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A Plankton Model with Delayed Nutrient Recycling

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 nutrient recycling. We study the stability and bifurcations of equilibria when the total nutrient in the system is used as the bifurcation parameter. This is joint work with Matthew Kloosterman and Francis Poulin.