

Modeling the Norwegian Sea 'pelagic complex'

An application of the Ensemble Kalman Filter

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We have estimated the parameters of a modified logistic ecosystem model of the pelagic fish stocks in the Norwegian Sea with the Ensemble Kalman Filter. Our model only contains four parameters. The model appear to capture much of the dynamics in the system as well as the interactions between the different species. The interactions are competitive, mutually destructive interactions, where Norwegian Spring Spawning herring, Northeast Atlantic blue whiting and Northeast Atlantic mackerel prey upon the same food source(s), thus, limited by a common 'carrying capacity'. Increase in one species' biomass leads to reduced growth for all three species. While the main, dynamic features seems to be picked up, and most observations are within the forecast range, the forecasts are often too small, and a deterministic forecast has less or no downward bias.



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