Hello and welcome. My name is Julie Kuchepatov and I'm the host of this podcast, The Conch. Continuing our journey with this podcast, talking about seafood and the ocean and, most importantly, we're showcasing some of the incredible women working in the seafood sector, sharing their journeys, examining the challenges they face and the triumphs they've achieved. Today, I am so excited to welcome a dear friend, Jennifer Bushman. Jennifer is an award winning chef, master strategist and marketer, aquaculture expert, and has worked with some of the top seafood brands in the industry. Welcome and thank you, Jennifer, for joining me today on the Conch. Let's dive in.

Jennifer Bushman: Julie, congratulations on this incredible achievement following the journey of seafood and gender equality and now the Conch. It's just amazing, way to go.

Julie Kuchepatov: Well, thank you so much for your positive words and your kind support, because honestly, you've been one of my biggest kind of supporters throughout this journey. And honestly, without people like you specifically and others, I guarantee you I wouldn't be where I am today. So, I mean, really, congratulations to you, too.

Jennifer Bushman: It's just been such an amazing journey to watch you grow into this and for all the support you're getting. So there we are, the love fest.

Julie Kuchepatov: Love fest.

Jennifer Bushman: Portion the program.

Julie Kuchepatov: Sure, and we can we can continue that love fest throughout the next hour or so. Again, thank you for joining me. And, you know, we met I think it was in 2018, correct me if I'm wrong, at the Seafood Summit in Barcelona, which is so weird because, you know, 2018, it wasn't that long ago. But I mean, it seems like I've known you for a really long time and a lot of things have changed since we met in Barcelona, which was an amazing experience and so it was great to meet you. And it was really strange because we were so active in seafood but had never met, and that's really what I love about this business. I was getting ready to launch the aquaculture program at my former organization and it was just kismet that we met at the time because of your expertise in aquaculture and in marketing. And so I was so fortunate to, you know, hire you on as a consultant to help me with marketing the program and supporting our partner companies. So your history again, you know, it's really diverse, as I mentioned at the beginning of the podcast. And as far as I understand, your professional life, you know, you really started as a chef. And so how did you kind of go from being a chef, you know, a James Beard nominated chef, by the way, to a global expert on aquaculture.

Jennifer Bushman: I mean, it feels like and you can appreciate this, our path, our career path is so winding. It's such a winding road. And I was a cookbook author. I had a cooking school and was teaching home cooks. So I had my son and a lot of the moms that, you know, the children that were his friends were asking me, how do you make this? How do you make that? Now, my son is 30 years old. So this is, you know, 25 plus years ago. And I was like, well, you know what I cook. I love to cook. I came from a generational family ranch in Colorado and, wow, we could do something with this. And when you think
of how long ago that was, this idea of advocational culinary education just really didn't exist. And so I started you're exactly right. I mean, I started writing cookbooks. I did a television series, a syndicated television series. And one day, my agent called and said, we are going to bring to market what we think will be the most sustainable salmon in the world that's ocean-raised. And we think you should be the one to bring it to market. And that's where my journey began. I always say I fell in love with two fish. One was the fish that my grandfather caught on his ranch in Colorado, in the creeks of Colorado, a beautiful rainbow trout. And then the second one was the salmon that I knew could be raised in this responsible and sustainable way.

Julie Kuchepatov [00:03:50] That's so great. You know, I think it's so interesting how, you know, you talk about you tapped into this group of moms that were the parents of your son's schoolmates. And I think, you know, moms are a really powerful group that a lot of people don't talk about. So I'm happy that they played a big role, it sounds like, in kind of the beginning of your career. And I'd also like to say, I think, do you ever go back and watch old episodes of your TV show?

Jennifer Bushman [00:04:15] Oh, my gosh. Well, there's definitely some interesting videos all on the internet, you know, of the ups and the downs of the hair. And some people will say, oh, my gosh, you look like a baby because I was so young when I started all of this that I always say, I can't lie about my age. When you have a 30 year old son, you can't lie. Otherwise, it just looks like you were getting in trouble in high school or something. So, you know, I was really fortunate and I was fortunate in so many ways because it was at a time where, you know, you think the Food Network hadn't even started. It was only just beginning and there was just opportunity galore. I mean, I was coming out of Reno, Nevada, and you think about having built this beautiful culinary career at the same time that Rachael Ray was doing her work and it really all of that experience, all the getting up early mornings, doing the television segments in the days when you did live television. Oh, my gosh. And the internet wasn't even really a thing. You know, you weren't really looking at social media per se. It just was a great way to have the chance to do a lot of different things. And I have to tell you that it also built a lot of resilience in me because, you know, when you're there doing the demos for a grocery store chain and that you have an endorsement contract with and you're in every single grocery store. Well, then when I started into aquaculture and had to go into these grocery stores and do the demos and talk to people about, "no, it's not wild fish, it's farmed," and they're spitting it out in front of me. I mean, I think the first year when I launched Verlasso Salmon, I actually physically made and handed out almost 18,000 tastes of Verlasso.


Jennifer Bushman [00:05:54] That's a lot of experience during a time when everybody, you know, especially in the grocery store, they didn't want to eat farmed fish.

Julie Kuchepatov [00:06:00] Right. Right. So, I mean, so much has changed since then. And we're going to talk a little bit more about kind of the perception of farmed fish, specifically farmed salmon. But I've been part of an in-store grocery demo before, and I tell you, you have to have nerves of steel to do that. And so the fact that you made 18,000 tastes or bites and gave those out, that means to 18,000 people, literally. probably. Maybe if you came back for a seconds.

Jennifer Bushman [00:06:29] I don't know. I mean, I used to count the plates because we'd have these sleeves of these beautiful with Wasara plates. And I knew with how many
sleeves I went through, how many I had cooked and given out. We always did like a little bit of a beautiful salad or a side dish and then this bite of the fish. And, you know, it's a tough sell to get people to eat fish in a grocery store. But it gave me so much experience. And you talk about thick skin, you had to have it in the fact that I knew this was the right thing for our food system. There was no doubt even that early on that we could not have the consumptive entitlement that we had to wild stocks coming from a farming ranching background and saying this doesn't make sense to me. And if you can farmed chicken well and you could farmed chicken badly, we certainly can do better with fish in order to bring our oceans back to abundance. So it really did resonate with me, and I think that got me through all of the plane flights. I mean, one year I made over 100 television appearances in 75 different markets and was promoting the Seafood Watch app at the time and cooking Verlasso and talking about, you know, Verlasso was the first one to ever get a yellow that was an ocean raised farmed salmon. And it was during quite a time. And they all knew that this was the direction. There was no way to incentivize better practices if you had no way to be able to be in part of a certification or recommendation scheme. This was before ASC, before BAP. Imagine. I mean, I feel old now, but at the same time I would say to you like that's not that long ago.

