Introduction to Regenerative Ocean Farming

Welcome back. I'm your host, James Berry. On Everyday Ancestral, we talk about how ancestral wisdom can guide our modern choices from food to environment to community.

Brent Smith is our next guest. He is someone who's doing exactly that, but with the sea. A former commercial fisherman, he is now a pioneer in regenerative ocean farming, growing kelp and shellfish to restore ocean health, build climate resilience and reshape how we feed ourselves.

So today we dig into kelp on your plate, the promise of 3D ocean farms, and what it takes to re-anchor our food systems back into living waters. I don't talk to healthy people very much.

Well, you know, it occurred to me, we're actually kind of fighting the same fight. Just you're doing it on the water and I'm doing on land. We're both trying to reconnect people to Mother Nature whose systems are really pretty divine and pretty awesome.

and get people re-tied to those. Absolutely. What I love about some of the tents that are being created, I like the climate tent back when we were allowed to talk about it because it was such a big tent.

I didn't have to be love seals in order to participate in the bit larger environmental movement. Once I found the food movement, i think I just felt at home because I can be You know, a working class guy, I can, you know I don't have to be all buttoned up and I broken my nose three times.

My sense of flavor is terrible, right? I'm not gonna be like this culinary person, but I belong, and that's cool. And then you add on top of that the soil, the sea, like we all share nutrients, so much of the land-based, The agricultural system ends up in the ocean, all that nitrogen, phosphorus, and that's what I use to grow.

So, no, I like these linkages. Yeah, that is great. Well, i'd love to share with everyone how you fell in love with ocean and fishing. Can you take us back to basically what got you on this path?

Yeah, absolutely. So, you know, I'm here back home in Newfoundland. This is where I was born. My parents were Americans. They came up during the Vietnam War and then had my sister and I.

And I grew up in a little town called, it's a loud port called Maddox Cove in the Petty Harbor area. like go to a Brooklyn coffee shop, imagine what an artisanal fishery is, you know, like their imagination.

And that's what I grew up in, right? Like fishermen's co-op next door, selling cod tongues door to door. Small, skiffs, smaller boats going out, jigging for cod, completely sustainable.

Like all these norms that had worked out about how to fish sustainably, whose areas were what, and like how protect the bounty without even talking about it really.

It was just understood that our lives were tied to the sea and that we were thankful for the seed. There was a certain humility to our extraction in those early days.

So grew up in that and all I ever wanted to be was fishermen. My parents were pretty educated and my sister was smart. they sort of had, you know, my sister ended up having a career and I wanted to work the water.

And I think if I look back, you know, what I wanted was this sort of self-directed life with meaning, right? You know you'd watch the fishermen go out, they wake up in the morning, the own their own boats, They succeeded and failed on their terms.

Growing Up in Newfoundland and Entering Fishing

They had the pride of feeding their community. Like these were jobs and I think of it now, these are like soul-filling jobs. And they're jobs we write songs about.

No one's writing songs. a Google worker or about, there are no good songs about lawyers and stockbrokers, but there're like thousands about fishermen, farmers, steelworkers, ironworkers.

These are more than jobs, they're culture. If I think about what my journey has been, it's really about how do we protect or create new jobs that we'll write and sing songs.

That's what that beginning, was and like all of this change is as much about culture and retaining the culture. And then tapping into like, the folks around me know so much.

That blue collar innovation, they're just filled with invention and solutions, but we need to make sure that it like captures their heart so that we sort of tap into that, all that blue-collar spirit.

You know, your book, Eat Like a Fish, that's how I got introduced to you. And that book to me is one of those seminal books, similar to Fast Food Nation, to many Michael Pollan's books.

I mean, too many of books that awaken us to the bigger picture. The fishing industry is just one that has been misrepresented and to degree, and then also potentially properly represented sometimes, but yet very misunderstood by the public.

Um, can we dive a little bit into that? Just your experience? Cause that's, that the thing, it's the same thing with farmers. I feel like there's. The media coverage of this.

And then to your point, we're not talking to the people that are actually working the water or working. Because they're the ones that have the true Intel.

Yeah, exactly. First of all, thanks so much for those really kind words about the book. I'm not a writer. God, it was painful to write, but I can tell a few stories.

I've been in enough bars my life, been enough bar fights that I can spin a story. Is that how you broke your nose? Hockey and barfights. Okay. But I also have six concussions.

The nose is the worst of the worry. You're catching me on my last leg. Oh, jeez. I hope not. So I wanted to be a fisherman and then I dropped out of high school at 14. pretty much right when I started.

I dropped out of school right away and headed out to sea. At that point, I went down and fished in Gloucester and I loved it. It was everything and then I thought I start as a lobster man, we did some tuna and ended up in Alaska on the Bering Sea doing cod and crab.

And I tell you, I still miss that job, right? Like that humility of being in 30-foot seas, the solidarity of be in the belly of a boat with like, you know, 13, 15 other people for months at a time.

Like those are true sort of brothers and then eventually sisters too, as the fishing industry really evolved and changed. And that sense of meaning of feeding my country.

Most of the fish I was catching in Alaska, it was gray and black cod. It was going to McDonald's for their fish witch. Was it called the Fish Witch? I think it's just called The Fish Sandwich.

