

Wild Caught
B.J. Copeland Oral History
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Interviewer: MB – Matthew Barr
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B.J. Copeland: Let's go. We got it.

Matthew Barr: Appreciate you doing this. Well, maybe just to get things going. Basically, this documentary – as we have been talking about – really concerns a way of life of fishing. There could be a number of little fishing towns. This is Sneads Ferry. But I think there are probably a number of communities that share some commonalities with it.

BJC: Well, there are hundreds of those little communities. You go down east, you run into a lot of little towns that are based on fishing tradition and families and community. So, there are lots of those in North Carolina. Lots of them all down the East Coast actually.

MB: Have you ever been in the town of Oriental?

BJC: Oh, yes. I've been to all those towns. I was the Sea Grant director for 23.5 years. That's where university goes out and does things for the people. So, I always went where the people were. So, I visited all those little towns so that I could find out what they needed, the information they needed, what we needed to do in research to bring it to them. Then set up a mechanism for communicating that information to them.

MB: Well, now talking about these towns – and you have been to a good number of all these little towns around here – just as a general question to start us off, what are some of the issues facing these fishing communities?

BJC: Well, one major issue facing all of these fishing communities is the allocation of resources. As we increase our population and as we increase our leisure time and as we increase the amount of money that people have at their disposal, more and more pressure come upon the coastal zone to produce fish. People cannot catch enough, they aren't big enough [laughter], all those things. So, the pressure becomes incredible. Right now, I think it's about almost 5 million man-days per year of recreational fishing in North Carolina coastal waters. We have about six thousand commercial fishermen trying to fish in North Carolina coastal water. This is incredible pressure upon resources that don't get any larger. In fact, some of them are shrinking because we're overfishing some of the species and pollution's taking care of some others and habitat destruction, others. So, allocation of resource is a big issue. The second major issue is the quality of the habitat. Water quality and the things that make fish grow and do well in coastal waters, we have to guard for. Because as the population increases – here again we've identified the enemy and its population structure – more things go downstream, and water does flow downhill. Everything we do up here winds up down there and it accumulates in those estuarine waters. Some of those are very valuable habitats. For example, we got over 300,000 acres of shellfish waters close to shellfishing because of contamination. That's out of our 2.3 million acres of coastal water. So, this is a big problem. A third issue is economics. As you know, it's happened in other resource uses. Economy of scale becomes involved. Many of these people are what's called small-time fishermen. These are people who use boats and gear like they always did. The efficiency of that may not be competitive in the economic markets today. So, they are faced with economic pinches as well. So, you got environmental, economic, social conflicts. All those things affect those fishing communities.

MB: Well, I just spent the last week in Sneads Ferry. I have become good friends with Johnny Wayne Midgett who is a crabber, and his father and grandfather. He has been in a fishing family. He comes from a longline. His grandfather died saving his father's life when the skiff flipped over in the bar. Johnny's father-in-law died at sea. We know it is a dangerous job.

BJC: It is a very dangerous occupation.

MB: Johnny was a couple nights ago saying he is very worried about this season coming up. Because his crab harvests a year ago, it was twenty bushels a good day, now it is seven.

BJC: Well, two years ago we harvested a record number of crabs in North Carolina, almost 60 million pounds. Last year, it was down to 40 something million. This year, the prospects look even more drastic. The old-timers all know this. Oceanographers are finally beginning to catch on, but the old-timers know that if you go and look at the young crabs coming through the inlets at Ocracoke and Hatteras and the major spawning areas and check in the spring and see what's there, you can get a pretty good feel of what's going to be happening during the year. They're all saying that this year is going to be worse than last year. Indeed, it's being born out as your friend, Mr. Midgett, discovered. We got less crabs than we had last year. Last year was a down year. This year may be even worse. Don't know. So, there are several problems related to that. One of them is probably Floyd flooding aftermath. We really moved a lot of water and moved a lot of stuff through our coastal waters during a very short time during Floyd. I think we may have messed up a lot of spawning areas that'll take a little while to recover. We may have to tough it out for two or three more years before we get turned around again. So, the prospects are not good right now.

MB: Well, so there are all these different forces affecting people like Johnny or fishermen and whole towns that the economy is so much based on fishing. The suppliers, the people who repair out motors, the fish houses.

BJC: Well, the general rule economically in these coastal communities is to multiply the dollars that come from raw materials like crab sales. Multiply that by four or five to tell what that does to exterminating the economy in those areas. So, if you reduce the sale of blue crabs let's say for Johnny by \$1, that impact through the community may be 4 or \$5. So, it becomes even more of an impact because the community is also intimately hooked together. Everything they do revolves around the harvest of that product just like farming. While the tobacco farmers are in such dire straits that if you take away a dollar worth of tobacco out of the field, then that part of the economy amounts to 4 and \$5. So, it's felt through a large part of the community. These guys are faced with, you got weather, you got conflict of resources, you have deteriorating habitats, you got economics, you have labor supply. All those things all hooked together are impacting their business.

MB: So, I guess these major issues, why do we not just take them one at a time. I just got turned down for a grant. I blew up with a grant. It was not his fault that I got turned down. But what he said with the treatment for this documentary, I am going for it again. But in terms of the context to try to give a bigger sense of the story. Obviously, there is a lot of drama to fishing, just the physicality of it, the nets and all that. It is beautiful to look at. But then in terms of

trying to get a sense of the bigger picture, maybe we can just start and quickly go through. Let us start with the whole world on a globe. I have been reading a bunch of books about fishing. I am the first to say I do not know squat about fishing. I am learning. But in terms of some of the larger issues, the public at large feels overfishing. Let us start with that.

BJC: Well, let's put it in the context of where we are. Okay? Here in the United States, we import most of the seafood we eat. In fact, seafood imports on a gross amount rank third only behind petroleum and automobiles. So, it's big business. Our domestic seafood harvesters are competing in that kind of ball game. Now, as the world supply of seafood begins to decline, and it has, then we're in deep trouble in terms of supplying the demand for seafood. Its price goes up at the grocery store. It doesn't go up for the guy down here trying to catch it on the shore. It goes up in the grocery store because the imports become more of a factor. So, you have that problem, which it's a world-class problem impending upon all of these folks. They're just little bitty players in a large, world chess game. As that chess game goes on and becomes more and more difficult to make a move, they suffer more and more. Now, if we go from the whole United States back down to Sneads Ferry, they're competing with people who are fishing in other parts of the world. More efficient machinery subsidized by their government, may even be done illegally, and we have to compete against that. So, all these things working together makes it a very difficult life. Okay?

MB: Hold on just a sec. Well, just a huge issue, I know we had to quickly go through this, overfishing. How bad is it?

BJC: In some species, it's pretty bad. We have overfished certain kinds of species. For example, fifteen years ago we had totally overfished striped bass. So, they're down to almost nothing. We put in some drastic measures where we reduced the catch of striped bass. That's been a very successful management activity because we have more striped bass in the water today than we've had in a long time. The question now becomes, how many do we catch before we jeopardize this balance again? Gray trout, which is a fish that's been a traditional commercial catch in North Carolina. It's the fish that you generally use for so-called fish and chips sort of thing. What we have is not like cod for fish and chips in England, but it's the same ubiquitous fish that we have here. We've overfished that species. We've put in drastic measures to reduce the catch, certain net restrictions, and certain boat restrictions. That fish is coming back. We now see signs that the gray trout catch in Atlantic Ocean is on its way up. That's good news. But if you overfish something and the population begins to crash, instead of catching a hundred tons, you catch 1 ton. You can imagine what the economic swing is. River herring, a traditional fish in North Carolina, twenty years ago we were catching 30 million pounds a year. Today, we're catching less than 300,000 pounds a year. We just put in some drastic measures on river herring to try to bring that species back. We already see evidence of it coming back even after only one or two years. So, there are ways to do this, but [laughter] we have to do them. In order to do them, everyone must cooperate. That's where the difficulty comes in. Because somebody says, "Well, he's getting this fish and I'm not getting that fish," and that sort of thing. So, those kinds of cooperations break down. But we try to maintain some kind of balance in the allocation of those resources so we can bring them back. But there are certain species in the world that are very much overfished. The sardine fishery in California has crashed twice, once in the [19]30s and once again recently because we overfished them.

MB: So, within the context of North Carolina – to try to draw it to Sneads Ferry – then Sneads Ferry shrimpers seem to be dominant. They are a lot. Let us take shrimp. How are the stocks of shrimp looking there?