Julie Kuchepatov [00:08:06] No, you're right. In the scheme of things, it's not that long ago, especially if you think about how old the practice of aquaculture actually is. I mean, it's thousands of years old, right?

Jennifer Bushman [00:08:15] I mean, I just got off of a podcast with one of the founders of Kauai Sea Farms, and he is in a fish pond farming sea cucumbers that's 1200 years old.

Julie Kuchepatov [00:08:25] Oh, my gosh.

Jennifer Bushman [00:08:27] There you go.

Julie Kuchepatov [00:08:28] Yeah, no, I get it. Yeah. And so in any event, you are a pioneer, clearly. And that's why I admire you so much. And this brings me kind of to the next question I have is, you know, the U.S. government has a plan right now to ramp up offshore aquaculture infrastructure through legislation and funding. And NOAA, which is the National Oceanic and Atmospheric Administration, I always mention NOAA on this podcast and I always have to read the words a million times because I always get it wrong. But, so NOAA has the authority to create kind of a uniform aquaculture standards and update aquatic animal health regulations and revamp the aquaculture permitting process. So as part of its goal, to expand offshore aquaculture, I'm reading this right now just to quote from their website, they'll identify four offshore areas for finfish, seaweed, or integrated aquaculture production by 2025. So could you give us a rundown of your understanding of this and what the U.S. is up to and what it hopes to do and what you are currently up to in terms of supporting the development of aquaculture, you know, in the U.S. but also globally. I would just love to hear what you're up to and what you think about this effort.

Jennifer Bushman [00:09:38] Yeah, I mean, I guess setting sort of the stage first and foremost. I mean, we are in a seafood deficit in the United States and depending on what you believe in and what stats you want to get behind. Right. Because they're all different things. If you include fish and seafood that's caught in U.S. waters, but processed and then brought back in, that can be considered an import. But if we even just looked at it just generally more than half, let's just say, and it could be anywhere between 60 and 90%. But more than half of the fish and seafood that we eat in the United States is imported. And the
only way that we can lower fish and seafood costs and be able to really fight nutritional injustice as well as build equity within the fish and seafood supply chain, meaning bringing more brown and Black communities into this ecosystem, creating more coastal resiliency around this economy, we're going to have to build more aquaculture production, and that will include all inputs. That's going to be on land and sea. And right now, there is no real way in which, legislative way in which, we can get particularly these deep ocean permits in federal waters permitted. And then you add in what the social equity is and the narrative of how people feel about it, the NIMBY of not wanting aquaculture, thinking aquaculture is bad. I mean, there are so many layers of messaging that also needs to come along with this. But my feeling about it, and it's part of the impetus of the founding of Fed by Blue, which I know we're going to talk about, is that we have to reconcile ocean protection with ocean production. Until we reconcile ocean protection with ocean production out in the masses, that social equity to be able to build these systems, we are going to be at a deficit when we look at the future of food and blue foods are a fifth the carbon footprint. So, you know, when you have coastal landowners that are fighting 140 year old oyster farmers and forcing them out of their farms and concessions just for the very reason that they don't want to look at them. We are not creating a social narrative around the importance of blue foods and how they will contribute both to ocean resiliency and returning oceans to abundance and our food system that's going to be so desperately needed in the future. The hope is, and there are a lot of organizations that are involved in this and there are a couple of different tracks to get there, where I fall in this is I am a responsible, ethical, sustainable aquaculture champion. I want best in class farms to sit next to a best in class regulations like the Magnuson Stevenson Act to protect and produce the most seafood that we possibly can so that all of us have the equity of this closer to home, within our own waters. Now, there will be protections for small fisheries, protections for small aquaculture. Of course, there will still be imports. But we have to wrap all of that around what is ultimately going to be this urgent need in our food system within the United States. Current legislation, in my opinion, as it has been set forth, does not go far enough, which is why I really stand behind what the Environmental Defense Fund initiative has been. So in my opinion, we have to set concessions, these projects in the water, that at least meet the standards, the most sustainable ethical standards of other projects throughout the world that are best in class. You know, the best feed models, they need to be antibiotic free. We've got to have stakeholder engagement. I sit on the board for the Marine Mammal Center. We have to have marine mammal protections all baked in, in my opinion, to the legislation. The current legislation that's being proposed does not have that and the EDF legislation does. So I'm standing behind the Coalition for Sustainable Aquaculture and what EDF is doing, the Chefs for Sustainable Aquaculture, and how we're going to build what I hope will be legislation. But then, as you have said, will create a permitting environment that will slowly put these permits in the water over the next three, five, seven years, that also has in it diversity and equity and some things like, maybe, it's a path to scholarships or a path to building out these types of programs within vulnerable communities, high schools and tech schools. But we can't assume that it's going to happen later. I personally feel it needs to be put into the legislation from the outset because we don't want to get in the kind of problems that are happening now in British Columbia, in Chile and others. We need to set those stakes, put that stake in the ground to start with. And that's where my work is.

Julie Kuchepatov [00:14:33] Yeah, that was a great answer. Thank you so much. I mean, you said a lot. And so I have a couple of questions. First, you said NIMBY, and I just want to confirm that that means "not in my backyard," right?
Jennifer Bushman [00:14:42] Correct. So there are people who are saying, you know, we don't want this in our backyard. And I assume they're the same people that are saying, I don't want this oyster farmer working on his farm in front of my, you know, million dollar house or whatever on the shore because he's affecting my view is that what it is.

