

# High-fidelity resource modelling: a unified approach for tidal and wind energy assessment

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Through the use of computational fluid dynamics, numerical models of tidal turbines and offshore wind farms have now evolved to the stage where they can study prospective deployments from both engineering and environmental perspectives. Not only can such models examine in detail the performance of each turbine in an array of devices, they can inform estimates of reliability and environmental impact assessments too. These types of computer simulation get closer to a ground truth than has been possible previously.

This presentation will discuss work by the author and others in the development CoastED and WATTES, software that has been used for tidal and wind farm simulations. It will detail their application to tidal turbines and tidal sites within the Bay of Fundy, and demonstrate how such modelling can be used to assess biological impacts to fish species and other marine fauna. Finally, it will address how these techniques can be cross-applied to wind farms - all while producing detailed engineering diagnostics critical for economic assessment.