

Lesson 9: North Carolina Business Perspectives on Aquaculture

Interview with Mark Hooper of Hooper Family Seafood – Clam Aquaculture

- Interviewer: So, if you could, please state your name, your business name, and the county in which your business operates.
- Mark Hooper: My name is Mark Hooper, and I own Hooper Family Seafood in Smyrna, which is a small operation, and it is in Carteret County.
- Interviewer: Excellent. And I understand that you work with a couple of different kinds of aquatic species, but I was wondering if you could focus on your clams in particular for these questions.
- Mark Hooper: Clams, that would be great.
- Interviewer: Great. And so what species of clam do you grow, and does it naturally live in Carteret County?
- Mark Hooper: Yes. It would be the hard clam, our local clam in high salinity waters, *Mercenaria mercenaria*, very commonly found throughout this area.
- Interviewer: Great. And how do you grow it? Is it in open water or on land in ponds or tanks, or is it in another way?
- Mark Hooper: Well, there's three phases of growth for most aquaculture species: a hatchery, a nursery, and a grow-out. And I grow out on leased bottom area. I have 1.6 acres, which is very conveniently located in front of my house.
- Interviewer: That is convenient.
- Mark Hooper: And then I lease...Yes, very nice. And then I've leased that from the state of North Carolina, and I thank the citizens for letting me do that, because it's a public trust resource. We can either buy what they call plantable-size seed, that's kind of at the size of my, say, the fingernail on one of my fingers — maybe 12 to 16 millimeters measured from the longest dimension — or sometimes we can go with smaller stuff, maybe 4 millimeters, and then hold it in a nursery system, in my nursery system. I'm also in a soft crab business, so I have numerous fiberglass trays that are 3.5 feet by 10 feet, and we can configure those so that we get a flow of water on one end, and then we dam up one end, and we turn them into what they call raceways. And we can hold about 10,000 seed per tank.

Interviewer: Oh, wow.

Mark Hooper: And if we do that, we can...Well, it's convenient, much like...If I buy seed, it's very convenient to have a place to store the seed in the event that you have some difficulties getting out to be able to plant them out, like if the tide got too high or if the weather turned. It's very convenient to have that. That way, you can work on them on your convenience. But if we can get seed and, say, in late September, we can get two more months' growth on it in the raceways, then plant out. We like to plant out later in the fall when the predators are down a bit.

Interviewer: That makes sense. And so, you mentioned a couple of different challenges and considerations when you're working with your clams, and so I was wondering what other kind of everyday work do you do to maintain and keep your business running.

Mark Hooper: In terms of the clam agriculture, I have kind of sized my operation so that I would really generate 20% of my fishing income, meaning it would require about 20% of my time or a day a week. When we're harvesting, it takes...We harvest a day and then when we're planting or something. We've kind of worked the beds that way, just because I like to do different things, meaning I don't want to be a clam grower five days a week, year-round, but I like to do it this way. So, we have a very nice lease, which is very convenient. There's a nice growing bottom, and it's not a super high growth area because we don't have a tidal flow. In all of aquaculture, we have a saying that flow equals food. That's us bringing the food to the animals, so the more flow you have, the higher growth rate you're going to have.

Mark Hooper: But in my business, if we plant each year, at some point down the road, you'll be harvesting every year. And with clams, it's truthfully taken us two to two and a half years to get a marketable crop. I know oysters — now, they are growing much faster than that, but that's the way it is with us.

Interviewer: Okay. And so, when you first got started, what kind of equipment and resources did you need, and what were the primary startup costs?

Mark Hooper: Well, in order to grow clams, you have to buy your seed, obviously, and then we have to have our predator protection. In our case, that's — I think it'd be polypropylene mesh, 1/4-inch mesh. And the beds I plant in are 12 feet by 25 feet, and I hold the mesh in place with tubular gravel bags that are 5 feet long and about 4-5 inches in diameter. And once we accumulate this...And then I start under quarter-inch mesh. After one year, I change the mesh to 1/2-inch mesh, and then after two years, I try to get to 3/4 to 1-inch mesh, and maybe sometimes I can start to harvest at that point in time.