We used to call it The fish Witch for some reason. I'm really proud of providing McDonalds its food. And it felt like I was part of a national effort.

So it wasn't just local, but we were operating at scale. But as we now know, the problem was we just got too good at what we do. This is what humans do, we get too at stuff.

And that's our great quality and it's also our downfall. You know, we just became so efficient at, you know using helicopters to find schools of fish.

We used a lot of World War II technology actually came into the end of radar, sonar, those big fleets were like, shifted into industrial fishing system.

And tearing up entire ecosystems with their trawls, so much dead bycatch. And as a young fisherman, we did know this couldn't continue. Once we got over the excitement and we were established in the fishery and watched what was happening year after year, there's just no way the ocean could provide this kind of bounty.

We had no control over it because the captains of industry, which was, you know, the folks on my, captain's on, my boat, they owned a share of the boat and a lot of them were Norwegians at that point.

This was a global commodity. I mean, when I learned that one of hedge funds on Wall Street owns 40% of Peruvian anchovy fishery. I was like, this has nothing to do with food.

This is just like a commodity, like oil or gold or something like that. So we had no control. And actually, the captains of industry, what they decided to was fish the last fish, right?

Just chase fewer and fewer fish further and further out to sea. They were heading into retirement. You know, so it's like how much can we catch it? Getting 10 years and the rest of us on the back of the boats were thinking differently.

We're like no, we want to die in our boats one day 50 years from now. Like this is about actually a way of life being on the ocean and making a good living, right?

And all three of those, being able to have healthcare and send my kids to college, all that sort of stuff. And it was an excellent job. So I think the environmental community really saw the destruction.

And they were right about that, right? No question. What they didn't see was, what they did was they created enemies, and just like an oil co-worker, like everyone's using lights, everyone is driving their cars, it's not the co worker, the oil worker or the fisherman, or farmer who's growing soy at commodity scale.

isn't to blame, it's actually a much larger system. So the environmentalists actually demonized fishermen and then the sort of more conservative elephants lifted up the individual fishermen, right?

Made us look like these small like out on our boats jigging for cod and that wasn't the way it is. And then we're stuck in the middle. Um, so, uh, and that's why I would never, because of that history, I wouldn't ever think of myself as an environmentalist because it's too one sided.

Like it doesn't think like it just didn't consider. And as I was growing it, it didn' have people at the, as part of the equation, It was about pushing people off.

and I, would say. We can talk about later, but like, I still see that in huge strains of the environmental movement, the conservation movements, that folks that are creating, they're like health center, health bent on creating marine parks, things like that.

It's like how do we get folks, folks who work for a living out of way and maybe just give them money, right? I remember Bill McKibben. saying this way back and he's moved.

He's become sort of so much more sophisticated in this, but Bill McKibben, you know, the sort, well, of the father of, uh, climate change movement around coal work and other, others.

She's like, ah, we'll just, yeah, no, will pay them.

Industrial Fishing, Misrepresentation, and the Collapse of Cod

We'll send them, eliminate coal and then we're making sure they're taken care of. And we don't want to be taken. Care of right. Like we want purpose, right?

Yeah. Purpose. You know there's a, there is a famous story. There are two stories we tell all the time around here. One is about, um, You the fisherman that the government buys back the fishing license, gives him great money for it, a couple hundred thousand bucks, fishing licence, and he beaches the boat and then buys a new truck and every day drives down to the dock four in the morning and drags himself to death.

And that is an iconic, I don't even know if it's true, but it is something that's told. Then the other story we're told, And I remember when this happened was when the cod crashed here in Newfoundland and the canneries were closed and of the fish plants were close.

There was a woman from New York came in and she said, we're going to re-employ everybody. We're gonna repurpose this fish plant. And it was to make seat belts for pets.

This was her idea. I don't know, in 97 or something like that, right? we were like fracking. But she was so well entrepreneur, well-meaning and she just did not understand that we don't want any job.

We want to grow things with meaning that fill our souls. I say all that and having lived through the collapse of an ecosystem, which was the Cod stocks crashed here in Newfoundland, 30,000 people thrown out of work.

And then living through sort of the results of that and seeing people like the captains of industry on one side, the environmentalists on the other side and the entrepreneurs and climate people.

And we're just like stuck in it all. All we want to do is grow good, delicious things for folks we know and our communities and beyond. I want go to where that journey has taken you, because obviously you had a lot of learnings on the boat that then took you to the current chapter you're in.

But before we do, there was something that struck me from your book regarding the McDonald's. You talked about the fish, the sushi grade versus what was going to some of these fast food chains.

And I don't think, I realize a lotta people see this grading on fish but I dont think they really understand it. Can you unpack that a bit for us? Yeah, yeah.

I mean, back in the day, so every, all our boats had a, you know, the Japanese were buying all the high quality. a fish and they were really controlling a lot of the Japanese.

I mean, the Alaskan fish market at that point, I was working the canners, salmon canneries, and it was all fish buyers. It was Japanese buyers and then the Grand Blackhawk and the same thing.

And they had an inspector, every boat had a Japanese inspector on it. Because they wanted to grade the fish between, at the point if I remember right, it A through D, if remember.

