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16. Applications

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Jang, Sophia, Texas University, USA

The dynamics of a variable-yield nutrient-plankton model

A nutrient-phytoplankton-zooplankton model with internal nutrient storage by phytoplankton is derived and analyzed. It is found that there are thresh-olds beyond which the system is persistent. Variable-yield models with selfshading of phytoplankton are also considered. With respect to persistence, our result demonstrates that the global dynamics of the system with shading are the same as those for which the self-shading mechanism is ignored.