

ANALISIS KESTABILAN MODEL DINAMIK NITROGEN DAN HUBUNGANNYA DENGAN PERTUMBUHAN LOGISTIK ALGA

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Abstract. The nitrogen dynamics model related to algae growth is proposed. The form of the model is nonlinear differential equation system. From these model, the stability of the equilibrium point is discussed. The stability is analyzed through the eigen values of the Jacobian matrix that is obtained from linearized system. From the simulation results is found that ammonia-nitrogen, nitrite-nitrogen, and nitrate-nitrogen concentration will achieve to a certain value. The changed of ammonia-nitrogen, nitrite-nitrogen, and nitrate-nitrogen concentration are effected by the algae density. If the alga density increase then the ammonia-nitrogen and nitrite-nitrogen concentrations will increase but the nitrate concentration will decrease.

Keywords: dynamics model, nitrogen-concentration, algae, equilibrium point, stability