BJC: Well, fortunately it's difficult overfish shrimp because they're an annual crop. The shrimp that spawned this year were babies last year. So, when you have an annual crop, it's more difficult to overfish than if you have to get five years old before you spawn. Because you got a lot less chance of knocking out the broodstock. But shrimp spawn offshore and we harvest the young inshore. So, the spawning population and the harvesting population are relatively separate. So, it's very difficult to overfish it. So, as a result, our shrimp fishery in North Carolina is in pretty good shape. Has been for a little while now. In fact, last year was a good year and everybody got excited. Price is up because Georgia was having a bad year, and we compete against them. So, we were doing well. The prices stayed up all year, and the catch was pretty good. So, people were making more money than normal.

MB: Can you just very quickly take us through when you say they spawn. In other words, they gestate or the little baby shrimper?

BJC: No. Well, one female can lay about 800,000 eggs. They spew these eggs out into eddies off the Gulf Stream. There they're fertilized by the males. They hatch out into the little nauplii. These are planktons. They're so small that you can't see them with a naked eye. They grow rapidly in that water as they move towards shore. Those eddies come blasting in the shore when we have wind change directions. So, the whole thing is reliant upon a set of meteorological conditions that bring these eddies into the inlet areas. By the time they get to shore they're what's called post-larvae. They're about 4 or 5 millimeters long. They drift into our estuarine areas. We have some of the most productive estuarine areas in the world. So, they go inside there to what's called primary nursery areas. These are parts of the estuary that are conducive to shrimp propagation. There they grow rapidly, sometimes as much as 3 or 4 millimeters a day. They grow up to be juveniles, which is about 50 or 60 millimeters. Then they begin to move out of those shallow areas into the deeper waters of the sound. By the time they get out into Pamlico Sound, for example, they're now marketable size. So, our shrimp fishery is based on trolling for marketable sized shrimp in Pamlico Sound and those embankments south of there. The older ones go on out to the ocean to spawn again. They spawn in about December to January. So, the cycle starts each year at that time. We'll be catching them in probably the 1st of July, marketable size. That's pretty phenomenal growth.

MB: So, the shrimp are in pretty good shape.

BJC: Shrimp are in good shape. They're not overfished.

MB: Part of that was based on, as you say, that every year there is a new crop of them.

BJC: That's right. Our big worry with shrimp is the protection of those primary nursery areas. We're doing a pretty good job of doing that these days. For a while there, in the [19]60s and [19]70s, we had a tough time because everybody said that worthless water there needs to be

filled up and a house built on it or something. But now, we've convinced people that it's worth something ecologically. So, we have what's called resource waters and primary nursery areas and things like that that we can protect by law.

MB: Here is another question. I have been out on a fair number of shrimp boats with these guys.

BJC: So, have I [laughter].

MB: The best shrimp I ever had in my life was on the New River there.

BJC: That's right.

MB: Part of the thing that is just a psychological thing is they open up the net and all this what they call trash is there, the bycatch.

BJC: Yes, bycatch.

MB: Let us talk about that issue because with the level of overfishing. But the sharks are waiting right back there for them.

BJC: Yes. So, are the gulls and everything else. There is an ecological network out there that's reliant upon some of this stuff. But bycatch, the definition of that is catching something that you weren't targeting. Now, if you caught a nice-sized flounder, you'd probably say, "Well, I was targeting that [laughter]." But in shrimping, you're pulling a net through the water. You're pulling that net behind a couple of boards which keeps it open and causes things to jump up into the net. So, you're undoubtedly going to catch things that you didn't target. When you dump the net out onto the boat, you see this great hoard of other organisms, little anchovies, and little trout and little flounder and little croaker and little spot and things of that sort. You say, "Oh, my gosh, we've just destroyed the system." That's probably not so. Although we still don't know exactly what the impact of bycatch is, these are usually very young, juvenile-stage organisms. Their chance of becoming large and part of the catchable population are small. They're going to be eaten by something else before they get there. So, to judge how much bycatch is too much bycatch is very difficult to do. There are lots of ecological studies going on to try to do that. But so far, there's little evidence that bycatch is the big culprit. Now, in some cases where you're in tight situations, bycatch may become a factor. But by and large, it's just part of the ecological cost of doing business.

MB: So, it is not like when you dump it back in the sharks and – well, it will be eaten. It is not going to waste.

BJC: Well, [laughter] the question is who gets what? Humans of course are selfish. They think they ought to get them and you need to wait until it gets up to be 4 or 5 pounds. But the sharks and the blue crabs in particular, and birds, think this is great stuff. They follow these boats around. That's no accident. They know where the food is. So, you're actually supporting an ecological system out there.

MB: So, it looks way worse than it is.

BJC: I think so.

MB: Because it is a psychological fishing process.

BJC: There are situations where bycatch is a problem. But that's not the norm, not the general rule.

MB: You mean a problem? Say you were out.

BJC: Well, let's say you were in a small area and you put a net in there and seined the whole place, you could conceivably impact the population.

MB: But where these guys go, they are about 0.5 mile off of the shoreline there. I am sorry.

BJC: That's right. You're talking about a much larger milieu of stuff. The question is very difficult to answer because what does an organism 2 inches long mean in terms of an organism 12 inches long next year? I don't know. Could be a big question. Could be gone.

MB: So, if we were looking at Sneads Ferry, that area around there which is near Jacksonville and all, so the shrimp seemed to be in pretty good shape. How would you rate the overall, all the crabs over clams, oysters? They go for a number of finfish. How would you characterize the overall condition of the species that they are going for?

BJC: Well, the clams are coming back. We've been doing a better job of managing clam populations more recently. So, clamming is now better than it was in the recent past. Oysters on the other hand, are not doing so well. We've had some disease problems. We've had overfishing problems. We've reef area problems, habitat, things of that sort. So, oyster's not doing so well. Shrimping seems to be doing well. Crabbing is going downhill the last year or two. But my prediction is that that will come back. Various species of finfish come and go. Some years are better than others depending on how the ocean works and whether or not we have storms and whether or not we've captured too many of them this time or whatever. So, that comes and goes a little bit. But I'd say that the prospects are pretty good for the big things like shrimp and crabs and clams. Crabs you have to wait a year or two, but they'll be back.

MB: So, you would rate it as pretty good shape overall?

BJC: I'd say it's in better shape than some people would like for you to believe. It's not in as good a shape as we would want it to be. We'd want it to be perfect.

MB: But it is not going to go out of business.

BJC: They're not going to go out of business this year.

MB: Right.

BJC: [laughter]

MB: Although if you talk to a lot of fishermen, some of them were – and this is a whole other area – a lot of fishermen I have talked to complain vigorously about regulations as a thing. What about that? Obviously, you need regulations.

BJC: There are always too many regulations. You think there are too many regulations. You drive down the highway out here and some highway patrolman pulls you over, you say there are too many regulations. I know what I'm doing. This is always the case. Now, fishermen because of the conflict between everybody who wants everything, we do have more regulations than would be normally there for lots of other natural resources simply because it's difficult to sort it out. So, you try to do it by regulation. There's no perfect way to do that. Some of those regulations are needed. Some of them are not so needed. We keep on doing it because we keep trying to solve the problem, but it's tough. Usually what happens is regulations are enacted to affect a few who would break the rules at the expense of the many who have no problem. That's true on the highway. It's true wherever.

MB: That is true.

BJC: [laughter] It's to protect us from ourselves [laughter].

MB: That is right. I remember there were four fishermen who died off of Beaufort. In fact, I went and filmed the memorial thing they did at the Maritime Museum in February. I talked with the mother of one of them. Well, they only had a month, or they had a window in which they had to get whatever they were going to get out there. I do not know. They were really complaining about, gee, is that fair that they have to do – like in Alaska, the sons they have one day to do whatever they are going to do.

BJC: Well, halibut fishing, you only get two days in Alaska. If wind happened to be blowing in those two days, you may take a risk and go anyway. That's what the complaint is. It's that shortening the season forces them to go when they wouldn't otherwise go. This is true, and it's not true. They don't have to go. But on the other hand, they've been going. So, they're going to go and they're going to try to get in a certain number of days fishing. If you shorten the season down to those certain days, then I guess you could say that you're forcing them to go when they wouldn't go. But he still has to decide whether he's going or not.

MB: Yes. I guess from their point of view, this is how they put food on the table.

BJC: That's right. Making a living.

MB: So, they got to go. Like these two fishermen died in the river right before December 17th, I just interviewed the parents of one of them. Of course, everybody apparently told them, "Do not go," because the wind was blowing. It ended up being 70 mile an hour winds.

BJC: But they said, "We got to go because we need the money. Christmas is coming."

MB: Well, that is the one thing when you think about fishermen, they do not have a paycheck.