Jennifer Bushman [00:14:58] And it's also access to the dock because see what's happened. And we were talking about this actually with Hawaii. Here you have a fish pond that is on a property that's been passed on from generation to generation. Very important that those Indigenous people in these communities have access to this land and access to the development of these fish ponds. Right. But then you've got people that are actually buying up the land in Hawaii and putting so much into the courts that you can't even get access to what were your family lands and rights to the beaches. So in my mind, especially because of climate change, the coastal makeup of these communities is changing. You've got very dynamic increases with inflation and land valuations where only the wealthy are able to develop and maintain coastal properties. So that's immediately taking someone that would be a fisher or a farmer or a part of that community for generations. And there's actually a financial incentive for them to sell their homes. That's the first thing. Second thing is you've got climate change. So you've got enormous insurance rates where they can't afford to insure and live in these coastal communities. And if they were to be decimated by some climate event, hurricane or storms or whatever, they couldn't afford to rebuild or reinsure. Okay. So that leaves that land only to the wealthy. So the problem is they have a certain narrative around what they want their coastlines to look like. And we haven't done the hard work to educate those people around how important it is. I envision that regardless of how wealthy you are, people are going to come after you. There is going to be all of the crime, all of the angst that's going to be caused by people having lack to whether it's lack of access to water or food or whatever. Also, you have the fact that these waters are changing. They're acidifying. They're getting, for all kinds of reasons, murkier, more alkaline, all of that. When you have an oyster farm, you get two things, right? You get the water being clarified and it's going to be cleaner and you're going to have access to a wonderful, beautiful food. If a coastal landowner knew that, they might be willing to look at a beautiful oyster farm. But what's happening is they're dusting off the old playbook. We have a lot of work to do to make sure that through advocacy and policy work, that these coastal landowners understand what their responsibility is in owning that land. And maybe that's going to be through some kind of commitment to education. I'm really a believer in like regulate your way into this, require it. If you purchase a coastal property, you're going to have to go through six classes on the importance of and how you have to advocate for the privilege of owning that land on that waterway. That could be from making sure that you're doing the right things to be climate change resilient, to engaging the community, to donating, whatever that might be. I'm also a big believer in that on boards and also in employment landscape as you get the privilege of farming in our federal waters. I think Norway has done an extraordinary job about the requirements around how many women have to be on boards. There's a point here where we have to put into place policy to then change, you know this, you talk about this all the time, but then to change what is our natural behavior? That's going to have to happen on these farms. And so in my mind, however we do that, we're going to have to put into place that in this regulatory framework.

Julie Kuchepatov [00:18:29] Yeah, what you outlined sounds like a huge task. Honestly, Jennifer, I don't know. Like I have great hope for the future and what you just outlined sounds very, very daunting.
Jennifer Bushman [00:18:39] Yeah. I mean, these are the things that are why there’s a coalition from EDF. And EDF is already lining these things up and it’s already baked into the legislation. So it’s there already. It’s been sponsored and can go to the floor or put into an earmark that can happen. And so most people that are much smarter than I am, you know, I don’t even know why I’m in the room, but I’m trying to sit there and listen and learn and be surrounded and rapped by this and whatever voice I can bring to it, if it’s bringing the Marine Mammal Center to the table, you know, they’ve never been a part of these conversations. And the reality is we’re also sharing the water with others, and we have to think about what that means. And so to me, that’s the whole part of just being in it to maybe bring some perspective that someone maybe hasn’t thought of. Most likely they have. But Ruth and Maddie Southard and others are doing exceptional work to make sure that these things are being thought through.

Julie Kuchepatov [00:19:34] Yeah, I actually am also supporting them on this effort, the Coalition for Sustainable Aquaculture, and I think that once something more publicly available, we’ll definitely, you know, talk about it on this podcast in the future because I think you’re right. I think there’s a messaging issue. I mean, you know, you mentioned that a lot of people just don’t know. And I think a couple of things. A lot of people don’t realize that the importance of seafood and homegrown seafood, let’s just say domestic seafood, for food and nutrition, security. And I think a little bit even that’s a missed opportunity that we had during the early stage as well. I mean, maybe for the first year and a half of the pandemic was, you know, there was huge disruptions in seafood supply chains and globally. And a lot of the domestic fishers had to really scramble to create kind of direct to consumer pathways or methods of getting fish to people. And I think, I feel like, again, that was a missed opportunity to keep that momentum going around the importance of domestic seafood. And so by bringing that back up in a clever messaging way, I think that’s super important.

Jennifer Bushman [00:20:34] I couldn’t agree more, but I also think that it’s important to understand that part of this false, this negative feeling around aquaculture has to do with fishers really trying to protect what is their market for fish and seafood. And so part of what we have to do is it’s our responsibility to engage, to be able to show how there’s protection, subsidize where there needs to be, and make sure that the fishers are getting all of the support in the world because that negative narrative from farmed salmon, from wild fishers to farmed salmon, could have all been negated had we stabilized the price of wild salmon as farmed salmon started to grow in the marketplace. And so we didn’t put the right protections into place for those fishers in order to be able to grow aquaculture within the US. And so we’re beginning that conversation. I’m really excited about the fact that for the first time ever at the Menus of Change conference for the Culinary Institute of America, that ASMI and aquaculture and fishers are going to be at the same panel discussing these issues. I’ve been thinking about this for nearly two decades, about the fact that we needed to create this narrative, start having these friendships, so to speak, so that, you know, I mean, we have to be open to sitting down with those who disagree with us and really creating a different conversation. And when we do when we create that collaboration, that it’s within that collaboration that we can understand what people’s fears are, their insecurities, and then we can create solutions around them.

Julie Kuchepatov [00:22:07] Absolutely. 100%. And you mentioned ASMI and I just want to flag that that stands for the Alaska Seafood Marketing Institute. And so they are the kind of public private entity that markets Alaskan seafood, correct?
Jennifer Bushman [00:22:20] That is. And I'm sorry for using the acronym. No, it's acronym, yes. The Alaskan Seafood Marketing Institute has done an exceptional job talking about and amplifying the hard work that's going on the water. This is something that's baked into the Alaskan constitution. It is very important to understand that those heritage fisheries. We should not farm salmon in federal waters that are adjacent to those heritage fisheries. But there can be wonderful, environmentally perfect places to be able to rear other species of fish. They might have more of a narrative around shellfish and bivalves and kelp and seaweed like they're already doing. We're all going to be holding hands and creating this chain of well-being in this fish and seafood market that we can create in order to have it sit at the table of the future of food. And so it will take all inputs. And that's why I say don't sit in fear of that. Create dialog and let's figure out how to find a path.

