

New atlas bolsters global perspective of fisheries – book review

3 November 2016 / [John C. Cannon](#)

The Global Atlas of Marine Fisheries looks to plug the holes that exist in the data we rely on to understand the health of the world's oceans.

- The Global Atlas of Marine Fisheries draws on 10 years of fisheries data.
- More than 350 scientists around the world were involved in an effort to provide a more complete look at global fisheries.
- The team reconstructed fisheries datasets going back to 1950 to fill in gaps that exist in Food and Agriculture Organization's State of the World's Fisheries and Aquaculture.

Daniel Pauly has built his career as a fisheries biologist out of tracking down the numbers that reflect the true health of the marine ecosystem. From early on, he could see that the picture was quite a bit bleaker than what the data from the Food and Agriculture Organization's (FAO) [State of the World's Fisheries and Aquaculture](#) bear out.

Critical pieces, such as the numbers characterizing the subsistence fishing that anchors the diets of coastal communities in the developing world, were missing. And he noticed that as more stocks have become overfished, we've come to accept these depleted populations as the new normal. Pauly calls that a "shifting baseline," and it's become [a signature issue for him](#).

Though his discontent with the status quo has at times [ruffled feathers amongst his colleagues](#), he has maintained his course. With projects like [FishBase](#), an early 2000s online dataset that still gets tens of millions of hits a month, and the University of British Columbia-based [Sea Around Us](#) project, he's marshaled the help of researchers from around the world to pull together a more complete look at global fisheries.

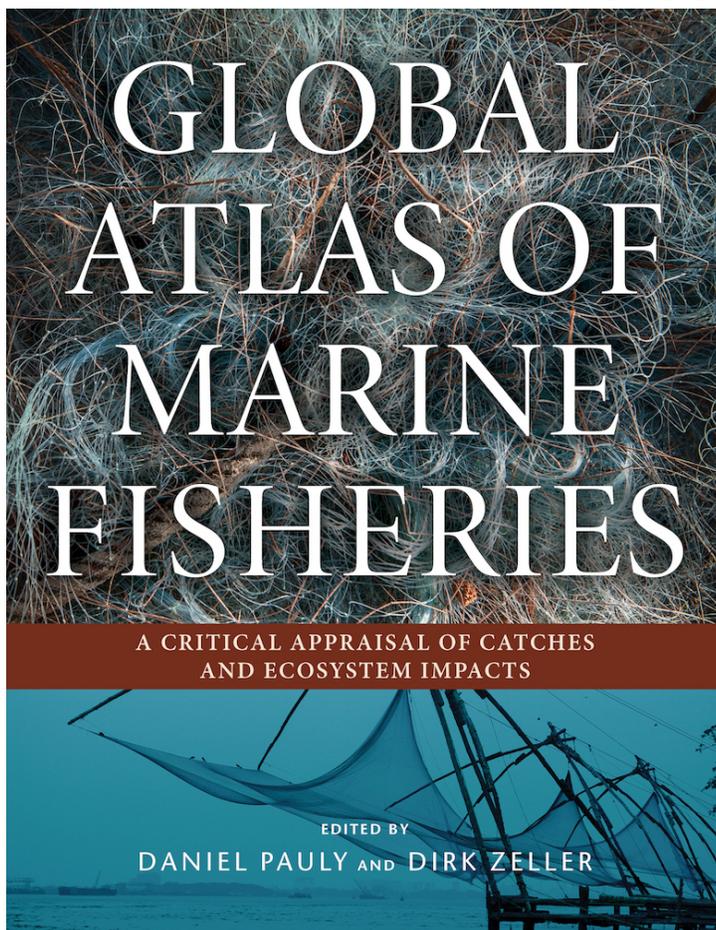


Photo courtesy of Island Press

Now, Pauly and co-editor Dirk Zeller have produced the *Global Atlas of Marine Fisheries*, a science-steeped volume that tells the story of finding the clearer window into fisheries we have today through the research itself.

Mongabay spoke with Pauly about the book and how sharing this data empowers fellow biologists, NGOs and policymakers to begin chipping away at the problems that face fisheries worldwide.

INTERVIEW WITH DANIEL PAULY

Mongabay.com: *What are the major issues with the way science looks at fisheries globally?*

Daniel Pauly: When you work nationally, you usually have good data at hand – the best data that are available. But it is different when you work on an international problem because you cannot gather the best data. When you rely on FAO data, you quickly notice that they have certain holes.

As I went on working with FAO data[set], I noticed that it is profoundly biased. The fisheries that feed people in developing countries are small-scale fisheries, and they are systematically under reported, and commercial fisheries are not reported when they are illegal. So the data have major deficiencies.

Mongabay.com: *Can you talk about the motivation behind the larger Sea Around Us project?*

Daniel Pauly: About 20 years ago, when the Sea Around Us project began, we looked at certain ways we could repair [the FAO data]. Gradually, a format emerged that would allow us to set up a parallel database that would overcome the deficiencies of the FAO database. This [is the] database we document in the *Atlas*.

