

# Conservation in Context

**Interview with marine biologist and fisheries scientist Ray Hilborn on how area-based conservation measures can be made more inclusive of sustainable fisheries**

The Fifteenth meeting of the Conference of the Parties to the Convention on Biological Diversity is scheduled for December 7-19 in Montreal, Canada. The parties are expected to negotiate and approve a set of global targets in the 'Post-2020 Global Biodiversity Framework' that will guide collective efforts to safeguard biodiversity over the next ten years. ICSF spoke to Ray Hilborn, professor at the School of Aquatic and Fishery Sciences, University of Washington, Seattle, about the importance of the new biodiversity targets to fisheries livelihoods and sustainability. The transcript of the interview has been edited for length and clarity.

**ICSF:** FAO fisheries statistics shows that while most fish stocks (nearly 70 per cent) targeted by marine capture fisheries are at sustainable levels, the proportion of the unsustainably fished stocks has gone up from 10 to 30 per cent in the past few decades. Would you say that we are in a crisis and that overfishing is as much of a problem today as it was in the 1980s or 1990s?

**Ray Hilborn (RH):** It all depends on where in the world. I would say in developed countries, overfishing was quite commonplace in the 1990s and that has been reduced considerably. The data suggest that the proportion of stocks classified as overfished by FAO has been increasing globally. In some parts of the world, it is obviously much higher than others. One of the 'mysteries' is that in China and South and Southeast Asia, catches have been rising or typically stable. One of the theories is that a lot of long-lived species are overfished but the abundance and yield of lower trophic level fish and small pelagic species in general hasn't declined.

But there is no question that lots of stocks in the world are fished too hard

and we need to reduce that. Whether it is really a lot different now than it was 40-50 years ago—it may well be. We just don't know enough. For instance, China, India or Indonesia do not publish stock assessments. And this is more than 28 per cent of the world's marine fish catch.

**ICSF:** Fisheries management has historically focused on some fish stocks and target species. To what extent have fisheries managers, the fishing industry and other stakeholders been successful in integrating biodiversity or ecosystem considerations into fisheries management?

**RH:** Again, it all depends on where you are in the world. My three countries of primary work have been the United States, Canada and New Zealand, but with a lot of experience in Australia and the tuna fisheries of the Pacific and a fair amount of work in Latin America. If we start with the United States, fisheries management is dominated by concerns about biodiversity. Certainly, the regulations everyone concentrates on are managing the target species, but almost every fishery in the United States is constrained by concerns about biodiversity: by-catch of charismatic species, impacts on benthic ecosystems from mobile bottom contact gear—those tend to dominate. I would say it's the same story in New Zealand, Australia and Canada. There is a lot of regulation, a lot of concern about protecting various components of biodiversity.

As you get to less intensively managed fisheries, a lot of countries have historically not been managing even the target species. Again, I don't know enough about China, South and Southeast Asia, but I don't think that biodiversity concerns have played a very prominent role in fisheries discussions. It's been mostly about food security. And frankly worrying about biodiversity is

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ALESSIA PIERDOMENICO / FAO



Ray Hilborn at the International Symposium on Fisheries Sustainability organized by the FAO in November 2019

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a higher priority for richer countries. What it means is we constrain our fisheries to protect biodiversity and either import aquaculture-raised fish (with associated biodiversity costs) or wild caught swordfish or other species that have lower environmental standards. So, we are exporting the environmental impacts of fisheries to a great extent.

**ICSF:** The question of biodiversity conservation spills into area-based conservation measures. Several countries have declared no-take marine protected areas (MPA) in their waters. Many developing countries cannot declare no-take MPAs easily, because of the large population dependent on fish for their food security and livelihoods. It is true that we need to do more to maintain biodiversity by regulating overfishing and overcapacity, but developing countries need different models. What is your opinion?

**RH:** The advocates for MPAs always argue that you increase fisheries yield by putting in MPAs. There is essentially no evidence for that except in places where overfishing is very severe and the fisheries are not effectively regulated. But a paper recently published in *Science*

magazine<sup>1</sup> argued that these large closed areas in Hawaii in the United States led to fishery benefits. There was almost no fishing in that area to begin with. And that's been the case for most of the declared large MPAs.

The advocates would deny it is not a trade-off, because you are going to have more fish because you have the MPA. Really there is no empirical evidence for that. Also, in the United States and in most developed countries, they are not interpreting 30x30 [*the proposed CBD target to conserve 30 per cent of marine areas by 2030*] as 30 per cent no-take areas. The United States has moved very far along the line towards interpreting it as protecting biodiversity [using] other effective conservation measures [OECD, a new designation recognized by the CBD] seem very likely. I think Australia are going the same way. They are going to recognize a much wider range of management actions that protect biodiversity as contributing to 30x30.

**ICSF:** Our previous work on MPAs studied the social impacts of conservation in both no-take zones and multiple-use marine protected areas in Latin America, Africa and Asia. We saw

that many protected areas were both designated and managed in ways that were quite inequitable and that hadn't been consultative, which led to several livelihood and other human rights issues. The CBD has promoted such areas as one of the most effective tools in conserving biodiversity and the global biodiversity target for 10 per cent is now proposed to be increased to 30 per cent. You have repeatedly pointed out that MPAs don't really reduce overall fishing effort and also do not address other big threats to the oceans such as climate change, acidification and pollution. What makes MPAs so popular?