Mark Hooper: But we're able to reuse these planting materials for multiple crops. I probably have some mesh that I've used...I don't know, maybe up to 10 times.

Interviewer: Oh, wow.

Mark Hooper: And the sandbags, the same way, so it's pretty low on material, especially compared to oysters. But we have to mend them a little bit sometimes, but when we go to change them, actually pull them up, we dry the mesh out in the yard, and there's a little bit of biofouling on it, and then we roll them up and put them out in the sun, and we'll use them again. Other than that, a bull rig is required, which is — that's how we harvest, and maybe we'll hand rake as well, and that is just about it. So, some baskets and I work on a little pole skiff, which is very convenient because a basket of clams is really quite heavy. You'd be surprised how heavy they are. And then, of course, I sell my own here.

Mark Hooper: I'm a seafood dealer, so I have an inspected refrigerated cold room, and I also have some grading equipment so that when we grade and count our clams into bags...And so I guess that would all be necessary as well, so that way we can make more money for our product if we don't have to go through a middleman, and it's pretty easy to find a market for the product nowadays.

Interviewer: So, you do a lot of stuff in-house, it sounds like.

Mark Hooper: Yes. Yeah, I do it all right here. I don't buy clams. I could, but I don't, just because we deal solely in littlenecks and then 7/8-inch clams. It seems like the wild stock harvest is generally pretty big.

Interviewer: Okay. And so, you mentioned that it takes about two and a half years-ish for the clams to grow to a size in which you can probably harvest them.

Mark Hooper: Yes.

Interviewer: And so, with you being in the business for a little while, I was wondering, how long did it take you to turn a profit, and what are reasons that you might have a less profitable season?

Mark Hooper: Well, we've got some natural environmental things going on in the winter before last. The water over the clams was frozen —

Interviewer: Oh, no.

Mark Hooper: I think they did fine, actually, because they're in the bottom. They're insulated in that respect. Last fall, we had a hurricane. I'm actually going out into the beds this afternoon to kind of check on some. I think we probably did fine, but that's a pretty impressive event with the rain that we had and the salinity changes, but again, a clam can clam up, and if they don't like the water around them, they are just going to shut down and not drink it. So — but you can only do that for so long, I assume.

Mark Hooper: But other than that, we've got...There's a whole slew of predators. You've got blue crabs, you've got mud crabs, which are smaller and very cryptic animals. They prey upon the small clams. That's probably the leading predator of our small clams. You could have snapping shrimp as well. Sometimes, if you were to take a bed of clams and you wanted to plant right back in the same place, you'd really be planting in kind of a predator bed. You've created a predator refuge, and so we need to kind of move our beds around and make sure we've got some brand-new bottom.

Mark Hooper: We have to have our clams covered at all times. We've got a lot of stingrays around, and they are really...We'll work on them, and stuff like that. So, if we can keep the mesh over the top of them, we'll have pretty good success. And some of it depends on the quality of your seed and then how you handle that seed initially, things like that.

Interviewer: Okay. I think it's interesting you mentioned stuff like snapping shrimp and stingrays being predators for clams, because I at least don't naturally think of those two things as being creatures that would go after clams. But I think it's interesting that they can cause such a big problem for you.

Mark Hooper: Oh, yeah. The stingrays, they won't get us in the bed but, boy, anything outside. We've always tried to...We had a few extra clams just falling around the stake, and then if we wanted to just go get 100 for somebody, it was real easy, but we can't do that because I've seen what could happen. But they are turning the bottom over. That's what they're eating. They are digging up shellfish. That's what stingrays do. That's why the mouth is on the bottom facing down. Yep. They're not —

Interviewer: That's really interesting. It's bad for the clams, but it's really interesting to know.

Mark Hooper: Oh, yeah. And we have a big crop of stingrays. We'll see the beds, where they've processed bottom, which they make a pretty significant hole, and you'd be amazed at low water how many stingrays are out there. And I think that's pretty common all throughout this area.