Julie Kuchepatov [00:23:18] I totally agree. And, you know, I think it's important to note that, you know, I worked in salmon, specifically wild salmon, for years. And one of the places I worked at was called the Wild Salmon Center. And we had a huge, what we called, the triennial conference. And the triennial conference was, as that sounds, every three years. And the one that I was involved with was called the Ecological Interactions of Wild and Hatchery Salmon. I think that's what it was called. And so we should also remember that Alaskan salmon, specifically pink salmon, specifically in Prince William Sound, is almost 100% born and raised in a hatchery. And so this has already happened in Alaska, right? The interactions between wild and hatchery fish. And so they know exactly why they should be at the table. And I love ASMI too, but I do think that sometimes Alaska puts a huge emphasis on the wild part. And so the fact that they're coming to this table to having this discussion and kind of coming together to talk about, you know, how wild and farmed fish can interact together and not just fish again. It's like you said, oysters or bivalves, but that's great. That's a great thing. And I'm really happy to see that and to hear that's happening.

Jennifer Bushman [00:24:26] Yeah. And you just went there. So I will I mean, for those that don't know, I mean, 1.5 billion fish a year come from hatcheries, both private and public, that are helping inflate wild salmon stocks. And they are sold as wild and in some cases are less sustainable than my, I always say what has really been the joy of my life, the farmer I've always been waiting for - Kvarøy Arctic. You know, the standards in these hatcheries are significantly less and the oversight than what the feed models are and the way in which we have to manage our hatchery at Kvarøy Arctic. So I think it's something people don't know. Let's just put it this way, with the way we consume salmon, there's no way year over year that catches can keep going up and that you can actually eat more and more and more fish and, somehow, miraculously, the fishery is that much more productive. And wherever you fall in that hatchery system, we're not going to judge, but at the very least, it should be upholding the highest standards as a sustainable aquaculture company would have to. There shouldn't be two standards.

Julie Kuchepatov [00:25:31] Right.

Jennifer Bushman [00:25:31] If that makes sense?

Julie Kuchepatov [00:25:32] No, it does make sense. Again, it's been quite some time since I was focused on salmon, so I don't maybe necessarily know the current kind of thinking about that, but it was definitely a conversation we had, especially at that conference, like what are the interactions in the wild between hatchery born salmon that are ultimately released in the wild and then the wild salmon that are born and growing into
adulthood in the water. So it's really, really interesting topic and like, you know, I don't know if you listened to the last episode with Crystal, we constantly were talking about this is a topic for another podcast. We can make a million other podcast around this topic. So...

Jennifer Bushman [00:26:09] Indeed.

Julie Kuchepatov [00:26:10] But you did mention, you know, you talked about Canada or about the importance of studying kind of the policy framework and the legislation, you know, in really making sure that, you know, equity and other considerations are baked into these policies from the very beginning. And to avoid the issues potentially that we see in other countries and specifically, I've noticed a lot in the news what's happening in Canada and farmed salmon in particular. And so there's really a lot of very vocal anti farmed salmon activists who are determined to almost eliminate salmon farms there. I mean, not almost, but to eliminate salmon farms there. And in developing the offshore finfish aquaculture in the U.S., what do you think we should pay attention to or what can we learn from what's happening in Canada right now?

Jennifer Bushman [00:26:55] Well, first, build a bill that actually has the most sustainable regulatory framework you possibly can. Don't assume that it's going to happen during the building out phase. Don't make any assumptions. State it from the beginning because what you're going to do is you're going to get people to dust off the old playbook and create sort of this anti-aquaculture momentum. You're giving them more really by introducing these things. You're going to give them more education information that's toward the negative than it is to the positive. You've got to be able to, first and foremost, create the storytelling and the provenance around why this is different. And it's not just going to be technology and things because people don't resonate, they don't connect to technology, they connect to people and the hands that hold the technology. So we have to show what that is. We have to have something that's totally bullet proof. And in my opinion, as this bill stands now, as the Aqua Act stands, it is not bullet proof. It will absolutely get stopped in the courts. And there are people that have a lot of money that have done a lot of protections, some of whom we know quite well that are anti-open ocean net pen aquaculture, that are building all of this narrative around something that really was what was existing 30 years ago. Now, what I would say is, look, there are bad actors in aquaculture and there are good actors. And while salmon has been the one that has helped us create a lot of advancement, a lot of technology, a lot of feed models, it's also been the one in aquaculture that's been the most egregious. What we have to do is build that education and one of those things is, like, how do you bring the public along 101? You've got a host, private salons, you've got to have educators and all different inputs together talking about and having conversations so that when the bill finally comes to the floor, when that project finally gets in the water, you've already done all of the hard working around the advocacy privately where it's risk free for people to meet with you and have conversation and have conversation again and again so that they can really start to understand it. We did that a little bit with the surf community when we came out with Full Circle - Journey of a Waterman. What we did was we had private conversations with the surfers at places like in Hawaii at the Big World Surf League event. We tried to have these conversations so they would understand that aquaculture doesn't attract sharks. It doesn't break your waves. That's the most ridiculous thing I've ever heard. Like there were just some things that we had to do to dust off the old playbook. Now, in the end, are there places around coastal waters in the United States where there just shouldn't be farming? Absolutely. It's like Yellowstone National Park. These places that are marine sanctuaries, that are very well preserved, where you're not going to get that sort of buy in, that societal buy in around these things, fine. Leave it alone. But they're going to be other places that
have been built around these ecosystems where fishers have fished out their fisheries or climate change has changed it. Gulf of Mexico is a very good spot to look at that off the coast of Mississippi and others where, you know if we had a little bit more valuation, right, in aquaculture and not just in the drilling of oil and gas, but you mean food will be the equity at some point. Then you've got that coastal community buy in to be able to build out where you're going to be building jobs and obviously building food systems. You're going to get more buy in. Try to do it in California, you're not going to get it. So there are going to be places where we just have to honor what that opinion is and in other places where it's going to work well. And when you start to look at a few of those projects where they can see it, where you get journalists and you get others on board and the fish gets out into the market and you get the shellfish and you get the seaweed and the kelp, that's going to grow that buy in, that acceptance that then hopefully will help build the market. But, you know, we're not there yet. We've met with over 20 congressional offices, the Marine Mammal Center and I, just having conversation and the lack of that buy in trickles in to then these landlocked states where there will be this momentum against it. And so you've got to start from the beginning and try to get people to understand. Do the educational campaigns. It's not just going to be about eating more seafood. It's going to be about eating the right kind of seafood. And then you can find a place in the grocery store, in a restaurant where your dollars meet your values.

