



Lesson 9: North Carolina Business Perspectives on Aquaculture

Interview with Ryan Bethea of Oysters Carolina – Oyster Aquaculture

Interviewer: Okay, could you start by telling us your name, your business name, and the county where your business operates?

Ryan Bethea: Yeah, so my name is Ryan Bethea, and the name of the company is called Oysters Carolina. We're a farm on the north side of Harkers Island, by Cape Lookout, and we operate in Carteret County.

Interviewer: Great, thank you. And so just to get a little bit of context, what aquaculture species do you raise, and is that species one that lives in the Carteret County area naturally?

Ryan Bethea: Yes, ma'am. So, on the East Coast, except for Maine, we actually have to grow the native species, which is *Crassostrea virginica*, otherwise known as the eastern oyster, and you see them...Whenever you see an oyster on our North Carolina coast, that's exactly what it is, and it's delicious. It grows in these waters originally, so they seem to do pretty well. There's not a lot of mortality, if you treat them right, and they're a pretty oyster.

Interviewer: Okay, that's really interesting that you call them pretty. I like that. You clearly have a kind of love for your work.

Ryan Bethea: Right, yeah. I wouldn't be doing it if I didn't.

Interviewer: And so, kind of related to your love for the oyster and your care for it, how do you grow the species? Is it in open water, or is it in ponds, or do you do it a different way?

Ryan Bethea: So, North Carolina is kind of unique in the fact that our waters are public trust, so they're open to anybody who's a North Carolina citizen. And so, what we do is, we actually lease water from the state, and we can buy, sell and trade it, and then we pay rent on the water, but again, we can't keep anybody off of it, so people are welcome to kayak through our lease or walk through it or boat through it.

Ryan Bethea: We grow our oysters in the sound. We're fairly unique in two areas where we grow oysters. One is the fact that where we are, there's a lot of flow tidally, and just from the currents, and so the ocean water comes up through the west of the island, and then it spits out the east, and it goes right by our oyster farm. And it brings lots of fresh ocean water. That makes our lease very, very salty.

Ryan Bethea: And then the other thing that's unique about our growing waters is the fact that it's intertidal. So, what that means is that the water actually...Sometimes the oysters are exposed, so at high tide they're underwater, and at low tide they're exposed. Oysters

are intertidal species, so it really helps grow a really good oyster, because they're in their natural habitat and that being fully submerged most of the time. So actually, where we are, the water can be anywhere from completely ebbled out — so zero and dry — all the way to about 4 or 5 feet on our lease.

Interviewer: Oh, wow, and that's really interesting, because I hadn't realized how much intricacy goes into even just the habitat in which these oysters are grown and how that can impact them. So that's really interesting.

Ryan Bethea: Yeah, yeah. It's — I think any oyster farmer will tell you that the site selection, where you choose to grow your oysters, is the most important thing.

Interviewer: That's good to know. And again, I guess kind of on this kind of idea of maintaining the oysters, so what kind of work do you do to maintain and keep your business running?

Ryan Bethea: It's a lot of work, first of all. Well, in terms of with the oysters, we do a lot of cleaning, we do a lot of sorting, and since we're in such a salty environment — because we get that fresh ocean water — we have a lot of different organisms that grow on our oysters and our oyster cages and all of our gear. And the stuff that grows on there, that's called biofouling. And what that does is that it affects the flow of the water to the oysters, and when you don't have good flow going to the oysters, they don't grow as well. They don't get as much dissolved oxygen, so you'll get higher mortality rates.

Ryan Bethea: And then for my business, I spend a lot of time driving. We deliver our oysters anywhere in North Carolina with free delivery, and we also pull our oysters out of the water the same day that we deliver them. So people order oysters from us anywhere in North Carolina that morning, I go out or we go out, we harvest them, and then take a picture with a timestamp, send it to them, and then drive them directly there. So, I'd like to spend a lot more time on the water, but no, unfortunately, a lot of my job is on the road delivering these wonderful oysters.

