



Tethys Webinar on Environmental Impact of Marine Renewable Energy Systems

Large scale interactive coupled modelling of environmental impacts of marine renewable energy farms (LINC)

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Predicting environmental impacts of marine renewable energy farms



Impact assessment
are:

- Time consuming
- Reactive
- Costly
- Test for null hypothesis of absence

The Partners



Wave, tidal and ecological modelling using Mike 21, wave tank and full scale tidal stream expertise, strong background in EIA



Developers of Fluidity-ICOM, developer of ocean scale circulation model, collaboration with tidal stream developer



Key agency in UK for research in EIA, strong expertise in wind farm development, fisheries ecology and general ocean & coastal ecology

+ stakeholder such as device developers, site developers, consultant & regulators

Large scale interactive coupled modelling of environmental impacts of marine renewable energy farms (LINC)

- Demonstrate the ability to numerically model the change in ambient hydrodynamics resulting from the installation of wave and tidal device arrays
- To couple the model output to ecological models to predict the changes in benthic habitats and dynamics, plankton growth and fish communities

Approach:



Exploitation of different modelling approaches using 2 and 3D modelling.

Software:

- MIKE (DHI)
- Fluidity-ICOM (Imperial College Ocean Model)
- GOTM (General Ocean Turbulence Model)
- ERSEM (European Regional Seas Ecosystem Model)



Two major advantages of using this approach

1. Output of results are not model specific
2. Development of open source tools to be enjoyed by the wider community

Approach cont'd

Hydrodynamic modelling

Particle Tracking

Biogeochemistry models

NPZD (Nutrient, Phytoplankton Zooplankton, Detritus) models

Hydroacoustic modelling

Developing a Web-Based Application

Assessing benthic distribution

Your questions please!

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