Sims-Harper [00:21:36] I got to intern at two women-owned farms up in Maine. It was Nauti Sisters Oyster Farm, which is owned by Alicia Gaiero, which is in Yarmouth, Maine, and then Lane's Island Oyster Farm, which is owned by Amanda Moeser. And so I was able to go out and work with Alicia half the summer, so I think the first half. So we pulled a bunch of cages up. We were sorting, we learned how to kind of sort through the sizes of the different oysters, what was sellable, what was like a year old, what was still needing to grow, separate them in the bags and do that the first half of the summer, and then the second half of the summer with Amanda, it was more of that. It was also learning how to build oyster cages and what the different sizes were of the bags. And both of their farms are different. So, Alicia's farm is in deeper water, so she has a lot of floating gear, and then Amanda's farm is a lot more shallow, so her bags also float. But because of the tide, a lot of the time they are just exposed. So, seeing the different types of farms and the different gear types was super cool and interesting. And that's why I wanted to start because I was like, this is great, I'm in it, and I could just stop school now and just become an oyster farmer but I'm going to finish.

Julie Kuchepatov [00:23:11] That's great, I mean, it's a lot of work, right? I mean, it's a lot of physical work.

Taja Sims-Harper [00:23:15] I love it, it is a lot of physical work. It's early morning. That's lifting heavy, heavy cages, heavy, heavy bags and pouring a bunch of bags. We have gloves, so we weren't cutting our fingers up, but it is a lot a lot of physical labor, but it is absolutely, for me, worth it at the end of the day. You know, I just have to get into yoga and start stretching a little more.

Julie Kuchepatov [00:23:39] You have to actually work out in order to be out there because it's so labor intensive, right?

Taja Sims-Harper [00:23:45] Literally, yeah.

Julie Kuchepatov [00:23:47] So obviously we saw you this summer in Maine when we were there, like I said, recording a different podcast, and we met Alicia and Amanda, and there's just such a great female, woman presence there in the oyster scene in Maine.

Taja Sims-Harper [00:24:04] What did Imani tell me, she told me that I think we have the most women oyster farmers up in Maine. I think it's like the heaviest. I don't know the word for it, but.

Julie Kuchepatov [00:24:12] Concentration, maybe?

Taja Sims-Harper [00:24:14] Yeah, that's a good word. Yeah. Yeah.

Julie Kuchepatov [00:24:16] That's really interesting. I believe that. But also again, the data collection is pretty poor probably. So, it's maybe a little bit of a guesstimate. But I mean we met a lot of women who are farming out there. And you recently became an oyster farmer. So tell us about that.

Taja Sims-Harper [00:24:30] I did, so I got inspired this summer. I've been working with Amanda for a while now. I think actually one of the big things that Imani did was she actually introduced me to Amanda. And from there I, you know, started going out with her and helping her on her farm. And then I was, you know, telling her about how I wanted an oyster farm. And I just kind of wasn't sure. And so, she has enough space on her farm where she is allowed to, just like let people kind of, like, test out the waters. So, she allowed me to do that, and she kind of for me helping her. She paid me in oysters. So, I got like a year-old oysters from her at one point that were growing. But then I decided to buy my own oysters for this season, and I ended up doing that. And now I have who knows how many thousands of oyster babies growing. But she's been super, super helpful, and she's kind of been just like walking me through stuff and showing me the ropes and explaining, you know, at what time I need to take the oysters out. And they grow super fast. So, you have to transfer the bags and make sure that they have enough room to grow and how to sink the lines and how to do a bunch of stuff. So, she's been super, super helpful just in the ins and outs of farming.

Julie Kuchepatov [00:25:56] She's literally showing you the ropes. She's showing you ropes, that's a dumb joke. Okay, so you planted the seeds, right? Is that what they're called?

Taja Sims-Harper [00:26:07] Yeah. So, oyster babies are seed. Yeah, I bought them from the hatchery up there.

Julie Kuchepatov [00:26:12] And then you planted them this past summer. And so, when will you be able to harvest them?

Taja Sims-Harper [00:26:18] So they take about two years on, like, the smaller side. But three years usually is when you want to start selling them because those are the marketable sizes. People are starting to like the smaller sized oysters. So two and a half

years is probably when recently I think they've started coming out. But I think three years is the time that you want to start selling them and marketing them and taking them up.