A being sushi grade? Yeah, yeah. At that point, what I just knew was worms. I don't know the technical, exactly what it was, but there were worms in the flesh.

That all went to the McDonald's grades. He would sort them all and tell us which pile they would take the best. the lowest quality would go into the fish sandwich because it's chunked up and you can never see the worms and stuff like that.

Yeah. In many ways, it just added protein. I guess that's the joke, right? That's right. We've been eating bugs for a

long time. That some people don't realize.

They take bugs. Not necessarily that fish are sick necessarily, but that it is not going to be the flesh that you could give to a sushi restaurant. Yeah.

Yeah, yeah. Okay. I mean, I will say this, like if I look There was, I got, you know, a little five-year-old now, and I'm just shocked what we've decided as a country to feed our kids, right?

I think we all are, it's just like stunning that this is what came up with in terms of nutrition and, do you, know it like crazy. It's all crap. And I will say, think I was thinking back to that time and it was interesting that the Japanese took everything that was high quality.

and America took everything that was low quality, because the Japanese took all the high quality fish, right? They took it all A through B. And then we, so that sort of a beginning of like, oh, let's just throw the crap into the American food system is the place where low-quality goes.

Then there are companies that specialize in making lowquality food delicious, and tricking our systems into needing that. It is really heartbreaking what we've Parents know this, but it wasn't until I became a parent where I was like, this is just nuts.

It's like a society that's decided to do this with food. How we run school cafeterias, where most of the schools, they're just feeding the kids crap. Brand brand ultra processed foods, you know, not really conducive towards health Just no nutrition, like nothing to help the kids grow or like, yeah, it's just nuts You know along those lines I feel like a lot of people don't really understand wild versus farmed and then also the distinctions between farms, is it as big of a divide as we're being told and Attached to that is, is there a difference between sustainably farmed and just faramed and what is that difference?

Yeah. Yeah, so. It's rough being a consumer in the seafood world, right? Red, greens, blues, they switch apps, They switch around, like, you know, think about like ruining a nice date with your partner.

You have to like pull out an app and look at the menu and like it's changed since last week. It just, if you're like fucking, I'm going to eat chicken.

This is ridiculous. And it just shows it is a broken. system, I think, you know, that level of complexity amount of money that goes into trying to figure out what a good fish is and to give it a label and stuff like that is just just stunning.

So I just want to like as I get asked all the time, what should I eat? And And my answer is like, you know, I don't know. Meaning like what was it they tested?

A third of the fish in New York restaurants were, in high-end restaurants, were mislabeled. I remember this study a bunch of years ago, right? Like, as a consumer, the amount of misinformation is heartbreaking.

And the principle, like Paul Greenberg's principles of eating lower in the food chain, absolutely. So that's just sort of to set the table. The question about aquaculture is, and I've got lots of friends that grow that are in aqua culture industry.

And we disagree. My view is that the aquiculture industry, what it did was, it looked at the wild palate. Like people like to eat salmon, cod, tuna, let's grow salmon tuna cod.

It was dictated by the markets. But that's a wild taste that doesn't pause for a moment and look at ocean and ask, okay, what's unique about the ocean is an agricultural space.

What are the things we can grow that the Ocean will allow us to grow the unit economics work, and then shift markets. I know it's hard to shift market.

There's just no shift flavor and taste. But what's happened is that we're growing highly intense, feed intensive, huge amount of pollution. We're just jailing fish and it just expensive to jail and feed fish.

And I'd say the industry fish farming is in its environmental, It's still in like a environmental incubator. Like it came out too early. Lots of folks are trying to lower the amount of wild fish that's going into the feed, deal with pollution, sea lights, all these things.

And they are getting better. But they rushed out to market and created industrial farms, like polluting farms. Then it's the worst brand in the grocery store.

is farm fish and now everybody's trying to like figure out which is better as our wild fish collapse, wildfish stocks collapse. So it's like, so I don't even think of myself as like an aquaculture farmer, right?

Like I'm saying this like I'd only want to get into that discussion. I feel bad for consumers and it just like felt bad. It's just a brutal space. Instead, the idea is to stop, to pause and say, okay, what's unique about the ocean?

And let's imagine right now on land we could pick from like the beginning, what are we going to grow? Like, would we say beef? I don't know. Right? would we say, like, I don't know, nothing about that, but would say soy?

Would we, say you know like but that's the advantage we have now. We can be like okay, what's, the sea basket here that will grow? And when you stop and pause and you look at climate change and look into the economics of what it takes to grow, it just makes sense to growth things that don' t swim away and don t have to feed.

Like that' s the power of the ocean, right? You can use the nutrients that are already there, and you can use the sunlight and grow theoretically thousands of kind of sea vegetables, hundreds of kinds of shellfish.

So that's where like I have, I don't think in terms of sustainability anymore. That's about trying to make a bad thing better. It's really important to go on that journey, right?

With clothing, food, all sorts of stuff. We're trying do, like we think of this as the regenerative Like actually, how do you grow things that breathe life back into the ocean and can create good jobs and breathe like back in the communities like that's our spot.