BJC: No. It's only related to the catch. If you don't go fishing, you don't catch anything.

MB: You got a family there.

BJC: Yes, boat payments to make. There's lots of pressure. Economic pressure, psychological pressure. It's a tough life. We could sit here and be cool and the state pays me once a month, I go over to the bank and cash it and everything's fine. But if you relied on only what you caught, pressures would change. Payments are the same. Bank doesn't care.

MB: Then they cannot really control how much the wholesale prices are either.

BJC: They can't control anything. From a cultural sense, part of the frustration is that they're not in charge of anything. They're not in charge of the prices. They're not in charge of the season. They're not in charge of the fish growth. They're not in charge of the environment. They're not in charge of anything that relates to their business. It's a very frustrating position to be in. You at your house, you're in charge of several things. Well, maybe you have a wife, and she may be in charge. But you have controls. These guys have very few controls.

MB: Well, there I felt when we were slowly pulling the nets along, it is like farming. They are farming the sea on that level that you said.

BJC: It is. It's the same thing. But a farmer at least owns his land and can do some things that a fisherman can do. But there are lots of similarities. They're still weather-related, price related. The farmer can't control price either. He produces stuff, takes it down there and say, "What are you going to give me?" That's the way it works.

MB: Do you think we will see the same problems? You were mentioning this before when you started the actual interview. In other words, we see corporate farming really dominating because of scale. What do you call it? Economy of scales?

BJC: Economy of scales. We all see the same thing in fisheries. We see it already. It's just been much slower and much later coming. But corporate fishing will be the norm in the next twenty years probably. Slowly put these people out of business.

MB: Can you amplify that? In other words, will people –

BJC: Well, they can't compete. So, if you're a man with two sons and they say, "Daddy, what do I ought to do?" His daddy probably said, "You go fishing son." Now, he's a little reluctant to tell his two sons to go fishing. He said, "What you need to do is go get a college education and become a banker. They got all the money." So, they go off and they do that. So, the age of our fishing population keeps on increasing. You say you're going to talk to David Griffin. You need to ask David these questions because that's the kind of stuff that he studies. The average age of

fishing communities keeps on going up. The reason for that is that the young people aren't going into the business. So, eventually, you're going to be out of business and the people who will be doing the fishing will be corporate owners. That, it's inevitable, I think.

MB: That makes me sad because of course we are seeing that in so many different areas of our society.

BJC: Well, it is a very sad prospect because this is a culture and a tradition and a beauty that's unsurpassed anywhere or anytime by anything. It's just a romantic kind of life. Nothing like it. People have written books about it. Missioners did all kinds of stuff. These people, they're really a cultural class to themselves. It is a sad thing to see it wane and disappear.

MB: Yes. I filmed with some real veterans, Mack Liverman. These people that have been through and driven boats that engines were under water. They would have shards of window glass and practically their jugular, and they are still out there, I believe. They can jump around. They are just unbelievable capability. What they can do, I admire it deeply.

BJC: I was talking to a guy who grew up as a fisherman. Somebody asked him if he could pray at church one Sunday. He said, "Yes, sir, I can pray." He said, "I learned how when I was floating in the middle of Pamlico Sound one cold morning and didn't know whether I was going to get out there or not." He said, "I learned to pray. I'll be glad to pray [laughter]."

MB: That is good.

BJC: There's a lot to that. You do learn a few things that are pretty close to home under those conditions.

MB: Well, I interviewed one guy named Dolphus Thompson down in Sneads Ferry. He was talking about how he learned about the weather. There was an old guy in the village of Sneads Ferry who grew up there who knew and who could –

BJC: Tell you unerringly. These people are uncanny. My grandfather was that way, and he was a farmer. But he could tell you when it was going to rain, whether the wind was going to blow or not, and that sort of thing just by how he felt and how the sky looked and all. These guys are the same. When you relied on that for your various survival, you begin to get pretty good at it or you don't survive. Now, what we do, we turn on a television and we get some nice-looking lady to tell us whether it's going to rain or not and we don't believe her [laughter].

MB: [laughter]

BJC: Mainly because she's wrong most of the time.

MB: [laughter] That is true. No matter how super doppler, the doppler is a dud.

BJC: These guys, they're terrific [laughter].

MB: That is funny. So, much for high technology.

BJC: Yes, that's right [laughter].

MB: Oops.

BJC: Yes, that's right.

MB: We covered bycatch. Pollution, let us just take North Carolina. We hear all these terms like Pfiesteria and all this stuff. How bad is the pollution deal?

BJC: We have it [laughter]. How bad is it? Everything is relative. There are some places in North Carolina where pollution is not a problem. There are some places in North Carolina where pollution is a tremendous problem. We keep on doing it. As we have more and more people in the same amount of space, we're going to have more and more of it. So, water quality with nutrients and things like that that flow into the water which give rise to things like Pfiesteria or a lot of other dental flagellates that cause nuisance algal blooms. Blue-green algal blooms are just as devastating, maybe more. So, we have some of that. We have contamination from other kinds of activities. Right now, we're trying to get drinking water in the coastal North Carolina. We're doing reverse osmosis now. What are we going to do with all the salt that we squeeze out of the water? This becomes a problem. So, we're impacting lots of places, particularly the small embankments, where the highest productivity is impacting those with pollution.

MB: How about development? Sneads Ferry, they just put up a new motel there. It is only an hour's drive north of Wilmington. It has been near the base. Camp Lejeune is protected in a way, thank God.

BJC: The source of all pollution is runoff, non-point source pollution. The more surface you cover up with something, the more runoff you're going to have. The more runoff you have, the more contamination you're going to have. So, therefore, development is going to lead to more contamination. I once heard a speech by a prominent North Carolinian in the coastal zone. He said, "What we have here is too many condominiums, not enough condoms."

MB: [laughter] That is a good one.

BJC: [laughter] He's right. As long as we keep making people, we're going to keep building more buildings. As we cover more ground, we have more runoff. As we have more runoff, we have more contamination. Simple fact.

MB: So, development obviously leads to problems.

BJC: Well, but we can have development if we'll do enough safeguards and have enough open area and permeable soils and things. There's lots of things you can do. We are doing it in some places, not all of them.

MB: Well, in other words, looking down there we have covered regulations, I think. Obviously,

regulations are necessary, but nobody likes them.

BJC: Well, we probably have too many.

MB: The change, I guess.

BJC: That's a fact of lie. That's right.

MB: Fishermen, it is interesting when you balance folk knowledge when we are talking about the weather. In other words, trying to get the big picture of, well, we got to stop, maybe we are overfishing this species, otherwise we could fish them out. In other words, how do you balance out between all these different needs? For example, there has always been a lot of conflicts between recreational fishermen and commercial.

BJC: But it's more so now because we have more of them.

MB: What about that conflict between recreational fishermen and commercial fishermen?

BJC: It's growing. The reason is the amount of man-days of recreational fishing in our coastal waters has quadrupled in the past fifteen years. That'll give you a clue. The number of people who are out there fishing is now four times what it was fifteen, twenty years ago. What that means is you should be catching a fourth as many fish as you did then since it's four times as many of you. But that's not satisfactory. You want to catch bigger fish and more of them. So, the conflict becomes more intense. There are a number of spaces where you can have fishing. Everybody wants to go fishing at the same place. It's not very much fun if you're standing there fishing and somebody runs by with a beach saying or something and then pulls you in and so on. So, the conflict is not going to go away.

MB: Also, to an extent, the level of a class conflict a little bit. Let us face it, a lot of them. Well, not all. But a lot of recreational fishermen are driving some \$50,000 boats.

BJC: [laughter] Yes.

MB: They are not going to sell their fish to the fish market.

BJC: I was kind of embarrassed to park my pickup truck at one of those places when I went to make a speech to them one time. They're all driving Mercedes and four-wheel drive vehicle and things like that. So, these are people that do have resources.

MB: They have a legislative cloud.

BJC: Yes, and there are lots of them [laughter].

MB: Right. There is a great book by this guy Peter Matthiessen about Long Island fishermen and how they were driven out by buying everything, by development, and all that.

BJC: Sure. Well, see, North Carolina coast for such a long time was relatively isolated and these little villages were to themselves. It's been a very difficult transition once it got discovered and people came and started developing this, that, and the other. It's been tough. A lot of places went through that already years ago, like Long Island. But we're doing it now.

MB: In Florida, from what I understand.

BJC: Oh, yes. I got to go.

MB: You got to go.

BJC: [laughter]

MB: Well, how about one, quick, wrap-up statement. What do you think the future is for people like John? I am not interested in corporate fishermen. I am interested in –

BJC: The regular, cultural fisherman who's been doing it just like –

MB: – the guy who has got a 70-foot wood boat.