[Catches] from the countries from 1950 was reconstructed for each country. These people [working to compile this data] were part of a huge network of about 350 people that were united in this work.



Villagers in Sulawesi, Indonesia, load a truck with sardines. Photo by Rhett A. Butler

Mongabay.com: *That information was covered in your [Nature Communications](#) paper that came out earlier this year, highlighting that these reconstructions pointed to a more serious situation for fisheries that indicated by the FAO data, wasn't it?*

Daniel Pauly: Yes, and in fact, the Nature Communications paper is chapter 14 in the book.

Mongabay.com: *I would imagine that the scientists working at FAO aren't ignorant to this bias that you're referring to. How have they received the findings of your research?*

Daniel Pauly: My colleagues at FAO, except for one or two, are all cognizant that the FAO data have this deficiency. They have no delusions about the quality of data they get. However, as a corporate entity, FAO cannot admit to [having these problems] because it gets data from countries, and they cannot question the data that they get – at least not officially. At FAO, we have lots of allies, but there is also a corporate response, [and] they prefer to ignore us.

Mongabay.com: *What are some of the causes for having under-reported fisheries data? You mentioned we're not taking into account small-scale fisheries. What other issues are at play?*

Daniel Pauly: I think there are technical issues. You cannot count the fish that artisanal fishers land. You have to sample some boats and some villages and then extrapolate.

The other problem is not a political problem, but a cultural problem. If you sit in a capital as a trained lawyer and you're a minister of fisheries, you will tend to emphasize the fisheries that are industrial, that generate huge, concentrated incomes. Artisanal fisheries or other small-scale fisheries are in villages. You don't have a lot of interaction with them. So there is a preference, a cultural affinity between bureaucrats, politicians and the industrial fisheries. The result of this is that the small-scale fisheries are assumed to be small.



Fishing boats beached for the night in Senegal. Catches from such small-scale fisheries typically aren't figured into countries' catch reports tabulated by the Food and Agriculture Organization. Photo by John C. Cannon

The discounting of illegal fisheries is understandable. A country cannot be expected to acknowledge that 100,000 tons of fish are caught illegally because they don't have the means to prevent illegal fishing on their coastline.

[Not counting] discarded fish is another problem. The FAO asks the countries explicitly not to report discarded fish, and that is because the statistical systems that have been set up in the various countries have their origins in taxation. You tax people for the fish they sell. Since the discarded fish are not landed, there's no taxation involved.

In ecosystem-based management, this cannot be maintained, and we have to include fish that are killed and discarded.

Mongabay.com: *You make that point in the book – that FAO statistics are more an assessment of landings rather than catch.*

Daniel Pauly: Yes. The reasons for the bias toward under reporting are cultural, administrative and legal and [because] countries cannot include quantities of illegal boats or illegal catch.

Mongabay.com: *It's one thing to put all this data out there. How do you make sure it gets into the hands of people who can make a difference with these problems?*

Daniel Pauly: [The new website](#) that we have is actually constructed for the mass downloading of huge datasets. The NGO community, which is the main user of our data, is aware of that, [as is] the scientific community. More and more papers are being written and analyses are being done based on our data.



Small-scale fishers haul in a net on the coast of Madagascar. Photo by Rhett A. Butler

Mongabay.com: *Are you optimistic about our ability to reverse these problems?*

Daniel Pauly: I'm very optimistic about our ability to *do* that. Our ability to rebuild stocks that are in bad shape is huge. Stocks you don't fish or that you fish lightly after a period of overfishing do recover. That is well established.

Our ability to *want* to do it, to politically do it, is a different story. The only way we can get more fish is rebuilding the stocks that we have. Getting out of this vicious circle of overexploitation, low catches, continued overexploitation, lower catches, and so on, that is very difficult.

Mongabay.com: *It sounds like in effect, by working with all of these governmental and non-governmental players, you're upgrading the infrastructure behind datasets like the FAO's. Is that your hope?*

Daniel Pauly: Yes, that's our aim. Before the Sea Around Us, I worked on FishBase. It's another one of these empowering tools that enable people to get data that they need and would not otherwise have access to. It works in Bangladesh as much as in the US.

My career is built on empowering people, especially in developing countries, as much as possible – that is, giving them the tools and the data that enable them to do what they do better. That's the idea of empowerment.

How to order:

Hardcover: [Global Atlas of Marine Fisheries: A Critical Appraisal of Catches and Ecosystem Impacts](#)

Publisher: Island Press

Editors: Daniel Pauly and Dirk Zeller

ISBN: 9781610916257

Citations:

- FAO. (2016). *The State of World Fisheries and Aquaculture 2016*.
- Pauly, D. and Zeller, D. (2016). Catch reconstructions reveal that global marine fisheries catches are higher than reported and declining. *Nature Communications*.
- [Facebook](#)
- [Twitter](#)
- [LinkedIn](#)
- [Gmail](#)