Interviewer: That's really interesting, and I wouldn't have thought that driving would be such an important aspect of this, but I guess you're right. If you don't want to deliver them yourself, then that's something you really have to consider.

Ryan Bethea: Exactly.

Interviewer: And so on the topic of equipment, which you clearly use a vehicle quite often, what other kinds of equipment and resources did you need to even start your business?

Ryan Bethea: Well, and again, depending on your site, you're going to need different equipment. So, if you're going to be working with 8 feet of water, then you're going to need a crane and oyster cages and a davit and things like that, a boat. With us being intertidal, you can actually walk out there if you have to, but we do have a 19-foot skiff. We also have something called a 12-foot sneak boat. It's for duck hunting primarily, but we load oysters on there and use a trolling motor for that, and then we have several kayaks that we use as well.

Ryan Bethea: In terms of actually growing the oysters, we have cages. We use 2-foot-by-3-foot cages, and we'll double stack them, and they sit on the bottom. And again, when it's low tide, they're exposed to kind of dry out the oysters. And the reason we use cages that are that size is because when I started this business, I was the only one that was going to work the oysters.

Interviewer: Oh, wow.

Ryan Bethea: So yeah, and so it had to be something where I could do it all myself. What we do at Oysters Carolina, we try to be 100% craft, which is kind of a played-out word, but it just kind of means use of your hands, and so we don't use any cranes. We don't use any mechanical equipment. It's a kayak and then blood, sweat and tears is what we use to lift the oysters, to curate the oysters, to harvest them and all that stuff.

Interviewer: Okay, wow. Again, a lot goes into this so that maybe not a lot of people have a chance to be exposed to normally, or just don't even get the chance to think about too much.

Ryan Bethea: Definitely.

Interviewer: And I guess, I don't know, this is kind of just a follow-up: Were there any other primary startup costs that you didn't just mention or that kind of surprised you when you first got into the business?

Ryan Bethea: I wouldn't say there's anything specific, but if you say that you're going to...if you budget to start your company or to start an oyster farm, and let's say you budget \$10,000, there's a lot of extra costs of things that you don't know, that depending on your site, whether that...you use a boat, well, the outboard goes down or the amount of money you spend on ropes or zip ties or bags to harvest oysters in. There's a lot of costs that even if you're as thorough as you can be, that are going to just appear kind of out of thin air.

Ryan Bethea: Seed, oyster seed, is one of our biggest expenses, just because, depending on how much seed you get. If seed is 2.5 cents apiece and you get a 100,000 seed, well that's \$2,500...

Interviewer: Oh, wow.

Ryan Bethea: And there's no guarantee that any of that is going to even survive.

Interviewer: Wow. That's really interesting, and again, the levels of which you have to think about this is just a little bit mind-boggling, just the numbers even are a little bit mind-boggling.

Ryan Bethea: Yeah, they are. They are.

Interviewer: And so I know you've been in the business for a few years now, and we are talking about budgeting and costs. How many years did it take you to start turning a profit on your business?

Ryan Bethea: On paper, it's going to look like you're going to try to profit on the first year and the second year, and everybody at every oyster farm will tell you that's not going to be the case. But as humans we just think that we're going to be the ones that actually do turn the profit the first year. It took us about three years to start turning a profit. Everybody's going to do their business differently. We really made sure to not take any investment from anybody, and I think that's going to help us out long-term, but it's kind of...it initially delayed how much money that we're going to be making.

Ryan Bethea: So the first two or three years, I was still teaching at the time, and most of my teaching salary went to the oyster farm. And so, I'm working five days a week, and then on the weekends going out and working on the oyster farm and spending the money that I had made during the week. So, it took me about three years, but again, that's going to depend on where you grow your oysters, how well they grow, how much you're able to sell them for. We're fortunate enough to sell our oysters for a really high price point, and then — so we don't have to grow as many oysters as other people, but it just really depends.

Interviewer: Okay, and you've kind of mentioned a few of these, but I didn't know if there were any more — what are reasons that you might end up with a less profitable season of oysters in one year versus, say, the other?