Julie Kuchepatov [00:31:19] Yeah. That's so well said. Just to clarify the Full Circle - Journey of a Waterman was a film that you produced.

Jennifer Bushman [00:31:26] Yes. We took ten-time world champion surfer and paddleboarder Jamie Mitchell to places like the Verlasso farm in Melinka, Chile, like to the Pacifico Aquaculture. It was just a documentary short that we did. It's had over 1.2 million downloads. Jamie swam with the fish. He paddled around it, and my feeling was, honestly, with him and you can find it at Surfl ine if you look. Jamie Mitchell Full Circle - Journey of a Waterman, Surfl ine you'll be able to access the film. It's the full film, not the one that was sort of cut up by some of those partners that were involved. The full film. What you learn is that he didn't expect it. He had been surfing on the big waves at Pillars, which was right around the corner from Pacifico Aquaculture. He'd been on a boat passing a farm and never knew. That's aquaculture and that's ocean production and ocean protection, sitting side by side. That's what we knew.

Julie Kuchepatov [00:32:23] That's a pretty incredible story. I knew that. I just wanted to clarify for the listeners here because I think it's a good point. And you're right, you know, mobilizing those people who other people listen to and look up to and can talk about these issues in a way that's compelling, I think is really, really smart.

Jennifer Bushman [00:32:40] It was early, right. And I think everybody in the industry thought I was crazy. But I was trying to say, look, there are these ways where we can go from the outside. I was just telling this crazy story about bringing Verlasso right after the yellow was approved, and we weren't able actually to do a lot of activities and events and really taking a look and trying to go from the outside and get in to get the information and to have those conversations and sometimes you really do have to think outside the box. That film was one of those. It was a pleasure because it really also brought Jamie through the journey, and Jamie ended up paddling and raising money for these environmental efforts through the Wrigley family. And he was the first ever to paddle all the Channel Islands like two years later. So it was really cool to have that collaboration with him for sure.
That's awesome. So let's change gears here and talk about something other than farmed finfish or aquaculture. You know, I see you talk a lot on your website and you're also very active on social media and you talk a lot about a sea pantry. So what is that and what should I do to get one like this? How do I get that?

Well, you know, we talked about at the beginning of my career and how I was writing cookbooks and recipes and, you know, doing all of those things that really connected the food to the kitchen. And at the time, people really equated time in front of the stove as time wasted. And I still think probably to a certain extent that is the same. Time in front of the stove, time cooking is time wasted. 20 minute meals, 30 minutes in the kitchen, 15 minutes, 10 minutes. Dump and do, you know, I mean, like all of these things, right? So as I had evolved, my cookbooks were called The Kitchen Coach series and it was all about pantry. Like if we went back to the idea that our grandmothers had where they always knew what was for dinner, whether it was that there were pickled vegetables, there were things in the freezer. My grandmother had this ranch and this farm, and they had a market that all of these things were sold in, in rural Colorado, rural eastern Colorado. She always knew what was for dinner, even if she didn't have time. You know, there was always meat that was from the ranch. There was always fish that they had frozen. There was always things they had pickled or jarred. She always knew. And yet here, 75% of Americans don't know what they're going to have when they're driving home from work at 5:00. So Kitchen Coach had three things in the pantry. The pantry was the cabinets, it was the freezer, and it was the refrigerator. And if you bought canned tomatoes, you didn't just buy canned tomatoes to make chili on occasion. You bought canned tomatoes so that you could come up with a quick pasta, which also used maybe some meat that you had from the freezer and maybe some frozen spinach, and you would be able to get dinner on the table. And when you used up that canned tomato, you bought it again, right? So you weren't a recipe driven shopper, you were a pantry driven shopper. And if you didn't have a big pantry, you could just buy two cans. Right? The freezer, you know, you think about what the freezer can mean potentially. I mean, with these super freezing techniques, having these vegetables, these fruits, these meats in the freezer really could be an anchor to the pantry. And when you use it up, you bought it again. Refrigerator the same way. Eggs are the best example I have. 99% of us keep eggs in the pantry. It's in your refrigerator. When you use them up, what do you do? You buy them again? There's nothing like a quick, fast scratch omelet. Nothing says love and I've been planning dinner all day long, like I'm going to make eggs for dinner. Right? But whatever that may be for you, my son, when he was growing up, that was tortillas and cheese and he can have a quick quesadilla. Sea pantry was born out of that. I woke up one day in the middle of the pandemic and went, I know now how to align my passion for seafood, for fish and seafood, in with my passion for people cooking more. So the idea is and that list is on the website on JenniferBushman.com, that you can start to keep these ingredients - tinned fish. Having a beautiful can of FishWife x Kvarøy Arctic tinned salmon that you can toss into a pasta with a little bit of butter and garlic. And the pasta is the kelp pasta from Blue Evolution that you would have. The seaweed purees that come from places like Ocean's Balance. And then you could start to incorporate these responsibly sourced regenerative ingredients from the sea into your everyday cooking. And so I mean the light bulb, Julie, came on and I went, Oh my gosh, every pesto could include seaweed. Every meal could include whether it's a frozen shrimp, which is like used to be the easy one or a wagon wheel pasta for the family with sliced Kvarøy Arctic hot dogs. But the sea pantry could be this building block for us to start to incorporate more blue foods into our everyday cooking.

That's awesome. So tell me why would we want to include more blue foods into our everyday cooking?
Jennifer Bushman [00:37:40] Because it's this concept that not only are they multivitamins from the sea, not only are you getting all the omega threes and all the selfishness, right? It's good for me. It's immunity building. You know, we know that you can fight all the ails of the world by having more of these ingredients in your diet. We don't eat a lot of seafood in the United States. We know that we eat much less than more industrialized nations. And so we've got to put the gas on that. But it needs to be responsibly sourced. It needs to be ethically sourced. But then add that to the fact that, and it's my friend Alexandra Cousteau, I sit on this board. I don't know why. I don't know how they got my name. Trust me, I should not be there. But when Alexandra Cousteau reached out and said, I'd like you to be on the board for Oceans 2050, I was like, Holy cow. Now our history of Jacques Cousteau and this family and of ocean protection is something that then I can help populate with production in a way that where we can catch fish and not be fearful if the fisheries well managed. We can farm and I can bring that to this conversation with these other astounding board members and the work that Oceans 2050 is doing around carbon sequestration and really putting the science behind the idea that the oceans actually can help us and return them to abundance. And so part of this thought process for everyone listening is that what Alexandra says is we don't want to be known as consumers any longer. No one wants to be a consumer. I don't want the metrics of whether I bought a car or bought a house or whatever to be an anchor to economies any longer. We don't want to be thought of as consumers on a planet that we are overconsuming. And so what she says is we want to have places where we can be moved into contributors, where we can feel like our dollars meet our values and they're in contribution to something greater than ourselves. Well, guess what? Having a sea pantry and eating more seaweed and kelp or bivalves is a contribution to healthier oceans and ecosystems. So if you eat from a sea pantry, you can be absorbing carbon. You can be helping these coastlines clean, you can be feeding yourselves nutritiously. You can be eating with a lower carbon footprint. I mean, you can be a contributor to what will be a healthier food system.

