

# Swimming in Circles: Aquaculture and the End of Wild Oceans

Analysis by [Dr. Joseph Mercola](#)

✓ Fact Checked

July 29, 2023

## STORY AT-A-GLANCE

- › The two most dangerous foods served in most restaurants are factory farmed chicken, which is responsible for a majority of foodborne illnesses, and farmed salmon, which is among the most toxic foods on the planet
- › Three decades ago, many towns would have local fish markets that sold a wide variety of locally caught fish. Most fish markets have now been replaced by chain stores that use computerized systems to maintain a consistent supply, and this industrialization pushed aquaculture forward
- › Aquafarms are frequently imposed in locations where people are desperate for jobs. Alas, they inevitably end up destroying healthy wild fisheries in those same areas
- › While most aquafarms are located in open water, land-based operations are becoming more common, especially with the introduction of genetically engineered salmon, which are not allowed to be raised in open water due to their environmental impact, should they get free
- › As a consumer, one of the best things you can do is to locate a local community-supported fishery. You can also buy wild-caught fish online

***Editor's Note: This article is a reprint. It was originally published September 30, 2018.***

In this interview, investigative journalist and fishing industry insider Paul Molyneaux discusses aquaculture and the dangers of farmed fish, which are also the topics of his

book "Swimming in Circles: Aquaculture and the End of Wild Oceans."

From my perspective, the two most dangerous foods served in most restaurants are factory farmed chicken, which is responsible for a majority of foodborne illnesses, and farmed fish, especially **farmed salmon**, which is among the most toxic foods on the planet.

## **Salmon Farming in Cobscook Bay**

At the age of 17, Molyneaux left home and got a job in commercial fishing, which led to work in aquaculture in the late '70s.

*"I always had an interest in aquaculture, although I primarily was a commercial fisherman. In the late '80s, I ran a fish processing plant for the Passamaquoddy tribe in Eastport, Maine, on Cobscook Bay. There was a sudden push to do salmon farming in the bay.*

*The way the promoters – at the time, a company called Ocean Products – sold it to us was [by] saying, 'You can become farmers of the sea. You can start giving back to the ocean.' We bought it hook, line and sinker ... Last summer, there were about six of us standing on the dock in Eastport, saying, 'Geez, we thought this was going to be great.'"*

As fisheries had dwindled, they believed aquafarming would be the answer to keeping the fishing industry alive. Alas, the industry was rapidly consolidated into the hands of just a few players. "Now, it's in the hands of one," Molyneaux says.

What's worse, it didn't take long before the environmental downsides of aquaculture became readily apparent as well. In the late 1990s, infectious salmon anemia virus spread like wildfire among the salmon pens in Cobscook Bay, wiping out the fishery as 2 million fish had to be discarded overnight.

*"That set the industry back. Now, it's owned by one company – Cooke Aquaculture – and pretty much everything is automated. They have a*

*tremendous sea lice problem.*

*They're pouring tons of SLICE into those pens, and they're coming up with new systems now because they're finding the sea lice medication is now in the mollusks, like the scallops that are also harvested from the bay. Cooke has been fined twice in the last five years for using an illegal chemical, cypermethrin, to fight sea lice."*

## **Industrialized Food Supply Encouraged Switch to Aquaculture**

In his book, Molyneaux reviews the economics of the fishing industry, then and now. Three decades ago, many towns would have local fish markets, which in coastal areas would sell a wide variety of locally caught fish.

Virtually all fish markets have now been replaced by chain stores that use computerized systems to maintain a consistent supply of specific fish, and this industrialization really pushed aquaculture forward.

*"In dealing with the vagaries of wild fisheries, where maybe today you have one species, tomorrow you have another – 'Yesterday I caught pollock. Today caught haddock. Then I couldn't get out because of a storm' – these companies were going, 'Oh, geez. We can't deal with this, but we can deal with farmed salmon. That's right there, and we can have a schedule of set price.'*

*Because of the [varying] availability of wild fish, the price varies. These larger companies are saying, 'Go ahead with that aquaculture, because that's perfect for us.'"*

## **Aquaculture Destroys Local Wild Fisheries**

The most popular seafood in America is shrimp, most of which is farmed in Thailand. One of the things discussed in Molyneaux's book is the placement of shrimp and salmon

production systems, and how that disrupts local economies and destroys the environment.