BJC: What's the future like? It's not pleasant because it's going to be more difficult for him to make a living as the economy squeeze and squeeze and squeeze. So, he's going to have to be innovative. He's going to have to be versatile. He's going to have to be able to switch from one species to another. He's going to have to be able to keep a good quality product at each harvest and sell it in the specialty markets and things like that and he'll make out. But it's going to be tough.

MB: So, you think ultimately the corporate entities will essentially dominate?

BJC: Just like farming.

MB: Because that is a tall order to be able to do all those different things.

BJC: Yes, it is. Some of these people will. Some will.

MB: So, how about the future of the town? Since this documentary supports even the town.

BJC: Well, they'll change too because as that basic culture and economy changes, so will the town. They'll have more and more development and more tourists and more people from outside telling them what to do.

MB: So, it is kind of like Beaufort, a nice little town.

BJC: Yes. But it's not like Beaufort was a long time ago. Not at all. So, things are changing. How fast they change, I think, is unknown. But it's changing.

MB: Thank you very much.

BJC: Well, things are going to change. They're going to change for the worst in some cases for some of these folks.

MB: I just worry about people like my friends. I made some really great friends. I just worry about the future. I worry about the farmers. I worry about everybody. I worry about the bookstore owner. How can a bookstore owner compete against Barnes & Noble? You cannot.

BJC: That's right.

MB: It is the same thing.

BJC: No, then they go out of business.

MB: How about a hardware store competing against Home Depot?

BJC: The Intimate Bookstore in Chapel Hill, which is world famous, they're out of business now. They can't compete with Barnes & Noble, no way. My family, we're all farmers. We're homesteaders and we got one farmer left [laughter].

MB: Scary. Because ultimately – well, this is a whole other thing, but if corporations take over everything, then you can see the prices go up.

BJC: That's right.

MB: Nobody thinks about that.

BJC: That's right.

MB: Speaking about Barnes & Noble and Borders, they killed all the bookstores. Now, do you see any discounts? I think they all disappeared.

BJC: That's right. No, things are going to change and we're not going to like it.

MB: Also, we did not get into that, but the whole aquaculture thing. From what I have heard, they have got big problems with that stuff.

BJC: Yes. I'm pro-aquaculture, but [laughter] there's a lot of stuff that needs to be done yet. Aquaculture is not the solution to fishing. Aquaculture is another business. But aquaculture is not a replacement for fishing. Aquaculture is another business. It produces food, but you're going to do it in a lot of different way than when you do fishing. It's business and it's a profit-loss situation. Aquaculture is a solution to answering our seafood demand. We still got to do a lot of research and a lot of economic adjustments. I'm pro-aquaculture because I think it's the way to go. But we need to do lots of things before we get there.

MB: Well, to start us off again, Dr. Copeland, can you give us a backgrounder on how you got into the field? You are a limnologist. Is that correct?

BJC: Well, I have a Ph.D. degree in limnology from Oklahoma State University, which is a study of freshwater. But upon graduating there, I went to University of Texas to see if saltwater had the same principles, and sure enough it does, just a little bit of salt difference. So, I've been in marine sciences since 1962 when I started at the University of Texas, and I moved here in January of 1970.

MB: So, what are some of the kinds of research areas you have been doing over the years?

BJC: Well, I started out in Texas trying to figure out what impact petroleum waste and other things related to the oil industry had its impact on Texas bays. Then I got involved in how much water does it take to maintain the productivity because Texas was short on water. Lyndon Johnson was president and John Connally was governor and they were going steal water from everywhere and bring it to Texas. So, we were trying to figure out how much water we needed to maintain the productivity of Texas bays. So, I've been involved in that again here in North Carolina in the early [19]80s when we were trying to drain land in coastal North Carolina for corporate farms. So, the same kind of principle was applied here.

MB: Well, I have a question for you that I did not ask last time. Because I think the daughter of a fish house owner down at Sneads Ferry, Everett Fish House, just got her B.S. degree this fall.

BJC: Right, here at NC State.

MB: Right. Is there a program where young people can learn about marine fisheries?

BJC: Well, we have an undergraduate emphasis in fisheries and wildlife where they can concentrate in marine if they want to, or freshwater if they want to. Combine that with conservation courses and environmental courses. They can get a B.S. degree in zoology or in fisheries and wildlife or in marine sciences and have a concentration on fish. You can go to UNCW where you can get an undergraduate degree in marine sciences. Then some of the community colleges like Carteret Tech and Onslow, Central Carolina Community College, which is located in Jacksonville, all of those have concentrations in marine fish kinds of activities of some sort.

MB: Yes, I remember. I think it was Saint Mary's High School for a while. They actually had a program for high school kids.

BJC: Well, [laughter] actually, there are several programs for high school kids. I'm proud to say that when I was the director of Sea Grant, we started that program in North Carolina. It has been very successful. There are probably three hundred of those courses now in high schools and middle schools throughout North Carolina.

MB: Talk a little bit about what the Sea Grant is.

BJC: Well, Sea Grant is a program – just like Land Grant is for land resources – for ocean and coastal resources where you take research and educational activities and apply them to making a living in the edge of the ocean. That can be fisheries, tourism, recreation, erosion problems, building, all those things that are unique to the coastal area.

MB: Now, this documentary concerns Sneads Ferry, which is one of a number of little fishing towns along the North Carolina coast and other states as well. I am trying to get across a sense of the culture of the place. But also, a real look at the lives of fishermen and their families. Sneads Ferry is located right in the New River just below Camp Lejeune South Gate about 20 miles south of Jacksonville. It is a rapidly growing area. Wilmington is about an hour drive south depending on traffic on 17 there. What are some of the issues facing Sneads Ferry as a fishing town, would you say?

BJC: Well, first of all, Sneads Ferry is like a larger number of small villages in coastal North Carolina and further down into Georgia and Florida as well, which traditionally were clustered and built around fishing. Originally, we had some whaling and things of that sort, but mostly fishing. Now as times are changing and the commercial fishing has become like farming, more and more corporate-owned and larger, these villages are now turning into tourist areas where development is beginning to be the swinging force. So, consequently, those communities are changing dramatically. You can take Calabash for example, which was a sleepy, little fishing village with a few good restaurants, and has all of a sudden been discovered by a lot of people. So, now when you have a vote on something, the newcomers outnumber the old folks. So, things are changing very rapidly. So, the culture of those villages, of course, is going to also change. So, things are going to be different. That change is going to occur faster in the future than it has in the past because the money is there. People have discovered the unique coastal North Carolina, and they're coming here by flocks, mostly from up north and inland. They don't understand this coastal culture much. They want to have things like they had in Cleveland or Boston. So, you change. People who've been living there for generations are going to find things different than what they had before.

MB: Well, can you talk a little about the generational aspect? Sneads Ferry, it just goes back to 1702 or something.

BJC: Well, Sir Walter Raleigh came in 1583 or something like that. They had a couple people on there that traded fish for bulldogs up with the Indians or traded bulldogs for fish and they both were happy. The Indians ate the bulldogs, and the colonists ate the fish. We've been in commercial fishing activity ever since. So, that's four hundred and something years. So, you talk about generations, you're talking multiple generations and a lot of interfamilial connections. These folks lived in fairly isolated villages in those days. You can imagine trying to go from Sneads Ferry to Hatteras. You could go to several other states before you could make that trip. So, these villages were fairly into themselves. So, there's a lot of generational continuations there and nobody went very far. But that's of course all changed now. So, we're scattering them to the winds, as they say.

MB: Yes. I think that is a big point of the documentary, is there are a lot of proud traditions with these fishermen.

BJC: Yes. Well, when you stack generations on top of generations and all this stuff is passed down from one to the next, tradition is very strong. But when you start breaking those family ties, then you start breaking those traditions. To me, that's a sad thing. I like those traditions myself.

MB: Me too. Well, let us talk about some of the major issues. Let us take it one at a time. Let us start with growth and development. How is that affecting everything?

BJC: [laughter] Well, nothing comes out by itself [laughter]. Growth and development are not only changing the culture and where people live and how they live, but it's also affecting the environment and the things that these people made their living out of. If you cover up ground with buildings, then runoff is now going to go into the water instead of into the ground and be purified. So, you have a lot of runoff of impurities and things of that sort and they're accumulating in the bottom of the bay out there. Water does continue to run downhill whether you have development or not. So, things that you do upon the land are going to dictate what happens in the water. So, land use and runoff are really an important aspect of what's happening to our coast. Now, what's next? You want to talk [laughter] –

MB: Well, so in terms of development, obviously everybody wants to live these days near the ocean.

