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Humans need to do better if we're to avoid ocean system collapse

A new relationship between humanity and the ocean is required to secure the continuity of the diverse life support roles provided by the sea, according to a paper published on 17 July 2020 in *Nature Communications*.

The paper, titled *A transition to sustainable ocean governance*, describes three key transition pathways for the complex ocean systems to a more sustainable future.

Authors of the paper include Dr Philile Mbatha from the University of Cape Town; Tanya Brodie Rudolph and Professor Mark Swilling from the Centre for Complex Systems in Transition at Stellenbosch University; Mary Ruckelshaus from Stanford University's Natural Capital Project; Edward H Allison from WorldFish, Malaysia, and the Nippon Foundation Ocean Nexus Center, Earthlab, University of Washington; Henrik Österblom from the Stockholm Resilience Centre; and Stefan Gelcich from Pontificia Universidad Católica de Chile.

"Complex systems are such that small disruptions can have disproportionately large impactful system-wide effects," explains Tanya Brodie Rudolph.

"The COVID-19 crisis is the classic example of this well-known 'butterfly effect': from the over-exploitation of nature in a Wuhan wild meat market to a global pandemic, this crisis demonstrates the absolute necessity to build the kind of resilience that enables effective, agile responses to sudden system changes. This is as true for the complex ocean system we depend on. Should the ocean system collapse, the resultant crisis would be as devastating as the COVID-19 crisis. In fact, it is now more important than ever to understand complex systems and how they can be made more resilient for the benefit of people, the economy and the environment."

The paper describes three key pathways to transition complex ocean systems to a more sustainable future. The first is the need to re-configure governance – including top-down and bottom-up nested scales from local to international – and informed by a shared vision. The second is by empowering people who depend on the ocean commons through knowledge sharing for adaptive learning and conferring rights to the ocean as a public good. The third is by reforming ownership in stewardship terms through mechanisms such as certification and pre-competitive collaboration, which will provide incentives and help build accountability. The

Marine Stewardship Council's fishery certification system and rights-based fishery reforms like catch shares are promising examples of such innovations.

"Human wellbeing relies on the Biosphere, including natural resources provided by ocean ecosystems. As multiple demands and stressors threaten the ocean, transformative change in ocean governance is required to maintain the contributions of the ocean to people," comments Brodie Rudolph.

"The health of the ocean is crucial for humanity. We need to take better care of this shared resource, for the health and prosperity of current and future generations, for the environment, for biodiversity and for the climate. The way we have governed the ocean in the past has not been effective, and hasn't reflected these complex relationships. This paper suggests a new way of thinking about the ocean as a shared resource and shows how social and economic systems can adapt and transform. A governance system which recognises that the complex role the ocean plays as a shared resource, and builds on changes already underway would support the transition to a thriving relationship between humanity and the ocean."

The Nature Communications article is a summary of [a blue paper](#) compiled by the authors under the commission of the High Level Panel for Sustainable Ocean Economy ([Ocean Panel](#) for short), which is a unique initiative of 14 serving world leaders building momentum toward a sustainable ocean economy, where effective protection, sustainable production and equitable prosperity go hand-in-hand.

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