More often than not, aquafarms are imposed in locations where people are desperate for jobs. The farms are basically sold as job opportunity and economic development. Alas, they inevitably end up destroying healthy wild fisheries in those same areas.

*"In Eastport, in the late '80s, we were still catching wild-caught cod and pollock out of skiffs. We were processing those at the Passamaquoddy reservation and shipping them downstate. I shipped to a friend of mine in Rhode Island. He called me up and said, 'Paul, what's wrong with these fish? I've never seen fish like this before.'*

*I said, 'Carter, wait a week and you'll recognize them, because you've never seen fish that fresh before. They're less than 24 hours out of the water.' But when the salmon farms came in those wild fish disappeared. And there were high mortalities of lobsters. Why? Because the chemicals they use to fight the sea lice that attack the salmon also destroy the shells of larval lobsters."*

What's more, aqua farms never take the pollution they create into account when counting the cost of production, and this oversight virtually ensures the business' demise. Molyneaux predicts virtually all aquaculture operations will eventually go out of business because they're not factoring in the pollution they're causing, which eventually ends up decimating the business by promoting rampant disease and destroying the water quality.

"They survive by, basically, robbing the future and coming up with technological rabbits to keep the ball rolling as they cascade down declining ecosystems," he says. They also stay alive by receiving government subsidies and even bailouts when disease wipes out the entire business all at once.

Eventually, however, the water quality will become so poor that fish can no longer be raised there, and the farm must either relocate, go under, or raise prices. When wild fish are all gone those prices may go higher than we can imagine.

*"If you look at Saltonstall-Kennedy money, which is research money that's supposed to help fishermen, the majority of it now goes into aquaculture and finfish aquaculture, figuring out how to grow fish," Molyneaux says.*

*"It is these kinds of subsidies – not to mention overestimating stock abundance on forage fish so that they can be fished to dangerous levels of overfishing – that keeps this industry going."*

## **Shrimp Recommendations**

As a general rule, most restaurants serve farmed salmon and farmed shrimp, and both are best avoided if you care about your health, the environment and the working conditions of laborers. Exceptions would be specialty restaurants that serve wild-caught Alaskan salmon and wild shrimp.

*"I eat Maine shrimp, which is a northern *Pandalus borealis*," Molyneaux says.*

*"It's a transsexual shrimp. It's born as a male, and then after two years, it turns into a female ... which we harvest when they come near shore and drop their eggs ..."*

*"When I'm in Mexico, most of the shrimp I eat I buy from local fishermen ... But if I was going to go into a restaurant and buy shrimp, the best shrimp you're going to get is probably Gulf shrimp or wild shrimp out of Mexico, out of the Sea of Cortez there."*

As for potential contamination from the Gulf oil spill and subsequent use of Corexit, Molyneaux says:

*"The problem with the government and studies is that they spend a lot of time studying what goes on inside shrimp ponds. They don't spend much time studying what goes on outside them. If there were problems with the Gulf shrimp in terms of contamination, even the fishermen would be trying to squash that, right? I don't really know and I can't really speak to that."*

## **Theoretically, Land-Based Aquaculture Could Be Sustainable**

While most aquafarms are located in open water, land-based operations are becoming more common, especially with the introduction of genetically engineered (GE) salmon, which are not allowed to be raised in open water due to their potentially devastating environmental impact, should they get free.

In Belfast, Maine, a company is currently negotiating the purchase of 200 million gallons of aquifer water per year for its land-based aquafarm operation. Ocean-based operations basically get their water for free, and they don't even have to pay for cleanup of the pollution they create. Land based companies, on the other hand, are taking valuable drinking water, turning it toxic, and then releasing it into the bay.

Theoretically, it could be possible to construct a land-based operation that not only filters water for reuse, but also prevents toxicity in the first place by feeding the fish a natural diet. The reason farmed salmon are so incredibly toxic is due to the toxins in the feed, as explained in "[Why Farmed Salmon Are a Toxic 'Junk Food.'](#)"

The waste from these (nontoxic) land-based fish could then actually be used as fertilizer on crop fields. This would be a far more sustainable process, but no one is doing it. "Indeed ... when you're raising 33 million fish in a land-based pond, the amount of nutrients that you're producing could fertilize way more farmland than is available," Molyneaux says.

