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Gilded traps, phase-shifts and fisheries

Prof. Terry Hughes

Australian Research Council Centre of Excellence for Coral Reef Studies,
James Cook University, Townsville, Australia

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Beijer Hall, the Royal Swedish Academy of Sciences,
Lilla Frescativägen 4, Stockholm

Ecosystems, economies and social systems often change suddenly, unexpectedly and catastrophically. We can usually deduce afterwards why these collapses have occurred, and with the benefit of hindsight identify previously unknown thresholds or tipping-points that have been exceeded. However, predicting these changes before they unfold, and (if necessary or desirable) avoiding them, remains a major challenge. I develop the concept of gilded traps, to capture the dynamics of linked social-ecological systems with two alternative, stable configurations. One is ecologically sustainable and economically diverse. The other is unsustainable, but initially highly profitable. Critically, there is no economic incentive to avoid gilded traps until the longer-term consequences are revealed, by which time reversal may be impossible. Using this concept, I'll argue that the current hyper-abundance of American lobsters in the Gulf of Maine, often hailed as a fishery success, is a social and economic disaster in waiting.



Professor Terry Hughes is the Director of the Australian Research Council Centre of Excellence for Coral Reef Studies, based at James Cook University in Townsville. Terry has broad research interests in ecology, marine biology and the dynamics of coral reefs. He received his doctorate in 1984 from Johns Hopkins University in Baltimore, Maryland, USA. From 1984-1990, he was a Research Fellow at the University of California, Santa Barbara. In 1990, Terry moved to Australia and was elected a Fellow of the Australian Academy of Sciences in 2001. He has published over 80 influential scientific papers on the biology and management of coral reefs.

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