Julie Kuchepatov [00:26:43] Sounds like it's going to coincide with your graduation. So perfect timing.

Taja Sims-Harper [00:26:46] That's exactly why I started it now. So, I would have a little business when I graduated.

Julie Kuchepatov [00:26:53] There you go. You mentioned you were helping Alicia and Amanda tend to their oysters. So, do you have to go do that yourself? And how often do you have to go and, like, rotate them or do whatever you have to do?

Taja Sims-Harper [00:27:05] It's easy. And the reason why I started it now is because there's not a lot that you have to do initially because they kind of just need to grow. But yeah, you do have to go out. I have been a bad oyster mom. I've been super busy with school, so I haven't gotten out there since we kind of like put them out, but Amanda has been out there. I think she usually goes few weeks at a time, like in between so she'll like go out, maybe October one time to check everything, maybe once in November or something. She puts them down before she leaves for wherever she goes on vacation. And I think she usually goes out like once a month just to check on them and make sure everything is settled in there. So, I've been trying to catch her on those times, but yeah, I just haven't been able to get out. But I'm trying to get out there so I can winterize them, and they can just chill for the next couple months before we take them back out in April.

Julie Kuchepatov [00:28:01] How do you winterize them?

Taja Sims-Harper [00:28:03] So that just means that I take the bags that are floating that have the oysters in them, and I take the floating parts off so that they sink to the bottom. And so, throughout the wintertime, just so they don't get damaged by the ice, they sink and just sit on the bottom for the whole winter. It's pretty cool.

Julie Kuchepatov [00:28:19] That does sound cool. And that could it be its own podcast. Honestly, on the surface it sounds like maybe it's not that intensive, but I think it is. I think there's a lot more to it. We're just scratching the surface, honestly. So how does climate change factor into your work with the research on microplastics or as an oyster farmer, what are you thinking there?

Taja Sims-Harper [00:28:41] You know, we all know that the waters are warming, temperatures are increasing, especially in the Gulf of Maine. And so, I think the biggest thing is just with the temperature increases we just have to watch kind of the oysters a little bit closer to see, because I think they usually spawn. I'm going to say in like June, July when it's like warmer. I think with climate change it might start to become like an earlier spawning. So, if you're trying to like, you know, do hatchery work or experimentation or something like that, it's like you just have to kind of watch the temperatures because they may be changing with climate change. As far as like my microplastic stuff, I think in general plastics degrade a lot faster, the warmer it is. So, I think with the increase in temperatures in the waters, I think that any plastic that is in the water is just going to start degrading a lot faster so we're going to have like an uptick. This is all potential. Potential uptick in microplastic quantities in different waterways and stuff is my guess. And my thoughts on that.

Julie Kuchepatov [00:29:54] That leads me to think. Are there any kind of tests on food for microplastics?

Taja Sims-Harper [00:30:01] Part of my experiment it's called depuration. And this is only what I've been researching is they use this thing about depuration where they'll take shellfish, usually oysters or mussels or whatever, and they put them in these big tubs, and these big, like baths are full of really clean water. So, they have no toxins. They have, the water is like pristine. It allows the oyster to filter that water through its system and it cleans out its toxins. So, this is used for any shellfish that's grown in an area that is not permitted, I guess. So, they can take them to these facilities, they can clean them out. And after about 24, 48 hours, they're completely toxin free. So, my experiment is basically looking at can the same thing be done with microplastics? Can they filter out the microplastics that are in them completely and clean themselves out of the toxins and microplastics, whatever's in them? So that's kind of what my experiment is looking at. I don't think there's any other test that I've seen that people do for plastics.

Julie Kuchepatov [00:31:19] Well, that sounds absolutely fascinating. Just curious, because I remember reading something recently that they found microplastics in breastmilk. And so, the idea is to stop that from getting into the food before it gets into the food.

Taja Sims-Harper [00:31:31] Yeah.

Julie Kuchepatov [00:31:32] I guess I never knew, or I mean, maybe we should do a little research also for the show and put it in the show notes, like what's happening? And that makes it even more interesting to look at your research afterwards and see how did that experiment turn out. So, I'm very excited to see that. So, do you have a favorite seafood memory? And it could be good or bad?