## **GE Salmon Threaten Ecosystems**

AquaBounty's GE salmon are genetically engineered to grow about twice as fast as typical farm-raised salmon — a feat achieved by inserting the DNA from two other fish, a growth-promoting gene from a Chinook salmon and a promoter gene from the eel-like ocean pout.

Theoretically, the GE salmon are sterile, as the eggs are pressurized before the genes are inserted. The pressurization sterilizes them. However, that doesn't mean they pose

no threat to the ecosystem as, if something can go wrong, at some point it probably will.

*"With the land-based system, your odds of escape go down tremendously, of course, because you're not exposed to the vagaries of nature. But here's the thing: You have shrimp that are raised in ponds essentially on land. A fellow named Steven Travis did a study. When hurricane Mitch came through Honduras, it flushed those ponds into the wild.*

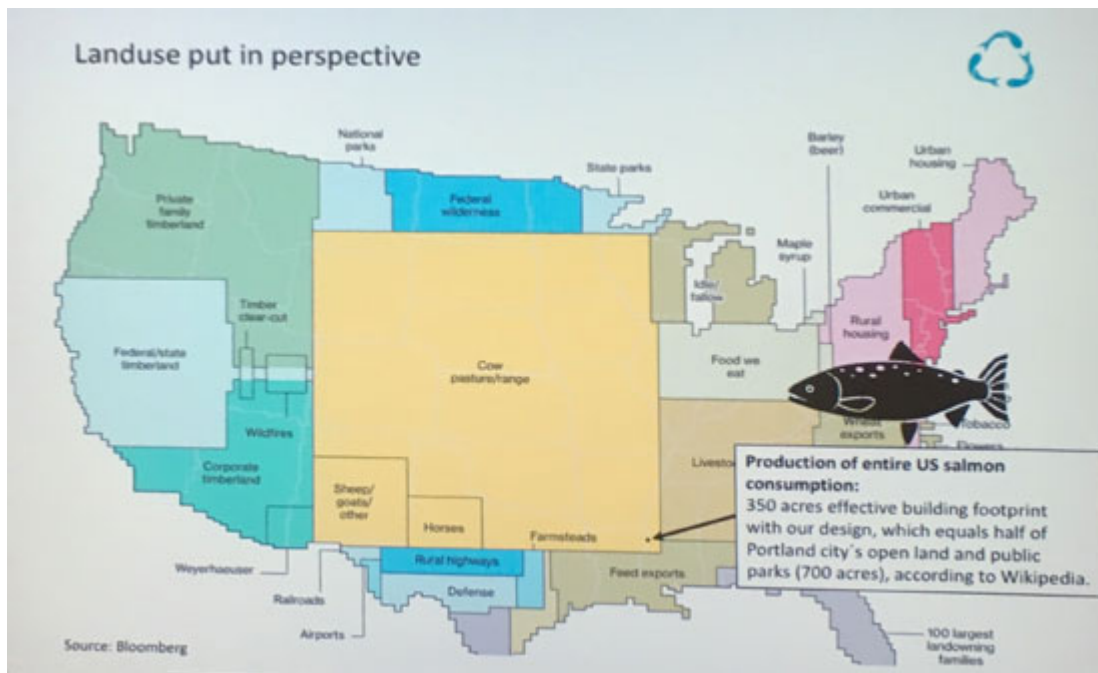
*Those domesticated *Litopenaeus vannamei* shrimp then spawned with the wild, reducing the viability of the wild shrimp. He did a paper on that but couldn't get it published, because the people at the peer-review team included people from the aquaculture industry.*

*You've got pen-raised salmon. Great. They're not going to escape. But, again, what if there is a flood or a tsunami and these are close to the ocean? Then they're going to be out there. As I say in the book, it's an ecological genie that you can't get back into the lamp.*

*When you veer from the natural and traditional approaches, you've got to be wary of this and actually expect this to happen. No matter how many safeguards you put in place, they're usually not enough.*

*At a recent promotional talk, Eric Heim, the CEO of Nordic Aquafarms presented a slide that showed the entire ecological footprint of meat production and compared it to the size of the salmon farms, saying, 'Look how little space we take compared to meat.'*

*It was blatant misinformation and I forced him to admit it in front of everyone. He was not showing the equally large ecological footprint of salmon farming. If this is so great, why be disingenuous?"*



## Sustainable Aquafarming Will Require Massive Value Shift

In 2007, Molyneaux did a world tour looking for sustainable aquaculture systems. "One of the beautiful things about being a journalist is that I meet some of the most impressive thinkers on this subject," he says.