Ryan Bethea: So, that's a good question, and again, a lot of people...it's going to come down to site — well, the main part is going to come down to site selection. So, we have some farms in North Carolina that grow great oysters with great oyster farmers, but with us having these wet falls that we've been having, or wet years, the last two years, no matter how good the oyster grows or looks, if you get a certain amount of rain that they shut down your lease, you can't sell oysters.

Ryan Bethea: So we've got guys that had great leases that had hundreds of thousands of oysters ready to be sold, and they were closed 180 days a year, so they're literally closed half the year. And then what that does is, the oysters that are ready to go to market, if you're closed for six weeks, those things are still going to grow, and then they get to be too big for market. So, you have oysters that have survived, that you've spent a lot of work on and a lot of money on, that you still have to take care of, because they're still out there. But you cannot sell them, because they're either too big or your site has been closed due to rain.

Interviewer: Wow, and so I have to imagine the impact of hurricanes also relates to that as well.

Ryan Bethea: Yeah, definitely. With hurricanes, people think the main issue with hurricanes is infrastructure destruction, so all your gear getting messed up or blown away. What we see with hurricanes is the biggest issue is all the water that it brings. So, with the ocean waters warming now, we have wetter storms. So, the storm is going to dump more rain than what it used to do, so that shuts down leases.

Ryan Bethea: What it also does is one way...Oysters are pretty hardy, but one way in which they're not is big swings of salinity or temperature. And so, if you've got, let's say, 25 parts per

1,000 salt on your farm, okay, and the ocean is 33 to 35, just to give you some kind of scale, if we have a big storm that dumps all that rain, you're looking at that 25 parts per 1,000 salinity dropping to 10 or to 5 parts per 1,000, and you can't grow oysters in fresh water. So, when you have these big storms, it pretty much turns the sound into a lake, and so your oysters are going to die that way from the hurricane instead of heavy winds and things like that that people assume is the main issue with hurricanes.

Interviewer: Okay, that's really interesting to think about the impact of a hurricane, as you said beyond infrastructure, but actually just the impact on the water. That's really interesting.

Ryan Bethea: Yeah. Yeah, that's the main thing. You can sink your gear or pull your gear out of the water. Or there's lots of things you can do to mitigate that, but you can't really do anything to mitigate low salinity drops or big salinity drops.

Interviewer: And so, you mentioned the impacts on other leases, and so I was wondering, are aquaculture businesses common in your area, not necessarily just other people who work with oysters, but people who work with, say, clams or crabs or anything like that?

Ryan Bethea: I think that's definitely becoming more common. Where we are specifically, I think there's more and more leases popping up. Currently, we're the only leaseholders on Harkers Island, but we're seeing it spread. It's an industry that's in its infancy, and it's whether you're doing clams, littleneck clams, Venus Sunray clams, scallops, oysters — any kind of aquaculture with bivalves or shellfish — it is really growing in this state, and people are making a lot of money.

Interviewer: And so with this growth, I was wondering if you could think back to when you first opened your business and what kind of made you decide to start working with oysters?

Ryan Bethea: Excuse me. For me, it was, I just have such a passion for our state in North Carolina, and when I realized that our waters at the coast are relatively undeveloped, which makes for pristine water, I just kind of combined that with also my love for seafood — and specifically oysters. They're delicious, and so it was kind of a win-win, because we grow such great oysters here. I think that the state and the people of this state deserve to have fresh shellfish, and I think we deserve to kind of have a name for ourselves so the rest of the country knows how great North Carolina is.

Interviewer: I like the motivation to spread how cool North Carolina is and what all we have here resource-wise. I think that's really interesting and good.

Ryan Bethea: Yeah, it's true. I've been all over the world, and North Carolina is my favorite place.

Interviewer: That's so great to hear. And so, again, talking a little bit more about the business itself, did you know someone who was in the business and to kind of go to as kind of like a mentor to ask questions and get advice from? And then as someone who's been in the business for a little while now, what kind of advice would you have for someone starting this kind of aquaculture?