Julie Kuchepatov [00:39:51] I love how you just said that. And Alexandra gets my kudos for coming up with that because I think that just makes so much sense. And I have to say that I did try a Kvarøy Arctic hot dog at the Boston Seafood Show and it was delicious. And so on the show notes, I'll be sure to include some links to some of your favorite blue foods and where people can get them and links to their website. Will you help me make that?

Jennifer Bushman [00:40:15] Absolutely. I mean, the hot dog is we use the trim. It's lowering food waste. One hot dog is your weekly allowance of omega threes. And guess what? It has the snap and the flavor of a hot dog. It's not fishy. And like you said, you could put it on a bun and the kids'll eat it all day long.

Julie Kuchepatov [00:40:32] It is so good.

Jennifer Bushman [00:40:33] It is so good.

Julie Kuchepatov [00:40:34] It was so good. So listen, this is a really good kind of transition to my next question because, again, I mean, you're one of the busiest people I know and so we're only kind of scratching the surface of what you are up to. But you recently launched Fed by Blue, and according to the website, which I looked at, of course, the mission is to provide and inspire visionaries, thought leaders, ocean lovers, activists, early adopters, foodies and consumers with the knowledge and materials to help protect
and participate in a responsible blue food system. So tell me more about this effort, Fed by Blue, and what can we expect from it?

Jennifer Bushman [00:41:11] Yeah, so there were three of us, Jill Kaufmann Johnson, who is an advocate. She's actually the head of the Erol Foundation that does a lot of work in climate change as well as in ocean ecosystems. She also was with Corbion and helped spearhead some of the efforts around using microalgaes in feed and in food systems and beyond. Katherine Bryar started out on a dairy farm in Australia. She actually was one of the advocates around what in the US ended up becoming the incredible edible egg campaign. She was one of the founders of the brand of Ora King Salmon, one of the best in class farms, Atlantic Sapphire, and now is at BioMar as their head of branding and global marketing. And so it was the three of us that basically said, look, it's not that the good work isn't happening on the water. 3 billion people on the planet rely on blue foods as their only source of food every single day. 1 billion rely on it as some part of their economy. And so blue foods will be part of our system in the future, as part of our food system, no matter what. And blue foods are defined as those lakes and ponds and rivers and oceans. Any of our food system that comes from or is connected to our waterways, of which 71% of the planet is water. So now, you know, if I'm saying to you, you can sequester carbon, like put a little seaweed in your spaghetti sauce, for darn sake. These are important contributive parts of our food system. And so Fed by Blue has a number of initiatives. We launched it on stage with David E. Kelley and with Andrew Zimmern. Andrew is a famous chef. He's the guy that was in Bizarre Foods. At any given time, he's got family dinners on Magnolia Network, MSNBC's series What's Eating America won an Emmy Award. He is an exceptional human. He is part of the U.N. Food Forum as an ambassador. This is someone who has done work on food systems as a global food systems ambassador for decades. Millions of followers on social media. And I first started talking to him five years ago or more about how important it was that we start having dialog around ethical, sustainable blue foods that you could farm a fish in the right way. Basically it was he needed to get his name behind it and out of that conversation we started to work with Jill and with Katherine, and then we brought David E. Kelley on board. And David is the most prolific writer/producer in Hollywood. He has written series like Big Little Lies and the Undoing, Ally McBeal, Boston Legal. He's won 12 Emmy Awards for his work in Hollywood. But what most people don't know is that he is a fisherman. And he says that he writes in order to be able to fish. And not only does he fish, but he has seen over his lifetime the fact that these stocks, that the rivers, look different than he used to fish on as a kid. And so what he did was as a solution, he said, I'm going to invest along with a partner in genetics around aquaculture and ultimately farming. And David E. Kelly, for people who don't know, is the largest trout farmer in the United States with Riverence trout. And so we started to talk about this and we said, look, I have always felt that it wasn't that the good work wasn't happening, it's that we have a communication problem. And so we need to start communicating all of the efforts that we're doing. So we're doing a docuseries that we know will land with a major streaming entity. We're working in tandem, so there's two different streams. One is the series that's going to end up in all sorts of places. There are celebrities that have come on board this. Julia Ormond, the actress, has narrated the trailer and is going to hopefully be narrating one of the episodes. We're really working hard to tell the stories, but end in hope. We feel like doomscrolling needs to be done and the narrative has been owned by us for long enough. And then Fed by Blue is the advocacy campaign that rides on the coattails of the series. So K-12 education toolkits for teachers bringing this kind of education through play arts and music, working with groups like Cal Arts, college and university work so that through ProQuest we can get education out there working on advocacy and policy work and mass media work so that we're actually creating a narrative with writers and producers and journalists so they understand how to represent
the importance of blue foods. I wrote an op ed several months ago for Seafood Source and I was watching Don't Look Up, like so many of us. I already knew we were in the deep depth of this project. But I'm watching at the end an hour and 51 minutes and 42 seconds into Don't Look Up, they're shopping for their last supper. Spoiler alert. Spoiler alert that the comet is going to hit the planet. And Timothee Chalamet and Jennifer Lawrence and Leonardo DiCaprio are walking down the aisle of the grocery store and it had to have been unscripted. He leans over to the shelf. He grabs something, tells Timothee Chalamet and Jennifer Lawrence that this is the fake salmon, the farmed stuff is the fake stuff, and that you always want to look for wild. Meanwhile, remember, the comet is going to hit the planet, but he has time to bash farmed salmon and then says, "So we'll take this" and throws it in the cart. And then on the last part of it while they're cooking dinner, in the background you can see that wild salmon. And that is what should be on the table of the Last Supper before the planet is destroyed. I cannot any longer, nor can David, nor can Andrew. We have got to sit at the table with writers, producers, host private salons and start to talk about how to change this narrative in a way that creates and paves the path for all of the hard work that so many of us, you and others, are doing. What we want to do is use the series, use the impact campaign to help pave the way and amplify all of the hard work that everybody is doing. That what we say with Fed by Blue is hope is in the water. Hope is in the water.

