



Simulating the dispersal of non-native species within the context of ocean energy

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The introduction, spread, and establishment of non-native species, facilitated by the continued expansion of global trade and transportation networks, presents one of the biggest global threats to biodiversity and ecosystem functioning. Ports and marinas are particularly susceptible to the introduction of non-native species owing to the lack of boundaries in our oceans and coastal seas, and the free movement of commercial and recreational vessels, which transport non-native organisms in their ballast waters and as fouling on their hulls. Further, the development of offshore wind farms and wave/tidal energy structures present further hard substrate at potentially strategic locations (e.g. high energy well mixed environments), that could further facilitate the spread of non-native species. Within the context of climate change (sea-level rise and changing weather patterns), it is important that we understand now, and put in place tools, to establish the dispersal pathways of non-native species, including the development of rapid response tools.

Within the European ECOSTRUCTURE project, we are developing a range of modelling methodologies to simulate the dispersal of non-native species in the Irish Sea - a region that is strategically important for ocean energy. In the presentation, we shall outline these modelling methodologies, including comprehensive coverage of the selected models and model settings, datasets for model forcing and, importantly, methods of validating the dispersal of marine organisms in the marine environment. We also outline the development of a rapid-response tool that could be used by stakeholders to coordinate response to non-native species in the marine environment.