So sadly, I don't have an answer of which fish to eat because I just don' see a way through it. Well, but I mean, that is the answer. I think you're basically saying, hey, this illusion we have that one is better than the other is false.

That none of it is great. And, and, in that the reality is, is that what you're trying to do is at least how I hear you talking about it is you trying look at nature and say, how does nature want me to grow or use it to, to our advantage as humans, not how am I going to manipulate nature to my advantage?

Absolutely. And I mean, I'd say that like, you know, need to eat lower on the food chain. It is like the eating from your local waters, absolutely. Like wild fishery, I deeply hope will always be part of our menu, right?

It won't be with the collapse of the fish stocks and with rising populations and more and pressure to eat from the ocean, It will like we can't be eating the same amount of fish all the time.

But I hope it's this really cherished thing that you have once a week, once every two weeks and really appreciate that this is the last wild food on earth.

There's a fisherman behind it that is hunting and chasing this and it's beautiful life and something we want to support and a wonderful nutritious food.

But we just need to fill the plate with other things as well. On the farmed piece, what is it? Half of all wild fish caught in China goes to feed farmy fish.

Wild vs Farmed Seafood and the Limits of Aquaculture

What like it's stunning. Yeah, like so agriculture, you know, there's us agriculture and then it you like you move out and it is just so so broken, You know like there are I've been to farms where You know you look underneath the fish farm and it is just dead zones all the way through and essentially companies kill that water and then they move on to another site set up their fish from kill the water the amount of you know millions of fish are dying all of the time in these farms it's just like and i think i mean.

I'm even more concerned of who owns them. It's a couple of global companies. These aren't like domestic fish farms. Actually, ones here in Canada were just purchased by the Japanese and I think the Norwegians.

The same in Chile, these are not locally owned, even regionally owned companies, they're a handful. If we're going to recreate a farming system out in the ocean, let's use it to fix some other problems too.

Let's make sure it's not purely vertically integrated. Which let us get into that because that's really, I think, where you've gone in this chapter of your life.

So what is something that kelp or shellfish can do that land crops wish they could? How are you revolutionizing sea farming? Yeah, so like to step back and say, we will be eating an incredible amount of shellfish and seaweed from the ocean.

I'm absolutely positive. And the reason is one, like drought and nutrient crisis on land is pushing our food system out to sea. It's just like, it is, and it's making it more and more harder and expensive to grow food on the land.

And our wild fisheries can't handle that burden of more people needing more food from the ocean. So we're going to be farming. There's just no question about it.

And then it goes to what we were talking about, like, what's that going to look like? Right? And so we really believe that it's going be shellfish and seaweed.

If nothing else, because the price is gonna be stable, right? Like the climate economy winds are at our back. Anybody that's growing zero input food, our food requires no freshwater, no land.

no feed of any type, no fertilizer. Anybody that can do that as the price of, you know, what is corn supposed to go up 150% in the next decade? Like it's crazy, right?

So it is going to get more and more expensive to grow a whole set of crops and ours is gonna remain stable. So, it´s part of our future. The question is, is it going be delicious?

Creative, is it going to bring life into communities? Like, can we build a system out there that we're proud of? And I think that's what I'm excited. Like I didn't ever plan to grow seaweed, right?

I mean, I am not like a big real excited about seaweed. I can talk endlessly. really fascinating, but I wouldn't do this if this was just about how special seaweed was.

I think seaweed is a way to rethink our food system out in the ocean and to solve some of those problems that I faced when I was young, which was these hollowing out communities, the hollow out of meaning, these loss of all this talent and skills.

How do we keep these coastal communities alive? Yeah. Can you talk a bit about the benefits of seaweed, you know, even nutritionally? Um, sure. Cause I think a lot of people still don't really see it as it is almost an, an exchange for kale or broccoli or something.

You know they, they don' see them as one to one. Yeah, yeah. So environmentally sort of out of the park, right? Like we said, no inputs. Something like kelp captures multiple times more carbon than land-based plants.

These are rainforests of our ocean, they rebuild reefs. They soak up nitrogen, phosphorus. You think of coral reefs in regions like Kelp and oyster reefs are our foundational sort of systems, right, to keep our oceans alive.

So, environmentally, as far as food, you know, if you look at there, what I think 11,000 different plants in the ocean, and many of them are edible, but we haven't even looked at them.

What's interesting is I remember a bunch of years ago, I went around to see who had done the nutritional profile of seaweeds. And it was just like people were looking at a handful of them, basically just on custom and tradition.

The only folks I found were a major global pet food company that had done an analysis of 250 types of seaweeds, a nutritional analysis. because they were very worried about the future of the price of their ingredients and climate change.

So they are bio mining essentially, right? In the ocean, looking for different nutrients for their pet food, because, they're so price sensitive. And actually, there's this whole history that I'm no expert on, but it turns out a lot of innovation on like Chewy granola bars and all sorts of stuff all come out of the pet food industry the folks that invented Pets like all these different treats for pets then that was then transferred into the snack industry It's felt like like the different mouth fields and crunches and stuff like that.

Yeah, it's like this Someone's got to write a story about it So, depending on the seaweed, you can get more vitamin C than oranges, more protein than red meat in something like a nori, and more D than milk.