Ryan Bethea: Well, when I first got into it there really wasn't...You couldn't even really do a quick Google search and find North Carolina farmers.

Interviewer: Wow.

Ryan Bethea: We didn't even have a shellfish program to even join. So, what I had to do is finish another degree and then go to the Virginia Institute of Marine Science. They had oyster genetics and [an] aquaculture program there. So I went there, and I learned as much as I could, and then as part of that program they connect you with other farmers across the U.S., and one of the farmers that I was fortunate enough to be connected with was Dr. James Morris, and he works with his father, Jimmy, in Sea Level, where they've got one of the top oyster farms in the state, and he kind of took me — I wouldn't say under his wing, but he at least offered advice — and then we actually purchased a lease that he was getting rid of. We were able to purchase that and start our oyster farm, so Dr. Morris was huge in terms of getting us started.

Ryan Bethea: And in terms of advice, guys in this stage of the industry, we're not necessarily competing with each other. So guys have been pretty upfront with giving each other information and asking questions. If you're interested in that kind of stuff, going to aquaculture conferences, and getting involved, whether it's the North Carolina Shellfish Growers Association or anything like that that you can do, you'll meet these people, and everybody's been pretty nice and offers...We kind of all help each other when we have issues.

Ryan Bethea: And then advice that maybe I would give to guys starting a farm is...I guess I can just speak for myself. I'm not sure this is necessarily the smartest advice for everybody, but do everything on your own, and be prepared to work hard. And kind of as a backup plan, just make sure you outwork every other person. So, whether your oysters grow or they don't grow, or if you have lots of issues, if you outwork everybody, you're going to see some success at some level. And that works for anything, not just oyster farming.

Interviewer: Oh, that's good to hear that the community is overall pretty supportive and helpful —

Ryan Bethea: We are.

Interviewer: — for new growers. That's good to hear.

Ryan Bethea: Yeah.

Interviewer: And so, kind of as thinking about new people starting this business, so what's a challenge you encountered that you didn't anticipate?

Ryan Bethea: The biggest challenge I can think of is, our first year we lost about 90% of our oysters.

Interviewer: Oh, wow.

Ryan Bethea: Yeah, we had this — there's something called summer mortality happens. And it's, again, a lot of smart people, people I feel that are a lot smarter than me are working on the solution. And so, I'd say, for me, the biggest challenge has been working your butt off, working for a year and a half, getting these oysters that look beautiful and taste great, and then them all dying within about three or four weeks.

Interviewer: That was devastating.

Ryan Bethea: It is. You really have to...When something like that happens, and you're broke because everything that you had worked on is now dead, that you spent money on, having to, again, spend more money on buying more oyster seed and about to spend more time and effort — and to me that's been the most challenging.

Interviewer: Okay, and then just kind of one last question to kind of wrap everything up. So even despite all the challenges — and I know you've learned a lot as your business has grown and as you've been in it for a while — would you start it again?

Ryan Bethea: Definitely. I kind of feel — I still feel — we've been a farm for about five years, and I still feel like we're just getting started. Every year, we're kind of trending up. Every year we're growing. Every year the industry is growing. Every year the state's getting more recognition. So not only would I do it again, I feel like we barely just got started.

Interviewer: That's such a great way to look at it, and I'm glad you feel that way, because you clearly seem to have a passion for working with these oysters and for growing your business, which I think is great.

Ryan Bethea: Thanks.

Interviewer: Yeah. And again, I just want to thank you so much for doing the interview. Your insight has been incredibly helpful.

Ryan Bethea: Yeah, well, I'm honored to be a part of it and hope we can get a lot of good folks into the industry.

Interviewer: Me, too. And so I think this wraps everything up, and again, just thank you so much, and feel free to contact me if you have any questions about anything or if you want updates on the Mariculture Lesson Plans.

Ryan Bethea: Yeah, yeah. And is the interview over?

Interviewer: Yes.

Ryan Bethea: Okay.