Interviewer: Yeah, that's really interesting. And, again, thinking about impacts of natural disasters, but again, just thinking about predator-prey relationships being something that you, as someone in aquaculture has to think about and try to combat.

Mark Hooper: Oh, yeah. Yeah. Everybody has to do it. Even the oyster growers, they could have a stone crab or a big mud crab set out in their cages, and next thing you know, if they don't keep up with it, that thing is munching away. So, it's pretty interesting stuff. The more you can keep up with stuff, the better off you are, put it that way.

Interviewer: Okay. And so, you mentioned a couple other growers and challenges that they face that are similar to yours, and so are aquaculture businesses common where you are?

Mark Hooper: Yeah. They are. I have been growing here since '85, and when we got into, I feel like the '90s — late '90s — there was a number of pretty large growers in our area that would...I would say that because some of them would be nurturing a million seed. I know of at least three or four down this way that were working on that level. I topped out probably at 250 or 300 thousand seed a year, but those folks are out with us, and then they kind of...We had a real dip in the price, actually, after 9/11 —

Interviewer: Really?

Mark Hooper: — which is 2001...A lot of the clams were eaten up north. I think people up north, they weren't going out to eat and that — I think it really greatly affected the economy of this country and that kind of stuff. So, we went...Let's see. We were getting 18 and 19 cents for the clams in the late '90s, and then extremely high demand. I work with a friend, and we shipped them up to Maryland, and it was basically all that we could ever send this man at 18 and 19 cents. At the same time, I was trying to grow oysters, and I could not get 20 cents for my oysters. It was perfect oysters in a 100-count box. And so, I decided to...I was doing both, neither particularly well. I decided, I'm going to choose one and concentrate on that, and I chose clams.

Mark Hooper: After 9/11, that price got down to 11 cents.

Interviewer: Oh, wow.

Mark Hooper: And then that kind of poked around a little bit, and we got up to 15, and now the price is quite good and demand is very strong, and it's just turned around. All shellfish are trending very high at this point, and there's been a lot of interest in growing oysters, as you well know, and it seems like some people have neglected the clam aspect of mariculture. So, I can talk to some folks in Raleigh that handle a lot of shellfish, and they would just love to have more clams. And...

Interviewer: That's really interesting.

Mark Hooper: Yes. If it's a different case then...It seems like only the growers are able to provide a really consistent small clam. It's not coming up from the wild stock, and that's what people are looking for when they get a bowl of steamed clams or something like that.

Interviewer: They're looking for a smaller clam?

Mark Hooper: Yeah, and very consistent size, because it turns out...Well, it's something I never realized that a chef who's cooking wants to be able to take a product and cook for a very consistent amount of time and have it kind of be finished. And if you get a mixture of sizes of clams, well, if you go to steam them open, they're going to be differential rates that they do that. And then they're going to have to kind of...Yeah. So, it's really cumbersome, and so we've tried to even get a really fine-scale grade where we grade on 1 inch, which is littleneck, and then we would grade again on 7/8, so you had a very, very tight window on the size of the clams, because just in the cooking, especially at high-volume kitchens, they need to know exactly how long it's going to take to do what they do to it and then put it on the plate — kind of interesting.

Interviewer: That makes sense. Yeah. And so, kind of thinking back to the beginning, I was wondering, how did you decide to start working in aquaculture and mariculture? I noticed you mentioned that you were originally doing oysters and clams, and you decided to focus on clams, but even what got you into this in the first place?

Mark Hooper: I was going to be an oceanographer when I started my career, and I was very involved back when I was in college about the revolution of the oceans and how aquaculture was really going to be a big segment of that. And so, I kind of pursued that, and then I went from a science — trying to become a scientist — to become a fisherman, just because, just because. And so, when I entered fishing, I always had a very scientific background. So, we did some very early-on things with soft crabs, and I actually have a scuba diving background, and I've —

Interviewer: Oh, cool.