The nutrients are just packed in the ocean and in these plants. Now, they're not all in So kelp is like its protein level is low, for example. But as you begin looking at the plants and putting together dishes with different seaweeds, they can play a powerful role in keeping folks healthy.

The challenge is, I mean, you know, in the book, there's a chapter, Kelp is the New Kale. And I think that was the stupidest thing I ever said, like looking back.

Because, so the reason I said that, was I'd never had kale before, right, ever. Some kids from, not kids, but like students from Yale came out from the Yale Sustainable Farm Program, came up to work on the farm and they all had those kale shirts on.

They like sent big alerts. We crossed it out as a joke with a marker and wrote Kelps. right? So I was like, oh, kelp is the new kale. I started saying it, you know, like at events and things like that.

And, and, the trajectory of kale was that it was rabbit food. Then some high-end chefs got hold of it. They did a creative, amazing stuff. There was a kale lobby and all these things, then it moved down into middle-class food, but there was this like trajectory into high-end food and then into the center of the plate.

It looked like that's what kelp was going to be, but it didn't go that way. I think it's a much harder flavor profile to break open. So I take it as more powerful as a crop than kale, meaning its climate benefits, its potential to scale, just like the bounty of it is so much more powerfully than the kale.

But it's taken a while to really figure out what are the ingredient powers of kelp. We went through this early. Everyone was doing salads for a little while, and then everybody was dong noodles and different things.

It was like, yeah, it is good. Regular salad's better. You'd taste it and you'd be excited that there was this hero ingredient in it. And you wouldn't be exciting because there is a whole new sort of taste profile to it." Right.

So that's been the journey. It's being like, okay, no, this isn't like high-end chef doing amazing dishes and then that dribbling down. it's a different journey and so, and for me, it has been way more interesting.

Like if I were to do, there's an incredible like kelp crumble. It's a co-op called Naughty Seafoods out of Maine. If I were to replace one dish, it would be meatloaf, like that core American dish of meat loaf because kelp and

mushrooms go really, really well together.

And so it became about how do you take sea vegetables, sea greens, and combine them with land-based flavors? Because kelp is like, it's a flavor enhancer.

It has that umami. I mean, I remember Rene Renzepi out on the boat telling me he, like when he started normal, standard was he'd use kelps in order to get more flavor out of all his vegetables.

He'd throw kelpa in there not to eat, but to enhance the flavor. So it's got all that, it has a great mouth feel, sort of an al dente piece. It turns bright green when you cook it.

So that move from like a, like, a seaweed into a sea green, so like its aesthetics are, are really strong. And then, you know, as a salt, sodium alternative, things like that you get an incredible, um, sorta salty, natural saltiness that.

Why Kelp and Shellfish Are the Future

comes with it so if you do um like there's a salt marsh beef there is a kelp beef out of the hebrides islands where the sheep uh sorry sheep all eat kelps for the season and you get this in there.

You get the umami, you get this saltiness, You'll get all this sort of marbling. Same with chickens, the yolks, and the flavor. So kelp becomes this thing to bring flavor back into our food system.

That's one of its roles. I think of kelps now not as a hero ingredient, but as this climate change warrior. Rather, it's a great problem solver. It's problem-solver for like, let's take something like sunscreens, right?

It turns out kelp is an excellent because it exposed half of the year, half every day usually out in the sun. Which has these incredible qualities that as a natural sunscreen combined with other stuff.

It functions really well. So all of our work at GreenWave really is like, how do we use Kelp to address problems that other industries are facing? Will you just share with what Greenway is for people?

I don't think everyone's heard about that. Sure. Greenwave is a nonprofit and we work throughout North America. We've got some programming in New Zealand and Argentina as well, And it has a couple components.

We created an online platform where we open source how to do a hatchery, how do seed banks, build your own farm, and how did it build processing lines.

And then we also have high touch programming. GreenWave came out as the model began to gain momentum. I started training just folks I knew, friends of mine, former fishermen to grow seaweed.

And it was like, you know, five people a year. We set up a website and 8,000 people signed up for the farmer training program in the US and then requests in over 100 countries.

That was, I think, nine years ago. I got together with Emily Stengel, the co-founder at GreenWave, and we were like, okay, how do we do this seriously?

Let's not create a company, let's do a nonprofit, because we need collaboration, not competition as we're building this industry, moved out there. So Greenwave has this online platform.

the information hub, the curriculum, things like that, farm design tools, budgeting tools. But also as a community with 6,000 people on it, has the seaweed source where farmers and buyers of seaweed can come and do forward contracting.

Then we have something called the MyKelp app, which farmers use to take pictures and record, take measurements on their farm. We have the best dataset of kelp farming throughout North America.

So that's one part of the program. And then we have a subsidy program and granting program where farmers get paid to grow cow. They actually get a, because what they're doing has all these environmental benefits.

The market doesn't pay for it. Doesn't recognize that. So GreenWave actually gives up to $10,000 per farm. And then we have an infrastructure program where we help build hatcheries and processing lines.

We got a pretty robust program. It's great because it's made me obsolete. Like the folks doing it are just… Did you find that the fishermen that moved to this model were to what you spoke about earlier?