BJC: Well, a large percentage of the population of the United States does live within a few miles of the coastal area if you count the Great Lakes. So, everybody wants to go there. Seems to be a nice place.

MB: For whatever reason, Sneads Ferry – maybe it was because it was by the Camp Lejeune and it has managed to kind of escape – of course, Beaufort is more picturesque. There are all these nice homes there and everything.

BJC: Well, Beaufort is a different kind of place. There are some fishing traditions there as well. But it's had a long time with tourism and historical stuff. Well, the three coastal areas in North Carolina; Dare County area and Carteret County area and the New Hanover County area are amongst the fastest growing population centers in the United States. In terms of how fast things grew between 1990 and 2000, they were right up there. So, people are coming. They're flocking down there. So, things are changing.

MB: Let us talk about bridging the environment. Like you say, in other words, if you cover with condos or whatever, there is no place for the water to run out and get purified by the natural [talking simultaneously].

BJC: Yes. That and the fact that you also replace some habitat. The marsh and marginal areas that we are trying to build upon now used to be an important part of the ecosystem. So, the habitat part. But then you move into the actual fishing activity. Not only are we screwing around with a habitat and we're contaminating the water, but we're also overfishing it in some cases because we just simply have more effort going on out there. Recreational fishing, for

example in coastal North Carolina, has just about quadrupled in the past fifteen years. So, that pressure has intensified. Commercial fishing activity has increased. People use bigger nets, more of them. Larger pots, more of them. We're out there trying to catch everything we can. The ecosystem's capacity to do that is declining and we're demanding more. So, those two lines don't necessarily parallel. They're going to cross someplace.

MB: Well, what is going to happen then do you think, in terms of overfishing?

BJC: Well, things are going to continue to sort out. You got to go out of business after a while or change things after a while. So, pretty soon the system will equilibrate. It may be that the last fish comes trotting around Hatteras and five hundred people trying to catch it and that's it. I don't know. But mother nature has a wonderful way of sorting things and coming out to some degree of equilibrium. We as people may not like that equilibrium. We may not want to have equilibrium with nothing there but anchovies and [inaudible]. We'd rather have some big fish.

MB: Well, so is overfishing a worldwide phenomenon?

BJC: Well, of course. The demand for fish has increased. In fact, in the United States in the past ten years, we've increased the per capita consumption of fish. You may have noticed that the per capita is also growing. So, you're multiplying twice here. We import a very large portion of that seafood that we eat. In fact, we usually export less desirable stuff and import more highly desirable stuff because we're the country with the money. So, we're putting pressure everywhere else in the world as well to meet these demands. So, overfishing has become a worldwide question. There's some argument about what constitutes overfishing. When do you draw that line and say, "Okay, we've overfished." That's a very difficult question to answer biologically, because things do go in cycle. Normal fish population goes up and down on an annual basis. Then if you impose some overfishing on that, then you really have a problem. You say, "Well, we'll make some regulations to try to turn this around." Well, when do you know when you've made enough? When do you know when you've been successful? When do you know that things are going back in the right direction? Hard to do. Very difficult.

MB: That seemed to be even going on at that meeting that we filmed.

BJC: Yes. You heard the guys talking about the river herring and alewife, more of them out there than they've ever seen. Well, it's probably true because they are coming back. We think they are. But we passed some very strict regulations to protect them some. What we got to do is get them into the spawning pool and see if they can sustain that. Then we can start catching more. Same thing with striped bass. We've been very successful with bringing striped bass back, but we almost put a moratorium on that. It had screwed things down pretty drastically, but that's been a very successful program. Stripe bass are back and spades. So, that's a good one. So, we are making some progress. But the question is, can we hold the line until progress becomes sustainable?

MB: Then having read some books about fishing, I do not know whether or not seven or nine great fishing grounds in the world. I read some book where it said most of them are in trouble one way or the other.

BJC: Some are in more trouble than others. Georges Banks' fishing grounds, for example, have been virtually closed for the last three years because of overfishing. That's one of the great. It's off of Nova Scotia, off of Massachusetts, out that direction for what the perfect storm was [laughter] –

MB: Was done.

BJC: – took place. That's been overfished and that's now coming back, by the way. But another great fishing ground, which doesn't usually get in those seven or eight that people write books about, is right off of our coast here. We happen to be in a very good place. Hatteras kind of pokes out there and the Gulf Stream goes sweeping by toward England and Labrador Current coming down from the north. So, we have a very productive coastal area right off our own shore. So, we are very fortunate in that respect to be located there.

MB: Well, let us talk about how important fishing has added to the economy of North Carolina. A little bit about how big is North Carolina. Statistically, this is a major industry for the state.

BJC: Well, commercial fishing in North Carolina is bringing about \$75 million at boat side prices. Now, what that does when you talk about its role in the economy, is you multiply that by about five or six. So, you're really talking about 400 million or so. So, for coastal economic activity, that's not a bad size business. That's [laughter] up there with them. Now, recreational fishing, which is hard to separate out from other parts of tourism, but we think that recreational fishing is worth about a billion dollars a year to the economy of the coastal counties. So, if you put those together, you're talking about 1,000,000,004 or 1,000,000,005 industries for fisheries, and now you're getting enough past chickens and tobacco. So, we're up there. So, economically, it's a very important aspect of North Carolina. It's why we pay so much attention to it. You got big bucks involved here and everybody's got to be right. [laughter] Just like anything else, we all think we know the solution to the problem.

MB: There are conflicts between recreational fishermen and commercial fishermen.

BJC: There are. It usually has to do with allocation. Particularly in North Carolina, we have several species that are sought by both groups. Trout, for example, or weakfish, commercial fishermen seek those as do recreational fishermen. So, therein lies potential conflict. We catch more species of fish and shellfish in North Carolina than you do in any other state. So, the potential conflict here is greater than it is in any other state. Indeed, that's been born out in many cases [laughter]. So, it's a tough thing to make everybody happy. You can't do it.

MB: These are big generalizations. I have not talked to any recreational fishermen, and I do not plan on doing it. Not that this is a propaganda piece for commercial fishermen, but like I told you on the phone the first time I talked to you, I have a lot of empathy for the commercial fishermen. In other words, the recreational fishermen are not about to go into the fishing business. They are doing this for sport. There is nothing wrong with it.

BJC: That's, of course, part of the dilemma here or part of the you can't get past it sort of thing.

Because commercial fishermen are making their sole living by catching fish out of the water. Recreational fishermen are doing it for fun. Now there's some who like to trade little fish here and there to pay for the gas and stuff like that. We do have some provisions where people can use a little commercial gear to catch fish recreationally and things like that. But nevertheless, the culture is almost totally different. I'm not in favor of one or the other either. I'm trying to look after the fish. But from the standpoint of culture, commercial fishing is a culture that's been going on here for generations upon generations. It is an activity that has tremendous tradition and color to it and things like that. Now, that's not to say that recreational fishing doesn't have some traditions of their own. They do. People have been recreational fishing here for centuries, but not to the extent that they are today. So, anytime you crowd things up and start putting pressure on a resource, you're going to have conflict. How you resolve that conflict is not easy. It's tough. Constitutionally, everybody owns the fish. Our constitution says that we're common property state. We have equal rights to everything. That doesn't say anything about whether you have equal rights to the boat or not. But you have equal rights to the fish.

MB: Well, of course, a lot of recreational fishermen have more money than commercial fishermen. Commercial fishermen, a lot of them do not make a lot of money doing this.

BJC: Well, most commercial fishermen don't make a lot of money. We have a few commercial fishermen who are making good money. But there are fairly organized, big operations that have been in it for a long time. Recreational fishermen, on the other hand, are making their money from the booming economy that we have here. They all go to work in their \$40,000 SUV on Monday morning. Come Friday evening, they're headed to the coast with their fishing rods stuck in that tube on the front. They have got money to spend, and they got time to spend it in. So, that's the difference. So, culturally, they're quite different.

MB: Sometimes the recreational fishermen, from my understanding, have legislatively tried to prevent commercial fishermen from fishing.

BJC: Well, there have been all kinds of bills introduced to ban trawling, to restrict the size of trawlers, to ban gillnets, to do this, that, and the other. So far, none of those have been successful. But that doesn't keep people from trying to legislate what they think is right. These people think that they're protecting the fish too.

MB: Well, it is amazing some of the stereotypes when we were down there. We had the use of this condo, and these two guys came over to repair the sprayer and the sink. We were asked what we were doing and telling them about this documentary.

