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Plankton Models with Time Delay

We consider a three compartment (nutrient-phytoplankton-zooplankton) model with nutrient recycling. When there is no time delay the model has a conservation law and may be reduced to an equivalent two dimensional model. We consider how the conservation law is affected by the presence of time delay (both discrete and distributed) in the model. We study the stability and bifurcations of equilibria when the total nurient in the system is used as the bifurcation parameter. This is joint work with Matt Kloosterman and Francis Poulin.