



Impact of the North Atlantic Oscillation on the trans-Atlantic Migrations of the European Eel (*Anguilla anguilla*)

A. Kettle (1), D. Bakker (1) and K. Haines (2)

(1) School of Environmental Sciences, University of East Anglia, Norwich, UK, (2)
NERC-ESSC, University of Reading, Reading, UK (anthony.kettle@uea.ac.uk / Phone: +44
(0) 1603 592759)

Glass eel catches and FAO (Food and Agricultural Organisation) landings of the European freshwater eel (*Anguilla anguilla*) show a decrease over the past 20 years. The long term trends in the time series mask an interannual fluctuation, which becomes apparent on the application of a high-pass filter and autocorrelation analysis. Both the FAO landings and the glass eel catches show interannual fluctuations with a repeat period of 6–8 years, similar to the period of the North Atlantic Oscillation (NAO). Most glass eel catch monitoring stations are in phase. The glass eel catches show a significant negative correlation with the NAO lagged by 0–2 years, consistent with the hypothesis that the positive NAO phase has an adverse impact on the larval survival in and migration from the Sargasso Sea spawning location, one year prior to the arrival of the glass eels in Europe and North Africa. The FAO landings can be divided into two groups of different phase that have an approximate correspondence to the NAO dipole in winter rainfall in Europe and North Africa. One group comprises Norway, Sweden, Denmark, The Netherlands, the United Kingdom, Morocco, and Tunisia, and the other group comprises France, Ireland, Italy, Poland, Portugal, Spain, and Turkey. At least for the interannual fluctuations, the success of the glass eel fishery (and eel recruitment) is decoupled from the number of migrating silver eels in northern Europe.