*"By and large, they said the ability for us to have healthy sustainable food production systems in the current economic regime and the current global system of values is going to be impossible.*

*It really would require a value shift, a massive population value shift of how we value our streams and our local environment ... For example, the estuaries of the United States are almost all impaired. They're not providing the ecosystem services required. Many wild species at some point in their development need to be in those estuaries.*

*If those estuaries can't provide those services, then those species are going to diminish too, with or without fishing. When do we start cleaning up these estuaries and cleaning up these systems, so that our wild fisheries rebound?"*



So, as a consumer, what can you do? According to Molyneaux, one of the best things you can do is to locate a local community-supported fishery. You can also buy wild-caught fish online. "Lots of fishermen now are starting to sell their products directly online," Molyneaux says. I've included a list of recommended sources at the end of this article.

*"What I would say to consumers is, 'If you want to eat healthy, expect to pay more.' You're better off to pay \$15 per pound for a Bristol Bay sockeye than \$7 per pound for a Chilean farmed salmon. You're better off eating one meal of sockeye than two meals of farmed fish.*

*The other thing I would say is to eat mindfully. I would think someone would feel better if they buy that \$15 sockeye instead of the \$7 farmed fish ... When you're eating that quality of fish, it's like eating in a white tablecloth restaurant. Make it an aesthetic experience. Light some candles and really enjoy. Enjoy that smaller portion that you paid more for, knowing that you're part of a movement ..."*

## **Cooking Suggestions**

Molyneaux also likes cod sautéed in butter with onions and garlic and a little Cajun seasoning. A good seafood meal always starts with high-quality fresh fish, though, and the only place you can find that is at a local fish market. "Anything that's frozen at sea, just leave that be," he says. "It's part of the industrial food production system."

*"My parameters are: 'Is this part of the industrial food system or is this something that I really want to eat?' Plus, not to mention that the frozen-at-sea is not going to give you the same cooking qualities that a fresh fish has.*

*This is important: When you look for wild-caught fish in the seafood case, if it's a whitefish, like a cod, a haddock or a pollock, the flesh has almost a silicone quality to it. It's almost translucent. When you touch it, it bounces back. Your fingerprint doesn't stay there. The meat is tight. It holds together.*

*If you see that in a store, buy it. Buy a few pounds and put some in the freezer for yourself ... When I walk into the supermarket, if I see a good quality fish, I'll buy it [and] cook it that night. I don't wait ... I'll take my frying pan. I'll put a little butter in there and sauté some onions slow, then I'll put that fish in there. And then I'm watching that fish.*

*When it gets a little white around the edges, I flip it. I'm waiting. If it's good fresh fish, it'll flake. I'll pry that open there. As soon as that translucency of the flesh is just about to disappear, take it off the heat.*

*When I buy sockeye, I steam it on a stainless-steel steaming tray. I do the same thing [but] I cook that even less. With cod, I'll let the color change just right to the last minute, whereas with salmon I'll just let the outer edge get cooked. It's basically raw in the middle ...*

*I would also really like to see people eating fresh, frozen herring, not sardines in a can. If you've ever eaten fresh herring, there is not a more delicate fish. Just sauté in butter. There is absolutely nothing like it."*

## **More Information**

To learn more about the shrimp and salmon aquaculture industries, be sure to pick up a copy of Molyneaux's book, "[Swimming in Circles: Aquaculture and the End of Wild Oceans](#)." Another one of his books, "[The Doryman's Reflection: A Fisherman's Life](#)," discusses policy changes that have impacted small-scale fisheries over the years. The second revised edition came out this summer.

*"If you really want to make a difference, see yourself as part of a movement, a part of a global effort that includes a lot of small-scale producers, people with faces that put faces to their fish. If you can connect with them, that's even better. Then you're not eating fish that you bought; you're eating fish from a friend."*

As mentioned earlier, there are a number of fishermen who sell wild-caught fish online. Following are several reputable sources recommended by Molyneaux:

**Local Catch**

**Sea to Table**

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**Fishermen Direct**

**Alaska Gold**

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**Louisiana Direct**

**Maine Lobster Now**

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**Pride of Bristol Bay**

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