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Signs of life out there, disaster back here: Dumping of CO2 threatens oceans with massive extinction, scientist says

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Unless we halt completely the emission of carbon dioxide from the world's energy systems, we risk an oceanic catastrophe worse than the one associated with the disappearance of the dinosaurs.

That's the message a chemical oceanographer and environmental scientist intends to deliver to a conference on the future of the world's oceans today at the University of Victoria.

Ken Caldeira, who teaches out of the Carnegie Institution at Stanford University in California, says the level of acidification caused by dumping hundreds of billions of tonnes of carbon dioxide into the world's oceans is so great that it could cause a major disruption on par with, or worse than, the sudden dumping of sulphuric acid into the oceans 65 million years ago when an asteroid slammed into the Earth's surface.

When that happened, he said, it took 500,000 years for plankton to reappear, two million years for corals to redevelop, and 10 million years for the current level of oceanic biodiversity to re-emerge.

And unless drastic steps are taken now, Caldeira says, a similar marine disaster could occur within the next few decades.

"We risk a catastrophic event that's on the scale of what happened in the ocean when the dinosaurs became extinct."

Caldeira is one of a dozen international experts on marine science and human ecology scheduled to take part in a two-day conference which opened Wednesday with an address by **Daniel Pauly**, director of the Fisheries Centre at the University of B.C.

Included among the topics for discussion are the oceans in a warming world, the proliferation of marine dead zones, petroleum exploration at sea, social conflicts during fishery crises and whether human societies are complicit in the collapse of coastal fisheries.

Caldeira is an expert on ocean acidification, which occurs when carbon dioxide molecules react with water. This, in turn, causes hydrogen ions to be emitted in great quantities, thus lowering the ocean's pH and making it more acidic.

And, he says, the last time the change in the ocean's pH was as great and rapid as it is now was during the extinction of the dinosaurs.

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Last month, scientists predicted ocean acidification would kill Australia's Great Barrier Reef in 25 years.

"At the level of acidification we're at today, you could say it's one more element along with over-fishing, coastal pollution and all the other factors harming marine life," Caldeira says. "But its effects are growing all the time.

"And unless there's a revolution in our energy systems, in several decades it will become the dominant factor."

In fact, he says, if CO2 dumping continues at its current rate, the best hope we have would be to set aside a small marine park where, with work, some of the sea's biodiversity might be preserved.

Pauly said in an interview before his speech that the only thing left for people to do is to adopt a "Churchillian" view to the crisis -- that is, "to fight 'em on the beach."

"Is it a problem that we have no fish from the Georgia Strait?" Pauly said. "As long as fish still comes from somewhere else, it's okay, right? No, it's not okay. If this supply from other countries is not assured, and there's no more fish, is that okay? No, it's not.

"Is it a reason to raise hell about the situation here? I think it is."

Pauly says the oceans have already suffered a significant loss of "big fish, of biomass, of abundance, of diversity." But it's still not time to give up, because if we do that, he says "we lose even more."

"We'll lose what is left."

He also says choosing to eat one type of fish over another or not eating it at all is not going to solve what is a much bigger institutional problem.

"Business as usual," he said, will mean "a massive extinction of life in the oceans and on land."

"But if we fight it all the way down perhaps, all the way to the last inch, then perhaps we can reverse this in time to avoid the worst. The jury's out."

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