Typ: Poster

Towards a Digital Twin of Oyster-Pathogen Dispersal in the North-Sea Region?

The dispersal of marine pathogens is governed by a combination of physical processes such as Lagrangian transport with the ocean currents, and biological processes such as the development of either pathogens or host specimens based on ambient conditions, or local population dynamics. The processes governing pathogen dispersal can be described in terms of different parameters. In general, the simulation of such coupled systems requires separate simulation runs for each combination of parameters and the generalisation to un-simulated parameter values is not possible. However, for parameters which do not influence the pathway of a specimen through the ocean, we can re-formulate the problem in terms of aggregated statistics of Lagrangian transports and evaluate different values of biological parameters without re-evaluating the Lagrangian transport. Our poster shows the application of these ideas to different dispersal vectors of the oyster pathogen bonamia ostreae (via free pathogens or via infected larvae) and for different scenarios of underway development of the specimens in the North-Sea region. We also discuss how to present simulations of oyster pathogen dispersal for different bio-physical parameters and for different regional configurations to non-expert stakeholders.

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