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Cristina Romera-Castillo: "Cleaning the ocean out of plastic is like sweeping in the desert"

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In the "In Depth" section of September's Newsletter we interview our colleague [Cristina Romera](#), author of the book "Antropocéano: Cuidar los mares para salvar la vida".



In this September's "In Depth" section we interviewed our colleague **Cristina Romera Castillo**, who has just published her first book: "[Antropocéano: Cuidar los mares para salvar la vida](#)". Born in Jaén in 1982, she has been working for ten years at the Institut de Ciències del Mar (ICM-CSIC) in Barcelona, where she first landed in 2006. So far, her research has focused on the study of the oceanic carbon cycle and the impact of microplastics on marine ecosystems, climate and the bacteria capable of degrading them. With this book, Romera-Castillo makes her way into the scientific communication world, which defines as "essential" to spread scientific advances to the public.

1. What does it mean the word “anthropocean”?

The "anthropocean" is the sea of our era, that is, the sea in which we humans are leaving our footprint, both negative and positive. It's a made-up word, but I thought it fits perfectly with the book's subject.

2. Which is the biggest threat facing the ocean today?

The ocean faces many threats, but perhaps the most urgent are those caused by climate change. The greenhouse gas emissions that we began to release into the atmosphere since the Industrial Revolution have resulted in a very rapid increase in the atmospheric CO₂ concentration, whose speed of occurrence has no precedents at all. One third of these emissions are absorbed by the big blue, and this has consequences for him, such as acidification. Another third has been absorbed by forests, and the rest has remained in the atmosphere causing a rise in the planet's temperature due to the greenhouse effect that characterizes these gases. But there are also other major problems, including overfishing and marine pollution, especially plastic pollution.

3. What are the differences between the ocean we

who had the opportunity to dive 50–60 years ago and compare it with the current state. In addition, the water temperature is getting higher and higher. This year we have seen how the Mediterranean has broken records by reaching late summer temperatures in June.

4. This does not bode well for the ocean's future. What would happen if we lose it?

We are not going to lose the ocean because the water will still be there. We could be left with an ocean different from the one we know so far. A more polluted one, with less fish and different temperature and currents. That would result in a change in the climate of every place we live. I don't think we would like it.

5. What can we do to "clean up" the ocean?

Many people have proposed projects to clean up the ocean of plastic, for example. But that's like sweeping in the desert. Most of the plastic that has been reaching the sea over the years has been broken into smaller and smaller pieces, better known as microplastics, and that is impossible to clean up. Now we can only wait for those little pieces to end up sedimenting and end up buried in the seabed, forming a layer that in the future will be a witness of this era of "plasticene". The best measure, rather than cleaning up, is to prevent garbage from reaching the ocean.

6. What are the consequences of global warming on the ocean?

To date, the ocean has absorbed approximately 90% of the excess heat caused by greenhouse gases, and this has consequences for it, such as the modification of ocean currents, the death or displacement of species, and the drop in oxygen to minimum levels, known as deoxygenation. For all these reasons, we say that many of the problems facing the ocean are due to our greenhouse gas emissions.

According to the FAO, 35% of fish stocks are overfished. But if we look at the Mediterranean, this percentage rises to 75%. And these values come from data collected by countries where this is reported, but there are many countries that do not give their numbers, and there is also a lot of poaching and discards. All this makes it likely that these numbers of overfished stocks are, in fact, even higher.

8. And which is the solution?

Advocate for sustainable fishing and the collaboration between the scientific sector, the fishing sector and the administration, as happens with fisheries co-management, in which the knowledge of the three groups is pooled to decide on the best strategy and fishing quotas. It is also necessary to create more marine protected areas where fishing is not allowed, as this is the way for fish stocks to recover. Although it may seem contradictory, it actually consists of "fishing more without fishing", since, by protecting an area, after a short period of time, the abundance of fish increases, and this leads to greater fish production and larger fish in the areas adjacent to the ones that are protected. However, the most important thing is that these measures are monitored to ensure compliance.

9. What else can we do to improve the ocean's current situation?

The most important thing is to reduce greenhouse gas emissions. To do this, we must be aware of the situation and that it is necessary to implement measures and change our lifestyle. In addition, we have to pass this message on to others in order to one-day raise awareness among the entire population. In general, we need to reduce consumption. We live in a society of exaggerated consumerism. If you stop to think about your daily actions, you will see that there are many of the things you consume that you do need, you will see that many of your daily actions require energy expenditure and that you could modify them to reduce it. Finally, we must reduce the use of fossil fuels and

10. Act at the individual level:

To reduce emissions, we can also reduce meat consumption and avoid food waste, as these are two of the major emission sources. It is also important to choose well the companies from which we buy our products, as well as who we chose as governors, since most of the actions needed to prevent the planet's temperature from rising more than 1.5°C are in the hands of companies and governments.

11. It does not seem so difficult. What prevents us from acting?

In some cases, it may be ignorance, but also a refusal to make a change in our lifestyle, and perhaps because many do not yet see the seriousness of the problem. We are going to have to make a change, whether we like it or not. The decision now is whether we want to do it now by deciding for ourselves how to carry it out, or whether we stand idly by and wait for this change to be imposed by a natural or humanitarian catastrophe.

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