

{rokbox title=|Map of the changes in spatial occurrence per species identified by the presence–absence analysis :: Image: Authors|
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Alan Ronan Baudron, Thomas Brunel, Marie-Anne Blanchet, **Manuel Hidalgo**, Guillem Chust, Elliot John Brown, Kristin M. Kleisner, Colin Millar, Brian R. MacKenzie, Nikolaos Nikolioudakis, Jose A. Fernandes and Paul G. Fernandes, 2020.

[Changing fish distributions challenge the effective management of European fisheries.](#)

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Abstract: Changes in fish distribution are being observed across the globe. In Europe's Common Fisheries Policy, the share of the catch of each fish stock is split among management areas using a fixed allocation key known as 'Relative Stability': in each management area, member states get the same proportion of the total catch each year. That proportion is largely based on catches made by those member states in the 1970s. Changes in distribution can, therefore, result in a mismatch between quota shares and regional abundances within management areas, with potential repercussions for the status of fish stocks and the fisheries that depend on them. Assessing distribution changes is crucial to ensure adequate management and sustainable exploitation of our fish resources. We analysed scientific survey data using a three-tiered analytical approach to provide, for the first time, an overview of changes in distribution for 19 northeast Atlantic fish species encompassing 73 commercial stocks over 30 yr. All species have experienced changes in distribution, five of which did so across management areas. A cross-species analysis suggested that shifts in areas of suitable thermal habitat, and density-dependent use of these areas, are at least partly responsible for the observed changes. These findings challenge the current use of relative stability to allocate quotas.

Keywords: density-dependence, fish distribution, fisheries management, relative stability, suitable habitat, warming seas