Mark Hooper: I've always had a little scuba diving job. Well, for 25 years, I was what they call a diving safety officer at Johns Hopkins University, and it took about a month to a month-and-a-half of my time, and then after that, I did 10 years at the Duke Marine Lab as their dive officer. But when I was diving in the Chesapeake Bay for Johns Hopkins back in the very early '80s, I would go diving, and then I'd poke around the docks, and I saw how people were shedding crabs there, and I said, "Wow. We don't do it this way where we live. That's really cool." So, shedding them in tanks and using peeler pots and this type of stuff.

Mark Hooper: So, and by the same token, when I would finish my work in Baltimore, I would drive down the Eastern Shore, and I would actually have lunch with Mike Castagna, who was the man who invented clam aquaculture.

Interviewer: Oh, wow.

Mark Hooper: Because he worked at VIMS [Virginia Institute of Marine Science], and he was the fellow that figured out how to raise them, how to hatch them, how to produce seed. And so, I would have lunch with him, and I'd say, "Hey, that's cool. How do you do this?" And he'd say, "You try this." And he'd give me some

stuff. He'd give me seed. He said, "Try this. Try this. Try this." And then I could go further down the road and talk to Mike Pierson at Cherrystone Aqua-Farms, who is probably the biggest clam grower on the East Coast, and I'd say, "Hey." And so, I had really incredible technical advice from the people who were just the forefront in the business.

Interviewer: And it must've been really —

Mark Hooper: And I came down —

Interviewer: Sorry.

Mark Hooper: It's fascinating, fascinating. So, I came down —

Interviewer: Yeah, it must have been so helpful.

Mark Hooper: Yes. And then some of my divers were working with oysters, and then very early on, we got some oysters to grow, and I actually provided brew stock for some stuff, and it was smaller farming for me up there, so we had a lot of scientific input into what I did. And then about mid-90s they developed the Fishery Resource Grant Program that was originally administered by Sea Grant at some point, and we were able to write very small-scale grants to do practical research, and we could really look at different methods of growing clams and oysters and do some scientific work about method A versus method B and go ahead and do the science part of it by measuring and counting and figuring out densities and survival and things like that. So, that was a tremendous program for us.

Interviewer: That's great. And it sounds like science and mentorship have meant a lot to you throughout your time as someone who works in aquaculture.

Mark Hooper: Absolutely. Absolutely, yep.

Interviewer: And so, with that in mind, what is some advice that you would have for someone starting this kind of business?

Mark Hooper: I think you have to kind of plug into your animal. I'll go out to the beds this afternoon, and I can tell how stuff's doing by looking at it. I can look at their growth rate, their growth lips, and if you got a great, big old white growth, that clam is as happy as they can be. If you don't have that, then you've got some issues. But what we found in some of this FRG work is that on my lease, which is 1.6 acres, I had places that grew significantly better than others on that side of the lease. And it might have to do with some microcirculation or at some point in time, I've got a grass bit running through mine and a slightly different, deeper on one side than the other.

Mark Hooper: But that was what I would do. If a person gets a lease, I'd certainly get some small test plots, and we used to do 4 by 4 beds — 4 by 4-foot beds with 500 clams, and just moving around that...Put them in 10 different locations on your lease, and you need to do some replicates, of course, maybe two or three at each site, but I was amazed to find out there was that much difference in a small lease like that. And to this day, I've got one side of my lease that just really doesn't grow as well as the other, and that's just a fact. So, that's very helpful. Investigate what you have.

Interviewer: I think that's a good piece of advice, and I think you're right. It's interesting that there's one part that just doesn't grow quite right, and there's not a lot you can really say about it.

Mark Hooper: No, you can't fight that. There's a reason for it, and I assume it has to do with flow regime and stuff like that. But it's a real deal. And then I was subleasing a lease across the creek from us when I first started, and then when I looked at the growth rate there, it was nowhere near as good as my current lease. And so, when I started out, I really had a place that was not that conducive for growth. And I had a friend I used to grow with who had a very high current lease, and he would grow nine months faster than I could. So, it's —

Interviewer: Wow.

