EGU21-5101
https://doi.org/10.5194/egusphere-egu21-5101
EGU General Assembly 2021

Potential application of decadal prediction for Irish fisheries

Catherine O'Beirne[1], Louise Vaughan[2,3], Vimal Koul[4,5], and André Düsterhus[1]
[1]Irish Climate Analysis and Research UnitS (ICARUS), Department of Geography, Maynooth University, Maynooth, Ireland (catherine.obeirne.2018@mumail.ie)
[2]Marine and Freshwater Research Centre, GMIT Galway Campus, Dublin Road, Galway, Ireland
[3]Newport Research Facility, Marine Institute, Furnace, Newport, Co. Mayo, Ireland
[4]Institute of Coastal Systems Analysis and Modeling, Helmholtz-Zentrum Geesthacht, Germany
[5]Institute of Oceanography, Center for Earth System Research and Sustainability, Universität Hamburg, Hamburg

The Irish sea food sector and the associated planning and managing of the fisheries sector is of great importance for the Irish economy. In decadal climate prediction the North Atlantic has already shown significant prediction skill for initialized predictions. However, making them applicable for a wider community is a challenge. For this a better understanding of the North Atlantic mechanisms, like the sub-polar gyre (SPG) is essential, as those systems have higher predictability as the local environmental factors for the fish themselves.

Primary focus is the investigation of the environmental impact factors for the target species and the capability of the decadal prediction system to predict them. Besides the usual variables, like surface temperature (SST) or surface salinity, it is important to take a look at their predictability in the depth. Further analysis would then allow to investigate how this predictability can be increased by mechanisms acting on a larger scale. A final step will be to tailor the predictions for the Irish fisheries sector.

In this contribution, we will show how the decadal prediction system based on the Max Planck Institute Earth System Model (MPI-ESM) is able to predict oceanographic variables like temperature and salinity in the North East Atlantic. This will allow us to get an insight into the potential predictability of important species for the Irish fisheries sector, and with it the possibility for improving the current fish stock management systems in Ireland.