Julie Kuchepatov [00:47:37] That's amazing. So that sounds like an incredible amount of work. And again, I mean, you're just like, I'll reiterate, you're the busiest person I know. And I recognized that scene in Don't Look Up as well immediately when I saw it. And I was really shocked that because, you know, of all people, Leonardo DiCaprio, I mean, he should know better. And I'm glad that someone like David E. Kelley, you know, they operate in those same Hollywood circles. I really hope that they can, you know, get together and kind of, you know, understand each other's point of view and why this messaging is so harmful.

Jennifer Bushman [00:48:19] It's also it's going to take all inputs. We shouldn't be fighting against one another. I mean, the latest IPCC report said that in Africa, as there are more droughts and as those land animals die, there's going to be coastal migration. And within a handful of years, they will eat out their fishery out of desperation. So what better time than to start to develop aquaculture education. That's why Kvarøy, why we have the Women in Aquaculture Scholarship Fund, women in Africa. We're doing that with you. We're going to be announcing the opening of that, of course, at the end of April. These are the programs where we want people to be educated about what blue foods can mean. You have amazing women that are farming seaweed and kelp. I mean, in places like Fiji, where they're helping build economy in coastal villages around seaweed and kelp farming. This is part of what's happening in India and other places in the world that so desperately need a nutritive, local food system that can come from these blue foods so Fed by Blue and this mission, you know, I know that this has to happen. It's just like being in a grocery store and having you spit out the farmed salmon in the cup and hand it back to me. I know that just as, you know, our food system has changed. Just as now we know how to raise corn, to grow corn, and we know how to raise cattle the right way. We know how to do this with blue foods. We know that the U.N. is counting on this. It shouldn't be buried in a report around food systems. We've got to support groups like the Blue Food Assessment and others to amplify it and help with that communication. And we're only one small part. I mean, we're really lucky. Our board for Fed by Blue has people that are from the Nature Conservancy, the Environmental Defense Fund, the World Wildlife Fund, Oceans 2050. Alexandra is on the board. We've got Bart van Olphen whose Sea Tales and Fish Tales, a
celebrity in Europe with his work around sustainable seafood. So we're going to pull in all those partners. We're going to take a journalistic agnostic approach to this. We have no industry money in anything we're doing, so everyone should know none. It's all family foundations and private individuals that believe in our work, and I hope we're going to be lucky enough to build this conversation. That's all we want, is just to be able to talk about it and have a real seat at the table. Not one where we're defending ourselves. Not one where we're putting our elbows up and trying to say aquaculture at all costs. It's that we are cell based, plant based, a farmed, wild that it's going to take all of our efforts to build what this is going to be, because we know we have to feed ourselves. And with 10 billion people on the planet, we're going to need these solutions sooner than later.

Julie Kuchepatov [00:51:02] Very, very well said. And I think, you know, you mentioned cell based and plant based. I mean, that's something that we haven't even touched on in this podcast. So definitely, as again, that's a topic for another podcast, but I agree with you around all hands on deck. Honestly, I mean, it's time, it's past due. And so I wish you all the best in that effort and I support you in any way possible. You did briefly touch on the fact that, you know, the company that you work for, Kvarøy Arctic, which as you mentioned, is the salmon farm in Norway, and it's the third generation family farm. And then Kvarøy has annually now, which will be the third year, a Women in Aquaculture scholarship, two scholarships actually - one for woman in an undergraduate or a graduate program in aquaculture discipline in Africa and one globally. And so SAGE and I am honored to be the administrative partner with you guys on this. And so I just wanted to make sure and flag that because we will be making an announcement soon about the opening of the application process for that. And so I'll make sure and include that in the show notes so that people know when that application process is open and when it ends and what they need to do. So we're going to switch gears again here. And I know we're kind of jumping a little bit over the place, but it's all related so it's not too big of a deal. But, you know, one question I ask of the people that come on the podcast and obviously this is a topic that's near and dear to my heart. As you know, SAGE is about building gender equality and empowering women in the seafood industry. It would be great if you could share one or two aspects of the seafood industry and its culture that may contribute to inequality in the sector. And, you know, we've talked about the inequalities in the sector in great detail throughout the podcast's episodes, previous ones. So what are some things that the industry can do, in your opinion, that could lessen these equalities? Well, I mean, inequality.

Jennifer Bushman [00:52:55] The first thing is where a resumé, someone is not always going to come with the experience you expect from them. And the only way that you could make sustainable change and hire more women is if you believe in creating that workforce in what you want to see in the future. Don't hire someone because they check all of the boxes. Hire someone with the passion and the commitment and train them and commit to the training that they're going to need to be contributive in your company. Number one, resumes do not create the workforce that we want because we know that if you only do it by the resumé, the only way the resume works is it's going to perpetuate what has been in the past. So that's the first thing is we have to really look at this and say, wow, this is a young woman who's done exceptional work. She's amazing. She's actually willing to take the risk and without the background and experience, apply for this job. And guess what? I'm going to instead of needing someone that jumps right in, I'm going to take the time, do the training and commit to it. So six months from now, I actually have an employee that likely will be for life. That's number one to me is you have to change your mindset. There's a great story. Traci Des Jardins, who is a famous chef. She had a Michelin star French restaurant in San Francisco. Strong advocate in the LGBTQ community and with women.
And she said her greatest regret was the fact that she hired for what was the most immediate need and what she needed off of the resume. So what did she perpetuate in her kitchen? White, male, French chefs. So let's get on board. Let's get that. And the other thing is, you know, try to start to support some of these food system changes. Women can drive the change that you're looking for. So, for example, Kvarøy Arctic, we started support in the Food Producers Network, which is a track in World Central Kitchen. You think World Central Kitchens and oh my gosh, if you're not following them and the work that they're doing in Ukraine right now and the bravery that Jose is showing by being in Kyiv and being there on the ground, it's just mind boggling what they are doing, the thousands of meals that they're serving. But here's what's going to happen after. When we rebuild Ukraine, they're going to make available what's called the Food Producers Network. And we know you have to, first and foremost, immediately feed people. But then the second thing is you have to build back their food systems and that can be on land. The farms that have to be rebuilt that have been affected by this war, by climate change, that can be the fishers that have lost their boats. But we started at Kvarøy Arctic, an aquaculture track in the Food Producers network, and that is anything that's aquaculture related. You can apply for a grant. And we have rebuilt things like tilapia farms. There's one called Tilapia De La Farha that was destroyed in a landslide as a result of the earthquakes in Guatemala. And now they're feeding three villages with their tilapia farm. So get in there. No one has taken me up on the offer of putting more money in it than what Kvarøy does. But you know that last year, we had invested three years ago in Coral Vita and the rebuilding of their water systems after the hurricane in the Bahamas. That is an aquaculture system. They are rebuilding and helping to regenerate coral reefs throughout the Bahamas. And they got picked for Prince William's Earthshot Prize and got £1,000,000. So had we not helped to rebuild the water systems and what they were doing, who knows what ultimately would have happened? That was all because of the work that World Central Kitchens is doing and the Food Producers Network.

