Regime shifts in Coral reefs under macroalgal toxicity, overfishing and microbial infections

Samares Pal
Department of Mathematics, University of Kalyani, Kalyani, India
samaresp@yahoo.co.in

Competition between macroalgae and corals for occupying the available space in sea bed is an important ecological process underlying coral-reef dynamic. We investigate coral-macroalgal phase shift in presence of macroalgal allelopathy and microbial infection on corals by means of an eco-epidemiological model under the assumption that the transmission of infection occurs through both contagious and non-contagious pathways. We found that the system is capable of exhibiting the existence of two stable configurations by saddle-node bifurcations.