Dynamic stability and rescue in eco-evolutionary model systems

“Eco-evolutionary” systems are biological populations and communities whose dynamics are characterized by the interaction of ecological and evolutionary processes. Adaptive evolution can alter the population dynamics of ecological systems as well as their stability properties. Often the dynamic behaviour of even the simplest ecological systems cannot be understood without allowing for evolution. A particularly interesting and applied aspect of eco-evolutionary dynamics is the potential that adaptive evolution may contribute to rescuing populations and communities from extinction (“evolutionary rescue”). I will show examples of eco-evolutionary dynamics of laboratory plankton communities and link these to theoretical models that explore the stability properties and evolutionary rescue potential of communities.