Did they feel fulfilled? We don't know what the kelp farmer of the future is going to be. I thought it was all going like former addicts like me. And there is that, right?

We've got folks running 90 foot trawlers out doing it on the shoulder season, you know, when they're, they'll fish and in the winter they will grow kelp.

We got shell fishermen who were just oystermen and they bring in kelps and now they are doing polyculture, which is really important. But if you look at our The folks out there, it's like everything from folks who wanted to grow on land but couldn't get land, like young farmers, cops, lawyers, climate activists, fishermen.

It's just all over the place. I think it is majority women that are in the industry at this point. Uh, uh, I think it's attracted a lot of people because it not built yet.

That feeling of like, oh, we get to build this owner creator on new rules, pioneers, like the pirate sensibility, right? You know, that we're like. Um, and we, get, to, build something from, you know.

And so I, think there's a, lot, of ownership, Uh of it. So anyway, it, has been fascinating. so, um, the soul filling part, Like that pride of growing.

of like lifting a wall of plants out of the water. Yes, that's very soul-filling. It is interesting to see, let's say, the commercial fishermen all the way to folks that had cubicle jobs that entered.

I think they're all creating an identity together and we'll have to in 10 years what it looks like. That, I guess, is the biggest surprise to me of who came into this.

So it's like all walks of life. And it's not just seaweed, right? Because the system is created where you have basically, I don't know if I'm using the right term, but like trees of seaweed.

But then at the bottom, you're also doing shellfish, and which shell fish do you primarily do? Yeah, so I always did. I started out as an oisterman. And then I had to diversify into seaweed because I got wiped out by two hurricanes.

Right? And I just needed multiple species for multiple seasons, crops for different seasons so that I'd be able to sort of keep my business alive. That was like the origin of my polyculture.

So I grew oysters, mussels, clams, scallops, and kelp. And I tried a bunch of other stuff as well, Gracilaria and different things, but those are the ones I ended up centering on.

And, I think the polyculture thing is key. I mean, there's been a risk as the kelp industries gain momentum. Some folks have come in, some big, big sort of speculative players that want to do monoculture farms.

We all started. very intentionally as polyculture. Because mother nature functions in a reef system. What we've learned, if you grow kelp next to mussels, it's stunning.

You get 20 percent higher yield of kelps if these are grown together. These species don't compete. Do you think they would? I still don' really understand why this happens, but they don"t compete, they work together and the reef systems is how to get the most productivity out of a farm.

That's fascinating. It makes you wonder There's well, that is true on land as well. Of course, there's certain. like tomatoes grow really well with certain herbs, right?

And they help to actually keep the bugs off. And so there's lots of synergistic properties within nature. We just have to tap into them, Right? Yeah, exactly.

Exactly. That's the key. I think the, you know, we just keep, there is nothing new here. All we need to do is take mother nature's technology, these natural solutions and figure out how to replicate them.

How to scale them and how, how do turn them? You know make sure that people can have livelihoods around them I was looking at some of your timelines. I know 2017 was a big year of getting honored for this work, from the Rolling Stone magazine, 25 people shaping the future, to the Time magazine honoring your ocean farming as the best invention of 2017. And then that's seven years ago now.

So what are we seeing these days? Is there still that excitement? Because I feel like from my layman perspective, it got hot for a while, but then I don't hear anyone talking about it now Absolutely, absolutely.

And I think there was a, like it wasn't a bubble, but there's a thing called, what's it called? I forget what it is. There's some name for this hype curve where you have an idea that's going to be part of humanity's future and growing plants underwater is going be a part, right?

And then there is too much excitement, and you get all these different folks getting in, you then get really speculative behavior. And then the speculators, like it doesn't meet its promise of like, you know, fully flat out solving climate change or fully, flat-out, being biofueled to power planes, stuff like that.

Like that's where the discussion got. And, then folks leave and then there's this period of sort of disillusionment. Then there is a period realistic steady growth, right?

Like there are some. I forget the full term, but that's like a real thing that happens in industries. I didn't know it then, if I look back, I think that is what happened.

There was all this excitement and then Bezos came in and Department of Energy came and it got really nuts in that the Department Uh, put what like $30 million into creating kelp as a biofuel.

Right. And then bio fuel and then the others. So we were all poly culture farmers, right. Growing food. and growing soil amendments.

GreenWave, Polyculture, and Building the Industry

That's sort of like what we were doing and then like some cosmetics and that's what the industry was. The speculators came in and they decided biofuel and blue carbon were the two best uses for kelp.

And it turns out those are the worst uses of kelps, right? What's blue-carbon? You grow kelpt and you throw it in the bottom of the ocean, terrible use of Kelp, and bio-fue, it's like taking it and competing with the fossil fuel industry is just nuts.

Is it even efficient? Is one of those things where it actually takes more energy to create it that way? Absolutely. You end up doing studies, you need your farms offshore, deep waters, they need to be thousand acre farms, the amount of energy.

Kelp is not an app, and agriculture is like technology. All of us who know farming, we've seen the tech bros come in and try, so many times to disrupt our in our industry and then they sort of move on and now they're in the the AI world is I think where most of them ended up so um so that was like they took all the oxygen out of the room and you know there were crazy plans there was one company um running tide that got money from uh one of like cashless apps.