BJC: [laughter]

MB: God, all the stereotypes they were rolling out. They are lazy guys, and they just want the next beer, all the stuff. Well, that is one of the other things. I want to dispel some of these stereotypes about fishermen just being bums.

BJC: [laughter] We always have stereotypes. Mention any group, a stereotype pops into mind. Hardly ever is it true. You may have known someone like that, but hardly ever as a group is it

true. So, having this documentary, I think can be very helpful in that regard. Maybe people can understand a little more about tradition and culture and honesty. It's like a religion. We're talking deep stuff here.

MB: Well, it is also the sense of community in that town.

BJC: Of course.

MB: That comes out and says when people die at sea or whatever. It is a sense of community that is lacking in our culture in general a lot.

BJC: Well, yes. Mostly we've gotten away from these traditional kinds of things. Your neighbor dies, nobody even shows up. When I was a kid growing up, if somebody died, we had more food to eat than we could handle. Because all the neighbors came in and tried to help out. Those are traditions that they're kind of nice. Feels pretty good. We're losing them.

MB: Like a good pig pickin or something like that.

BJC: Oh, yes. Like an oyster roast. On a cold winter day and have an oyster roast. Nothing could go better than that.

MB: Well, that is right. I am trying to show that sense of community, which is very powerful In Sneads Ferry.

BJC: Oh, yes, it is, and others small villages like that.

MB: You have touched on this already. We have talked about how development affects in terms of the tie to pollution. But this is a big, red button issue. We are always hearing about pollution. How bad is the pollution on the coastal areas of Carolina, would you say?

BJC: Well, there's specific areas that it's about as bad as it is anywhere. We have lots of areas where it's not very bad at all. So, it depends on where you are. But as we discussed earlier, water runs downhill, and it all gathers down there. So, anytime you do something in one place, you're going to have impact all over the place. So, it's not isolated anymore once it gets there. We have water running down all these creeks and rivers into the bays like Pamlico Sound, for example, which is a very large body of water. It has major rivers running into it. So, there's a lot of things going on to Pamlico Sound. Then along comes a hurricane or a flood like Floyd, and more of it runs in there because we just washed off the whole landscape and took it all down there. There's an article in the paper – was it today or yesterday or whenever it was – about a new report that's just come out on the impact of Floyd and how it's going to affect Pamlico Sound in the future. In some ways, it improved fisheries in some isolated locations. But it has really impacted fisheries in a larger respect. Like blue crabs, for example, which people think may have caused a decline in the blue crab catch that people are talking about. So, it could be. If that's so, then it's going to take a couple years before it can recover. We talked last week about blue crab, didn't have the little ones in the water and all the old-timers saying it's going to be bad this year. Sure enough, it still is. Well, now the little ones are coming back for next year.

They're down too. So, the next year doesn't look really good either. I think things will turn around. But I think it's going to take three or four years. So, I think we're going to have a three- or four-year period of lower blue crab catches than we've had in the past, before it gets better.

MB: So, in other words, would you say that the area around Sneads Ferry, which is around the New River and Jacksonville area, how would you rate that in terms of water purity or the state of the estuaries and the swamps and all that?

BJC: Well, for a while, that was sort of a cesspool there when we found that the marine base had about seven outfalls into the river and was not doing much about it. Those have slowly been cleaned up. So, the marine base now has a new sewage treatment plant. So, that's going to improve the New River some. But meanwhile, the population all around there keeps growing. So, [laughter] you make improvements, but you're losing ground because you have more and more people and more and more activities on the watershed. Also, in the New River watershed or a few agricultural operations like concentrated hog farms. So, you do have some pollution in that area. It's not clean by any stretch of imagination. But it's better than it was. It will get worse again. It comes in cycles. So, yes, we got pollution there.

MB: The pollution, in other words, it is not horrendous, but it is fairly typical, would you say?

BJC: Yes. Well, take Camp Lejeune. It's a marine base. On any given day, more than a hundred thousand people are located there. That's a fair-size city. So, you're concentrating a lot of folks into a small area there every day. They all go to the potty, and it runs downhill.

MB: [laughter] There is no way around that.

BJC: It's just the way it is [laughter]. That's comparable to a city almost half the size of Raleigh to a bunch of folks.

MB: All those towns are growing. Wilmington is growing. Jacksonville is growing.

BJC: Oh, sure. Yes. We were just talking about fast growing areas on our coast. So, that isn't going to stop. They are running short on drinking water. So, that's going to slow things down a little bit until they get that problem solved. But talking about reverse osmosis and things like that, those are expensive ways of getting drinking water. But it may not matter how expensive it is.

MB: So, it is a very fast-growing area in terms of population and business and all that.

BJC: Well, North Carolina itself is one of the faster growing states. So, we aren't just talking about the coastal zone by itself. You got all these people living up here on a hill as well. As we spoke, water runs downhill from here. We got Raleigh and Wake County as one of the faster growing areas in the United States as well. So, not just coastal.

MB: That is true. Well, why not talk about regulations? God knows every single fish in that lake. We want to know.

BJC: Yes, we have too many now [laughter].

MB: Let us talk about the regulations because this is a big topic for fishermen. Many of them say, of course, you need regulations.

BJC: Well, of course, we need regulations. Nobody would disagree with that. The question is how many regulations and what kind and how far do you go? There's no answer to that either. The problem is that we don't really know how much regulation we need. So, we keep searching and keep trying to come up with ways to manage this system so that we can maximize its output. That's almost impossible to do. But we keep searching for it anyway. Consequently, what we have are more regulations than we need. I don't know what you do about that other than throw them all out and start over again, which is probably not a good idea. So, maybe we can work through these things. If we can get everybody with a good attitude about trying to solve it, then maybe we can eliminate some of the regulations that we have. But right now, I would agree with the fishermen. There are too many regulations. I'm on the Marine Fisheries Commission and I have no idea how many regulations we're trying to enforce [laughter]. So, this is a problem. But anyway, there's no easy answer to that question.

MB: It is an emotional issue.

BJC: It is, and I don't blame them. If somebody came and told me that I was mowing my lawn wrong, and then instead of drinking two beers, I can only drink one while mowing the lawn, I'd be emotionally upset too.

MB: Or as a professor –

BJC: Yes, somebody came here and told me how to teach my class. I said, "Well, if you can do that, you go ahead and do it [laughter]." It becomes an emotional issue when people start fooling around in what you've been doing traditionally and in how you're trying to make your living. It becomes an emotional issue. You're talking about affecting your ability to protect your children. That's about as strong a motivation as you're going to find. So, it becomes tough. So, I understand the frustration.

MB: Apparently, what areas are quarantined or whatever, it changes daily, right? Every day.

BJC: Well, sometimes hourly. On some of these shellfish waters, you can close them immediately if there's a health threat. So, you can change what you're doing and where you're doing it.

MB: [laughter] It is crazy.

BJC: You got to go down to the fish house every morning and read the printout. I just got a letter from a guy the other day who said that we would close an area by proclamation, which is what we have to do when the health level gets to a certain thing or reopen it when it gets to a certain level. His complaint was that he didn't receive the email notice of that until it'd been

open for three hours. He felt like that he had been discriminated against for not being able to go out there and fish for those three hours. That's a little old thing, but to them that was an emotional issue.

MB: Well, are there people all over the state testing the water constantly? How could it change by the hour? It just reached a certain level of parts per billion or something like that.

BJC: The standard is based on a bacteria called Escherichia coli. It turns a test solution a certain color. When you take a sample and it gets to a certain level, it's called most probable numbers. I think the numbers level is a hundred or whatever it is. But anyway, some level. As soon as it hits that level, you must by law close it because now you're having a health threat. Fortunately, we do that on a more methodical [laughter] basis. We took a second sample. But once it goes below that, then you reopen. Well, the pressure's always on the reopening part because it's been closed from fishing activity. So, everybody's sitting there waiting until they can reopen and go out there and harvest shellfish. Well, any fool would know that it's not one level one minute and some other level the other minute. That isn't true. But that's when the sample was taken. That's when the test was made. That's as soon as you can get it done. So, it sounds like it's going back and forth like a pendulum, but it's not. Nature doesn't work that way, but man does [laughter].

MB: Yes, we took shots of it.

BJC: This is a big problem.

MB: This is crazy. We have shots of this, "Quarantine, no shellfish," right there. Beautiful though.

BJC: Right. Big orange sign. Stands out.

MB: Yes, next to this fishery.

BJC: Looks good on film, yes.

MB: Big mark, "No clams."