Taja Sims-Harper [00:31:51] All of my seafood memories. I think I shared this in the last one because it's just the most ridiculous one, but it is quite the most memorable. When I was younger, I went out on my birthday and my uncle took us to a seafood restaurant in Jack London in Oakland. I was pretty young, I was maybe turning 15 or 16, and I didn't eat oysters at the time. I thought they were gross. But, you know, I'm getting older and I'm thinking, you know, my palate is more sophisticated. And so, my mom's, like, order some oysters. And I was like, yeah, let's do that. And, um, I had just gotten over food poisoning. So that was probably the worst idea she could add. I ate an oyster and immediately puked, so it's just really funny that I'm in this business and I actually love oysters. So that's the biggest thing. That's memorable thing I can come up with right now.

Julie Kuchepatov [00:32:50] It's a full circle moment.

Taja Sims-Harper [00:32:52] Yeah.

Julie Kuchepatov [00:32:52] This you've actually adapted to those strange, odd little creatures and now you love them.

Taja Sims-Harper [00:33:00] Yeah. Not without horseradish and hot sauce sometimes.

Julie Kuchepatov [00:33:06] Okay, good to know. So, I'm going to switch gears here a little bit. And we're going to talk about gender equality in the seafood sector. And you know SAGE is all about that promoting gender equality in the seafood industry. You kind of span

two different kind of sectors between academia right and the seafood industry. So I was curious if you could share 1 or 2 aspects of either industries or academia or seafood and their culture that may contribute to inequality in the sector? And what are some of the things that the industry or academia can do to lessen these inequalities.

Taja Sims-Harper [00:33:39] Academically, I can speak as both a woman and a Black woman, especially in this kind of area as a career. I think that historically it has been marine biology is a lot of older white men. So, coming into the industry as a woman is already strange for a lot of people. And then I am not going to say we've gotten over that hurdle but there are a lot more women in marine biology academically that are doing amazing work. I think as a woman of color that brings a whole nother kind of aspect to it. And part of the reason why I love Minorities in Aquaculture is because I'm seeing a lot more women of color all over the map in marine biology, in aquaculture, and just different aspects in academia who are becoming masters' students, their doctorate. It's bringing a lot more light to women and then women of color also. So, I've been seeing a change in the past couple of years in that, but it is still a little bit difficult. I feel like you get the question, oh, are you qualified and what makes you qualified? In my head, it's kind of like, what are you doing here? There's no one like you here. Do you even know what you're doing? And it's like, I know as much as the next person in my lab or my sector or whatever. So that's, I think, both an internal and an external struggle for me, just knowing that I do belong in these spaces and that I do know what I'm talking about. But it is hard when you don't see people like you, and you get a lot of that imposter syndrome because of it. So that's something that I think I've had to work through internally, but I've also gotten a lot of outside pushback from different professors or even other women and certain points like you're not doing well, so like you should change your major or you should change what you're doing. And it's just like, I think I went through those hurdles. It happened. I pushed through because I know that this is what I want to do and I'm doing it. So, kind of with that aspect that for ended up academically, that and then as an oyster farmer and new oyster farmer, luckily, I am growing oysters in a state where there are a lot of women, so there is a lot of support. But I have talked to other women and women of color who are in the aquaculture industry, who have gotten a lot of pushback, a lot of there's some, you know, sexual harassment stuff and things because it's predominantly men that do this kind of work and do aquaculture. So, it's kind of pushing those boundaries and pushing that and kind of, I guess knowing that you belong and that there is a community for you, it's just you have to fight sometimes to be heard.

Julie Kuchepatov [00:36:47] This is really, really helpful insight, I think, and really valuable. And I want to reiterate the value that Minorities in Aquaculture MIA and there's other groups. We had Dr. Nikki Traylor Knowles on the program. Also, I want to say maybe in the first season who founded BWEEMS. So, it's Black Women in Ecology, Evolution, and Marine Science. And I will link them to this episode too, because they're also doing important work of bringing people together and representing that there are people like you, like us in these spaces and absolutely have amazing contributions and skills and have a voice. It's really, really special.

Taja Sims-Harper [00:37:35] Yeah, I think the biggest thing, and I just talked about this the other night, was kind of like reaching just deeper into like, where are the women who are super interested in this? And like, where can we find this? Like one of the interns that I worked with in Maine, she's from Indiana, and she had never been on the water, and she'd never driven a boat. She didn't know what oyster farming was, and she kind of just wanted to try something else. And I feel like without programs like MIA or like Minorities in Shark Science or like groups like this, that kind of, I guess, reach out and bring these

opportunities to women and wouldn't be possible for her to, like, have done it. Or like she learned how to drive a boat and now she's like basically an oyster farmer.