I think they might have raised like 100 million or something, like some massive amount. Their goal was to create these pox of kelp in the millions that float out into the ocean.

Then through some robotic thing, they let go and all that kelps sinks to the bottom and becomes blue carbon and they're selling blue-carbon credits. all of those companies failed.

So it was just a crazy, crazy time. And then they've all left and now we've been able to really concentrate on sort of serious a sort of sustainable steady growth.

Being a shiny thing in this kind of sort-of fake it till you make it economy, that is, where the investment is about incredible amount of money and then hockey stick curve and exit, it's a really short-term rather than long-haul thinking, is really problematic, I think, in our ag system.

That's what happened. Then they all left and the chessboard changed and a whole bunch of us were left standing. And what we've been doing now is like permitting setting up farm setting a patch resetting up processing stabilization hubs and then creating groups of folks around certain market.

You know value added products and so now there are enough. hatcheries, farms, farmers, seed, and hubs. Bruce, you know, we could do 30 million pounds in the US right now if we flipped a switch.

Market is not there. But like, that's what, so like supply we've solved. So while all that happened, there's like we were able to do, And the we is the big we, like this isn't just GreenWave.

There's an incredible network of folks working together on this stuff. So supply is solved. Now, the big question is markets. And we actually just created a relationship with the Unilever Foundry around cosmetics in order to use kelp as a replacement for some of the chemicals they're using.

It's like food ingredients, like sodium alternatives and broths and flavoring. Like we said, The kelp crumble things like that cosmetics and and bio plastics is like a very good you know in london i think most of the takeout containers now are coated with seaweed instead of plastic so so and then the last is this bio stimulant is using seaweed in the soil.

And I think that's very, very powerful. We can go deeper into it if you want, but using the ocean's biodiversity and getting it into land-based agriculture has real, real potential.

But so these are the good uses of kelp, right? The use of the sensible, the ones with the highest value that we can build an industry on. we just had this moment that was just like chaos.

So what do you think it's going to take though to kind of bring this industry to the forefront? You mentioned those four avenues, but does to really have it come back into play and maybe even dominate more?

Is it like kids need to be snacking on seaweed instead of chips? Or is all food, all containers need be lined with it? Do the things that are already in place just have to kind of have more time to amplify?

or is there some philosophical shift that has to happen? Shifting tastes is tough and telling people what to eat is tuff. There's been quite a bit of shaming in the food sector about trying to convince people.

It happens, it's just slow. My, my take is that like, this is going to be part, part of our future. We just don't know how fast. And I actually think that what's really going drive it is, is the unit economics.

It's like. So drought is like the price of potatoes here are going through the roof because the droughts in the last two years up in Maritimes have just been brutal.

The number of vegetables that are losing their nutritional content because all their energy has to be fighting climate change, with the heat, drought stress, soil degradation, all those sort of things.

If, as the price of things, like I was saying before, is the demand for seaweed will go up because it'll just be the most affordable option. We just don't know how fast that's going to be.

Is that 50 years? Is it 10 years. So there's the climate economy piece. I also think what was holding us up was this supply question. Like we had the permit.

hundreds and hundreds of farms. So I think they're about 6,000 acres permitted in North America now, if I'm right, and we needed enough hatcheries and skilled farmers and things like that.

What happened on land took 10, 000 years. We had to do it really, really fast. It took us a bunch of years to get the supply issue solved. Then the question is, what's the best use of kelp as a problem solver?

Biostim will be the first really scalable thing that's going to come into play. That's because folks have been using, farmers have using seaweed for hundreds of years, of course, on their farms.

I think it's like less than 1% of farmers on the globe use seaweed bio-stimulant as a fertilizer alternative. What do we know it does? If you spray a kelp bio-stimulant on your crops, it activates the biome in the soil and strengthens the plants with various hormones.

It means 7,000 gallons less water needed per acre, 15% less fertilizer. And like, you know, the wine industry, let's say they spray it in August, they call it the sunscreen every farmer needs.

They spray seaweed bio-stem as a way to deal with those sort of spikes in extreme weather temperature. So the Green Wave has a goal of a million acres of land.

land agriculture using seaweed bio-stem in the next few years. I think we'll definitely hit that. The seaweed biostem will be one where there's a lot of activity.

Because the drought issue is such a crisis and really messing with the profitability of farms, I that's one. Then the other big thing that is driving this much faster than I thought it would was global instability of supply chains.

Like, so Unilever and Nestle and all these folks have been swimming around us for a decade, and they've been saying like, wait, you know, one that we want to meet our climate goals.

That was one reason, but it was all the supply, do you have enough supply? They have rushed to the table now because sourcing is such an issue. As we all know, it's global instability on top of climate change and this rise of this belief that we need to rebuild things domestically for security.

So anybody that can grow a renewable resource in regional and local and domestic waters. Anyway, like has a huge advantage. So we're getting approached now by like folks that are worried about their ingredients supply chains.

And it's the same people that talking to soldier fly companies, black soldier flight companies. are also looking for kelp because they're just on a search for new sources of nutrients.