BJC: Everybody's standing there is saying, "Well, they're just fine." They may be today, but how much do you gamble with a threat to public health? That is a very large responsibility. Our head of public health here in the state has the responsibility to the people to either do something for or against or whatever to preserve public health. Well, which is it? You wait until a hundred to get sick? A thousand? One? Baby dies? So, the pressure's on. He's got to close it when he thinks that it reaches a certain level. So, they do. Like the state health director told me one time, he said, "Lord, help me if a baby dies because of something out here in nature, whether I had anything to do with it or not."

MB: Because it is going to be on him.

BJC: It's over.

MB: Like with the Pfiesteria thing.

BJC: Yes, he was talking about that [laughter]. That was the context in which he was making that remark. So, somehow or other, you got to draw some kind of line. It's a very frustrating line for everybody, regulators, fishermen, citizens, people that read the newspaper, whatever. It is a frustrating thing. But I serve on the commission and my philosophy is to do the best I can on everything we do. That's all I can do. If somebody wants to argue with me about it, go ahead.

MB: In other words, the fishermen around Sneads Ferry whether they are clammers or crabbers. There are a lot of shrimpers. There are fin fishermen. They go to grouper and all kinds of different fish. Let us take shrimp. We talked about this before, but shrimp is a main activity. How are the shrimp stocks doing?

BJC: Actually, the shrimp stocks are pretty healthy. As we spoke before, it's an annual crop, which makes it easier to manage than you would be if it takes two or three or four or five years for it to complete its cycle. Because we can do something one year and not screw up the following year [laughter]. So, you got a chance to do some things. But actually, shrimping has been pretty good the last few years. It doesn't look like it's going to be much different.

MB: So, you did this before. Can you quickly take us through the cycles of how shrimp develop, in other words?

BJC: Well, the spawning occurs offshore, usually in eddies off the Gulf Stream. That's why we don't have shrimp north of Hatteras. There's no spawning ground, no habitat for them. But they hatch out in those floating eggs, and they're like plankton. But these eddies are moving towards shore during that time of year. The spawning occurs in December and January and February. So, in the wintertime, there is a net on shore push of water from those eddies. In fact, they're part of the genesis of the Nor'easter system. So, its winter storms coming out of the same water that's spawning the shrimp. But as they move towards shore, they develop into post larvae. By the time they get to the inlands, they're now able to swim up and down the water and regulate their own position. They go inside the estuaries and bays to what's called primary nursery areas. These are shallow waters up against the shore, usually the northwest shore. They go there where the productivity is very high. They grow at a very rapid rate. So, they arrive there in the early spring, usually around March or April. By June, they're on their way out. They've grown up past juvenile stage. They get into Pamlico Sound, they become part of the commercial fishery. So, we have people out fishing for shrimp once they get past a certain size. That certain size is 40 count or 50 count, and you start getting part of the commercial harvest. The shrimp are still growing very rapidly and they're still on their way offshore where they'll spawn again in the winter. By the time they had to get to spawning, they were pretty good-sized shrimp. So, our shrimping then will move further toward the shoreline and offshore as the summer goes on. Now, we have two main species of shrimp here. One is the brown shrimp, and the other is the white shrimp. The white shrimp comes a little later. So, somewhere in the summer, one's going to have to stop taking brown shrimp at the risk of harvesting the white shrimp while they're too small as a bycatch and wait for a little while. So, we do have some seasons, some openings, and closings. The folks down there probably told you about the opening of the new river shrimp,

which everybody lines up and ready to go. You get about forty, fifty, or sixty boats out there all trying to shrimp in the same place at the same time. It can be a mess. But the shorter and more enclosed the estuary is like New River, the more tightly these shrimps will form out of their primary nursery areas into the system and on offshore. So, that's why the fishery opens there on such a precise time. They're all forming out there by the hoards. So, people are out there catching them while they can catch them. Up in Pamlico Sound, the system is so large that you don't have that kind of concentration, so you don't have the issues you do in the New River. But it's an interesting cultural thing. These people wait all year to be in that fishery.

MB: So, shrimp are in pretty good health because it is an annual crop.

BJC: Well, annual crop and their behavior. They don't stay in the estuary all the time. We protect our primary nurseries as much as possible and things like that. So, shrimp are not in bad shape.

MB: Speaking of estuaries, how would you rate the overall condition of the estuary system in North Carolina?

BJC: Well, actually it's in pretty good shape. We said a while ago, we have some real hot spots where things have deteriorated down to bad news. But by and large, Pamlico Sound is in pretty good shape compared to some other areas. Of course, it's large.

MB: Clams and oysters and crab and the other, the finfish around Sneads Ferry, how would you rate how they are doing, basically? That is a big question.

BJC: Well, the oysters, we'll take those first because they're pretty much non-existent. We've overfished. We've hit them with disease. We've done everything in the world. We've destroyed their habitat in many cases. So, wild oyster harvest has declined dramatically. Clams are on their way back. We did the same thing to clams, but we've done a pretty good job of getting them restored. We have a lot of people who are raising them on leases and things of that sort. That lets baby clams loose in the water. So, we're doing pretty good. The blue crab thing, the fishery declined last year. The year before, we set a record. We caught over 60 million pounds in [19]99. The Chesapeake Bay blue crab fishery has declined. So, our blue crab fishery was going great guns. Prices were high and lots of them. Last year, different story. We only caught a little over 40 million pounds last year. You do the math there and it's a pretty healthy reduction. That can change a lot of folks' income level. Like Willie Phillips has reported the other day, we've got blue crab fishermen, and they haven't had a paycheck since October. That's a long time to go between paychecks. So, the blue crab fishery is not doing well. This year looks like going to be pretty low again like last year. If the young in the water are any indication, which I think they are, next year is not going to be much better. So, blue crab fishery is not doing well. The shrimp fishery, as we said, is moving along pretty good.

MB: Let us see. The major interlines here are overfishing. We talked about that. That there is overfishing. Regulations.

BJC: In some place, yes. Overfishing in some, not all. Regulations, we got too many of them,

but we don't know what to do about it. Pollution, we got some of that, but not everywhere.

MB: Development is –

BJC: Development is coming more and more. Things are changing.

MB: Things are changing.

BJC: Culture is going to hell in a handbasket.

MB: Well, I agree [laughter].

BJC: [laughter]

MB: I do basically, but I hate to say it. But an emotional thing, one fisherman down there whom I got to know, but he never wanted me to go out – he is a shrimper – because I think mainly – and I have gone out with a lot of shrimpers and they dumped those nets down on the cleaning table and there were all kinds of things in there besides shrimp. You cannot just tell the shrimp to go in there.

BJC: We call that bycatch. That is a tough issue. Some folks think that if you catch anything, it's too much. Others say, nah, it doesn't make any difference. The question becomes when is bycatch too much bycatch? Of course, that problem biologically is housed in how many of these juveniles, which make up most of the bycatch, are going to grow up to be adults and part of the fishery. The answer is we don't know. The percentage is pretty small because things do eat things out in the water. Besides that, the bycatch they throw overboard is feeding the crabs and the birds and other kinds of fish. So, it's not going to be wasted like you just took it and threw it away. So, how do you deal with bycatch is a controversial question. Unfortunately, scientifically we don't know the answer to it. We're trying to do some studies right now on what bycatch actually means in terms of the overall ecological health. What happens if you do this and if you don't do that? We've developed some mechanisms that go in nets that reduce bycatch. These are called bycatch reduction devices, or BRDs. In some places, we require them. It's a regulation of people that we don't need, but we have it. In many cases, we can reduce the bycatch by 50 to 70 percent. That's good. Other cases we can't reduce it much at all. It depends on the behavior of the fish. Because things are still scooping it up in the net. If you can do something to turn the catch loose live, like we developed one time a net the Vietnamese used to use. It doesn't drag on the bottom like a trawler does, but still catches effectively. It floats in the water so that you don't have the drag on the bag like you do with a regular trawl, and you don't kill as many of them. So, when you dump them out, they're still alive. In some cases, all of them are still alive. So, there are some ways to reduce bycatch and to reduce the impact. But the problem is not going to get any better until we learn what the impact actually is.

MB: Well, of course, the sharks are right back. There are all kinds of them.

BJC: Oh, a whole lot of stuff comes to the table. My old major professor told me that, "If you want to understand ecology, you got to figure out what critters are going to eat." He said, "All

critters eat. If you can figure out how much and when, then you got most of the ecology down." He's absolutely correct. Everything's going to be eaten. So, what eats what is an interesting question and when do they do it?

MB: I think visually you see a whole bunch of fish who are flopping in there.

