Changes in Migration Patterns of the Capelin as an Indicator of Temperature Changes in the Arctic Ocean

Bjorn Birnir

Migration patterns of the capelin a pelagic species of fish that migrates far north into the Arctic ocean to feed and subsequently around Iceland to spawn, have been simulated and compared with data, collected twice a year over a 40 year period. New methods from dynamical systems theory and large paralell computations permit simulations with sufficiently many fish to predict the migration patterns and reproduce the data. The migrations turn out to be very sensitive to the temperature distributions in the ocean and given ocean currents and position of landmasses the temperature is the sole control parameter. The availability of the data over such a long period and the simulations permits a search of temperature changes in the oceans that span decades.

Lecture
84to85_out100.tga
84to85_out184.tga
84to85_out231.tga
84to85_out319.tga
2008Prediction.avi