

Vanishing Fish: An interview with Dr. Daniel Pauly

How global fisheries' "toxic triad" endangers ocean life – and a simple solution

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Atlantic cod (*Gadus morhua*), Ålesund aquarium, Norway. The Atlantic fishery abruptly collapsed in 1993, following overfishing since the late 1950s, and an earlier partial collapse in the 1970s. Photo: GRID-Arendal (CC BY-NC-SA 2.0)

In his new book, *Vanishing Fish: Shifting Baselines and the Future of Global Fisheries*, [Dr. Daniel Pauly](#) draws on his prolific and decades-long career as a fisheries biologist, UBC professor, and writer to offer a sharp, thought-provoking critique of global industrial fishing.

The book takes aim at a heavily-subsidized system so driven by short-term profits that it appears ready to sacrifice its own future – and the future of the oceans. But Pauly also offers a way to turn the situation around.

The *Watershed Sentinel* spoke with Pauly about [Vanishing Fish](#). Following are highlights edited for length and clarity.

WS: In your book, many of your points are distilled by what you call the toxic triad...

DP: These are three important features of modern fisheries: that we don't really know what they catch, that they overfish, and that the science is ignored.

Not knowing what they catch has to do with illegal fishing. Also, it has to do with the big difference between industrial fishing and artisanal and subsistence fishing, which is the basis for much of the food security in the South Pacific, the Caribbean, West Africa, and also in parts of Asia.

In every country in the world, essentially, small-scale fisheries are ignored. Also ignored are the fish that aren't marketed or are discarded, because officially, those fish are caught illegally.

The second element, overfishing, has long been masked at the level of somebody going to supermarket to get fish. Where you once bought local fish, now you get imported fish, but you don't notice it at the level of consumption, because the market is global. Canada was once a net exporter of fish and now we have become net importers. Big markets like the US, Japan and the European Union have become major fish importers. And that is, in a sense, similar to how we outsource manufacturing and polluting and everything else. We also outsource fish. And it's quite clear that there is not enough fish to go around. Something has to yield, and that is the food security of developing countries.

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The third leg of this triad is that fisheries science is ignored. Canada gives the best example, with the absolute gold rush for cod in Newfoundland and Labrador. The scientists that were saying, "hey, this fishery is in trouble, let's roll it back a bit," they were totally ignored. And yet, the signs were clear, in retrospect. The people in the outports, the small scale fishers who go twenty, thirty kilometres out, could see the catch dwindle to nothing. But the big operations did not see the catch dwindle because they could follow the residual fish to where they went.

In all countries, you have the situation where industry has access to the ministers, the politicians, the policymakers, and can influence them to continue fishing, and to give them subsidies. So they continue raking in money and over-exploiting a resource that is not actually theirs, and they wipe it out... Fisheries are a public good that in most countries is allocated to the fishing industry. If they were to pay rent, or at least receive no subsidies, they could not overfish the way they do.

Where's this political influence coming from, considering that in advanced economies, fisheries account for so little of GDP?

I think it comes from the perception that fishers are "real men," people who challenge the sea and take risks and brave the elements and stuff. Things like the television show *Deadliest Catch*.

Right, there's a certain sort of an archetype of "bold fisherman."

That's right. And what is not perceived is that fishers indeed take risks, but that their entire operation is to the benefit of stockholders that sit safely at home. These big companies, the shareholders aren't fishing, they're just going to the bank, getting the return on the shares. This is just another industry for them, like mining and like pharmaceuticals, that they invest in. They couldn't care less about what happens to the sea.

Doesn't the industry have any foresight? It seems idiotic to not be planning long-term.

If you are a captain of this industry you have quarterly profits you must meet. And I have the impression that nowadays, big corporation are even shorter sighted. They expect very high returns over the short term. And the moment they cannot get those returns, they transfer their assets to another venture.

In the book you talk about how fisheries deniers have sprouted up and you draw parallels between them and climate change deniers.

I don't name names, but Washington is full of them. They are directly paid by industry to say that everything is fine. I have encountered that situation many, many, times. Essentially, they are industry hacks.

It sounds similar to other extractive industries, where there's a network of researchers, or whatever you want to call them, that aid and abet the extractive model.

The result is that the little fishermen get squeezed out, because only the big ones can afford these lobbyists-cum-scientists. With global warming, the result is that we do nothing about it as it gets worse and worse. In fisheries it's similar.

So what are some key things that that can be done about this?

It's quite clear that that the problem as a whole can be licked. In fisheries, if you had no subsidies or minimum subsidies, much of the overcapacity of excess ships would decline.

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Basically, regular folks need to elect politicians who are not beholden to big companies. A lot of talk nowadays is structured around what we can do as consumers. But actually, what we can do as citizens is more important. If people tell you that the market is going to resolve all problems, they are lying. After you have done your duty as a citizen and voted, then you can press the "guilt" button – you are guilty, morally, if you eat this fish or that fish. This works, but only with your friends. And it works only in a limited context. Guilt doesn't really work, but shame does.... Even companies with no conscience want to make a good impression, and they don't like to lose face. So what citizens can do, in addition to voting, is to get involved in civil society, and join NGOs that raise hell.

In that context, is there any point worrying about the different labelling schemes for safe seafood?

I think people who live on the lower mainland are relatively well served by [Ocean Wise](#). It is a nice step, obviously people should eat the right thing, but in God's name, that's not enough. You don't change the world through your stomach.

Is there a role for aquaculture to partially solve this problem?

Yes and no. Aquaculture consists of two fundamentally different activities: raising carnivores, and raising animals that eat vegetable matter, or that you don't have to feed. If you farm mussels, oysters, clams, or carp in freshwater, you don't feed them meat. This adds to the food supply for people.

The catastrophe with Atlantic cod is because politics determined how much fishing was done. The scientists were supposed to provide justification for the policies that were established for political reasons.

If, on the other hand, you raise carnivores – salmon and sea bass and so on – you have to feed them with other fish. These other fish can be eaten directly. This form of aquaculture doesn't add to the supply of fish that we have. Only raising herbivores does that, and is actually the bulk of world aquaculture – in Asia, mainly in China, and in other parts of the world. But in Europe and North America, the aquaculture almost always is salmon, and the damn salmon have to be fed with feed that contains other fish. There is no net gain. If you produce salmon, you actually consume fish, you don't produce fish.

How do marine reserves fit into this, as a solution?

Marine reserves are an absolutely necessary component for ensuring fishery sustainability and abundance. Because essentially, there are some fish that are very sensitive to any fishing. We shouldn't fish everywhere. Therefore, if we want to maintain, for example, sturgeon which live over 100 years, they cannot be fished as if they were sardines. The best thing is to leave them alone.

You talk in your book about a disconnect between marine biologists and lawmakers...

Basically, there is no direct connection between the science and management, and lawmakers. When I was working in the tropical world, I thought this was a feature of developing countries and that in advanced countries there was a better connection. But when I came to Canada, I was really disappointed. The catastrophe with Atlantic cod is because politics determined how much fishing was done. The scientists were supposed to provide justification for the policies that were established for political reasons. This state of affairs leads to one stock after the other being wiped out. What I found is that the only way to bring science to the attention of policymakers is to work through NGOs. Because NGOs have public influence, where issues such as sustainability, marine protected areas, endangered species and so on, can be discussed and are being pushed among the public, and then they become relevant, because [the state] doesn't listen, really, to their own scientists.

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