**RH:** I would say it is the delusion of the marine conservation movement. MPAs are striking if you put them in place and you see a two- or three- or four-fold increase in the abundance of fish. Because they rarely look at what's happening to the fishing effort that has been displaced. There were some really stunning examples of how you saw a lot more fish in no-take areas and they've developed this narrative.

I think that is changing to a great extent. A research paper published in 2019 had as its lead author Ben Halpern, a long-term advocate of MPAs.<sup>2</sup> They evaluated threats to ocean ecosystems and the top threat was climate change; the second set of threats were terrestrial impacts on the ocean: pollution, coastal development and shipping. Fishing was the lowest threat to ocean ecosystems in their analysis. Recently, both in Australia and New Zealand there were official reports on threats to the marine environment that have listed climate change and terrestrial impacts as higher priorities than fishing. I think there is a big change underway. Will we be swept over by 30x30 before that happens? I just got an email yesterday from a leader of a small fishery in Fiji saying, "Look, our government is going to close 30 per cent of the area with no effective consultation. They just want to be part of 30x30." So, I am not sure what the dynamics at the international level would be.

**ICSF:** In the context of this year's UN Biodiversity Conference and Post-2020 Global Biodiversity Framework, to what extent should the proposed MPA target be a cause for concern for artisanal, small-scale fishing communities?

How can conservation be made more equitable and participatory?

**RH:** I think the answer to the first question is yes because the small-scale fishers, particularly in the developing world, typically have very little political power. In the developed world, fisheries are sometimes well organized and their national fisheries agencies are influential. The national fisheries agencies' objectives are to manage fisheries to produce benefits for the country whereas the environmental agencies' mandate is to protect the environment.

The MPA advocacy movement has been very successful at going right to the head of State and saying, "You will be an environmental hero if you sign on to this." That's really what happened in Kiribati and in Seychelles. They completely went around any kind of science-based planning. The same thing happened in the United States—two presidents (Bush and Obama) declared expansions of no-take areas with absolutely no scientific evaluation of the proposals. So, it's not just the developing world that sees that happening.

What I would argue is: Let's identify the problems we are trying to address and the alternative tools to solve those problems, rather than relying on a single tool like protected areas and having all your discussion around that. An MPA isn't a proven effective technique to increase yield and isn't a proven effective technique to increase regional abundance of fish; it is a proven effective technique to increase the abundance of fish inside the closed area. As we move from target species to by-catch species, that's where MPAs look even less effective. Whereas we know from lots of experience that technical changes in fishing gear and fishing method have been known to reduce by-catch. So again, I go back to 'what's the problem, what's the best tool'.

I know an interesting development in the United States, New Zealand and Canada: Indigenous Peoples have, in many cases, very strong legal rights due to treaties that were signed. So, they have been able to really get a seat at the table in a way that would have been unlikely fifty years ago. And that's made a big difference. For instance, the Prime Minister of New Zealand told people

in the fishing industry that bottom trawling needs to stop within five years. What she seems to ignore is that bottom trawling produces 68 per cent of the catch in New Zealand and half of the fishing rights in New Zealand are owned by the Maori. And the Maori have really strong rights. Trawling is important to the Maori people. They own big fishing companies that catch most of their fish by bottom trawling.

The same is true certainly in Alaska where local people have a major financial stake in a range of fisheries and their voice is going to be heard. In New Zealand and the United States, Indigenous People have a lot of political power due to the treaty rights. This gives them quite a bit of leverage in fisheries matters.

**ICSF:** How can fisheries management be both effective and equitable? In the countries you have studied or observed, are there examples of good practices that can provide lessons for others?

**RH:** I would say the developed countries that I know well have been quite successful at stopping overfishing and generally making fishing economically profitable by what's called rationalization in the United States. That is, limiting open access, stopping the race to fish. But one of the downsides of that is the corporate concentration in the industry. Even in a small boat fishery like the New Zealand lobster fishery, the quota is now largely owned by processors and investors. The idea of the New Zealand system of the 1980s, that the small boat owners would own their share of the fishery, has not transpired. The small boat owners have sold their share of the fishery and are now working on a for-hire basis, which both reduces their incentive to contribute to sustainability and it really hasn't led to enabling this class of fishermen because only the fishermen who were granted the fishing rights early on profited greatly if they didn't sell too early.

So, we've got the conservation part right in the developed countries. The allocation and the equity...no, I don't think we've got it right at all. For small-scale fisheries, the mantra has been community-based co-management. For many years we used the Chilean system

of territorial fishing rights for fishing co-operatives as this is the way to go. But that story is falling apart to a great extent. Most of those co-operatives are unable to survive on the rights they were granted; many have withdrawn from the territorial rights system. I think there is still a deep belief that co-management is the way to go. But I am not sure we've worked out the best way to do it yet.

**ICSF:** Considering that the 30x30 target might be adopted by the Conference of the Parties to the CBD, would you recommend spatial conservation or management tools in particular instances, say, to regulate bottom trawling? Or do you have any hesitations about that?

**RH:** I suspect that closing areas to certain gears is going to always be an effective tool, whether it is in tropical or temperate waters. It is widely recognized that certain habitats or marine ecosystems are very sensitive to bottom trawling. I don't think there is any question that closing areas that have that characteristic to bottom trawling would conserve biodiversity at a very low cost to food production because, in general, those are rare habitats. Most bottom trawling takes place on mud and sand. I think MPA advocates just hate to recognize that you can achieve major benefits by closing areas to some gears but not others. You don't see them wanting to accept areas closed to bottom trawling as counting towards your 30 per cent target.

References

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