



# Whitaker Institute Policy Brief Series

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**Cluster:** Socio-Economic Marine Research Unit (SEMRU)

**Theme:** Sustainable and Inclusive Societies

**Further Reading:** Hynes, S., O'Donoghue, C., Burger, R., O'Leary, J., 2021. Spatial Microsimulation for Regional Analysis of Marine Related Employment, *Journal of Ocean and Coastal Economics*, 8(2), Art. 4. DOI: <https://doi.org/10.15351/2373-8456.1149>

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## Examining the spatial distribution of marine employment

In order to examine the spatial distribution of marine industry employment, the study makes use of an existing spatial microsimulation model for the general Irish population; the SMILE (Spatial Microsimulation Model of the Irish Local Economy) model. SMILE is a static spatial microsimulation model designed to simulate regional welfare, income, and labour distributions in Ireland and thus provide a basis for regional economic and public policy analysis. Linking marine enterprise data, county level marine industry employment statistics and Census of Population place of work data allows for the analysis of policy change impacts on regional employment, at different spatial scales. The model was used to carry out a micro-level regional assessment of the impact of the Covid-19 pandemic restrictions on the distribution of employment in the Irish ocean economy.

### Research Findings

Analysis of overall marine industry employment at the electoral district (ED) spatial scale suggests that there are clusters of marine related employees in areas close to the major ports in the northwest, southwest, and southeast of Ireland. The simulated employment by marine industry suggests that the residency of those employed in industries that require direct contact with the sea such as fisheries, aquaculture, and oil and gas exploration are very concentrated in coastal areas. However, industries such as marine advanced tech, marine manufacturing and marine bio-tech display a much greater spatial distribution. Seafood processing and sea fisheries workers were, as expected, located close to the major fishing ports. The study also examined the proportional reduction in ocean economy employment in May 2020 due to the Covid-19 crisis. This was achieved using county and sectoral level statistics on those in receipt of the Covid-19 Pandemic Unemployment Benefit from the the Irish Department of Employment Affairs and Social Protection. Similar to the wider economy, the customer-facing industries of the ocean economy, such as marine tourism and leisure services and marine retail, were found to be the most affected by the measures implemented by the Irish Government to contain the pandemic at that time. Counties in the west of Ireland were particularly affected due to the fall in marine tourism activity with 60% reductions observed in popular coastal tourism and leisure areas, such as west Cork, Kerry, Galway, Mayo, and Donegal. The marine manufacturing, construction, and engineering sector saw relatively low rates of COVID unemployment while the marine renewable energy sector was among the least affected by the COVID pandemic, based on the microsimulation results.

### Policy Implications

If sustainable blue growth is to be achieved effectively, then there is a need for tools that can analyse the impact of policy change on the ocean economy. The spatial microsimulation approach allows the analyst to add a spatial dimension to impact assessments of the ocean economy at a local district, household, or individual-level. The ability to predict the impact of social and economic policies at micro- and macro-levels is especially useful for the ocean economy which has industries (such as marine tourism or fisheries) that can dominate rural areas. The use of such spatial microsimulation approaches can facilitate a more evidence based policy response to an economic shock, such as the Covid-19 pandemic, in terms of industry and regional specific supports and can also inform more effective marine spatial planning.