BJC: Well, it looks horrible. You walk out there and say, "My gosh, look at that." There are thousands of little trout in there. I could catch every one of them. One of them would be hanging up over my fireplace weighing 28 pounds. So, the thing's about 4 inches long. The odds of growing up to weighing 20 pounds is probably astronomically low. But that doesn't keep me from thinking about that. So, it looks terrible when you first look at it. So, I don't know what the solution is.

MB: But as the sign owners looking at the shrimpers who are in any of these places, they have been doing it for a long time. They get these little sharks and these little crabs. There are all kinds of things in there. I saw weird looking things in there, ribbons. The fishermen are amazingly knowledgeable. They deal with these things all the time. They know all those things.

BJC: Yes. They know exactly what they are. The amount of bycatch per pound of shrimp has fluctuated through the years. Right now, I think most people think it's about 5-to-1, maybe 6-to-1. Has been high as 13-to-1. Now, which ones of those are scientifically documented? I don't know. But those are the numbers that keep getting tossed around. Whether or not it's gotten worse or better, or we have more of it. I don't know the answer to that either. You look and come up with any kind of conclusion you want to.

MB: 5 pounds of bycatch for a pound of shrimp?

BJC: Yes.

MB: Of course, some people wonder why can they not use any of those fish? Why just throw them back?

BJC: Well, they can in some cases. We allow a certain amount of bycatch to be harvested. But we want to discourage as much bycatch as possible. We don't want people to go out there and say, "Well, I'm going shrimping," and catch 500,000 pounds of trout and no shrimp. That's not a bycatch fishery.

MB: Is the majority of the fish consumed in this country imported?

BJC: We import about 70 percent, I think, of the seafood that we consume in this country. Most of it from cheap places like Ecuador and India and Bangladesh, places like that.

MB: Well, can you talk –

BJC: Some of it is poor quality, but a lot of people don't know the difference.

MB: Yes. I had some very fresh shrimp.

BJC: [laughter]

MB: They came fresher than right up into the net to the pot with the bay seasoning.

BJC: Yes.

MB: That is mighty fine.

BJC: It is. But sometimes you'll get shrimp from China or something, or India that's a little bit soft, "Wonder how long ago they caught these [laughter]."

MB: 1979.

BJC: Well, not quite.

MB: In terms of these aquaculture operations, is that the future of fishing?

BJC: Well, most of the shrimp we now import, for example, come out of aquaculture operations in Ecuador and Uruguay and places like that. Oh, yes. Aquaculture is a growing means of producing seafood. Now, one should not confuse that with replacing commercial fishermen. Aquaculture is another kind of business. It's not a replacement for commercial fishing. Now, aquaculture may be a way of providing protein for the table and we call it seafood, but it's not the same as commercial fishing because we've just stated early on here, there's a culture and a tradition and all those kinds of things that have to do with commercial fishing that is not so in aquaculture. Aquaculture is a business usually run by companies.

MB: You need a lot of money to operate that.

BJC: Well, of course you do. Aquaculture that's undercapitalized is destined to fail. So, you have got to have a business commitment in order for it to thrive.

MB: Well, what about the corporatization of fishing? In other words, fishermen are like small businessmen or women.

BJC: Well, there's always been some of that in that different boats would group up and work for a particular fish house, for example. In that way, we're part of the corporate system. Although they weren't owned by that corporation, they're still independent. Now, what's happening is that larger companies are buying out fishing operations and setting up a corporate activity like you do with farming. So, there's more of that coming online. When that occurs, then you're changing the culture of fishing altogether.

MB: Because like family of a farmer has trouble, so does the family of fishermen.

BJC: Yes, exactly. Same kind of problem. We'll work through that. It's going to be painful, but

we'll work through it.

MB: So, to wrap things up, what is the future for a town like Sneads Ferry?

BJC: Well, it's going to change. But there'll still be some commercial fishing activity there. There'll still be a small community of those folks. Those families aren't going to just pick up and leave tomorrow. But the majority of people in Sneads Ferry are not going to be related to the fishery. They're going to start making rules down there that may or may not include the tradition. So, the town is going to change. The economy is going to change. It's changing already. But to say that it's going to be completely eliminated, I don't think that's going to happen. I would still want to live there [laughter].

MB: I would not mind.

BJC: So, would you – [laughter]

MB: Get a gig down at USC Wilmington.

BJC: [laughter] There you are.

MB: I like it down there. You can still afford a place that is not too bad around Sneads Ferry. It is still undiscovered to an extent.

BJC: You got it. Sneads Ferry really is not on a major highway. So, they are still a little bit protected. If you're on a major highway, boy, forget it. If you can get from the airport to the house in a few minutes, then you're developable. You see all these little signs, "If you lived here, you'd be home now [laughter]."

MB: But I do not want to live there.

BJC: [laughter] Me either.

MB: I have seen twelve lanes.

BJC: Personally, I'm moving from – I live 20 miles out of Raleigh. At one time, it was 8 miles out of Cary. Now, Cary is across the road from me. Like I told my wife, I'm only going to live this long and move further out the first time. But we're selling out and moving to Chatham County because I can't stand to live in a place where I'm looking at my neighbor's window and he's looking in mine.

MB: Chatham County, that is –

BJC: That's Pittsboro.

MB: It is nice around there.

BJC: We are going to move down off the Goldston and Bear Creek Highway.

MB: You do not want to be down by the coastline?

BJC: No, I'd worked down there.

MB: [laughter] It is a different thing.

BJC: [laughter]

MB: It is work, beautiful as it is down there.

BJC: Yes. Oh, I love to go. I wouldn't mind living there actually. It'd be very pleasant. But my children are here, my grandchildren, and so here we are.

MB: So, the future generation, this incredibly strong young guy that I interviewed whose father was in the Marines from Michigan. Was not one of these generation fans but proved himself. The parents both were from the Marines. They settled there years ago. He is a quite successful fisherman. Now, the son, Mike Junior, wrestling champ for the high school, went to UNC Pembroke for a while. But he is totally into it. He is twenty and it is going to be his life.

BJC: Well, there are some of those. But there are fewer than there used to be. Most parents are advising their kids to do something else. So, consequently, the age of our commercial fishermen is inching upward average age. What that means is that eventually we're going to have very few young ones.

MB: Well, I do not know how many young people are going into farming unless they inherit the farm.

BJC: Not many unless they can get together four or five farms and they go in. You got enough kinfolks that they can inherit four or five farms, then they might become a farmer. But things are different than they used to be.

MB: Fishing is unreliable too like my friend –

BJC: Of course. You're subject to the weather. We get into these kinds of binds when we pass the regulations that the season will be from February 1st or March 15th or something like that, in order to knock down the number of days you can fish. If half those days are bad weather, then the fishermen are saying, "Well, you guys are causing us to go out in worse weather than we would. So, you're adding danger to our – aggravating." They're partially right. Now, we'll say, "Well, you don't have to go." Well, they'll say, "But you cut down the number of days we can fish and if we're going to make a living, we've got to go." So, you get into these no-win dilemmas where if you don't restrict the number of days, you overfish. But if you restrict the number of days, you put danger on the fishermen. So, it's a tough call.

MB: Yes. That was the case of these four that died off of Beaufort in [19]98 that I filmed at the

Connie Mason Maritime Museum in Beaufort. I filmed the memorial they did for them and other fishermen who died at sea.

BJC: Their families claim that regulations caused them to take a chance they wouldn't have taken otherwise. They're partially right. They didn't have to go, but they went.

MB: Because that is how they make a living.

BJC: That's right.

MB: Put food on the table.

BJC: That's right. So, it's tough. We're talking about tough calls here.

MB: So, the future is going to be cloudy for the smaller fishermen.

BJC: I think so. But not dismal. Not totally eliminating them. There's still going to be opportunities. It's just going to be tougher, and people are going to have to gang up a little bit.

MB: Fishermen tend to be, from what I have gathered, fairly independent. I filmed the Media Association down there at sea.

BJC: [laughter]

MB: It is like, well, they are not exactly going to be starting a union anytime soon.

BJC: No. They have a hard time coming down to the same place. They are fiercely independent. That's part of their charm, of course.

MB: They love their work.

BJC: Oh, man, you got to. It's tough work otherwise. Well, you're talking about you did all that stuff with the carnival. Those guys, if they weren't carnage in their heart, how would you be able to put up with that? It'll kill you.

MB: It is exhausting just to think about moving the whole city every two weeks.

BJC: Yes. You got to be wanting to do this thing [laughter]. Yes.

MB: Fishing is dangerous as you get out there.

BJC: Of course. What else?

MB: I think we got it. I think we did.

BJC: Let's do it. Wrap it.

MB: Oh, one more question.

BJC: Uh-oh.

MB: Colombo here. But I do have one more question.

[end of transcript]