Julie Kuchepatov [00:38:23] Yeah. I mean, that's incredible. Yeah. And to go from Indiana to knowing how to drive a boat, like, I don't know how to drive a boat, that's amazing, I love it. Yes. That's another amazing organization MISS, M-I-S-S, that you mentioned. And we'll definitely put them in the show notes as well. So how can SAGE support you as a woman in seafood?

Taja Sims-Harper [00:38:45] I think just doing stuff like this, like really showcasing the voices of women who are in the industry, who are oyster farming who are doing anything in aquaculture or anything that has to do with equality of the work, you know, either in the ocean or agriculture or wherever. A lot of these fields were male dominated. So, you having this podcast, like giving voices to women in the industry. That's like a huge, huge help I think to women.

Julie Kuchepatov [00:39:15] That's great. And I appreciate that because I love this podcast and so we're going to continue to uplift and amplify voices as much as we can. And again, you know, this podcast is really also to inspire people working in or thinking about starting a career in the seafood sector. And you represent the person that I envision as a listener of The Conch. So, I'm hoping you could share some advice for people who are thinking about starting a career in this exciting sector, or maybe farming oysters or becoming an academic. Well, a couple pieces of advice, or maybe one piece.

Taja Sims-Harper [00:39:52] I would say, I guess for all those, if you really want to do it, don't listen to people that are doubting you and just find the people that are going to support you and really give you the opportunity and chance to figure out if academia or oyster farming or any aquaculture is something that you really want to do. So, it's something that you want to try, even just do it. Don't listen to people that tell you no.

Julie Kuchepatov [00:40:19] I love that advice. I totally agree with that. So SAGE is about uplifting and amplifying diverse voices in the seafood industry, and this podcast is one of the ways that we do this. So, I'd love for you to take this opportunity to uplift someone. And so who would you like to uplift and why?

Taja Sims-Harper [00:40:37] My biggest thing because after this, besides just oyster farming, I definitely want to get into education. I want to see more women of color in aquaculture, even though I feel like there's a large amount of us that I've started popping up. I think starting to teach them younger about aquaculture and about life on the water is super important. So, I would just like to shout out all of the younger generation and let them know that this is an option for a career. So yeah.

Julie Kuchepatov [00:41:12] I love that. And I think you're right, it's super important to educate people. Like you said, you didn't even know this was a thing right back in Oakland. And I think there's a lot of people thinking how can we bring this to the youth so that they all understand that being in aquaculture, even if you're living in Indiana, you can do something. You can get out on the water, even if you're living in Oakland or wherever. And this is a great opportunity. It's a great living. Yeah. It's delicious. It's good for the environment.

Taja Sims-Harper [00:41:43] I get a lot of perks. I go to parties and they're like, here's a couple lobsters and like, just okay for free. I can just have, okay, cool. Yeah.

Julie Kuchepatov [00:41:51] And then you have to figure out how to cook it. I mean, that's a whole separate discussion.

Taja Sims-Harper [00:41:54] Oh yeah.

Julie Kuchepatov [00:41:55] But yes, tons of perks. Nothing is better than being out on the water. And I have to say, nothing has been better than chatting with you today. And I am so happy for you. I am cheering you on the sidelines and I just can't wait to see where you go and how far you take all of your knowledge and your personality and just everything that you're doing. And I'm really, really happy to know you, Taja.

Taja Sims-Harper [00:42:20] Thank you so much, Julie. I'm so glad I got to talk to you today.

Julie Kuchepatov [00:42:25] Thank you. Thank you for tuning into The Conch podcast. It would be amazing if you could take just two seconds to leave a review and share this podcast with your ocean loving friends. Thank you.

Crystal Sanders-Alvarado [00:42:41] The Conch podcast is a program of Seafood and Gender Equality or SAGE. Audio production, engineering, editing, mixing, and sound design by Crystal Sanders-Alvarado for Seaworthy. The theme song "Dilation" is written and performed by Satan's Pilgrims. Funding for the podcast is generously provided by the David and Lucile Packard Foundation and Builders Initiative.