

EGU2020-8658

<https://doi.org/10.5194/egusphere-egu2020-8658>

EGU General Assembly 2020

© Author(s) 2020. This work is distributed under the Creative Commons Attribution 4.0 License.



Geological data incorporation into an opportunities model for Irish offshore wind energy to inform engineering considerations and habitat change potential

Jared Peters^{1,2}, Ross O'Connell², Andrew Wheeler^{1,3}, Valerie Cummins^{1,2}, and Jimmy Murphy²

¹School of Biological, Earth and Environmental Sciences, University College Cork, Cork, Ireland (jared.peters@ucc.ie)

²Environmental Research Institute, MaREI Research Centre for Energy, Climate and Marine, University College Cork, Cork, T23 XE10, Ireland

³Irish Centre for Research in Applied Geosciences, University College Cork, Ireland

The implications of climate change are becoming harder to ignore and highlight the need for increased renewable energy production. Simultaneously, technological developments like larger turbines and floating foundations are improving our ability to harvest offshore wind energy as a renewable resource. However, despite having an abundant offshore wind energy resource, Ireland is falling behind on its remit to reduce its carbon emissions as part of the European Union's targets outlined by the 2030 Climate and Energy Framework. Reducing this inaction is critically important and improvements to Irish renewable energy planning could also be adapted to other locations. Here we present spatial data rasters created largely from public datasets that have been designed to improve initial planning and opportunities assessments for Irish offshore wind development. These rasters include information on surficial sediment types, geomorphology, and slope, which are typically not included in preliminary offshore renewable energy assessments despite their importance to turbine foundation designs, scour protection measures, and cable routes. Furthermore, these rasters allow fundamental predictions on potential benthic habitat changes to be included into site selection models, which could help avoid economically and/or environmentally costly development decisions. We examine potential uses for these rasters within a multi-criteria decision analysis and discuss the implications of incorporating such geological data during early investigations.

How to cite: Peters, J., O'Connell, R., Wheeler, A., Cummins, V., and Murphy, J.: Geological data incorporation into an opportunities model for Irish offshore wind energy to inform engineering considerations and habitat change potential, EGU General Assembly 2020, Online, 4–8 May 2020, EGU2020-8658, <https://doi.org/10.5194/egusphere-egu2020-8658>, 2020