Mark Hooper: And even when you're looking for a site initially, but then you've got to...There's some trade-offs. If you get a place that's kind of exposed to some heavy winds, there's liable to be sand movement, and you could get your beds sanded up, and that would kill clams and also make it very difficult to deal with. So, there are a lot of variables and [crosstalk 00:22:58] —

Interviewer: And so related to those... Sorry.

Mark Hooper: Yeah. Go ahead.

Interviewer: And so, related to those variables, what is one challenge that you encountered that you didn't anticipate when you first got started?

Mark Hooper: One of the most difficult things — and it is to this day — is quality of the seeds you can procure. We don't have the infrastructure that we do for oysters around here at this point. Really, there's one hatchery in the state that I know of that's producing clams, and that's Jimmy Morris down in Atlantic. And he can have some good years and bad years just because that's just the way that is. Now, for a number of years we got seed out of South Carolina, and it was great, and the fellow was great to work with, but then it became hard to get.

Mark Hooper: You need the relationship with the hatchery, but it's become problematic. And bringing in out-of-state seed, you have to have a disease analysis report, and it's got to be within 30 days, and sometimes I really am a small volume at this point.

It's hard to get those things, and then you have to have the seeds shipped to you, and then they're out of the water for overnight delivery and stuff like that. So, all of those things add up in the end. And more hatchery infrastructure would be great for us, but it almost feels like at this point, oysters are so prominent on people's minds that we're not getting that for clams.

Mark Hooper: But on the same token, there's still a lot of interest in clams because it shifts. It comes and goes. If people got out of growing clams, went into oysters, now all of a sudden, we need more clams. So, now people kind of shift back in the other way.

Interviewer: So, challenge of keeping up with the market in and of itself as well.

Mark Hooper: Yeah. The market seems to be very, very good at this point. I cannot begin to provide the people that would like me to provide them clams, and that's very nice.

Interviewer: Yeah. And so, I think just to wrap everything up, just one last question. I know you said you've been in this business for a really long time, and so I just want to know, would you start it again?

Mark Hooper: Oh, yeah. Yeah, I would. I've got my methodology down pat. I really am very comfortable with how we do it in that I can plant 50,000 clams in an afternoon once I buy beds. I've had nice, very good success. I was looking at my numbers the other day, and I think we're approaching 80% survival, which is very good. Market's good. If anything, I would do at this point — not to start again — is to try to increase my production, because there's such high demand. And I actually tried to do that last year, and then we got caught with the hurricane, and we ended up planting clams the Wednesday before the hurricane — probably had some loss, I'm sure, with those. And then we were due to get another 50,000, and then that seed was wiped out with the hurricane.

Interviewer: Oh, wow.

Mark Hooper: So, there was a big setback in the amount of seed available last fall. But to do it again, yeah, I like it. I actually like...We like to eat it. I walk over beautiful oysters on my way to clam, and I probably eat two dozen oysters a year, and every time I go clamming, we have 30 or 40. I don't know. They're good to cook with. And I've got friends that just absolutely love them.

Interviewer: And that's so great to hear that you and your friends enjoy not only growing it and selling it, but also just enjoying it yourselves. That's great.

Mark Hooper: Oh, yeah. We have a big Christmas party at our place. We've done it for 44 years, and it's a cookie party. My wife's in the house with the most cookies, and I'm across the road, and we've got an outdoor fire, and we roast oysters and we steam clams. And I've had Chuck [Weirich], our Sea Grant man, down, and I say,

“Chuck, watch what happens when I put these steamed clams on the table.”
And I just love it. People just go *pschew!* Because I hear so much about oysters.
Oysters — people think that they really are God’s gift to the world, and I love
them, but there are people that truly love a clam as well.

Interviewer: That’s great. And I want to thank you so much for giving your time to this
interview. It’s going to be really helpful, and again, just thank you for sharing
your expertise.

Mark Hooper: Not a problem, and good luck.