

## Biological variability in the North Atlantic and the Atlantic Multidecadal Oscillation

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We examine two lines of recent work linking biological variability to the Atlantic Multidecadal Oscillation (AMO). The first, based on analysis of two Earth System Models, shows that both the annual cycle of productivity and the AMO can be linked with changes in convection. However the biological response is heterogeneous, in some regions the impact of convective transport of heat on ice changes light limitation while in others the impact on nutrients allows large phytoplankton to persist later during the year. Analysis of basin-wide data from the Continuous Plankton Recorder shows a more complex picture as well, as many phytoplankton functional groups show some relationship with the AMO - although it is not generally the primary driver of variability. Moreover different functional groups often peak at both high and low values, suggesting more complex dynamics than in the models. The timing of increases in different functional groups appears different suggesting that a simple "regime shift" picture is not appropriate for the Atlantic as a whole.