Julie Kuchepatov [00:56:32] That's so great. You know, I was also fortunate with you to also work with the Food Producers Network just briefly and kind of present to some fishers that they work with. And you're right, many people don't realize that, you know, Jose Andres is out feeding people during, you know, extreme crises and situations that are after hurricanes or, you know, disasters. But also the Network then comes in after and helps rebuild what's been lost or what's been destroyed. And it's just such an inspirational story and person. And I am so thankful that people like him exist. And of course, he's not alone. He has an army of people that support him. So, you know, and like you. Yeah, like you guys.

Jennifer Bushman [00:57:13] So I think it's really important to say you can apply for the grant. You have to do the education like, Julie, what you participated in. So there's a series of educational seminars that you have to participate in and you have to rebuild in a climate change resilient way. You cannot rebuild what you were doing before. So I think that's an important caveat. To get the grant, you have to do the education. You have to rebuild in a climate change resilient way, and you have to be contributive to the food system that was destroyed in this horrific event, whatever it may have been. And I think that we'll see that as it relates to Ukraine. You know, a lot of our feed producers are being dramatically affected because so many of the components were grown in the Ukraine. And so in six months time, we're going to have a significant issue if we don't get this figured out because the components, those vegetative ingredients that are put even in a Kvarøy Arctic feed, came from the Ukraine. So we are even not just the salmon processing plant that was destroyed, the workforce that goes to Poland to work and come back home to the Ukraine. There are such a trickle down effect on our industry, on what's happening there, and there
are no words for what's happening. And we will all have to take a very active role in rebuilding when they get their country back.

Julie Kuchepatov [00:58:28] Very well said. Thank you so much for that important reminder and discussion. And you know, I’m going to wind down our conversation now because it's been so great and unfortunately, we just have a limited time together. So, you know, SAGE is about uplifting and amplifying diverse voices in the seafood industry. And this podcast is one of the main ways we're doing this. And so I’d like to give you the opportunity to uplift someone. So who would you like to uplift and why?

Jennifer Bushman [00:58:56] You know, I think there’s so many young women that are just starting out that we have the privilege of them looking at our industry. And so the one that I'm going to uplift is Opemipo Oyebadejo, who was our Nigerian scholarship recipient last year. She is the kindest, resilient, most amazing young woman building a catfish farm outside of her village while trying to go to school while trying to just be an incredible member of her community. And so what I would say is that is as difficult as times may seem, as overwhelming as all of this can be, as hard as it is to feel like you can't make an impact, just doing that work, slowing down, looking someone in the eyes, taking time, communicating with them, listening to them can make an impact. And so this all goes out to Opemipo because she does that. She uplifts me every day. And I’m inspired by the work that she does. And that keeps me going on the days when I feel like I’m over my skis. And I would say I would give that to her or any other woman that is in a desperate situation that feels like there isn't anyone out there. And we say this too often, but like, I see you. I hear you. Maybe you don't know that, but we're doing everything we can to get to you and to support you and the efforts that you're making so that we can all live on a planet in harmony with access to food, in a fight against this nutritional injustice, with a diverse workforce where women have a voice. And we're there. We're there. And we're going to continue that journey. And we're going to continue that walk together hand in hand.

Julie Kuchepatov [01:00:50] So not only are you my friend but you are such a great inspiration. And I can't thank you enough for coming on this podcast and sharing your wisdom and just really being there for not only me, but for anyone, really. I mean, just those words right now, you know, that you said really serve as a way to uplift anyone who certainly maybe having the need to be uplifted. So thank you so much for coming on this show and for all that you do. And I just want to give you one last opportunity to share how our listeners can find you online.

Jennifer Bushman [01:01:25] I mean, I think the most important thing is to follow us at Fed by Blue. You know, whether it's funding or the other work we're doing, we need more people just to follow and engage in the conversation around blue food. Obviously, the Jennifer Bushman stuff, if you want to do that, that's all fine and sea pantry, but whatever or Kvarøy, whatever. The most important thing right now is Fed by Blue and making sure that we have the privilege of doing this work and amplifying this quickly because it's so desperately needed. So at Fed by Blue, fedbyblue.org, and all the rest you can find pretty easily I think.

Julie Kuchepatov [01:02:01] I'll be sure to include those links in the show notes, but thank you again so much for joining me and I just wish you all the best.

Jennifer Bushman [01:02:07] Well, you're a dear friend, Julie Kuchepatov, and you know that my husband calls her by both names, by the way.
Julie Kuchepatov [01:02:12] He's very formal.

Jennifer Bushman [01:02:14] He's very formal. Darrell Rodriguez. And so I just want you to know, I mean, I have learned and really just been so privileged to be a part of and witness to the incredible impact that you're making with your life, with your personal life, raising your daughters and the entire ecosystem that you've surrounded yourself with. So thank you for all of that.

Julie Kuchepatov [01:02:34] Oh, you're welcome. 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!

Speaker 3 [01:02:49] 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 Conch Podcast is generously provided by the David and Lucile Packard Foundation.