I'm not familiar with the black soldier. What is it called? Black soldier flies. So black soldiers flies are these fly farms and they use them for proteins to feed chickens and oil as frass and they use it as bait alternatives and fish feed and like you can buy it at any pet store.

You'll see BSF black soldier fly. And so these farms are popping up all over Europe and Africa in the US and Canada. They're just starting to, but what's really interesting in this to see some of the big strategic agricultural players look at those that are now investing in building these because they need sources of protein for their chickens, for example.

Right. Or they need fertilizer prices doubled in 2004. Right, they mean, because the most of fertilizer is coming from

Ukraine and Russia. So they needed domestic secure sources of nutrients for their, for ag.

This sort of like build, build build infrastructure, infrastructure the look for rare earth minerals all those sort things oddly enough and I didn't expect this it just has shown itself is that the fact that we can grow an incredible amount of seaweed in local waters and there's all this good stuff in seaweed.

is it sort of makes this way more attractive than before. So does that make sense? I like it. I don't know if that's too messy, but it's like. No, yeah.

It's fascinating.

Markets, Bio-Stimulants, and What Listeners Can Do

Cause it, and it also does sound like, it say it a more natural and what you've already articulated, a sustainable form of, of let's say fertilizer or whatever, you know, whatever the use is for it As we close though, I always like to think about, well, what can the listener take with them today?

Like what change can they incorporate from your expertise or from our conversation that they can immediately start? And I think we're talking a lot about kelp farming, seaweed farming.

We're talking a lot about the industry problems, but is there something that the listener can do to help solve some of these problems tomorrow? Absolutely.

At a meta sense, I just want to say move into the solutions. space, like the politics of yes. It's not like all of us need to, there is so much joy in trying to figure out and moving into these sort of solutions and directing our lives towards building things rather than sort-of tearing down or stopping things.

I get in that flow is is one thing one day and there are there a thousands of incredible solutions out there. You know they're the folks doing like fiber shed their rebuilding the cotton supply chain in the US with mills and cotton farmers.

And there are just so many solutions out there. A good source of this place is if you go to a Ashoka network I'm part of, just all these different folks just coming up with brilliant workable sort of people-based solutions that I suggest folks plug into.

So that's one. Ocean point of view, I think, you know, sort of immediately shifting and getting some sea vegetables into your diet, into the kitchen really does matter now.

In that, I think it's the right time, the supply is there, we can scale, and I that flavor profile in something like the kelp crumble. If you got kelps six, seven years ago, I don't think it was delicious, amazing food.

There are now kelp curries and Dijon mustards made out of kelps. Companies like Barnacle, which is doing incredible hot sauces. They're just some great, great food out there.

I'd say get that on the plate while the fish apps confuse you. This is a really simple, relaxing meal. One to do and you're supporting a domestic industry and your supporting part of that sort of solution based sort perspective on the world.

So that's one. The other thing is like, you know, hop over to the GreenWave site and we've got some You can swim through, like, you know, it's an AV thing where you can swing through a kelp farm, learn about it.

You could design your own kelps farm. Like, hop over there to the Greenwave Hub and sort of just have fun, but also get literate on it, the ocean is going to be a big part of our future.

I mean, listen, sea level is rising. From my perspective, that's more farmland, right? And everyone else is fleeing

the coast, like turn towards the ocean, let's embrace it.

We're going to be getting more of our food there, we're gonna be more getting our, you know, all sorts of different ingredients and it's going be showing up all over the place.

So it is a chance for everybody to, to all the land lovers to start getting their sea legs. I love that. Yeah, the landlubbers start start embracing your sea legs.

I'm just so grateful that you took the time to talk to me and to share your wisdom with everyone. And I really do sincerely mean that your book is fantastic.

Can't recommend it enough that people check it out. In what you're doing, you know, I really do love that you're redirecting people back to nature's systems and solutions.

That is, I believe, one of the most important things for any of us to do in industry and innovation, because nature has the answers. Yeah, like Mars is not the answer.

The answers are here on Earth. Nature is a brilliant technology. If you got to get stuck in a technology framework, the things that happen in the ocean, and the solutions in there are just stunning.

We can solve this as long as we do exactly what you said. Our mentor is nature, not the tech bros. I love that. Let nature be thy mentor. Yeah. So, real honor, honor to be on.

Thanks so much. And it's so great that, like, I love getting to spend time with folks that I wouldn't normally, right? Yeah. So you mentioned a few things people can do to connect with organizations that you're passionate about or part of.

How can they personally connect to you? Is that through social or specific sites? Yeah, so I pulled completely off of the social media world, but through GreenWave, there's a community on there, we're all on it.

So if you go to the regenerative ocean farming hub, connect through there and we've got a whole team and I'm on their of like folks that are. They're engaging not only farmers, but the community of passion as well.

Awesome. That's a good place for if someone is inspired to go down this path to start as, well, right? Absolutely. On there is everything. There are scientists, there's students, they're entrepreneurs, their farmers.

It's whole mix of folks. Fantastic. Well, thank you again for your time. And thank you everyone for joining us on today's talk. If you enjoyed what you heard or saw, the way to relay that to us is by following us.

On any of the platforms you listened or watched us, on by leaving a comment and or just sharing it with a friend or family member to encourage them to watch too.

So thank